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# Environmental Performance Feedback and Timing of Reshoring: Perspectives from the Behavioural Theory of the Firm

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**The behavioural theory of the firm (BTOF) claims that firms' performance feedback is significant for strategic decision-making. Building upon this, we shift our focus from the widely researched topic of financial performance to sustainability performance. We theorize that firms' environmental performance feedback (i.e. performance relative to aspirations) influences their reshoring decisions. Based on a sample of publicly traded manufacturing multinational enterprises (MNEs) from 15 developed countries, we find that firms with below-aspiration environmental performance (BEP) are slower to engage in reshoring activity. In contrast, firms with above-aspiration environmental performance (AEP) are quicker to engage in reshoring. Moreover, we substantiate the moderating role of financial performance feedback: positive financial performance feedback enables firms with higher BEP to engage in reshoring activity even more slowly. Nevertheless, the moderating role of positive financial performance feedback has not been confirmed in the relationship between higher AEP and the timing of reshoring.**

## Introduction

It is increasingly common for Western manufacturing firms to relocate their offshore production processes from less-developed economies back to their home country (Eurofound, 2019; The Economist, 2013). This phenomenon of reshoring, which can be broadly defined as 'the return of manufacturing and service operations from previously offshored location to the headquarters' country' (Brandon-Jones *et al.*, 2017, p. 31), has been a subject of increasing interest among management scholars, practitioners and policymakers. There is a substantial body of literature discussing the determinants of firms' reshoring activity from external country-level perspectives (Baraldi *et al.*, 2018; Delis, Driffield and Temouri, 2019; Rasel *et al.*, 2020). However, less is known about the internal firm-level factors that govern firms' reshoring activity.

From the firm perspective, the first gap in the extant reshoring literature is that environmental performance has not received sufficient attention, despite being an important motivation for reshoring (Fratocchi and Di Stefano, 2019; Orzes and Sarkis, 2019). Although firms obtain cost advantages from offshoring, sustainability issues such as environmental pollution have been increasingly visible in offshore production, especially when undertaken by foreign subsidiaries (Li and Zhou, 2017). For instance, Zhang *et al.* (2020) found that some manufacturing multinational enterprises (MNEs) headquartered in developed countries transfer their carbon emissions to China, where emissions control policies are less strict.

In addition, firms' foreign subsidiaries are increasingly under scrutiny from environmental, social and governance (ESG) rating agencies, which are taking a more holistic approach to evaluate MNEs (Jiang, Jung and Makino, 2020). Offshoring has now become a risk for MNEs, as the resulting environmental sustainability controversies can be detrimental to MNEs' legitimacy. Therefore, some firms have embraced reshoring, prioritizing environmental considerations over traditional cost advantages (Ashby, 2016; Delis, Driffield and Temouri, 2019). For example, leading apparel firms, such as Nike and Ralph Lauren, have leveraged advanced technologies (e.g. automation) and reconfigured their supply chains to promote sustainability (Moore, Rothenberg and Moser, 2018). By doing so, they can more effectively monitor the environmental footprint of production and transportation in shortened supply chains.

In addition, to the best of our knowledge, there is a limited understanding of the timing of reshoring (i.e. the earliness or lateness of reshoring activity), which is an integral aspect of reshoring decisions. Indeed, the international business literature has long emphasized the importance of the timing of some strategic practices, such as geographic expansion (Chung, Chen and Hsieh, 2007; Fuentelsaz and Gómez, 2006), new market entry (Gielens and Dekimpe, 2007; Koçak and Özcan, 2013; Mohr *et al.*, 2014) and outsourcing (Yao *et al.*, 2010). This is because firms can obtain a first-mover advantage by adopting certain practices early (Boulding and Christen, 2001). In the present case, earlier reshoring can enable MNEs to develop more resilience towards supply chain disruptions caused by COVID-19, considering that reshoring is a long-term project. As such, this study aims to respond to the calls for research by Orzes and Sarkis (2019) and Gupta, Wang and Czinkota (2021), by explicitly answering the following question: What is the relationship between environmental performance and the timing of reshoring?

The BTOF provides an appropriate lens to investigate the drivers of reshoring from the perspective of environmental sustainability. The central tenet of this theory is that firms' strategic practices are guided by performance comparisons with their aspirations, which are determined by their historical performance and the performance of their social peers (i.e. competitors in the same industry; Cyert and March, 1963; Shinkle, 2012). In light of this theory, we argue that environmental performance feedback (relative to aspirations) affects MNEs' reshoring decisions. Specifically, the more an MNE exhibits below-aspiration environmental performance (BEP), the later it engages in reshoring activity; conversely, the more an MNE exhibits above-aspiration environmental performance (AEP), the earlier it engages in reshoring. Moreover, although environmental performance feedback can motivate firms to engage in reshoring activity at different speeds, financial performance feedback moderates the influences of environmental performance feedback. The reason behind this is that the costs associated with reshoring are high, so the financial performance feedback will either strengthen or weaken the impact of environmental performance feedback on the timing of reshoring. We argue that the timing of a firm's decision-making will not only be influenced by single-performance feedback, but interactions between the feedbacks of performances from different aspects.

To empirically validate the theoretical claims above, we compile a dataset by collecting data on 1216 publicly traded manufacturing MNEs and their foreign subsidiaries from ORBIS. We then merge this data with environmental performance data from Thomson Reuters ASSET4. Consistent with our predictions, firms with AEP or BEP engage in earlier or later reshoring activity, respectively. Our empirical results also demonstrate the interaction of financial performance feedback: positive feedback may weaken the environmental underperformers' search practice, extending the timing of reshoring.

This study contributes to the literature in several ways. First and foremost, we incorporate the timing of strategy adoption into BTOF and find that early or late strategic responses (e.g. reshoring) can be triggered by BEP or AEP. By doing so, we extend the BTOF and theorize the timing as a crucial factor determined by performance feedback (Greve, 2008; Iyer and Miller, 2008). Second, we shift our focus from financial performance, which has been thoroughly explored in the literature, to environmental performance. Our analysis confirms that organizational responses also apply to environmental performance feedback. In addition, we point out that financial performance feedback can interact with environmental performance feedback and affect the timing of strategic

practices (Shinkle, 2012). Third, we respond to the call by Orzes and Sarkis (2019) by studying the underexplored relationship between environmental sustainability and reshoring. As a result, our research complements the existing understanding of the drivers of reshoring from the perspective of sustainability (McIvor and Bals, 2021). Moreover, from a practical point of view, our findings suggest that reshoring is closely associated with the corporate sustainability agenda. Indeed, managers should consider reshoring as a solution to further improve environmental performance, thus aligning their firms with the goals established by the UN Climate Change Conference in Glasgow (COP 26).

The remainder of this paper is structured as follows. The next section reviews the reshoring literature and explains the paper's theoretical background and the hypotheses derived from it. The third section delineates the research methodology and the overall study design, and we present the empirical results in the fourth section. Finally, we discuss the paper's key findings, contributions, implications and limitations in the fifth section.

## Theoretical background and literature review

### *Behavioural theory of the firm*

From the perspective of the BTOF, it is the discrepancy between aspiration and performance that guides the strategic behaviour of firms (Fiegenbaum, Hart and Schendel, 1996). Cyert and March (1963) indicate that organizational action is determined by comparing realized goal variables to their aspirational levels. Goal variables refer to the aspiration level of measurable organizational outcomes, while the realized outcome of a goal variable is known as performance (Greve, 2008). Organizational aspirations are a key element in this theory; these can be defined as the desired performance levels for specific organizational outcomes and have also been called strategic reference points (Shinkle, 2012). Based on BTOF, a failure to reach an aspirational level may lead to a search for actions to improve firm performance (Cyert and March, 1963). Such searches for alternative solutions to respond to unsatisfactory performance have also been called 'problemistic searches'. On the other hand, when organizational performance is above the aspirational level, companies tend to 'stay the course' and build up slack resources (Titus, O'Brien and Dixit, 2021).

The extant research has explicitly linked performance feedback to organizational innovation, such as new product innovation (Parker, Krause and Covin, 2017), innovation search (Yu, Minniti and Nason, 2019) and R&D intensity (Xu, Zhou and Du, 2019). Recently, some scholars have asserted that performance feedback also accounts for firms' internationalization strategy (Jiang and Holburn, 2018; Ref *et al.*, 2021). Despite the risks and uncertainties, international expansion to obtain global economies of scale or exploit a new growth area can be considered a managerial response to performance feedback. For instance, Lim (2019) finds that firms are more likely to enter a new foreign market when their financial performance falls short of the aspirational level. Additionally, firms' international location – an integral aspect of internationalization strategies – can also be affected by firms' performance feedback, since appropriate location choices can help firms reduce the liabilities of foreignness (Hutzschenreuter and Harhoff, 2020). Hence, it is reasonable to argue that performance feedback can explain firms' international location choices, including their offshoring and reshoring strategies.

The majority of the current BTOF research focuses on scrutinizing organizational aspirations through financial performance (e.g. Titus, O'Brien and Dixit, 2021; Yu, Minniti and Nason, 2019). Therefore, scholars argue that it is still an open question whether the assumptions of BTOF can be applied to other types of organizational performance (Parker, Krause and Covin, 2017). As Shinkle (2012) suggested, 'aspirations are certainly not limited to financial performance' (p. 435). Nevertheless, it remains unknown whether firms respond to sustainability performance feedback in the same way they respond to financial performance feedback.

Firms' international location choices offer a good setting to test the effect of sustainability performance feedback because they may reflect both firm's financial performance (García-Canal and Guillén, 2008) and their sustainability performance (Anvari and Turkay, 2017; Chen, Olhager and Tang, 2014). There is also an increasing awareness that offshore production has led to great environmental liabilities for MNEs' supply chains. Hence, environmental performance feedback may be a trigger factor in explaining firms' reshoring

activity. In the following subsections, we will review the prior literature on both environmental performance feedback and reshoring.

### *Environmental performance feedback*

Since the publication of *Silent Spring* in the early 1960s, firms have experienced increasing pressure to take the natural environment into consideration in their strategic decisions and routine operations. Some proactive firms have implemented strategic environmental investments and perform far better than is required by law, no matter whether they are motivated by moral responsibility (Ha-Brookshire, 2017) or instrumental benefit (Banerjee, 2002; Hart, 1995). However, other firms have exhibited a reactive attitude, investing less in pollution prevention; these firms have struggled to meet the minimum legal requirements (Bansal and Roth, 2000; Walls, Berrone and Phan, 2012). Therefore, their environmental performance varies substantially, and their practices range from the lower level of tactical compliance to the higher level of strategic planning. Here, we follow Duanmu, Bu and Pittman (2018, p. 3010), who define environmental performance as 'firms' curtailment of public "bad" in the form of environmental pollution beyond the level required by the law'. This definition acknowledges the minimum level of environmental performance that does not breach the relevant laws and regulations.

As suggested by the BTOF (Cyert and March, 1963), firms compare their performance levels with aspirational levels to adjust their strategies, which drive further changes in performance. Applied to the context of environmental performance, the market includes both environmental underperformers (i.e. realized performance level below aspirational level) and outperformers (i.e. realized performance level above aspirational level). Firms can therefore base their subsequent environmental investment decisions on this performance feedback (Kuusela, Keil and Maula, 2017; Shinkle, 2012). Although a few studies confirm the effect of environmental performance feedback on strategic choices, the effect differs slightly from that of financial performance feedback. For instance, in contrast to slack-driven search, firms with higher AEP are more likely to engage in more environmentally sustainable activities, such as increasing environmental expenditures (Xu and Zeng, 2021) and implementing sustainable production and sourcing (Shou *et al.*, 2020). Considering that an increased number of environmental controversies have occurred after offshoring (Li and Zhou, 2017), this study examines the underexplored area of environmental performance feedback by focusing on reshoring as a potential solution to such controversies.

### *Timing of reshoring activity*

Global supply chain management scholars have widely examined the geographical location of firms' business activities (Ellram, Tate and Petersen, 2013). The geographical locations of service and manufacturing facilities have significant cost and benefit implications for firms and their supply chains (Brandon-Jones *et al.*, 2017). Due to the dynamism of the global economy and (geo)politics, reshoring has become one of the most popular topics in international business. According to Ellram, Tate and Petersen (2013), the term can be defined as the strategic choice of 'moving manufacturing back to the country of its parent company' (p. 3). Reflecting companies' initiatives to move 'towards closer value chains' (Bailey, Corradini and De Propris, 2018), it describes the process of partially or fully relocating production functions that were previously offshored (Fratocchi *et al.*, 2014).

Scholars have made remarkable efforts to examine the factors that lead companies to initiate reshoring strategies (McIvor and Bals, 2021). On the one hand, external changes in both the home and host countries have been thoroughly explored as one of the key factors driving firms to begin reshoring (Ancarani *et al.*, 2021). For example, the loss of labour cost advantages from the offshored countries can be considered a push factor that explains why companies relocate their offshored business (Bailey, Corradini and De Propris, 2018), while incentives from the home countries can be considered pull factors (Fratocchi *et al.*, 2016). On the other hand, firms' internal strategic reconfigurations can also influence their reshoring decisions. For instance, some studies suggest that firms that aim to enhance product quality and brand image tend to shrink their supply chains (Bettiol *et al.*, 2017; Denning, 2013).

However, the literature on internal strategic reconfiguration misses an opportunity to explore the underlying reasons why firms may initiate such

strategic shifts. An increasing number of studies have pointed out the significant sustainability issues (e.g. pollution and modern slavery) that occur in offshore production (Meehan and Pinnington, 2021; Zhang *et al.*, 2020). Meanwhile, organizations, and especially large public firms, face mounting pressure from external stakeholders to address these issues. Alternatively, some firms may choose to adopt a more ethical leadership approach and assume a stewardship role in addressing sustainability issues in the supply chain (Ashby, 2016). As such, it is reasonable to argue that sustainability is a driver of the strategic reconfiguration of supply chains and networks, though it has been largely overlooked in the extant scholarship (Fratocchi and Di Stefano, 2019).

We also note that some studies have documented the relationship between reshoring and sustainability performance from a consequentialist perspective. Ancarani, Di Mauro and Mascali (2019), for example, argue that reshoring can enable firms to achieve technological upgrades in production. Improvements in production efficiency can greatly contribute to reductions in energy use and emissions. In an in-depth case study of UK firms in the textile industry, Ashby (2016) clarifies how sustainability performance can be improved via reshoring. This consequential evidence suggests that sustainability – or more specifically, worsening sustainability performance – might be a starting point for firms to consider reshoring.

Moreover, though reshoring is an important strategy to cope with external uncertainties, the timing of its initiation remains unexplored. The timing of strategic changes is a key factor in management and organization studies. In the absence of timely adjustment, evidence suggests that firms may enter a downward spiral from which they cannot escape (Barr and Huff, 1997; Hambrick, 1984). Moreover, international business scholars have widely discussed the role of timing in MNEs' international expansion (Hsu, Chen and Caskey, 2017). For example, Gaba, Pan and Ungson (2002) find that larger companies with greater levels of internationalization and economies of scope are more likely to enter the foreign market earlier. Entry timing also plays an important role in the competitiveness and performance of MNEs' foreign subsidiaries (Isobe, Makino and Montgomery, 2000). Surprisingly, to the best of our knowledge, the concept of timing has not been examined in the reshoring literature.

## Hypothesis development

### *Environmental performance feedback and the timing of reshoring*

*Below-aspiration environmental performance.* When firms have below-aspiration financial performance, they are more likely to engage in a problemistic search, such as adopting more risky strategies (Kotiloglu, Chen and Lechler, 2021). For example, Iyer and Miller (2008) argue that the more a firm's financial performance falls below aspirations, the more likely it is that the firm will initiate acquisitions. In parallel, when firms have BEP feedback, they are more likely to make strategic actions to address the shortfall. Shou *et al.* (2020) find that firms are more motivated to implement green supply chain management when they have intensive BEP. Similarly, reshoring could be one search strategy, since it can also lead to a range of environmental benefits to address the shortfall (Fratocchi and Di Stefano, 2019).

However, even though reshoring is a type of problemistic search, firms with BEP may engage in such a search more slowly. First, unlike financial performance, environmental performance is not a core area of competition that most manufacturing firms focus on, especially in the early period when institutional pressures for sustainable development are weak (Bansal, 2005). A shortfall in environmental performance may be considered a mere 'slight loss of legitimacy' without severe outcomes (Xue *et al.*, 2022, p. 3); in this case, firms' motivation for reshoring can be delayed. Second, the BTOF also indicates that firms tend to apply their existing knowledge to choose a relevant problemistic search (Cyert and March, 1963). Firms with higher BEP are less likely to be equipped with the skills and knowledge necessary to improve environmental sustainability from the perspective of supply chain management. Considering the organizational learning time, firms with larger BEP are more likely to delay engagement in reshoring as a type of problemistic search.

Third, as suggested by Yu, Minniti and Nason (2019), it takes time for an innovation search to reap financial benefits. Therefore, firms' innovation magnitude decreases in the early stage when facing below-aspiration financial performance. In a similar vein, reshoring could be a time-consuming means to achieve environmental benefits compared to other search strategies, such as end-of-

pipe control (Ashby, 2016; Sequeira, Hilletofth and Adlemo, 2021). Firms with higher BEP are more reluctant to immediately choose reshoring as a problemistic search. Instead, they may turn to more straightforward methods with immediate outcomes. Considering the above three reasons, we propose the following hypothesis:

H1: The more a firm has below-aspiration environmental performance, the slower it is to engage in reshoring activity.

*Above-aspiration environmental performance.* In contrast, the BTOF suggests that there will be a slack-driven response when firms have above-aspiration performance. Under this circumstance, decision-makers are more likely to shift away from the thinking pattern of problem-solving, choosing slack accumulation instead (Love and Nohria, 2005; Sharfman *et al.*, 1988). However, there is increasing evidence that positive performance feedback will not curtail firms' risk-taking behaviours (e.g. international expansion; Xie *et al.*, 2019). For instance, Baum *et al.* (2005) argue that investment banks are more likely to establish nonlocal partnerships, which are associated with higher risks when they achieve performance far above aspirations.

In the context of the choice of international location, we believe that firms engage in reshoring more quickly when they have AEP for the following two reasons. First, the further the firms' environmental performance is above their aspirations, the more the firm values sustainability principles in their business operations. As a result, these pioneer firms may face more intensive scrutiny and higher expectations from various stakeholders, including the media and sustainability non-governmental organizations (Nason, Bacq and Gras, 2018). Such firms will maintain a creative approach to ensure that sustainability can be implemented in every corner of their business, including offshore production processes in the longer supply chains of manufacturing firms. For example, General Electric re-established its manufacturing in the United States to make the world-leading GeoSpring water heater as early as 2012 (Denning, 2012). It turns out that increased energy efficiency can not only help firms sustain high environmental performance, but also decrease costs.

Second, firms with higher AEP are more likely to attribute superior performance to sustainable supply chain management. As a result, they are more likely to continue this strategy to retain their superior performance, thereby triggering reshoring to avoid potential environmental controversies from offshore production (e.g. emissions caused by long-distance transportation). Similar evidence can be found in the work of Shou *et al.* (2020), who show that manufacturing firms are more likely to implement sustainable production and sourcing when their environmental performance is greater than their aspirations.

Finally, firms with higher AEP have devoted substantial efforts to their domestic operations, such as environmental innovation. As a result, the environmental problems in the supply chain could be one of the few options available for them to achieve even higher performance. Also, reshoring is not an urgent response to improve environmental performance, since its implementation takes time (Ashby, 2016). Therefore, firms with AEP that hope to achieve even higher performance levels are more likely to engage in earlier reshoring to leave time for implementation. Hence, we propose the following hypothesis:

H2: The more a firm has above-aspiration environmental performance, the earlier it engages in reshoring activity.

### *Moderating effect of financial performance feedback*

Reshoring is a long-term investment that requires abundant financial resources to implement (Ashby, 2016; Baraldi *et al.*, 2018). Manufacturing firms may face exponentially increased labour costs when they bring back production from offshoring countries. More importantly, reshoring is not the mere transfer of previous production modes to the home country. Instead, it is inevitably associated with technological advancements, such as the adoption of Industry 4.0 (Ancarani, Di Mauro and Mascali, 2019; Pegoraro, De Propris and Chidlow, 2022). Such advancements also require financial support. As Shinkle (2012, p. 437) argues, 'there is potential for a specific aspiration to interact with, or moderate the influence of, another'. In line with this theoretical claim, we argue that although environmental performance feedback can affect the timing of reshoring, this relationship is also dependent on financial performance feedback.

In the context of positive financial performance feedback (i.e. greater aspiration-relative financial performance, ARFP), firms care less about the shortfall in environmental performance because they are financially rewarded by the market. Prior studies have suggested that firms with abundant financial slack have less motivation to engage in further problemistic search (Chen and Miller, 2007; Greve, 2008). Therefore, firms are less likely to initiate reshoring activity as a type of problemistic search to address shortfalls in environmental performance. As such, positive financial performance feedback may weaken environmental underperformers' problemistic search practice, thus extending the timing of reshoring. Hence, the following hypothesis can be postulated:

H3: Greater aspiration-relative financial performance enables firms with higher BEP to engage in reshoring activity even more slowly.

Firms with higher AEP are more motivated to engage in early reshoring to retain their good environmental reputation (Shou *et al.*, 2020). Moreover, when they receive positive financial performance feedback, these firms are more financially capable of initiating reshoring activity even more quickly. Cost barriers can also be reduced to a greater extent when making reshoring decisions after favourable performance feedback. In addition, executives are more likely to support and implement managerial performance for reshoring when they have positive performance feedback (Blagoeva *et al.*, 2020). Hence, positive financial performance feedback serves as a catalyst, speeding up high-AEP firms' implementation of reshoring. Therefore, the following hypothesis can also be posited:

H4: Greater aspiration-relative financial performance enables firms with higher AEP to engage in reshoring activity even more quickly.

## Methodology

*Data and sample*

The manufacturing industry provides a good research context to examine the proposed hypotheses concerning the timing of reshoring. We specifically focus on manufacturing MNEs (NACE two-digit code: 10–33) domiciled in 15 developed OECD countries[1] over the period 2013−2020. This is because the vast majority of these MNEs have relocated part of their value creation process to countries with significant cost advantages over the past decades (Bertrand, 2011; Mudambi and Venzin, 2010). This offshoring phenomenon is particularly evident in manufacturing firms, which seek cheaper labour and materials for production. Nonetheless, an increasing number of environmental sustainability issues (e.g. transferred carbon emissions) have been identified in the supply chain (Zhang *et al.*, 2020). These issues may pressure such manufacturing firms to consider reshoring. Moreover, compared to other destinations, the 15 OECD countries considered in this paper have witnessed a more significant reshoring movement (Ancarani, Di Mauro and Mascali, 2019; Eurofound, 2019; Rasel *et al.*, 2020). Hence, manufacturing MNEs from these reshoring destinations offer an appropriate setting for testing our research hypotheses.

To identify firms that engage in reshoring, we follow the operationalization of reshoring employed by Delis, Driffield and Temouri (2019), combining parents' and subsidiaries' employment data. Specifically, the occurrence of reshoring in year t should meet two criteria: (1) a decrease in a foreign subsidiary's number of employees by no less than 10%[2] in year t−1 and (2) an increase in the parent's number of employees either in year t, t+1 or t+2. This measure is in line with the nature of reshoring, which is described as 'a significant reduction in subsidiaries' activities and an increase in parents' activities' (Delis, Driffield and Temouri, 2019, p. 636). For a more cautious measure, we restrict the primary operating industries of subsidiaries to manufacturing (NACE two-digit code: 10−33) and some non-financial service industries (NACE two-digit code: 58, 62, 63, 69, 70−74, 78 and 82). This step excludes subsidiaries that are established for accounting purposes.

We source MNEs' parent and subsidiary-level data from Bureau van Dijk ORBIS, which has been used extensively in previous studies on

[1]The countries include Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, the United Kingdom and the United States.

[2]In the robustness check, we relaxed and tightened the threshold of 10% for changes in the number of employees of one of the foreign subsidiaries.

MNEs' relocation decisions (e.g. Rasel *et al.*, 2020). We then obtain data on MNEs' environmental performance from Thomson Reuters ASSET4. Other country-level data are obtained from the World Bank and the Germanwatch. The final sample consists of 1216 unique, publicly listed manufacturing MNEs from 15 OECD countries.

### *Measures*

*Dependent variable.* The dependent variable (Reshoring) is the hazard rate of a reshoring event (i.e. the probability of reshoring) using event history modelling given that the event has not occurred before. We track MNEs' parent and subsidiary-level employment data from 2013 to 2020.[3] Then, we code each firm's reshoring status as a dichotomous variable that equals 1 if it meets the two criteria established in the last section, and 0 otherwise. Table 1 reports the distribution of MNEs that engage in reshoring across observation years (Panel A), host countries (Panel B) and two-digit NACE industries (Panel C). There is an increasing trend of firms engaged in reshoring events across the years of the study period. Additionally, firms headquartered in the United States accounted for the largest proportion of reshoring (52.88%), followed by the UK (9.00%), Sweden (7.33%) and France (6.56%).

*Independent variables.* Firms' environmental performance data is derived from Thomson Reuters' ASSET4, which is a world-leading data vendor specializing in ESG metrics. We evaluate MNEs' environmental performance using Reuters' environmental pillar score, which measures their management efforts to minimize impacts on the natural environment (Yan, Almandoz and Ferraro, 2021). The score considers the extent to which firms improve their resource efficiency, emissions reduction and eco-product or service design. Reuters has developed algorithms to collect firm-level ESG information and has trained specialized analysts to improve data accuracy through verification. The score ranges from 0 to 100, and higher values indicate good environmental performance.

The main explanatory variable in the present study is environmental performance feedback. Following the precedents of BTOF studies (e.g. Parker, Krause and Covin, 2017; Shou *et al.*, 2020; Xu, Zhou and Du, 2019), we employ the spline function to differentiate BEP and AEP based on the discrepancy between firms' realized and aspirational environmental performance levels. A firm becomes part of the BEP spline when the discrepancy value is less than zero and becomes part of the AEP spline when the value is greater than zero. In addition, we recoded non-positive values for the AEP spline, and non-negative values for the BEP spline, to zero. BEP is also reverse coded, with higher values denoting greater underperformance compared to aspiration. In so doing, we can include both AEP and BEP splines in the same model and observe their different effects on the timing of reshoring.

Aspirational environmental performance is crucial to determine BEP and AEP splines. BTOF studies suggest that aspirational performance levels are established based on social and historical aspirations (Goyal and Goyal, 2021; Shou *et al.*, 2020). Social aspiration is the median performance level within a reference group, normally within the same industry (two-digit NACE code in this study), whereas historical aspiration is a firm's past performance level. The final aspiration is estimated using a weighted combination of social and historical aspirations in the following equation, where the weight ranges from 0.1 to 0.9 with an increment of 0.1. After experimenting with nine different weight options, we chose 0.7, which yields the best model fit.

$$\begin{aligned}&\textit{Aspirational environmental sustainability}\\&\textit{performance}_{t-1} = \textit{weight} * \textit{industry median}\\&\textit{value of environmental sustainability}\\&\textit{performance}_{t-2} + (1 - \textit{weight}) * \textit{firm's}\\&\textit{environmental sustainability performance}_{t-2}\end{aligned}$$

Therefore, both AEP and BEP contain only positive values or zero. In both splines, greater values indicate greater overperformance or underperformance in environmental sustainability.

*Moderating variable.* We measure ARFP as the difference between firms' financial performance,

[3]The starting year of 2013 was selected because Orbis only provides observations for the last 10 years for normal institutional subscribers. Based on our definition of reshoring, we must use one year of prior employment data to determine the reshoring event, so our observation starts from the year 2014.

*Table 1. Distribution of reshoring across sample years and countries*

**Panel A. Reshoring event by firm-year**

| | Reshoring | | |
|---|---|---|---|
| Year | 0 | 1 | Total |
| 2014 | 611 | 306 | 917 |
| 2015 | 613 | 345 | 958 |
| 2016 | 596 | 408 | 1004 |
| 2017 | 635 | 440 | 1075 |
| 2018 | 717 | 424 | 1141 |
| 2019 | 637 | 515 | 1152 |
| 2020 | 568 | 563 | 1131 |
| Total | 4377 | 3001 | 7378 |

**Panel B. Reshoring event by firm-country**

| | Reshoring | | |
|---|---|---|---|
| Country | 0 | 1 | Total |
| Austria | 18 | 45 | 63 |
| Belgium | 50 | 54 | 104 |
| Germany | 335 | 182 | 517 |
| Denmark | 93 | 50 | 143 |
| Spain | 69 | 29 | 98 |
| Finland | 148 | 98 | 246 |
| France | 188 | 197 | 385 |
| Ireland | 78 | 95 | 173 |
| Italy | 87 | 40 | 127 |
| Netherlands | 121 | 94 | 215 |
| Norway | 58 | 40 | 98 |
| Portugal | 5 | 0 | 5 |
| Sweden | 379 | 220 | 599 |
| United Kingdom | 482 | 270 | 752 |
| United States | 2266 | 1587 | 3853 |
| Total | 3853 | 3001 | 7378 |

**Panel C. Reshoring event by firm-industry**

| | Reshoring | | |
|---|---|---|---|
| Industry | 0 | 1 | Total |
| 10 Food products | 194 | 105 | 299 |
| 11 Beverages | 40 | 50 | 90 |
| 12 Tobacco products | 18 | 17 | 35 |
| 13 Textiles | 46 | 35 | 81 |
| 14 Wearing apparel | 76 | 28 | 104 |
| 15 Leather and related products | 26 | 7 | 33 |
| 16 Wood and products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials | 16 | 10 | 26 |
| 17 Paper and paper products | 110 | 90 | 200 |
| 18 Printing and reproduction of recorded media | 45 | 48 | 93 |
| 19 Coke and refined petroleum products | 48 | 15 | 63 |
| 20 Chemicals and chemical products | 287 | 190 | 477 |
| 21 Basic pharmaceutical products and pharmaceutical preparations | 571 | 244 | 815 |
| 22 Rubber and plastic products | 86 | 79 | 165 |
| 23 Other non-metallic mineral products | 83 | 76 | 159 |

*Table 1. (Continued)*

**Panel C. Reshoring event by firm-industry**

| Industry | Reshoring | | Total |
|---|---|---|---|
| | 0 | 1 | |
| 24 Basic metals | 183 | 120 | 303 |
| 25 Fabricated metal products, except machinery and equipment | 131 | 138 | 269 |
| 26 Computer, electronic and optical products | 1118 | 709 | 1827 |
| 27 Electrical equipment | 179 | 111 | 290 |
| 28 Machinery and equipment n.e.c. | 478 | 457 | 935 |
| 29 Motor vehicles. Trailers and semi-trailers | 146 | 173 | 319 |
| 30 Other transport equipment | 123 | 138 | 261 |
| 31 Furniture | 45 | 18 | 63 |
| 32 Other manufacturing | 318 | 132 | 450 |
| 33 Repair and installation of machinery and equipment | 10 | 11 | 21 |
| Total | 4377 | 3001 | 7378 |

proxied by return on assets (ROA), and their aspirational financial performance. Similar to the aspirational performance level of environmental sustainability, aspirational financial performance is also estimated using a weighted combination of social aspiration (i.e. industry median ROA in two-digit NACE industry group) and historical aspiration (i.e. past ROA).

*Control variables.* We control for both country-level and firm-level factors that may affect the timing of reshoring. At the country level, we first control for national GDP growth (GDP) rate, since countries with slower GDP growth are more likely to encourage firms to bring back production to improve the economy (Grappi, Romani and Bagozzi, 2013); this data is sourced from the World Bank. Additionally, since countries with good climate change profiles are more reluctant to accept previously offshored productions, we control for national climate change performance (CCP). The national CCP data is from Germanwatch, which has published a national CCP index on an annual basis since 2005. This index evaluates a country's climate protection performance based on 14 indicators that cover four dimensions: GHG emissions, renewable energy, energy use and climate policy.

Moreover, at the firm level, we control for sustainable supply chain management (SSCM) using a dummy variable measure, since some studies suggest that sustainable supply chain policy can influence firms' reshoring activities (Ashby, 2016; Ellram, Tate and Petersen, 2013). As firms with a product quality controversy are more likely to engage in reshoring, we also control for product controversy (PRODUCT). In addition, we control for firm age (AGE), operationalized as the difference between the year of incorporation and the year of observation (Goyal and Goyal, 2021). We also control for firm size (SIZE), measured as the natural log of a firm's number of employees (Delis, Driffield and Temouri, 2019). Finally, to account for any unobserved factors from different industries and countries, we include an industry dummy using the two-digit NACE code (INDUSTRY) as well as a country dummy (COUNTRY; Rasel *et al.*, 2020).

### *Analytical approach*

We employ a survival analysis using a Cox proportional-hazards regression estimation to investigate the timing of reshoring. We selected this approach for three reasons. First, the Cox model does not make any assumptions about the baseline hazard rate and allows us to incorporate time-varying covariates into our estimation. Second, as it can specify the reshoring event and the duration required for the event to happen; this estimation is used extensively in studies explaining the timing of certain strategies (e.g. Hutzschenreuter and Harhoff, 2020; Kumar *et al.*, 2020; Shaw, He and Cordeiro, 2021). Third, by including the duration in the regression, the Cox model can handle right-censored data, such as when firms do not engage in reshoring events until the last year of observation.

*Table 2. Variable definitions*

| Variable | Label | Definition | Data source |
|---|---|---|---|
| Dependent variable | | | |
| $Reshoring_{i,t}$ | Hazard ratio of a reshoring event for each company i in year t | Dummy variable: 1 if the firm initiates reshoring event, 0 otherwise. We use two criteria: (1) a decline in employment (at least 10%) in one of the foreign subsidiaries at time t and (2) an increase in parent's employment at either time t, t+1 or t+2 to define the occurrence of the reshoring event | ORBIS |
| Independent variables | | | |
| $BEP_{i,t-1}$ | Below-aspiration environmental performance | Aspirational environmental performance minus firm's environmental performance<br>$Aspirational\ environmental\ performance_{t-1} = weight * industry\ median\ value\ of\ environmental\ performance_{t-2} + (1 - weight) * firm's\ environmental\ performance_{t-2}$ | ASSET4 |
| $AEP_{i,t-1}$ | Above-aspiration environmental performance | Firm's environmental performance minus aspirational environmental performance | ASSET4 |
| Moderating variables | | | |
| $ARFP_{i,t-1}$ | Aspiration-relative financial performance | Firm's ROA minus aspirational financial performance<br>$Aspirational\ financial\ performance_{t-1} = weight * industry\ median\ value\ of\ ROA_{t-2} + (1 - weight) * firm's\ ROA_{t-2}$ | Refinitiv Eikon |
| Control variables | | | |
| $GDP_{i,t-1}$ | National GDP growth | National GDP growth rate | World Bank |
| $CCP_{i,t-1}$ | National climate change performance | National scores for climate change performance | Germanwatch |
| $SSCM_{i,t-1}$ | Sustainable supply chain management | Dummy variable: 1 if the firm implements a sustainable supply chain management policy, 0 otherwise | ASSET4 |
| $PRODUCT_{i,t-1}$ | Product controversy | Dummy variable: 1 if the firm is engaged in a product quality controversy, 0 otherwise | ASSET4 |
| $AGE_{i,t-1}$ | Firm age | The difference between the firm's year of incorporation and the observation year | ORBIS |
| $SIZE_{i,t-1}$ | Firm size | The natural logarithm of the firm's number of employees | Refinitiv |
| $INDUSTRY_{i,t-1}$ | Industry dummy | Firm's primary operating industry (two-digit NACE code) | ORBIS |
| $COUNTRY_{i,t-1}$ | Country dummy | Firm's country of origin | ORBIS |

The model can be illustrated as follows:

$$\begin{aligned} h_i(t) &= h_0(t)\exp(\beta_0 + \beta_1\ BEP_{i,t-1} + \beta_2\ AEP_{i,t-1} \\ &+\beta_3\ BEP_{i,t-1} \times\ ARFP_{i,t-1} + \beta_4\ AEP_{i,t-1} \\ &\times\ ARFP_{i,t-1} + \beta_5\ GDP_{i,t-1} + \beta_6\ CCP_{i,t-1} \\ &+\beta_7\ SSCM_{i,t-1} + \beta_8\ PRODUCT_{i,t-1} \\ &+\beta_9\ AGE_{i,t-1} + \beta_{10}\ SIZE_{i,t-1} \\ &+\beta_{11}\ INDUSTRY_{i,t-1} \\ &+\beta_{12}\ COUNTRY_{i,t-1} + \varepsilon_{i,t}) \end{aligned}$$

where $h_i(t)$ represents the instantaneous hazard rate for firm i to engage in reshoring at time t, $h_0(t)$ represents the baseline hazard function and $\varepsilon_{i,t}$ is the random error term. As shown in the model, all the explanatory variables are lagged by one year. The unit of analysis is at the firm level. Missing values in the explanatory variables may lead to a decreased number of observations in the regression outcomes. Table 2 provides detailed definitions of all variables included in the model.

## Results

### *Main empirical results*

Table 3 provides descriptive statistics and a pairwise correlation matrix for all variables included in the empirical models. There is a negative correlation between BEP and reshoring, whereas reshoring is positively correlated with AEP. This offers initial evidence for H1 and H2.

We conduct a survival analysis using a Cox proportional-hazards regression and present the

*Table 3. Descriptive statistics and correlations*

**Panel A. Descriptive statistics**

| Variable | Mean | SD | Min | Max |
|---|---|---|---|---|
| 1. Reshoring | 0.407 | 0.491 | 0.000 | 1.000 |
| 2. Below-aspiration environmental performance | 3.869 | 7.395 | 0.000 | 70.735 |
| 3. Above-aspiration environmental performance | 12.184 | 14.934 | 0.000 | 85.998 |
| 4. Aspiration-relative financial performance | −1.253 | 38.729 | −137.032 | 3928.448 |
| 5. National GDP growth | 1.651 | 1.779 | −8.074 | 25.176 |
| 6. National climate change performance | 47.838 | 13.107 | 18.817 | 76.620 |
| 7. Sustainable supply chain management | 0.334 | 0.472 | 0.000 | 1.000 |
| 8. Product controversy | 0.063 | 0.243 | 0.000 | 1.000 |
| 9. Firm size | 6.057 | 2.488 | 1.386 | 10.282 |
| 10. Firm age | 30.368 | 32.021 | 1.000 | 159.000 |

**Panel B. Correlations**

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Reshoring | 1.000 | | | | | | | | | |
| 2. Below-aspiration environmental performance | −0.130* | 1.000 | | | | | | | | |
| 3. Above-aspiration environmental performance | 0.119* | −0.427* | 1.000 | | | | | | | |
| 4. Aspiration-relative financial performance | 0.052* | −0.056* | 0.105* | 1.000 | | | | | | |
| 5. National GDP growth | 0.030* | 0.042* | −0.063* | −0.025* | 1.000 | | | | | |
| 6. National climate change performance | −0.061* | 0.048* | −0.188* | −0.018* | −0.012* | 1.000 | | | | |
| 7. Sustainable supply chain management | 0.116* | −0.244* | 0.248* | 0.056* | 0.036* | 0.086* | 1.000 | | | |
| 8. Product controversy | 0.079* | −0.097* | 0.177* | −0.013 | −0.010 | 0.001 | 0.153* | 1.000 | | |
| 9. Firm size | 0.356* | −0.266* | 0.287* | 0.052* | 0.013* | −0.053* | 0.301* | 0.194* | 1.000 | |
| 10. Firm age | 0.120* | −0.042* | 0.030* | 0.033* | −0.022* | 0.180* | 0.150* | 0.094* | 0.349* | 1.000 |

*$p < 0.05$.

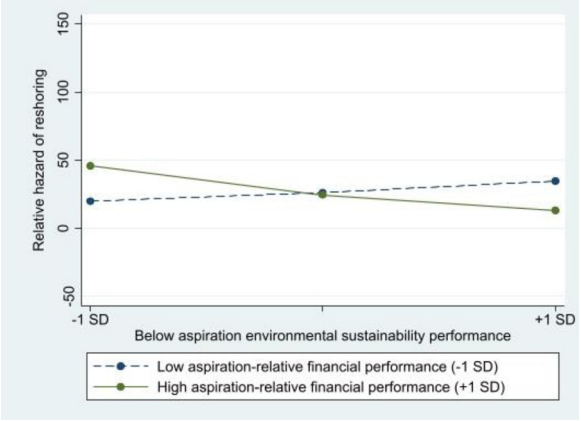


*Figure 1. Plot of interaction effects [Colour figure can be viewed at wileyonlinelibrary.com]*

results in Table 4. Model 1 includes all the control variables. We then introduce two independent variables, BEP and AEP, in Model 2. Models 3 and 4 separately display the interaction of BEP and AEP with the proposed moderator, ARFP. Model 5 is the full model, which simultaneously includes the control variables, two independent variables and two interaction terms. The variance inflation factor values for all the models range from 3.88 to 4.80, suggesting that multicollinearity does not distort our results (Table 4).

H1 and H2 predict that firms with greater BEP engage in reshoring more slowly, while firms with larger AEP are quicker to reshore. The coefficients of BEP are significant and negative in Models 2 to 5, offering consistent support for H1. This is because a negative coefficient (i.e. lower hazard ratio) indicates a longer time until a reshoring event occurs. In contrast, the coefficient of AEP is significantly positive from Model 2 to 5, confirming the prediction of H2.

H3 proposes that firms with larger BEP and ARFP engage in reshoring activity even more slowly. As shown in Table 4, the coefficients of BEP×ARFP are significantly negative in both Model 3 ($\beta = -0.002$, $p < 0.001$) and Model 5 ($\beta = -0.002$, $p < 0.001$). Moreover, we plot the interaction effect in Figure 1. H4 predicts that firms with larger AEP and ARFP engage in reshoring activity even more quickly. However, the results in Models 4 and 5 do not provide empirical support for this hypothesis. Hence, H4 is rejected, whereas H3 is empirically supported.

*Robustness check*

To ensure the reliability of our research findings, we perform several robustness checks. First, although we use the weight of 0.7 in calculating aspirational environmental performance because it achieves the best model fit, we also experiment with the other eight weight options and report the results of the full model in Table 5. As the weight increases from 0.1 to 0.9, the coefficients of BEP are consistently negative, and the coefficients of AEP are consistently positive. In addition, the interaction term BEP×ARFP is also significantly negative across different weight options, except for when the weight equals 0.1.

Second, we reconsider the threshold of decline (i.e. 10%) in the number of employees in one of the foreign subsidiaries in our definition of reshoring. As alternative measures of reshoring, we relax the threshold to 5% and tighten it to 15%. The results of the full model are reported in the first two columns of Table 6. In line with our main empirical findings, the coefficients of BEP and BEP×ARFP are significantly negative, while the coefficient of AEP is significantly positive.

Third, we consider return on equity (ROE) as an alternative measure of firms' financial performance. As shown in the third column of Table 6, the empirical support for H1–H3 also remains consistent.

## Discussion and conclusion

*Discussion of findings*

This paper investigates the effect of environmental performance feedback on the timing of firms' reshoring activity. We build upon the BTOF since it theorizes how firms respond to performance feedback by implementing certain strategic practices (Argote and Greve, 2007; Cyert and March, 1963; Greve, 2008; Shinkle, 2012). Our findings first reveal that firms with greater BEP are slower to engage in reshoring. This contrasts with the problemistic search logic led by financial performance feedback. This is primarily because environmental performance is not given equal importance to financial performance feedback, especially in the early period when institutional pressures for sustainable development are weak (Bansal, 2005). As a firm's shortfall in environmental sustainability may not hurt the organization to

*Table 4. The effect of environmental performance feedback on the timing of reshoring*

| Variables | (1) Model 1 | (2) Model 2 | (3) Model 3 | (4) Model 4 | (5) Model 5 |
|---|---|---|---|---|---|
| National GDP growth | 0.026 | 0.034 | 0.033 | 0.033 | 0.031 |
| | (0.024) | (0.025) | (0.024) | (0.025) | (0.025) |
| National climate change performance | −0.005 | −0.001 | −0.003 | −0.002 | −0.003 |
| | (0.009) | (0.010) | (0.010) | (0.010) | (0.010) |
| Sustainable supply chain management | −0.018 | −0.070 | −0.041 | −0.049 | −0.078 |
| | (0.098) | (0.107) | (0.104) | (0.107) | (0.107) |
| Product controversy | 0.098 | 0.054 | 0.069 | 0.079 | 0.049 |
| | (0.150) | (0.153) | (0.151) | (0.155) | (0.154) |
| Firm size | 0.396*** | 0.322*** | 0.358*** | 0.341*** | 0.333*** |
| | (0.046) | (0.065) | (0.065) | (0.064) | (0.065) |
| Firm age | 0.003* | 0.003* | 0.003* | 0.002+ | 0.002+ |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Aspiration-relative financial performance | −0.001 | −0.002 | 0.005 | −0.003 | 0.008 |
| | (0.005) | (0.007) | (0.007) | (0.009) | (0.009) |
| Below-aspiration environmental performance (BEP) | | −0.021* | −0.031*** | | −0.025** |
| | | (0.008) | (0.008) | | (0.009) |
| Above-aspiration environmental performance (AEP) | | 0.009* | | 0.014*** | 0.009* |
| | | (0.004) | | (0.004) | (0.004) |
| BEP × Aspiration-relative financial performance | | | −0.002*** | | −0.002*** |
| | | | (0.000) | | (0.000) |
| AEP × Aspiration-relative financial performance | | | | 0.000 | −0.000 |
| | | | | (0.000) | (0.000) |
| Industry dummy | Yes | Yes | Yes | Yes | Yes |
| Country dummy | Yes | Yes | Yes | Yes | Yes |
| Test of proportional-hazards assumptions (p value) | Pass | Pass | Pass | Pass | Pass |
| VIF | 3.88 | 4.80 | 4.73 | 4.69 | 4.71 |
| Observations | 3900 | 2463 | 2463 | 2463 | 2463 |

Note: This table reports coefficients rather than hazard ratios. Robust standard errors, clustered at the firm level, are reported in parentheses. The weight used for defining the aspirational performance level is 0.7.
***p < 0.001, **p < 0.01, *p < 0.05, +p < 0.10.

*Table 5. Robustness check – different weight options*

| Variables | (1) wt = 0.1 | (2) wt = 0.2 | (3) wt = 0.3 | (4) wt = 0.4 | (5) wt = 0.5 | (6) wt = 0.6 | (7) wt = 0.7 | (8) wt = 0.8 | (9) wt = 0.9 |
|---|---|---|---|---|---|---|---|---|---|
| National GDP growth | 0.034 | 0.033 | 0.032 | 0.032 | 0.031 | 0.031 | 0.031 | 0.031 | 0.031 |
| | (0.025) | (0.025) | (0.025) | (0.025) | (0.025) | (0.025) | (0.025) | (0.025) | (0.025) |
| National climate change performance | −0.003 | −0.003 | −0.003 | −0.003 | −0.003 | −0.003 | −0.003 | −0.003 | −0.003 |
| | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) |
| Sustainable supply chain management | 0.009 | −0.015 | −0.038 | −0.055 | −0.067 | −0.074 | −0.078 | −0.080 | −0.081 |
| | (0.103) | (0.104) | (0.104) | (0.105) | (0.106) | (0.106) | (0.107) | (0.107) | (0.107) |
| Product controversy | 0.108 | 0.090 | 0.076 | 0.065 | 0.057 | 0.052 | 0.049 | 0.048 | 0.047 |
| | (0.150) | (0.150) | (0.151) | (0.151) | (0.152) | (0.153) | (0.154) | (0.154) | (0.155) |
| Firm size | 0.381*** | 0.367*** | 0.356*** | 0.347*** | 0.340*** | 0.335*** | 0.333*** | 0.332*** | 0.332*** |
| | (0.063) | (0.064) | (0.064) | (0.064) | (0.065) | (0.065) | (0.065) | (0.065) | (0.065) |
| Firm age | 0.003* | 0.003* | 0.003* | 0.003* | 0.003* | 0.002+ | 0.002+ | 0.002+ | 0.002+ |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Aspiration-relative financial performance | −0.003 | 0.000 | 0.004 | 0.006 | 0.007 | 0.008 | 0.008 | 0.009 | 0.009 |
| | (0.008) | (0.009) | (0.009) | (0.009) | (0.009) | (0.009) | (0.009) | (0.008) | (0.008) |
| Below-aspiration environmental performance (BEP) | −0.036* | −0.042** | −0.041** | −0.037** | −0.033** | −0.028** | −0.025** | −0.023** | −0.020** |
| | (0.016) | (0.016) | (0.014) | (0.013) | (0.011) | (0.010) | (0.009) | (0.008) | (0.007) |
| Above-aspiration environmental performance (AEP) | 0.011* | 0.011* | 0.012* | 0.012* | 0.011* | 0.010* | 0.009* | 0.008* | 0.007* |
| | (0.005) | (0.006) | (0.006) | (0.005) | (0.005) | (0.005) | (0.004) | (0.004) | (0.003) |
| BEP × Aspiration-relative financial performance | −0.001 | −0.002+ | −0.003* | −0.002** | −0.002** | −0.002*** | −0.002*** | −0.001*** | −0.001*** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.000) | (0.000) | (0.000) |
| AEP × Aspiration-relative financial performance | 0.000 | −0.000 | −0.000 | −0.000 | −0.000 | −0.000 | −0.000 | −0.000 | −0.000 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.000) | (0.000) | (0.000) |
| Industry dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 2463 | 2463 | 2463 | 2463 | 2463 | 2463 | 2463 | 2463 | 2463 |

Note: This table reports coefficients rather than hazard ratios. Robust standard errors, clustered at the firm level, are reported in parentheses.
***p < 0.001, **p < 0.01, *p < 0.05, +p < 0.10.

*Table 6. Robustness check – alternative measure of reshoring and financial performance*

| Variables | (1) Relax decline 5% | (2) Tighten decline 15% | (3) ROE as financial performance |
|---|---|---|---|
| National GDP growth | 0.046* | 0.023 | 0.021 |
| | (0.020) | (0.026) | (0.026) |
| National climate change performance | 0.004 | 0.003 | −0.001 |
| | (0.011) | (0.010) | (0.010) |
| Sustainable supply chain management | −0.047 | −0.090 | −0.056 |
| | (0.103) | (0.109) | (0.106) |
| Product controversy | 0.050 | 0.177 | −0.034 |
| | (0.153) | (0.147) | (0.154) |
| Firm size | 0.261*** | 0.340*** | 0.305*** |
| | (0.064) | (0.067) | (0.063) |
| Firm age | 0.002 | 0.003* | 0.002+ |
| | (0.001) | (0.001) | (0.001) |
| Aspiration-relative financial performance | 0.014 | 0.002 | 0.002 |
| | (0.009) | (0.009) | (0.002) |
| Below-aspiration environmental performance (BEP) | −0.021** | −0.024** | −0.024** |
| | (0.008) | (0.009) | (0.008) |
| Above-aspiration environmental performance (AEP) | 0.008* | 0.009* | 0.009* |
| | (0.004) | (0.004) | (0.004) |
| BEP × Aspiration-relative financial performance | −0.002*** | −0.001* | −0.001*** |
| | (0.000) | (0.001) | (0.000) |
| AEP × Aspiration-relative financial performance | −0.000 | 0.000 | −0.000 |
| | (0.000) | (0.000) | (0.000) |
| Industry dummy | Yes | Yes | Yes |
| Country dummy | Yes | Yes | Yes |
| Observations | 2287 | 2631 | 2446 |

Note: This table reports coefficients rather than hazard ratios. Robust standard errors, clustered at the firm level, are reported in parentheses.
***p < 0.001, **p < 0.01, *p < 0.05, +p < 0.10.

a larger extent, they are less likely to initiate any changes in the short run. This is also consistent with Xue *et al.* (2022), who find that firms may not engage in environmental innovation when they experience such a shortfall in the short term.

Second, this study suggests that firms with larger AEP engage in reshoring activity more quickly. This is also slightly different from the slack search logic led by financial performance feedback. Firms with larger AEP have more reason to manage their good environmental reputations. Therefore, they are more likely to choose reshoring as a way to quickly address environmental controversies that occur due to offshoring. In addition, a surplus in environmental performance feedback can also enhance firms' confidence in initiating additional improvements. We can observe a similar finding from Shou *et al.* (2020), who report that firms are more likely to implement sustainable supply chain management if their environmental sustainability is above aspirations.

Moreover, we find that the relationship between environmental performance feedback and the timing of reshoring depends upon financial performance feedback. In other words, environmental feedback interacts with financial feedback, thereby affecting reshoring decisions. In the case of positive financial performance feedback (i.e. greater ARFP), firms with larger BEP engage in reshoring activity even more slowly. This provides new insights on the slack search when positive financial performance feedback interacts with negative environmental feedback. In particular, positive financial feedback gives firms with BEP sufficient reason to delay reshoring as a potential solution to address environmental controversies due to offshoring. This is also consistent with Shinkle's (2012, p. 437) viewpoint that 'aspirations have a priority in hierarchy'. However, we have not obtained empirical support when financial performance feedback interacts with AEP in affecting the timing of reshoring. This may sug-

gest that rapid reshoring, as an integral part of global operations management, is largely based on environmental performance feedback.

### *Theoretical contributions*

This study explicitly addresses the recent calls for research on reshoring and sustainable development goals (SDGs) by both Orzes and Sarkis (2019) and Gupta, Wang and Czinkota (2021). It makes significant contributions to scholarship on both the BTOF and reshoring. First, we contribute to the BTOF literature by shifting the focus from financial performance, which has been thoroughly examined (e.g. Chen and Miller, 2007; Xu, Zhou and Du, 2019; Yu, Minniti and Nason, 2019), to the less frequently investigated topic of sustainability performance. We provide alternative explanations on problemistic and slack search, which are predominantly built upon financial performance feedback. In this regard, we provide evidence that environmental performance feedback influences firms' strategic practices.

Second, we contribute to research on the BTOF by empirically examining the interaction of different aspirational goals (Chen and Miller, 2007; Cyert and March, 1963; Greve, 2003; Shinkle, 2012; Zhang and Gong, 2018). Firms have multiple aspiration dimensions, including shareholders and stakeholders (Ansoff *et al.*, 2018). Our results suggest that the relationship between environmental performance feedback and the timing of reshoring depends upon financial performance feedback. This is because reshoring is a long-term investment that can not only be motivated by environmental performance feedback, but also supported by financial performance feedback. These findings provide direct evidence that different aspirations can interact with each other to affect firms' decisions on certain strategic practices (Xu and Zeng, 2021).

Third, we contribute to BTOF by incorporating the timing factor into the behavioural consequences (Bowen, Rostami and Steel, 2010; Hambrick, 1984; Mohr *et al.*, 2014). The timing of strategy adoption is largely ignored in the BTOF scholarship (see Iyer and Miller, 2008 for an exception), although the international business literature has documented the crucial role of timing (Casillas and Moreno-Menéndez, 2014; Hutzschenreuter and Harhoff, 2020). Nevertheless, timing is an integral aspect of strategic practice from the perspective of decision-making. Therefore, our study shifts the focus from *whether* a firm adopts a strategy to *when* it adopts the strategy. By doing so, we extend the original BTOF framework by highlighting the underlying timing factor in the strategic practice triggered by performance feedback.

Fourth, we contribute to the understandings of the antecedents of reshoring (Baraldi *et al.*, 2018; Delis, Driffield and Temouri, 2019; Kinkel and Maloca, 2009; McIvor and Bals, 2021) in the nexus of the literature on operations management and international business. We concentrate on firms' environmental performance feedback, which may encourage firms to reconfigure their supply chain at different paces. Going beyond the thoroughly explored transaction cost considerations rooted in the international business literature, this study takes a step further to examine the underexplored relationship between environmental sustainability and reshoring practice (Orzes and Sarkis, 2019). We posit that reshoring can be used as a critical solution to deal with the increasing number of environmental sustainability issues (e.g. carbon emissions, water usage) occurring in the supply chain (Ashby, 2016). Our empirical evidence adds the internal perspective of sustainability as a potential driver, complementing previous understandings from external country-level perspectives (Delis, Driffield and Temouri, 2019).

### *Managerial and policy implications*

First and foremost, our study provides managers with evidence that, in addition to financial performance, environmental performance deserves managerial attention when making supply chain management decisions. The focus of performance assessments should not be confined to their own performance levels but also extend to competitors. As we confirm the role of environmental performance feedback in reshoring, this paper provides managers with an alternative decision-making logic (in addition to cost considerations) when reconfiguring their firms' supply chains.

Second, for policymakers in host countries, it is important to improve environmental regulation stringency if they have plans for industrial upgrading. Such regulations will elevate environmental aspirations within competitive industries, thereby forcing underperforming firms to bring environmentally polluting production facilities back to their home countries for subsequent

adjustment. For policymakers in home countries, the paper demonstrates that reshoring can be a solution for MNEs to improve environmental performance. There is a need for policy and government initiatives to support reshoring with a focus on environmental sustainability. This can also help countries align with the Paris Agreement and make progress in combating climate change, one of the UN SDGs, both nationally and, potentially, internationally. In the meanwhile, they should keep a closer watch on reshored production facilities, which may be associated with significant environmental problems if they are not supported with the necessary technological upgrades.

### *Limitations and future research agenda*

Despite the above-mentioned contributions and implications, our study has some limitations. First, our primary focus is on how environmental performance feedback interacts with financial performance feedback to affect decisions on reshoring from a behavioural perspective. Nonetheless, we have not captured the subjective perceptions of the relevant decision-makers, such as the chief executive officer and chief operations officer. Some psychological traits (e.g. hubris) may affect key decision-makers' perceptions of their organization's performance level (Arena, Michelon and Trojanowski, 2018; Shinkle, 2012). Hence, future research could explore the psychological process of perceiving performance shortfalls or surpluses. In addition, we have not considered some other aspects of reshoring decisions, such as reshoring scale (i.e. to what extent the firm will bring back offshored facilities) and reshoring scope (i.e. the diversity of the reshored products or services). Future research can examine if sustainability performance feedback can affect reshoring scale and scope. Finally, there is an increasing trend for service providers to engage in reshoring in addition to manufacturing firms (Albertoni *et al.*, 2017). Hence, our investigation could be extended across industry sectors in future studies.

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