



## Understanding fraudulent returns and mitigation strategies in multichannel retailing

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### ABSTRACT

The growth of online retailing has exceeded expectations over the last few years. This has resulted in high product return rates, which retailers are struggling with due to complex and costly returns processing, logistics, and financial implications. Additionally, online returns come with increased opportunities for returns fraud. During the pandemic, new types of returns fraud have emerged and returns fraud rates have increased across all channels. Based on a series of semi-structured interviews with retailers and retail experts, we investigate factors that enable fraudulent returns from consumers' and retailers' perspectives and outline strategies for retailers to combat product returns fraud in a multichannel environment, leading to a framework for retail fraud. We contribute critical insights to research and practices on understanding and addressing a growing problem that has economic, social and environmental implications.

### 1. Introduction

Fraudulent returns are seen as an inevitable yet regrettable part of business for most retailers because they induce losses and consume a large proportion of resources. Returns fraud can reduce a retailer's overall profitability by 10%–20%, significantly affecting a retailer's bottom line (King, 2004). A recent study by Appriss and the National Retail Federation (National Retail Federation, 2021) has demonstrated that the US retail industry suffers a loss of \$7.8 billion per year from fraudulent returns, equivalent to 2,188,861 jobs lost assuming a retail salary of \$35,800. Also, for every \$100 in accepted returns, retailers lost \$10.30 to returns fraud in 2020 compared to \$8.80 in 2019.

Due to the extended closure of bricks and mortar stores during the periods of national lockdowns, the COVID-19 pandemic affected customers' shopping and returns behaviours and significantly aggravated the problem of high product returns rates and returns fraud (Cycleon, 2021; Incisiv, 2021; Ward, 2022). Measures for crowd-control and social distancing, as well as changes in returns policies resulted in retailers making changes in their returns management (Barkho, 2020; Downes, 2021; Ryan, 2020). All returned products needed to be quarantined both in-store and at the distribution centre, leading to delays in processing.

Due to increased sickness rates, there was (and due to recruitment issues often still is) insufficient staff available, meaning returned products receive less scrutiny, which increases fraudulent returns over time (Zhang et al., 2022a). In addition, the increased financial pressure caused by the COVID-19 pandemic led to more returns fraud. The Head of Fraud Intelligence for Cifas (the UK's Fraud Prevention Community) suggested that with the financial stress caused by the pandemic and inflation, some households may have become opportunistic in making money (Cifas, 2021). This situation made it essential to gain a deeper understanding of the various types of returns fraud, the factors that drive them, and what retailers can do to address them. It is suggested that COVID-19 tremendously affected the retail industry, through supply chain disruptions and changes in customer shopping and returns behaviour (e.g., PR Newswire, 2020; Roggeveen and Sethuraman, 2020; OECD, 2020). While considerable research has investigated the implications of COVID-19 on retail operations (Mukherjee et al., 2021; Pantano et al., 2020; Pujawan and Bah, 2022), limited research has explored its impacts on returns fraud. To address this knowledge gap, this study seeks to address the following research questions (RQs):

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- RQ1: What are the factors enabling fraudulent returns in multi-channel retail?
- RQ2: What strategies can retailers use to address fraudulent returns?
- RQ3: What would a framework for product returns fraud management consist of?

To address these questions, we conducted in-depth semi-structured interviews with eight retailers from the UK, US, and Canada, five experts from the retailer associations, and a former police officer specialising in retail crime. We complemented the interviews with observational data from online meetings of the ECR Retail Loss Group, an association of retailers and manufacturers, to have the most updated information on retailers' experiences in dealing with returns fraud.

## 2. Literature review

### 2.1. Fraudulent consumer returns behaviour

According to the 2006 UK Fraud Act, returns fraud includes any approach of using or obtaining the ownership of a product without paying for it and achieving benefits through returns. One classic example is so-called 'wardrobing', 'borrowing', or 'renting', whereby an item is purchased for a specific purpose, such as a party dress to attend an event, and then returned (Akturk et al., 2021; Piron and Young, 2001; Phau et al., 2022). Speights and Hilinski (2005) stated that wardrobing is the most frequent fraud type that attacks retailers' profit margins. Often, people do not even perceive dishonest returns as being fraudulent or illegal and believe they are just 'stretching' the returns policies (Khouri, 2017). However, this behaviour fits the definition of the Fraud Act 2006 as being dishonest and intending to make a gain and causing a loss to retailers (The Crown Prosecution Service, 2020). Returns fraud also violates the Consumer Rights Act 2015 and social norms (Autry, Hill and O'Brien, 2007). With the flood of returns from online shopping, it is important to discuss what is legitimate returning and what is not – and there is a very fine line in-between: it is perfectly fine to try on an item at home, not like it and return it. However, trying it on, taking pictures for social media, and then returning the item is not legitimate (Jadezweni, 2019).

Fraudsters can also employ many other, more clear-cut techniques to gain benefits through product returns (Speights and Hilinski, 2005): A common approach, especially for online fraud, is called Price Arbitrage, where a broken, lesser quality or counterfeit item is returned instead of the original item for a full refund. Sometimes, less sophisticated variants of this returns fraud include sending back an empty parcel asking for a full refund, hoping retailers will not check. In this way, fraudsters not only receive a full refund (i.e., the product's retail price) but also keep the product. Retailers lose money at the product retail price and the cost of producing or sourcing that product. In recent shocking news, a 22-year-old was arrested for scamming Amazon out of nearly \$370,000 by sending return packages weighted with dirt instead of the returned product (Moynihan and Aguiar, 2019).

Other types of returns fraud happen in combination with shoplifting that happens in-store. For example, receipt fraud includes using a receipt to get a refund on a shoplifted item (Robertson et al., 2020). Nowadays, there are even websites that sell fake digital or physical receipts (Section 4.1). Sometimes, there is collusion with dishonest employees who process illegitimate return transactions for their family members (Speights and Hilinski, 2005). Shipping fraud comes in several variations and often includes people from the same housing estate collaborating to avoid being identified and banned (Jack et al., 2019).

In addition to various types of fraud, fraudsters also vary widely, ranging from organised criminal gangs to individuals with no criminal history who just benefit from an opportunity that arises (Robertson et al., 2020). Harris (2008) identified 10 consumer-related factors contributing to the success of returns fraud, namely: customer knowledge of return policies, exploiting relational ties (collusion with

employees), judicious timing, selection of suitable products, interaction style, lack of customer self-consciousness, feigning personal connections, generation of enjoyable interaction, experience of successful fraudulent returns, and targeting employee types. Harris (2010) investigated demographic and psychographic factors of people committing returns fraud, whereby young female customers with lower education levels and thrill-seeking behaviours were found to be the most frequent delinquents.

Chang and Guo (2021) showed that strengthening the personal relation between online retailers and customers reduces fraudulent returns and encourages more ethical behaviour. Following this line of research, they explored the effect of lenient versus rigorous returns policies on consumer behaviours (Chang and Yang, 2022). They demonstrated a strong correlation between moral judgment and unethical returning, meaning that it is useful for retailers to understand the moral decision-making of customers, which in turn relates to the psychology of returns (Spreer et al., 2021). Zhang et al. (2022a) use the revisited Fraud Triangle (Schuchter and Levi, 2016) and the Theory of Planned Behaviour (Ajzen, 2002) to explain what may happen on the consumer side that makes them commit fraud. Rationalisation – a way of committing fraud without violating one's moral values (Charloпова et al., 2020) – is an element of it, and it can include elements of denial of injury, denial of responsibility, or defence of necessity (Shepherd and Button, 2019).

Furthermore, the extant literature on eCommerce fraud has been investigated in a more complex retailing environment in the Asian context, especially China (e.g., Lee, 2021a, 2021b; Zhang et al., 2013). These studies focus on identifying eCommerce fraud in general including seller fraud, online non-payment fraud, and customer-to-customer fraud. However, there is still a lack of a comprehensive understanding of the enabling factors and the ways of how fraudsters engage in returns fraud. Moreover, the countermeasures remain under-researched. It is plausible that some of the findings of Asian-focused studies may not be applicable in the Western countries' retailing environment, especially the challenges faced by omnichannel retailers.

To the best of our knowledge, no previous study has focused on the retailer side of fraudulent returns. Furthermore, no previous study has provided a comprehensive review of various returns fraud types and sub-types. Previous studies focus on one or two types of returns fraud (e.g., wardrobing or chargeback), except Speights and Hilinski (2005), which is already a little dated and the data collection is from the customers' side, whereas our study explores which factors on the retailer side may drive or enable fraud to occur.

### 2.2. Factors influencing fraudulent returns

Scholars have addressed fraudulent returns since the 1970s. For example, Zabriskie (1972), cited in Harris (2010), highlighted dishonest return behaviours, and suggested that around 12% of returns were fraudulent. Jolson (1974) observed that 22% of returns involved an intention to abuse returns policies, which relates to the observation that lenient returns policies tend to increase purchases (Janakiraman et al., 2016), some of which will be made with bad intentions. The existing body of research concentrating on fraudulent returns has generated insights into dishonest consumers' motivations.

Retailers' liberal return policies, setting no consequences for fraudsters' unscrupulous behaviour, can encourage returns fraud, as it comes at little or no cost to themselves (Chang and Yang, 2022; Speights and Hilinski, 2005; King et al., 2007; Schmidt et al., 1999). The other motivational roots are derived from the fraudsters' side, including unethical beliefs, financial benefits from returns fraud, as well as economic and social needs. For example, wardrobing behaviour is typically based on unethical beliefs and behaviours of the offender's social demographic group (Wachter et al., 2012; Harris, 2010; Mun et al., 2014). If there is a rise in the acceptability of opportunistic returns by friends and relatives

or social groups, individuals will be influenced to act in the same way (King and Dennis, 2006). Whilst retailers cannot fundamentally change this, they can reduce fraudulent returns by building a personal relationship with their customers (Chang and Guo, 2021) and shop assistants expressing disapproval or anger when dishonest returns are attempted in store (Seger-Guttmann et al., 2018). Moreover, societal changes in shopping and returns behaviours have occurred over the last few years, and the influence of social media has increased significantly. Kihal and Shehu (2022) found that modern marketing tools, such as paid searches, newsletters as well as free shipping increase sales and returns, providing more opportunities for “stretching” returns policies.

Research on how to effectively manage and reduce fraud has developed several related frameworks: the anti-ID fraud framework (Ghosh, 2010), the identity fraud enterprise management framework (Jamieson et al., 2007), the fraud management lifecycle theory-based first-party fraud management framework (Amasiatu and Shah, 2018), and Furlan and Bajec’s (2008) framework of managing health-insurance fraud. Wilhelm (2004)’s fraud management lifecycle theory introduces eight components (i.e., Deterrence, Prevention, Detection, Mitigation, Analysis, Policy, Investigation and Prosecution) to assess fraud management’s success or failure. This framework was in four different industries, showing the flexibility and compatibility to be adapted to various sectors, including retail. Although these frameworks have suggested essential components for successfully managing frauds, no study has developed a framework for managing product returns fraud specifically. Therefore, it is crucial to develop this, and we propose one in Section 6.

### 2.3. Rationale of this article

The overall cost of returns in general - especially those created by e-commerce, where customers use their homes as fitting rooms - is likely to dwarf the costs of returns driven by fraud. Also, the sheer volume of returning stock makes it much more difficult to identify fraudulent returns. Yet, based on our literature review as well as our conversations with retailers and retail experts, returns fraud is increasingly being recognised as a problem that needs addressing by both scholars and retailers. Nevertheless, the drivers influencing returns fraud that can be controlled by retailers are under-researched. The extant literature does not directly investigate how fraudsters exploit retailers’ return and refund systems. It is plausible that the economically hard time of the COVID-19 pandemic may push consumers to commit what they see as a harmless act, but in reality, is fraud.

Furthermore, limited studies have explored the types of interventions that retailers can use to reduce fraudulent return rates. The effects of interventions remain under-researched and lack analysis and comments from retailers’ perspectives. It is worthwhile to address these under-explored questions to assist retailers in reducing returns frauds and making better decisions for future improvement in returns management.

## 3. Research methodology

This study takes an interpretive approach where the world is understood from the point of view of the research subjects (Saunders et al., 2009); truth is thus created in interaction and understood within a context.

### 3.1. Data collection

To achieve the research goals, a qualitative study was undertaken. We conducted semi-structured interviews with 8 retailers, 3 experts from retailer associations, 2 experts from returns technology service providers, and 1 former police officer specialising in retail crime. A total of 18 people, with responsibilities in loss prevention, data analysis, and store management for returns from both offline and online businesses,

were interviewed individually or in small groups. These self-selected organisations retail a wide range of products, some including groceries (which was outside of our research scope), clothing, and general merchandise products such as home entertainment and small electrical goods.

The retailers were selected using purposive sampling. All participants are major omnichannel retailers, with the number of stores ranging from 150 to over 1000. Therefore, they all have significant impacts on society and the economy and should have better strategies in managing returns fraud than the average retailer. This purposive sampling technique is a non-probability method where a specific group is selected for in-depth exploration that can provide information-rich data (Higginbottom, 2004; Murphy et al., 1998).

Table 1 provides details about the participating retailers and the roles of the interviewees. We also participated in online meetings of the ECR Retail Loss Group, listening to retailers reporting on their experiences, and we collected feedback from Appriss Retail. On this basis, we developed interventions to reduce different types of returns fraud. The interview questions were designed to learn about (1) the impact of the pandemic on returns and related fraud (which is discussed in [redacted for review]), (2) the various types of returns fraud, (3) the drivers of returns fraud controlled by retailers, and (4) possible interventions for reducing returns fraud. The conversations also evolved naturally with other follow-up questions. Thus, the interviews with retailers deepened our knowledge of the changes in returns since the beginning of the pandemic, in particular regarding the emergence of new returns fraud types. Meanwhile, interviewing people from various departments in an organisation to talk about the problem of returns and related fraud allowed us to gain a comprehensive picture of the problems in returns management.

Due to the ongoing COVID-19 Pandemic, all interviews were conducted online. They took between 45 and 90 min, with a typical duration of just over 1 h. These conversations were recorded, transcribed and thematically analysed. Examples of interview questions are:

- How have your return and fraud rates changed (pre-pandemic, during lockdowns, after shops reopened)?
- What more can you tell us about the influence of the pandemic on product returns?
- Have you changed your return policies since the start of the pandemic? If so, what were the changes and why did you make them?
- What are the types of returns fraud that your company experience most?
- Have you implemented any strategies to prevent returns fraud?
- Are there any strategies that your company would like to implement to reduce returns and returns fraud in the future?
- Are there any factors you are aware of that have influenced the rate of returns fraud?

### 3.2. Data analysis

We employed a thematic analysis method to identify, analyse, categorise, and provide insight into patterns of themes across the dataset (Kvale, 1994; Seidman, 2006). To ensure rigour in our data analysis, we followed the widely accepted thematic analysis guideline of a 15-point checklist (Braun and Clarke, 2006). We first used a structural coding approach (Namey et al., 2008; Endres and Whitlock, 2017) that labelled passages with terms that were related to the research questions (i.e., the type of fraud, the drivers of frauds, and fraud interventions) and were described by the members of each organisation. Subsequently, we created sub-codes to continue analysing them further, breaking the data into discrete increments to generate initial codes. For example, we first labelled a passage with the term of fraud types (e.g., price arbitrage), then sub-coded it into various types of price arbitrage fraud (or a new fraud type), depending on what the data told us. This analysis approach

**Table 1**  
The participating companies and the interviewees.

Company	Retail sector	Representatives	Country	Number of stores	Socio-economic status of the targeted customers
1	Groceries, Apparel, Electricals	<b>LP1 A:</b> Loss Prevention Manager in charge of online and wholesale operations. <b>LP1 B:</b> Loss Prevention Manager in charge of store operations.	UK	More than 500	Low to middle-class
2	Fashion & Apparel, Footwear, and Accessories	<b>LP2:</b> Profit Erosion and Data Mining Manager	UK	More than 200 physical stores as well as five dedicated online sites.	Middle-class
3	Electricals, Fashion & Apparel	<b>LP3 A:</b> Head of Digital Risk. <b>LP3 B:</b> Risk and Loss Prevention Investigator	UK	More than 750	Middle to high-end
4	Electricals	<b>LP4 A:</b> Manager of Loss Prevention and Inventory Control (online). <b>LP4 B:</b> Returns Manager, involved with returns and returns prevention.	Canada	More than 150	Low to middle-class
5	Groceries, Apparel, Electricals	<b>LP5:</b> Multi-Channel Returns Manager.	UK	More than 1000	Low to middle-class
6	Fashion & Apparel, Footwear, and Accessories	<b>LP6 A:</b> Fraud Analytics Manager <b>LP6 B:</b> Head of Online Loss Prevention	UK	More than 500	Middle-class
7	Electricals	<b>LP7:</b> Fraud Prevention and Investigations Manager	UK	Focus online, limited stores.	High-end
8	Fashion & Apparel	<b>LP8:</b> Director of Loss Prevention	US	More than 1000 stores worldwide	Low to middle-class
9	Expert (IMRG)	<b>E1:</b> An analyst who has extensive retail experience.	UK	N/A	N/A
10	Expert (ECR)	<b>E2:</b> Closely working with retailers on identifying problems of loss and returns.	UK	N/A	N/A
11	Expert (ECR)	<b>E3:</b> 30 years of research experience in understanding retailers' problems with loss and returns.	UK	N/A	N/A
12	Expert (Retail crime)	<b>E4:</b> Former police officer specialising in retail crime, and is currently working at IASME Consortium Ltd.	UK	N/A	N/A
13	Expert (Returns technology service provider)	<b>E5:</b> Senior Manager (Public Relations) who closely works with retailers. <b>E6:</b> President of the retail technology company.	US	N/A	N/A

enabled us to build a solid foundation for a preliminary coding scheme relating to the research aims. Each interview was treated as a fundamental unit of analysis.

The second level of analysis was to iteratively review the initial codes and analyse them at the broader level by mapping, analysing, and comparing the different codes and then integrating them into potential themes (e.g., the driving factor of underdeveloped returns portal). This phrase aimed to analyse and find the relationships between what we found in earlier rounds of coding. Lastly, we reviewed and refined the developed overarching themes. Fig. 1 shows the codes and themes for fraud types, Fig. 2 for driving factors, and Fig. 3 for interventions. This analysis process enabled us to identify 10 returns fraud types with the most updated variations and to analyse them in terms of purchase and returns channels, as well as the development during the pandemic. We found 6 dimensions of driving factors of returns fraud and 7 dimensions of fraud interventions.

During this coding and analysis process, our research team (7 members plus 3 project advisors) met regularly to discuss the codes, categories, questions, and ideas to check any different interpretations (Gioia et al., 2013). We also presented and discussed our initial coding scheme with the ECR Retail Loss group for further confirmation, rather than only using inter-coder reliability. Finally, we asked several retailers to comment on our findings and indicate whether they reflect their reality and how useful our recommendations are to them. These cross-checks enabled us to establish a shared understanding and validate the process of data analysis and findings (Sandberg, 2005).

#### 4. Findings: fraud types and factors influencing fraudulent returns

While retailers cannot directly influence the nature of customers (e.g., unethical beliefs), they can try to understand how fraudsters abuse their returns system and then introduce interventions to reduce returns fraud. In addition to the challenges caused by the pandemic, we identified several driving factors that enable fraudulent returns, which derive from retailers' fragile returns systems and their often-complicated returns management.

##### 4.1. Fraud types, frequencies, and the loss they cause

Based on the interviews and literature review, we classified returns fraud into 12 categories and distinguished them by returns channel, listed in Table 2. Notably, three types of returns fraud were highly addressed by the interviewees due to the impact of the COVID-19 pandemic, as they became more frequent and newer, more elaborate versions appeared: wardrobing, price arbitrage and shipping fraud.

First, wardrobing was a significant concern for all the interviewees, especially after retailers extended their return windows during the lockdown. This is consistent with the findings of National Retail Federation (2021) where more than 60% of retailers claimed they had received used items in 2020, up from 31.8% in 2018. Another recent survey by a company providing retail technology solutions revealed that UK retailers are potentially losing up to £1.5bn in sales each year because of wardrobing behaviour (Checkpoint System, 2019). Wardrobed returns can often not be resold at full price or even end up in landfills (Wood, 2021; Optoro, 2021). This means that retailers have not only lost sales on returns but also lost the production cost and returns cost.

Unfortunately, our retailers cannot provide further information as it is very difficult to define this unethical returning behaviour and measure the related loss. Unless an item shows wear-and-tear, or the retailer happens to see the pictures on social media and knows the person wearing the item as a serial returner, it is difficult to calculate the related loss. This increases the challenges of mitigating the wardrobing. For example, E4 stated:

'[Retailers] say it's a major issue with wardrobing. (...) [But] I've never seen detailed data to quantify how big a problem it really is. As I say, I've never seen any data that breaks down refunds in terms of what percentage was wardrobing.'

Influencers are often quite careful to avoid damaging the products they are displaying ("staging") in images or videos. As they order and return large quantities of products, they are seen as bad customers, but they may also create publicity for the retailer. LP6 A stated that they had identified a customer who made purchases worth £15k and returns

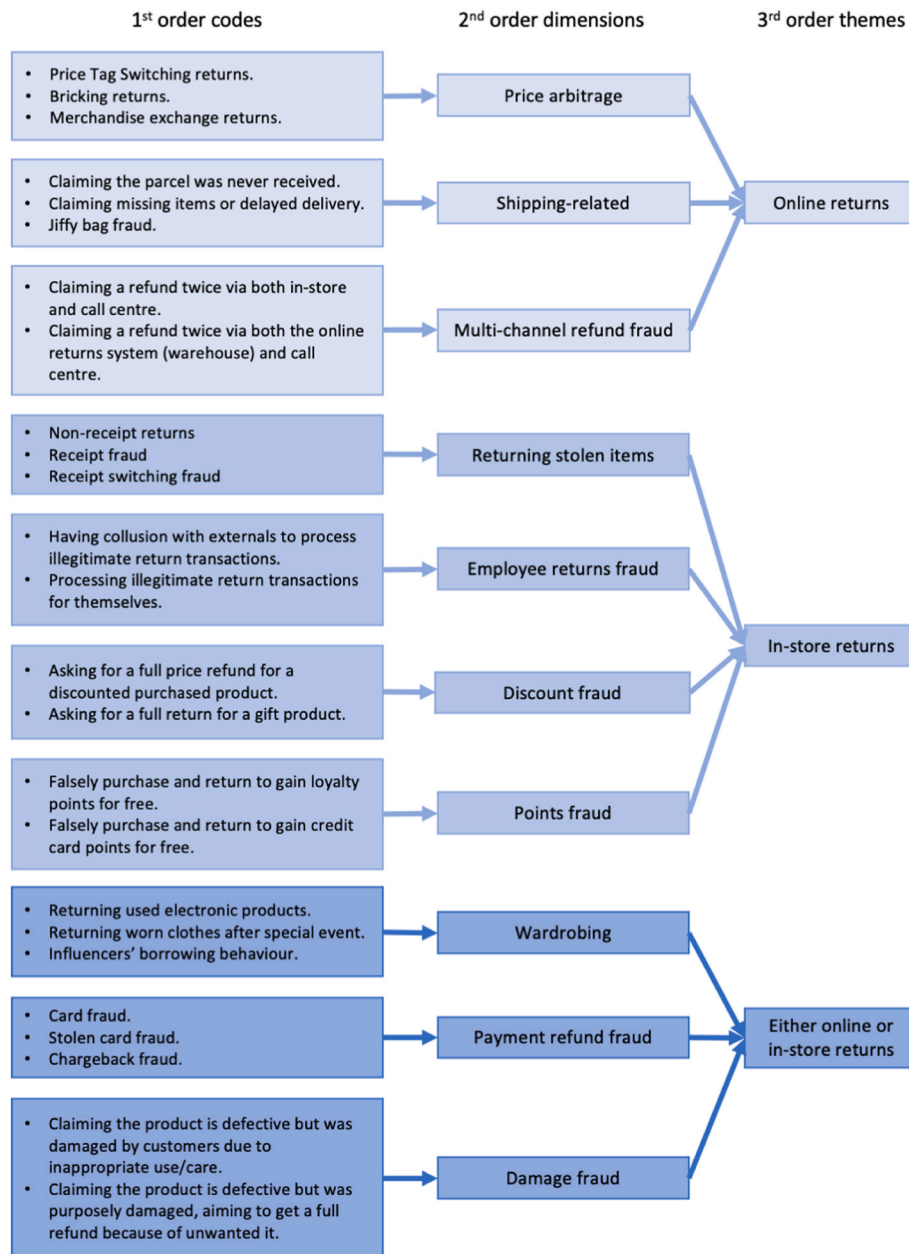


Fig. 1. Illustration of the coding process and data structure: fraudulent returns types.

worth £14.9k, but they were hesitating to ban this person from making further purchases.

Second, although price arbitrage has been identified by previous studies (e.g., Droms, 2013), our study reveals that this fraud type is more likely to occur for higher valued products, and more elaborate variations have appeared. For example, since the pandemic, electronic retailers have frequently received returns stripped of the most valuable components (e.g., an internal hard drive).

Third, shipping-related fraud has become a growing phenomenon since the pandemic and can be committed in various ways: (1) Fraudsters exploit security gaps in logistics by claiming that they have never received the parcel because of the contactless COVID environment. They either ask for a refund or a re-delivery. This finding is in line with a study conducted in October 2021 (Cifas, 2021) reporting that 1 in 40 UK consumers admitted they had made a false refund claim for an online purchase by stating the item had not been received. The study also found that for those consumers aged between 16 and 45, 1 in 3 did not believe this type of activity is illegal, and 1 in 9 perceived this type of claim as

reasonable. UK retailers lost over £400 million in 2019 due to the fraud of 'goods lost in transit', with the average cost estimated at over £40 (Pierce, 2020). (2) Alternatively, fraudsters may have ordered a small, high-value item together with a large, low-value item and claim the high-value item was not in the box. (3) Another variation of this fraud addressed by retailers is that fraudsters claim they have sent the returns back by providing a fake tracking ID, and then asking for a full refund. This shipping fraud type can be viewed as a new way of digital shoplifting. (4) A more sophisticated scheme uses professional fraudulent 'refunder' services, which manage all the refund processes and then get a fee for their service (approximately 10%–15% of the value of the products).

Multichannel refund fraud is a new type of returns fraud which the extant studies have not discussed. Retailers reported that fraudsters managed to obtain multiple refunds through different refund channels. For example, fraudsters may contact customer services via telephone, online chat and email to claim that they did not receive the parcel or falsely claim they returned the product via courier. Meanwhile, they

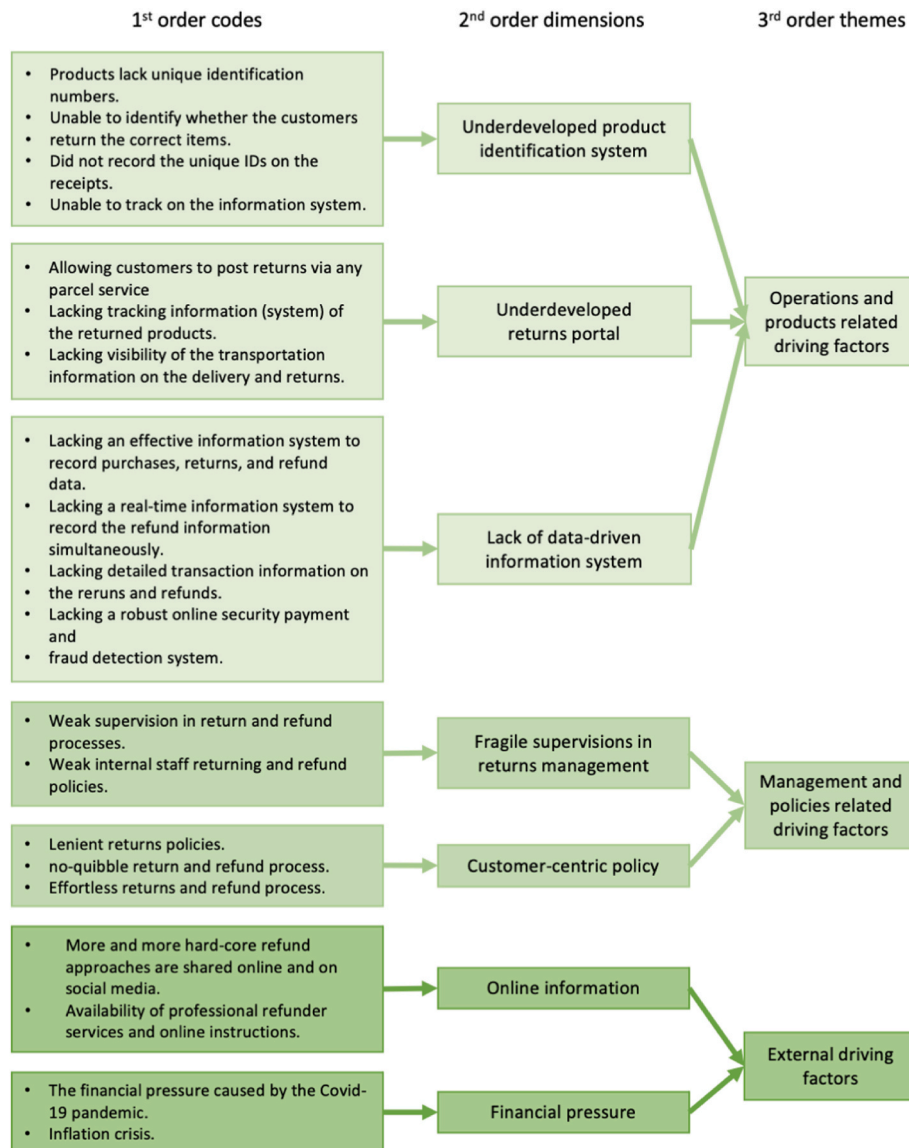


Fig. 2. Illustration of the coding process and data structure: driving factors of fraudulent returns, excluding customer related factors.

return the product in-store for another refund.

These returns fraud types demonstrate a new pattern that has formed since the pandemic: more fraudulent returns behaviour has shifted to online purchases and returning by post. Retailers expressed concern that fraudsters are becoming more sophisticated and organised. Unethical customers are exploiting gaps in logistics, retailers’ fragile returns systems and customer-friendly returns policies, which enables them to learn new ways to generate a profit or obtain products for free via fraudulent returns.

#### 4.2. Factors influencing fraudulent returns

The subsequent sections discuss factors that allow the different fraud types to happen.

##### 4.2.1. Underdeveloped item-level identification system

Most products only have a universal product code instead of item-level identification. This facilitates various forms of returns fraud such as price arbitrage fraud and in-store returns fraud. Retailers commented that because products do not have a unique ID, it is impossible to determine whether the returned item was actually sold, or if it is even

the correct item. As such, opportunists can return a counterfeit or stolen product through either online or offline returns channels and ask for a full refund. This is more likely to happen for lower- or medium-value products or at grocery-focused organisations, as they may pay less attention to non-food products. In contrast, higher-value products are more likely to have a unique serial number, especially in the case of electronics. Notably, our results further identified that only having a unique ID is not sufficient. If retailers do not record a unique ID on the receipt, fraudsters could also return an item purchased at another retailer (usually purchased at a lower price; also called cross-retailer returns fraud). LP3 A provided an example:

‘What we were seeing from our data was that if we send the products back to [electronics manufacturer], for example, that have been returned to us from customers [who] said it’s faulty, that they [electronics manufacturer] would say to us: actually, this serial number of this console, we never supplied it to you, we supplied it to [another retailer], for example. And therefore, they wouldn’t give us the credit’.

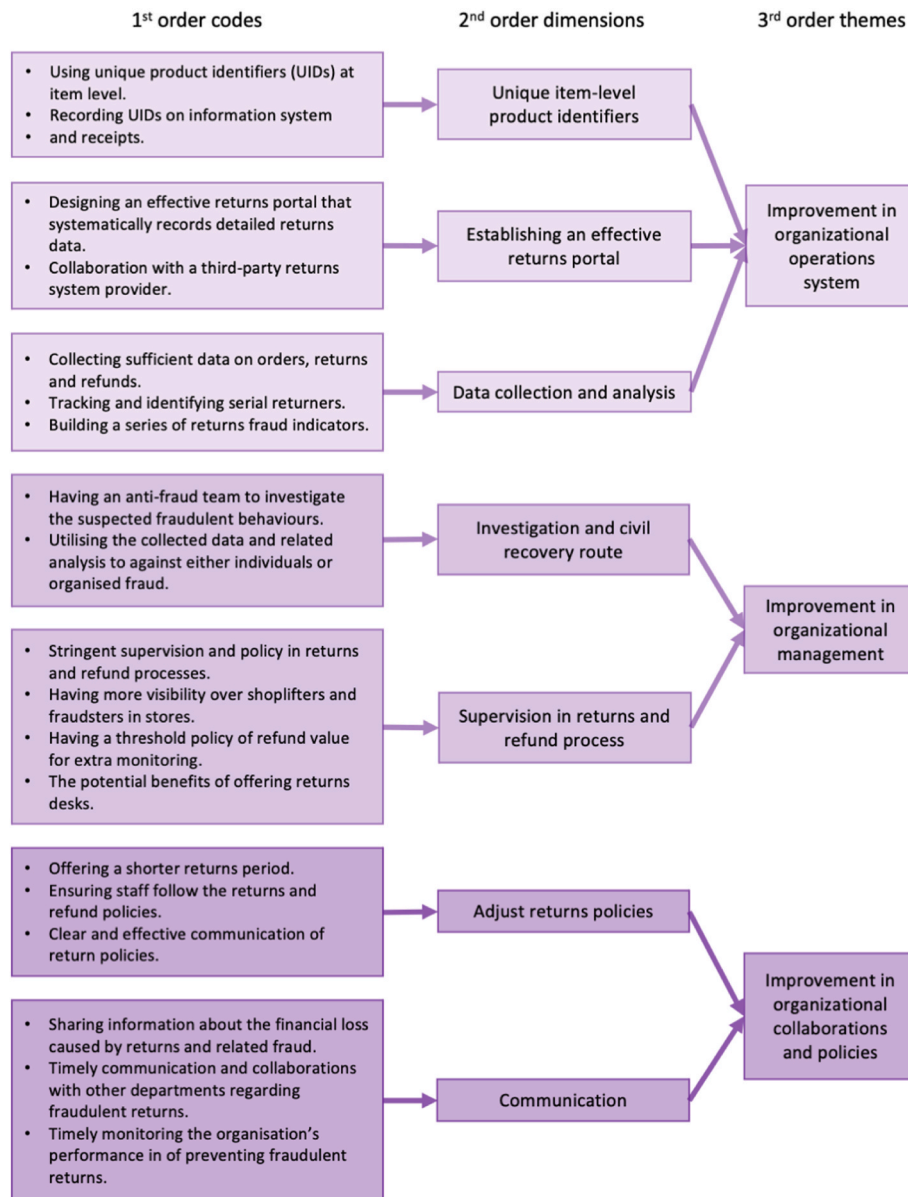


Fig. 3. Illustration of the coding process and data structure: actions against fraudulent returns.

#### 4.2.2. Underdeveloped returns portal

Our data analysis shows that lost-in-transit fraud is more likely to happen in retailers who do not cooperate with specialist 3<sup>rd</sup> party returns companies and have not established an effective returns portal. The retailers who allow their customers to post returns via any parcel service company have demonstrated their top concern is lost-in-transit fraud which resulted in more complex returns management; fraudsters can simply claim that they have sent the item back and can provide a fake tracking ID as proof of shipment. In contrast, retailers with a better returns portal can provide returns labels for customers directly. By doing so, these retailers claimed that they have better visibility of the returned items. Consequently, fraudsters will have fewer opportunities to abuse the returns system. Meanwhile, without a robust returns portal, retailers have less power (that is, evidence) to argue with customers and mitigate the losses even if there are suspicions of returns fraud. Shop and distribution centre staff would be less confident and face more uncertainties in their refund decisions. Examples were given by two managers:

*'The fake tracking ID one, which is definitely something we've seen a lot of since the pandemic... So that's a big one for retailers that if you can't identify, if you don't have mechanisms to identify those packages, they just look like lost shipments...(...), they can be refunding some serious dollars, just assuming that they are lost shipments. (...) there's some significant risk there. We have an internal program where we've been able to identify those shipments and mitigate a loss'. (LP4 A)*

*'We're still seeing that where customers get the proof of posting so they can say they've sent it, they have returned the goods, and there is my tracking. And then we'd have to make the refund sort of thing. But, actually, they didn't [return the item]'. (LP3 A)*

#### 4.2.3. Fragile supervisions in returns management

Employee returns fraud is facilitated by the weak supervision in return and refund processes. We were told that one form of this fraud is that staff can simply refund an unsold item without purchase, which has not been discussed by the prior studies. The retailers also admitted that this is because they did not implement stringent supervision on staff's returning procedure and it can be prevented. LP1 B suggested that:

Table 2

A summary of fraud types, whereby # refers to the number of interviewees who reported this type of fraud.

No.	Fraud type	Description (including indications of new findings)	Purchase channel	Returns channel	#	The situation since the pandemic	Relevant literature
1	Wardrobing	Dishonest customers purchase an item (e.g., clothing or a digital camera) intending to use or wear it before returning it to retailers. <ul style="list-style-type: none"> <li>• <i>Staging</i>: influencers buy large quantities of items to produce pictures or videos for Social Media and return the items afterwards, usually without damage. (New terminology.)</li> </ul>	Either online or in-store purchase channel	Either online or in-store returns channel	18/ 18	Remained at a high level, worse during the pandemic due to the extended return windows.	Phau et al. (2022) Shang et al. (2017) Speights and Hilinski (2005)
2	Price arbitrage	This fraud type can be achieved via various approaches, but the essential is to make a purchase and then return a wrong or incomplete item using genuine packaging for a full refund. <ul style="list-style-type: none"> <li>• <i>Merchandise Exchange</i>: fraudsters return a cheaper, fake, older or non-working version of the same merchandise, using the packaging of the newer/genuine product. This can also target exchanging one product component, such as a laptop battery.</li> <li>• <i>Cross-retailer refund fraud</i>: Buying an item at a lower price and returning it (without receipt) to another retailer who sells it at a higher price.</li> <li>• <i>Bricking</i>: fraudsters return incomplete or damaged merchandise (usually electronics) after stripping valuable parts components (e.g., CPU or high-valued lens in a camera). Fraudsters can then resell the components to gain more profit. Alternatively, fraudsters return a box that will be filled with rocks, garbage, or other objects that mimic a similar weight. This is more likely to occur for higher valued products. (New details: we identified additional details which extend current literature.)</li> <li>• <i>Price Tag Switching</i>: Fraudsters buy item A (£100) and item B (£20), then switch the price tag and return item B for £100.</li> </ul>	More likely to be online purchase channel Either online or in-store purchase channel	Online returns channel Either online or in-store purchase channel	18/ 18	Significantly increased since the pandemic, with new, more elaborate variations having appeared.	Droms (2013) Speights and Hilinski (2005)
3	Shipping-related fraud	Fraudsters ask for a refund by falsely claiming one of the following situations: <ul style="list-style-type: none"> <li>• The parcel was never received.</li> <li>• The parcel they received was missing items. Usually, fraudsters order multiple items with both high- and low-value items and then claim the high-value item is not in the box. (New finding)</li> <li>• Claim the product was late to get discounts. (New finding)</li> <li>• <i>Jiffy bag fraud</i>: posting an empty bag to the returns address and then modifying the shipping receipt to reflect the correct product weight, asking for a full refund. (New finding)</li> <li>• <i>Lost in transit fraud</i>: Using fake tracking IDs for parcels that are claimed to have been shipped with alternative couriers. (New finding)</li> </ul>	Online purchase	Online refund channel	18/ 18	Significantly increased since the pandemic, with new, more elaborate variations having appeared.	Cifas, (2021) Jack et al. (2019)
4	Returning stolen merchandise	This fraud type includes three subtypes: <ul style="list-style-type: none"> <li>• <i>Non-receipt returns fraud</i>: fraudsters shoplift merchandise in-store and then 'return' the item without a receipt for a store credit refund. Fraudsters either use the store credit themselves or sell the card (often online).</li> <li>• <i>Receipt fraud</i>: fraudsters 'return' shoplifted merchandise in-store via a found or purchased genuine receipt for a full refund.</li> <li>• <i>Receipt switching</i>: fraudsters make a purchase, leave the store with the item, then re-enter later, and pick up an identical item. The fraudsters use the original receipt to secure a refund on the second item, effectively getting the first item for free.</li> </ul> <p>The essential of this fraudulent activity is to return stolen merchandise, and the specific fraud approach depends on the store's return policy.</p>	In-store purchase channel	In-store return channel	13/ 18	Reduced due to social distancing, in-store restrictions, and more security guards in-stores.	National Retail Federation (2018) Robertson et al. (2020) Speights and Hilinski (2005)
5	Employee returns fraud	This fraud type includes two subtypes:		In-store return channel	12/ 18	At a similar level.	Kang and Johnson (2009)

(continued on next page)



Table 2 (continued)

No.	Fraud type	Description (including indications of new findings)	Purchase channel	Returns channel	#	The situation since the pandemic	Relevant literature
		<ul style="list-style-type: none"> <li>Unethical employees act as fraud facilitators that process illegitimate return transactions for their family members or have collusion with external sources for fraudulent returns (e.g., providing sales receipts, stealing merchandise).</li> <li>Unethical employees take merchandise from the store floor and 'return' it, using a found receipt with fictitious customer information. The amount is credited to their card, cash, or store credit refund is issued.</li> </ul>	In-store 'purchase' channel				National Retail Federation (2018) Speights and Hilinski (2005)
6	Payment refund fraud	<p>There are three subtypes of payment refund fraud:</p> <ul style="list-style-type: none"> <li><i>Card fraud</i>: Fraudsters purchase merchandise with an illegitimate card or with one backed by insufficient funds and then return the merchandise before the amount clears the bank.</li> <li><i>Stolen card</i>: Buy online with a stolen credit card and return in-store without a receipt.</li> <li><i>Chargeback fraud</i>: after receiving the parcel, fraudsters, instead of contacting the merchant for a refund, will dispute the transaction with their bank directly to overturn a transaction for an illegitimate reason. They usually falsely complain that the product they ordered was delivered defective or was not received. This is more likely to be successful with PayPal payments. (<i>New details</i>)</li> </ul>	Online purchase	Either online or in-store returns channel	9/ 18	Likely to have increased during the pandemic for retailers who lack a robust payment security system.	Amasiatu, & Shah, (2019) Guo et al., (2018) Speights and Hilinski (2005)
7	Multi-channel refund fraud	<p>Obtaining multiple refunds through various channels (e.g., in-store, online and call centre). For example, fraudsters will contact the call centre claiming the item was sent back or not received after receiving the parcel and ask for a refund. Meanwhile, they make the same claim via multiple online systems and bring the item back to the store for a second-time refund. The essential of this fraud is that retailers offer various contact channels and do not always update information in real-time, allowing fraudsters to make multiple claims simultaneously via different channels. Large retailers with a reputation for great customer service are more likely to be targeted. (<i>New finding</i>)</p>	Either online or in-store purchase channel	Both online and in-store returns channel	5/ 18	Likely to have increased during the pandemic for retailers who lack an effective real-time information system.	None found
8	Discount fraud	<p>Two variations:</p> <ul style="list-style-type: none"> <li>Fraudsters buy the item online at a discount and return it to a store without a receipt, asking for a full-price refund.</li> <li>Fraudsters use a complex multi-item discount scenario (e.g., buy one get one free, or buy three get one free, £20 off of £50+) to return the one that is free or the one that puts customers over the monetary threshold. (<i>New finding</i>)</li> </ul>	Online purchase channel	In-store return channel	4/ 18	Limited data available.	Speights and Hilinski (2005)
9	Damage fraud	Returning a product broken by the customer after purchase.	Either online or in-store purchase channel	Either online or in-store returns channel	4/ 18	Limited data available.	Harris (2008, 2010)
10	Points fraud	Fraudsters intend to buy items in-store to increase credit card points, loyalty points, or other similar points and return that item in-store without receipts after the points have been granted.	In-store purchase channel	In-store return channel	2/ 18	Limited data available.	Ketzenberg et al. (2020)

'We had a situation that we got colleges refunding themselves for products fraudulently. It was like normal behaviour. They have probably been doing it a long time; it was just so relaxed and natural going and selecting items, working on the customer service desk, no one's around, refunding it and pocketing the money'.

There is no doubt that there might be other forms of inside fraud via collusion, and sometimes, the internal returns fraud happens unintentionally. It is worthwhile to review and assess any weakness of the

returns process and make strategic plans to monitor the returns and refund processes to reduce opportunities. For example, LP2 said that:

'So, staff play, they'll make a mistake, and they'll be like, 'Wow, that's happened, and I got my refund. I'll do it again. Sometimes it's not the intention to commit fraud but seeing the loophole and they want to take advantage of it...Because we give them the opportunity.

#### 4.2.4. Lack of data-driven information system

Lacking an effective information system to record purchases, returns, and refund data can lead to many fraud opportunities. We identified that multiple-refund fraud is more likely to occur if the retailer does not have a real-time information system to record the refund information in detail, so staff cannot do live cross-checks in their system. Alternatively, the retailer only recorded the refund amount without detailed information about the returned item, whereby fraudsters can claim a refund multiple times.

Furthermore, lacking a robust online security payment and fraud detection system is another driving factor of payment-related fraud. For example, for chargeback fraud, retailers found it is tough to prove unless the customer has an established track record of doing this and the retailer can evidence this with banks to decline the refund transaction. Proving that it is fraud is a grey area and one where the banks appear to currently believe the customer more than the retailer. Hence, the data for tracking fraudsters' transactions is essential. It is worth noting that almost all managers have highlighted a positive relation between PayPal payment and chargeback fraud. They found that fraudsters could make chargeback claims more easily if they used the PayPal payment method.

Moreover, we found that the retailers who entered the eCommerce channel early have better payment security and related systems to keep a record of consumer behaviour than those who recently entered online retailing. For instance, the leading retailers have equipped their payments fraud screening tool with a large amount of data collection and analysis to detect potential fraud in the first place (Beck, 2017). In contrast, new online retailers have less experience and are shown to use less developed information recording systems; thus, they lack data and are frustrated in mitigating losses and face more chargeback fraud. In other words, without an effective system to record all transactions, managers are unable to build their databases and then unable to track records, identify the fraud patterns, and build fraud indicators to prevent suspicious frauds and mitigate the losses.

#### 4.2.5. Customer-centric: 'no quibble' returns policy

Much of the work has highlighted that a generous returns policy is a critical driver of fraudulent returns (e.g., Chang and Yang, 2022; Harris, 2010; Speights and Hilinski, 2005; Tyagi and Dhingra, 2021). Common generous policies include giving customers a refund in cash or a gift card even if they do not have a receipt or online order confirmation, accepting returns beyond the returns period, and rarely questioning customers. For example, having a no-quibble return policy can 'motivate' dishonest customers to undertake wardrobing without considering the related costs and losses. We found that the key driver behind a generous return policy is a customer-centric policy. As we were told:

*'... If something that a shoplifter brings for a return and refund, we wouldn't have questioned it. However, we should.'* (LP1 A)

*'We, like others, do a lot of work to make returns easier in a sense for the customer. Everything is low friction, so that direction comes right from the top [management who] wants everything to be customer centric, low friction, and our job is, as loss prevention, is also to help the business to do that.'* (LP6 B)

#### 4.2.6. Professional refunder services and online instructions, a new concern

In addition to internal driving factors, there is another aspect that most retailers have highlighted. Increasingly hard-core refund approaches are shared online and on social media. This has contributed to an increase in fraudulent activities. There are even books that give detailed guidance on how to defraud retailers, with step-by-step instructions for specific retailers, enabling anyone to execute these types of strategies and then gain financial benefits. The dark web is also where fraudsters enlist the services of a professional refunder who will execute the fraudulent interactions with the retailer for a fee. Prospective fraudsters can even purchase one-on-one mentorship.

## 5. Actions against fraudulent returns

The above findings indicate that different factors can contribute to a higher fraud rate. It is imperative to reduce the opportunities to initiate a fraudulent or abusive return at the initial purchase stage. This section, therefore, will discuss a list of actions that retailers can take against fraudulent returns behaviour with limited negative impacts on honest customers. These anti-fraud actions are primarily developed based on the weaknesses of returns systems identified through interviews with retailers.

### 5.1. Adjust returns policies

Tightening the returns policies can be one way to reduce returns and related fraud (Chang and Yang, 2022; Rosenbaum et al., 2011; Hjort and Lantz, 2012); for instance, offering only product exchange instead of product return, or offering returns with a shipping cost – which Zara has recently introduced (Nanji, 2022). However, most retailers expressed that introducing stricter policies often increases the complexities of returns for honest consumers, thus resulting in reduced sales. Narvar (2020) demonstrated that a frictionless return experience is critical to customer retention. Therefore, retailers are reluctant to introduce barriers and are keen to maintain a top-level policy of frictionless returns, i. e., making it as easy as possible for consumers to return items and thus keeping customers satisfied.

On the other hand, retailers can partially adjust the policies, which could pose difficulties for abusers but only have minimal impact on honest customers. We suggest two actions that retailers could take: One is that retailers could offer a shorter returns period. The IMRG expert (E1) reported that most customers return their unwanted items within 3 weeks (IMRG, 2021). Our consumer survey – discussed in [redacted for review] - also found a similar pattern, with 89% of responses (442 of 497) stating that they tend to return fashion items within 14 days. Likewise, retailers found that fraudsters are more likely wardrobing and take advantage of offered longer returns windows during the lockdown. These findings demonstrate that offering a longer return window, such as 60 days, may facilitate wardrobing behaviour with few benefits for genuine customers. With a shorter returns window, retailers receive their products back to stock more quickly and can mitigate the losses in product value, which is particularly relevant for seasonal products (Frei et al., 2020).

The other suggestion is to ensure staff follow the returns and refund policies. In particular, when accepting returns, refunds must be given to the same payment method (or to a gift card in case of gift receipts), and no refund must be given if beyond the returns period. This can reduce dishonest returns whilst maintaining the standard of customer service. Meanwhile, having clearly and effectively communication of the return policies to customers when making a purchase (online and in-store at the checkout point) and requesting staff to uphold the policies. For example, cashiers could remind customers that no swing tag (ideally placed strategically in a very visible place on the item) means no return allowed. Additionally, it is important to communicate to customers that strictly following the returns policy is to protect honest customers' benefits.

### 5.2. The improvement in organisational processes

Based on the discussion with retailers, a number of interventions have been shown to improve organisational procedures for reducing returns fraud. The interventions include technological solutions, effective information systems, well-designed returns management, and investing in human resources in the form of a skilled anti-fraud team.

#### 5.2.1. Unique product identifiers

One of the most effective technologies to prevent returns fraud is the use of unique product identifiers (UIDs), which are then linked to the

purchase and shown on the receipt. This can take the form of a unique serial number, RFID, or other types of UID in the care label. UIDs enable products to be identified uniquely and match this to the transaction (Beck, 2021). Thus, retailers are planning to use RFID to prevent or identify price arbitrage frauds, refund frauds, and in-store related frauds. We were told by LP2 that:

'In the future, we will be able to do returns using RFID in the care label rather than having the RFID on the swing ticket. So, what that would mean is even if stuff comes back faulty, we will know whether or not we've actually sold it. We also put an RFID in the DC [Distribution Centre], so when it comes to online orders, we're hoping that they would be picked using RFID. And then when you've got your missing item claims in the denial of receipt, if we mark those items are not received by the customer, and they go to try and return them in-store, it will say that this customer never got these items; therefore, they're not eligible for a refund because they've already had it... We will see how this protects our staff, etc'.

In contrast, sophisticated fraudsters can guess serial numbers and make a fraudulent refund with a fake receipt; for instance, LP7 highlighted that:

'...but serial numbers are not difficult to guess. There's like 4 parts to our serial numbers. And the first three parts are normally unique to the product type, where in the country and so on. It's the last four that are unique and we're already finding that's not difficult for people to guess what the last four are if they know the first three prefixes. So that's a problem for us. Customers, quoting machines, replacement machines that they have never even purchased. RFID, we expect is going to help a lot'.

Furthermore, we found that RFIDs are still not frequently used despite their significant advantages. One reason could be that databases are not set up to link the RFIDs to transactions, and it would require a significant overhaul of existing systems. Additionally, RFIDs often need to be attached to the products by the warehouses or manufacturers, and they need to have the necessary resources (e.g., a unique device to attach to the care label), which is the main concern for those retailers who have little control on manufacturers.

### 5.2.2. Establishing an effective returns portal

Designing an effective returns portal that systematically records detailed returns data or using the services of a third-party returns system provider, is highly recommended. It means retailers have the control in issuing the return shipping label (with tracking number) instead of leaving the chance for dishonest customers to provide a fake tracing ID. This action prevents not only the shipping back fraud but also means that a large quantity of returns data can be obtained seamlessly. This is because customers must provide their order number or email to retrieve their order from the merchant's system, as well as reasons for returns and details of returned items. As a result, retailers can collect real-time information to understand customer return activities. Depending on the portal's design, the data can include what people return, the composition of their original order, the number of returns, the most used return methods, when customers request a return label, and when the returned parcel is collected/dropped off to the post office or courier service. This information allows retailers to build effective databases and have better visibility of the returns, which benefits the returns processes, supply chain, and inventory management. Notably, if there are suspicious returns fraud, retailers have more information to further investigate and minimise the loss. Similarly, retailers have the right to refuse a refund if customers do not use the required returns portal; for instance, LP3 A stated that:

'Now for return, we're going to use [returns portal] for our customers to use. And that makes it a lot easier journey for the customer in terms of being able to return the product, the labelling for

returning the product, etc. But it also means we have a lot more control because we only accept our returned goods being returned through our portal, which means that we have the proper returns label. And they can't do this proof of delivery where we don't know who it is.'

### 5.2.3. Data collection and analysis

Good use and analysis of the generated retail data can reduce returns fraud. First, data analytics can track serial returners and target those returns by implementing returns constraints. Some retailers are developing a '5 strikes, and you are out policy' meaning that customers who claim items have not been delivered or returned all items in an order more than 5 times will no longer be able to order online. Other actions include only allowing serial returners to return in-store, not sending them any promotion emails, or not offering any discounts. For example, we were told that:

'Now, we regularly pull the returns rate for the whole customer base and where we can see customers who have ridiculously high returns rates... Uh, again, we will contact those customers and will change the way that we deal with those customers. So, we may do things like revoke the ability to return in-store or if we think someone has taken advantage of the courier's returns, we will tell them they have to go in-store and they have to have someone check the returns. So, we do a lot of analysis on the customer base, and we try and respond accordingly to know how the customers are behaving. And we're not frightened of ceasing trading with customers who were not profitable'. (LP6 B).

'If we screen, they [serial returners] have got a high return when we do their order review, we might be like; actually, we don't want that order, we're going to cancel it. We can do rule-based analysis within our tool and data, add tags to customers, etc. For an online business, we can start managing these customers from the data analysis.' (LP3 B).

Second, retailers can develop a series of returns fraud indicators – customer and context-specific – and then filter the ordering, dispatching, refunding, and returning decisions accordingly. For example, if retailers identified that a certain postcode area aligned with specific addresses or buildings tends to have a significantly higher returns rate, they could decide not to process the orders coming from those buildings. This is because nowadays, fraudsters are more experienced and can employ other clever strategies such as making small, deliberate mistakes in the address to prevent being flagged as a repeat offender. Therefore, having an effective data analysis team is crucial and can leave the customer service team free to deal with cases without suspicion (see the example below of LP2). Indeed, using 3<sup>rd</sup> party returns service providers, who often have many large retailers as their clients, to collect and analyse data is largely recommended. Third, successful retailers recommended several payment security tools to detect refund fraud at the purchase stage. The tools include Address Verification Service and 3-D Secure Services 2.0.

### 5.2.4. Investigation and civil recovery route

We found that the retailers who have controlled fraud effectively have established an anti-fraud team to investigate the suspected fraudulent behaviours. For example, the team can call individual customers who are suspected of a fraudulent return, such as returning a wrong item. Although those dishonest customers who are caught typically provide an excuse, at least in some cases, the correct item can be retrieved. The team can also utilise the collected data and related analysis as necessary evidence for law enforcement agencies to take action against either individuals or organised fraud. The following examples were given:

'It's now how we manage it, if someone returns all their goods, we could send them a letter and say, 'we see you are not happy with our goods, so,

you are able to let us know', etc. And just trying to get that seed of doubt in the customer that we're watching them. (LP2)

'We will have a conversation with that customer if [they are] sending the wrong item to us. We can call it out, the fact that the wrong item has been returned to us and ask them if they know anything about it and put a little bit [of] pressure on them...if the customer feels like our business is taking this seriously, that they're speaking to a specific team, open the call as 'this is from the investigations team'. Customers don't expect that call. If they think we are seriously going to start reporting this to the police and ask for witness statements and all of that type of thing. Sometimes you get customers who change their mind.' (LP7)

Although the benefits of making investigations are substantial, we found that most retailers currently do not take such actions for various reasons. Confronting a customer with a potential fraud case requires a specialised team with properly trained people. Otherwise, fraudulent customers can call a bluff and claim a lack of evidence. For example, it is often difficult to prove that items were packaged and not missing even with cameras installed in the packaging warehouse. Fraudsters could argue that the missing parcel could be due to the wrong delivery. Prosecuting fraudulent customers is very resource-intensive and requires close collaboration with lawyers and the police. However, if retailers take such actions, their reputation for being tough in dealing with fraudulent returns will discourage many potential offenders from even trying. The actions retailers take in response to fraud should be proportional to the crime committed and the type of individual committing the fraud. For instance, a normally honest customer who benefits from an arising occasion could receive a friendly warning that repeat offences would lead to consequences, whereas professional 'refunder' services need serious legal actions and the involvement of law enforcement agencies.

#### 5.2.5. Supervisions in returns and refund process

Having stringent supervision in returns and refund processes is also essential. Retailers have suggested several interventions that can make it more difficult for in-store fraudsters. One is to increase the deployment of CCTVs and security guards in stores. Having more visibility in-store will reduce the opportunism of returning shoplifted items. We were told by LP1 A that they spent an extra £20 million on in-store guarding since the beginning of the pandemic, which has reduced the likelihood of returning shoplifted items. The retailer suggested the reason is more visibility over shoplifters and fraudsters; that is, visual deterrent plays a role in this case.

The former police offer also suggested that retailers should be aware of how they display their products to reduce the probability of shoplifting.

*'I know for a fact that opportunism is mainly one of the things. If their shops are so full of clothes, and you can chuck in a bag easily because there's so much on the shelves. It's made easy because of the way [it's] presented. And also, there's nobody around.'* (E4)

Another point is that retailers should have a strategic supervision policy to monitor their staff's returns processes. This could include that an employee should not refund their own purchased products without the supervisor's signature. Managers should make random inspections and take turns supervising refunds. Each refund transaction should be recorded with the staff ID number. One example given by LP1 B is that they have a policy that the refund has to be signed by a senior manager if the refund value is above £9.

Furthermore, we suggest that in-store, all returns should only be handled by a specific returns desk, which will reduce the probability of fraud attempts. Additionally, the staff who work behind the returns counter will be trained. Therefore, they will be more familiar with the returns policies and processes, are better at spotting any fraud attempt and will record the returns data appropriately. Retailers can also have better control and monitoring by having fewer counters processing

returns. It is speculated that providing return counters can also deliver better customer service. For example, the staff are skilled in managing returns and refunds, so the average time of dealing with each return would be reduced. Meanwhile, the sales counters (i.e., those not dealing with any returns) would be expected to be faster. It is worth noting that offering a dedicated returns desk should also depend on the retailers' size, which was addressed by one expert we interviewed. As E3 suggested:

'I think, with my sort of criminology hat on, the more places where you enable a refund to be done, the greater your potential risk will be. (...) And therefore, you got more sites to try and control and monitor what's going on. So, I would always sort of go for a dedicated desk where possible. But for some companies, that's a considerable cost. If you're a fairly small store, you might not need it.'

#### 5.2.6. Communicating the financial loss caused by returns fraud

Only providing training on how to spot fraudulent returns is not sufficient. Retailers should provide information about the financial loss caused by returns and related fraud, as well as the potential consequences on the viability of staff's jobs. Such communication could motivate staff's responsibility. The former police officer commented that:

*'I think prevention-wise, it is important to provide fraud awareness training [for staff]. (...) We can't keep taking the hits of x amount of pounds per week being taken out, because at the end of the day, that's going to affect the company, which in turn will affect your job. So, you need to take fraud seriously.'* (E4)

Furthermore, timely communication and collaborations with other functional departments regarding fraudulent returns are recommended. For instance, we were told by LP4 B that it is effective to circulate information on the loss caused by returns and frauds (finance department), to update the developed anti-fraud measures (IT department and loss prevention team) and share the common returns frauds (customer service department, and loss prevention team). The senior management team needs to regularly monitor the organisation's performance regarding the returns and fraud strategy. However, due to its sensitive nature, we would suggest that such communications should only circulate at the senior managers' level and among the staff responsible for returns and frauds. One needs to be careful that any information on methods of returns fraud could give criminals even more material for trying out different scams or could encourage opportunists to give it a try. It is also recommended for retailers to collaborate with counter-fraud organisations and other retailers/retailer associations to gain insight into fraud trends, as there are many opportunities to learn from each other's experiences and share information about organised crime and serial returners, as far as permissible by data privacy regulations.

In summary, based on the literature review and our findings, we produced Tables 3–5 which provide a comprehensive picture of the factors enabling the various fraud types across returns channels, as well as relevant interventions for retailers to consider.

### 5.3. The effectiveness of the recommended interventions

Table 6 provides information on the effectiveness of the suggested interventions to reduce returns fraud as reported by the retailers who have already implemented those interventions. Retailers were unable to provide quantitative data on the effectiveness, but they made qualitative statements reflecting it. Given that the interviews cover a wide range of retail sectors (apparel, electronics, and home furnishings, etc.), it is not possible to differentiate the effectiveness of the interventions for each sector.

**Table 3**

A summary of the motivation of in-store returns fraud and corresponding interventions.

Fraud type (in-store returns channel)	Fraud-enabling factors	Interventions
Returning stolen merchandise	<p>In-store security: the products easily get stolen in stores because of:</p> <ul style="list-style-type: none"> <li>× the way products are presented in stores.</li> <li>× lacking security/CCTVs.</li> </ul> <p>Liberal returns policies: easy to return and get a refund, e.g.,</p> <ul style="list-style-type: none"> <li>× no questions when customers return items.</li> <li>× poor staff training on customer returns.</li> </ul> <p>Products management:</p> <ul style="list-style-type: none"> <li>× The products have a universal product code instead of a unique product ID, so retailers cannot distinguish whether the returned item has been sold from their system.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Increasing the coverage of CCTVs and security guards.</li> <li>✓ Displaying a warning that all shoplifters will be prosecuted.</li> <li>✓ Displaying shoplifters' pictures for staff to see and circulating them to all stores.</li> <li>✓ All returns to be handled by Customer Services with specifically trained staff.</li> <li>✓ No receipt, no refund.</li> <li>✓ Displaying a warning using fake receipts will be reported to the police.</li> <li>✓ Return funds to the same payment method only (gift cards in case of gift receipts).</li> <li>✓ Customers to fill in a returns form and provide a signature.</li> <li>✓ Printing UIDs on receipts. No return if the UID on the receipt does not match the item.</li> </ul>
Employee returns fraud	<ul style="list-style-type: none"> <li>× Lack of supervision in the workplace regarding returns and refund processes.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Employees cannot refund their own/their family's and friends' purchases without the presence of a manager.</li> <li>✓ Managers have to sign the refund forms.</li> </ul> <p>Managers should take turns supervising refunds.</p>

**6. The multichannel product returns fraud framework**

Based on our findings, we generated a framework for product returns fraud in a multichannel environment (Fig. 4). The factors driving returns fraud fit into four categories:

The external factors are given by the environment in which retailers and consumers operate. Examples include the Brexit, the blockage of the Suez Canal, the climate emergency, pandemics, wars, economic crises and inflation, but also laws and regulations.

Product related factors include the fact that some products are much more fraud-prone than others. Expensive items and those with small valuable parts (e.g., electronics with SD cards) offer more monetary gain.

The consumer related factors are also mostly beyond the influence of retailers, as they are intrinsic to the individual situation of the consumer. Consumer behaviours can be explained by the Theory of Planned Behaviour (TPB), whereby the consumer's norms and beliefs lead to intentions forming (Ajzen and Fishbein, 1973; Ajzen, 1991, 2002). This feeds into the aspect of rationalisation (Shepherd and Button, 2019), which is part of the Fraud Triangle (Cressey, 1953), later extended to include a fourth element of capability and called the Fraud Diamond (Wolfe and Hermanson, 2004; Schuchter and Levi, 2016). The few things retailers can do to influence these factors include providing the consumer with information on what retail fraud is (eliminating any doubt or grey areas), outlining the consequences of being caught executing a fraudulent return, and demonstrating that the retailer is watching the customer's activities by offering personal assistance. The latter is a form of surveillance under the guise of providing excellent

**Table 4**

A summary of the motivation of online returns fraud and corresponding interventions.

Fraud type (Online returns channel)	Fraud-enabling factors	Interventions
Price arbitrage	<p>Tends to occur with higher-priced items.</p> <ul style="list-style-type: none"> <li>× No serial number on the product.</li> <li>× Liberal returns policies: - easy to return and get a refund - pre-paid return label</li> </ul> <p>Less control if items are returned by post/courier as refusing a refund is a bigger step to take when an item has already arrived at the returns distribution centre as opposed to refusing its acceptance in store.</p>	<ul style="list-style-type: none"> <li>✓ Products: having a (difficult to guess) unique item-level identification.</li> <li>✓ Higher-priced items: in-store returns only.</li> <li>✓ Customers need to contact Customer Services to arrange a return and fill out forms before sending items back.</li> <li>✓ Customers to provide credit card details as a security before processing a refund.</li> <li>✓ Customers to fill in a returns form and tick the "I understand and agree" box.</li> <li>✓ Clear/transparent statement of terms and conditions: <ul style="list-style-type: none"> <li>- No refund if the serial number does not match.</li> <li>- If retailers find fake products/cards, they will report to the police for investigation.</li> </ul> </li> <li>✓ Serial returners/fraudsters will be banned.</li> </ul>
Shipping-related fraud	<ul style="list-style-type: none"> <li>× Allowing customers to post returns via any parcel service company.</li> <li>× Underdeveloped returns portal.</li> <li>× Liberal returns policies: no questions asked when customers request a dubious refund.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Establishing an anti-fraud team to investigate the suspected fraudulent behaviours.</li> <li>✓ Investigation and civil recovery route.</li> <li>✓ Installing cameras in the fulfilment centre as proof that the correct products were packed.</li> <li>✓ The parcel must be signed for by the customer.</li> <li>✓ Establishing an effective own returns portal or cooperating with specialist 3rd party returns companies.</li> <li>✓ Customers to contact Customer Services to request a return, instead of where a return label is already included.</li> <li>✓ If customers claim the parcel did not arrive or was stolen, ask them to report it to the police and provide proof of the report.</li> <li>✓ Collecting and establishing customer shopping and refunding information to develop a series of returns fraud indicators.</li> </ul>

customer service and is being used successfully by some retailers. All of these interventions feed into the element of rationalisation. The availability of professional refunder services and instructions increases a customer's capability of committing returns fraud.

The retailer related factors offer by far the most opportunities for improvements and interventions to reduce the rate of fraudulent returns, as detailed in Tables 3–5. The more weaknesses retailers address, the less opportunities for returns fraud remain. Many of the interventions also make the returns process smoother, reducing processing time and effort

**Table 5**

A summary of the motivation of online multi-channel returns fraud and corresponding interventions.

Fraud type (multi-channel returns)	Fraud-enabling factors	Interventions
Wardrobing	Tends to occur with more durable products (e.g., clothing). × No/low cost of returns. × Easy to return; no questions asked. × Longer return period. × Staff lack readiness to spot and confront dishonest behaviour. × Pre-paid returns label.	✓ Offer a shorter return period (e.g., 14 days vs 28 days). ✓ Products can only be returned with tags still attached. ✓ For clothing, having a swing tag in a visible place, making it difficult to wear without removing the tag first. ✓ Returning to customer service desk only, to specifically trained staff who closely examine items for any signs of use. ✓ Clear return policy: no tag, no return (may provide exchange); no return form, no refund. ✓ If returns are sent via post, customers fill in a return form with personal details (e.g., postcode) to process the return request. ✓ The return form also provides information about the consequences of fraudulent returns. ✓ Utilising data analytics to track serial returners and target those returns by implementing returns constraints.
Payment refund fraud	× Cybersecurity weaknesses: lacking a robust online security payment and ordering system.	✓ Data collection and analysis ✓ Limiting the types of payments accepted and excluding some (e.g., PayPal). ✓ Use 3-D Secure Service. ✓ Use Address Verification Service.
Multi-channel refund fraud	× Lacking a real-time information system to record the refund information in detail.	✓ Establishing an effective information system.

(Frei et al., 2022).

The decision on how to organise returns processes, which systems to use, as well as which interventions to implement all depend on the retailer’s strategy. Any changes in the processes and interventions chosen will depend on the retailer’s motivation for acting, the challenges they are facing, and any barriers they need to overcome.

Zooming in on the interventions retailers can take to reduce returns fraud, these can be structured as shown in Fig. 5. We use Wilhelm (2004)’s framework of fraud management lifecycle theory as a basis that posits a returns fraud management framework. Our framework consists of 6 components, as we merged deterrence with prevention and data collection with analysis, given that they are very closely linked in the context of returns fraud. These components and the related interventions are based on the findings discussed in Section 5, allocating specific practical interventions to each stage of returns fraud management.

6.1. Deterrence and prevention

Deterrence and prevention can be seen as the anti-fraud step in managing returns fraud, which intends to create difficulties and fears of being caught for fraudsters to discourage and prevent fraud before

**Table 6**

Implementation and effectiveness of recommended interventions to reduce returns fraud.

Interventions	Implementations and their effectiveness	Example quotes
<b>Using 3-D Secure Service Using Address Verification Service</b>	Companies 2, 3, 6 ⇒ This is more likely for retailers who had an early entry into eCommerce. ⇒ Less chargeback fraud.	<i>‘Now, we can do stuff rule-based within the tools [3-D Secure authentication service] ... So, for all customers who have had a chargeback or 3DS fraud, we will actually review them more stringently than a normal customer ... Now, our chargeback fraud rate is really low, about 0.05%.’</i> (Company 2) For more quotes, see Section 5.2.4
<b>Investigation and civil recovery route</b>	Companies 3, 6, 7 ⇒ Reputation for being tough in dealing with fraudulent returns. ⇒ Being less targeted by organised crime when comprising with other retailers.	<i>‘So, we have a team within the returns warehouse that will actually check a high percentage of the returns, and they’re quite good at looking for evidence that a customer has worn and returned the wrong item. They will contact the customer and challenge them... we charge £35 admin fee for the time and effort we’ve taken to challenge it... We will also go down this whole recovery route. If we’ve got clear, organised criminality, or we’ve got repetitive fraud. That costs us a lot of money. So, we will send people round to knock on the door and will undertake civil recovery.’</i> (Company 6) <i>‘...we were on a meeting with a number of retailers in the industry discussing this exact issue of organised crime and gangs on returns fraud. So far, we haven’t seen any evidence that we’ve been targeted by them [organised crime]. We do see little flurries of activity and we deal with it accordingly... We think that’s partly down to our reputation of being tough.’</i> (Company 6)
<b>Having stringent supervision in returns and refund processes</b>	Company 1 ⇒ Significantly reduced employee fraud.	<i>‘... for us to cut down on the internal returns fraud, it is a lot easier for us to manage and investigate and quite effective just by having more supervision and policies. ... now, we’ve got a policy in place where all refund of £9 and above needs to be signed for by a senior manager’.</i> (Company 1)
<b>Increasing the deployment of CCTVs and security guards in stores</b>	Company 1 ⇒ Less returning shoplifted fraud.	<i>‘We spend now roughly £40 million a year on guarding [in-store] when it was £20 million pre-pandemic, which obviously reduces the likelihood of having a theft, but also significantly’</i> (continued on next page)

Table 6 (continued)

Interventions	Implementations and their effectiveness	Example quotes
<b>Item-level unique identification (UID) system</b>	Companies 6, 7 ⇒ Significantly reduced price arbitrage fraud.	<i>reduces the likelihood of fraudulent returns .... so our shrink last year was around 200 million, and the year before it was around 250 (million)'. (Company 1)</i> <i>'... We have our UID system. In our company, we spend a lot of money on investing in this unique identifier. So, every item has a UID number, and then we can track that right from where the customer ordered it to it coming back into the system. Everything on the vast majority of our stock housing UID. So, if a customer tries to say, I haven't received it or returned the wrong item, we can track that item and able to say, well, no one else has ever had this item.'</i> (Company 6)
<b>Printing UIDs or other further information on receipts</b>	Companies 3, 5, 6, 7 ⇒ Identified price arbitrage returns fraud and mitigated the loss. ⇒ Reduced the probability of fraud attempts.	<i>'... now, we were more mature in our control measures than before. We developed strategies like, if we were selling electronic products with serial numbers, we would record the product's serial numbers on the receipt... this wasn't that hard. And then, when they came back, we could check to make sure that was the right serial number. Now this has an immediate impact in trues, because customers could see that we would track the serial number, it meant that they didn't come back the following day to try and say, "I have this machine opened and it's faulty, I want my money back". And what we would know was that actually, it was a machine that was 1 year old that put back into the new box, because that's what was happening before. We can refuse the refunding.'</i> (Company 6)
<b>Data collection and analysis</b>	Companies 2, 3, 4, 6 ⇒ Identified fraudulent serial returners and mitigated the loss of returns fraud.	For more quotes, see Section 5.2.3 <i>'...for example, based on the data we collected, my team analyses every loss shipping claim with a certain dollar threshold. You can then evaluate whether this is a repeat offender; is it their first time claiming something? So, there's kind of findings of these repeat offenders who just keep doing the same thing. And making the connections through their unique attributes on our</i>

Table 6 (continued)

Interventions	Implementations and their effectiveness	Example quotes
<b>Installing cameras in the fulfilment centre</b>	Company 6 ⇒ Reduced shipping-related fraud.	<i>system and defining "okay, this is a fraud". We're not gonna provide a refund. So doing sort of analysing definitely helps.'</i> (Company 4) <i>'We've also got cameras above our packing stations, so if the customer claims that they didn't receive the item, the wrong items have been sent, or missing some items, we can go back to those cameras. That's right above the packing station, and we can send to the customer and say, "we can see the correct item being packed and sealed into that box before it goes out of our business". So, we have the evidence to be able to have those challenging conversations where we needed.'</i> (Company 6)

occurring (Wilhelm, 2004; Amasiatu and Shah, 2018; Furlan and Bajec, 2008). For example, the findings of our interviews (Section 5.2) have demonstrated that introducing more CCTVs and security guards in-store, as well as having a good reputation for being tough in handling fraudulent returns, can create fear to reduce fraud attempts. Similarly, implementing automated 3-D secure authentication can introduce challenges in inhibiting fraudulent orders. These early anti-fraud interventions prevent potential fraudulent returns at the early purchase stage and alleviate future investigation costs.

6.1.1. Detection

Detection refers to the interventions that identify the presence of fraud at the return and refund stage. It includes utilising new technologies such as RFIDs, statistical monitoring algorithms programs, and properly inspecting returned items and/or fraudulent claims by customers at the warehouse, call centre and in-store staff. The technologies and algorithms programs can assist front-line staff in detecting fraudulent returns behaviour and have evidence and confidence to refuse the claims.

6.2. Data collection and analysis

Data collection and related analysis is an important component revealed in our findings, aiming to have a transparent management in returns fraud. For example, Sections 4.2.4 and 5.2.3 have discussed that establishing a return portal can track consumer purchase and return behaviour, as well as subsequent analysis, which can be used to build fraudulent returns indicators to monitor customer claims. This process can be developed as a tool to detect and deny fraudulent returns (Speights and Hilinski, 2005). Additionally, the analysis includes the measurements of the number of fraudulent return detections and related financial loss, allowing loss prevention and anti-fraud teams to assess their management (Furlan and Bajec, 2008). Hence, the values of this component can be utilised or embedded in the practice of other components.

6.3. Mitigation

The aim of mitigation is to stop fraud losses and/or fraudulent returns from continuing to occur (Wilhelm, 2004). This step takes place

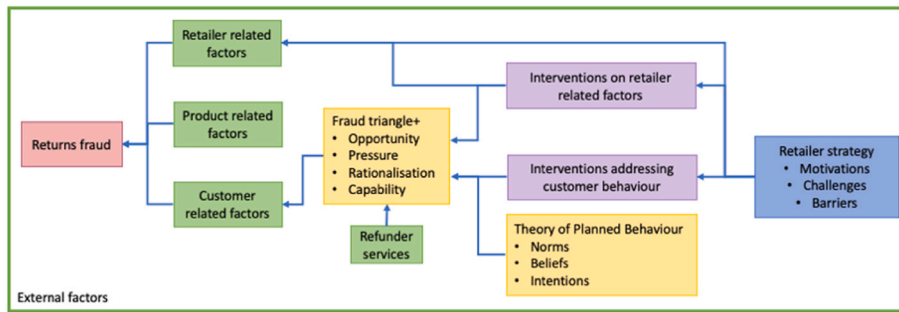


Fig. 4. The multichannel product returns fraud framework.

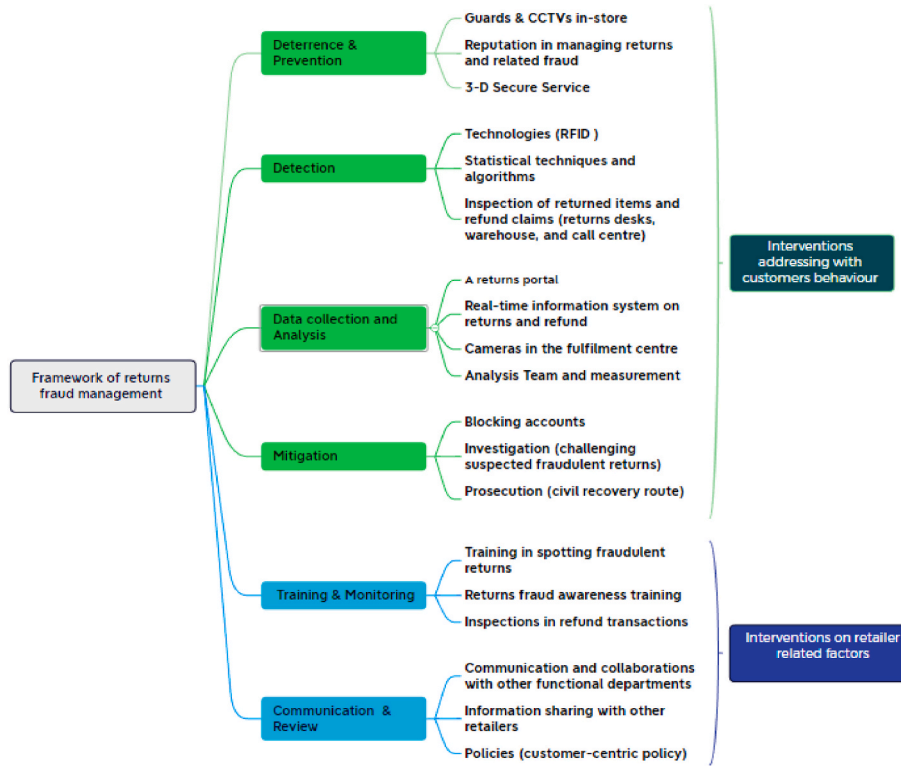


Fig. 5. The framework of returns fraud management.

when a plausible suspicion of fraudulent returns has been detected. The interventions include having a blocking list of accounts, investigating the suspected fraudulent returns, or even taking a civil recovery route. Wilhelm (2004)'s framework separates mitigation, investigation, and prosecution into three complements. However, in the case of returns fraud, they can be in the same stage. The interventions in this stage require retailers to obtain enough evidence, fraud indications, and human resources. As such, the components of data collection and analysis, and the technologies implemented in detection are crucial. If the values of this mitigation component have been accomplished, the subsequent benefits are that retailers not only can mitigate the financial loss caused by fraudulent returns but also can establish and enhance their reputation of deterring fraud, which in turn supports the deterrence and prevention stage.

#### 6.4. Training and monitoring

The training and monitoring intend to support the detection stage. Regular training on returns fraud detection, detailed investigative procedures, and fraud awareness training can facilitate employees to

undertake their work responsibility and enhance their knowledge and skills to detect and minimise the opportunities of returns fraud. The employees should include in-store, warehouse, and call centre staff involved in return and refund procedures, security guards, and data analysts. Moreover, our findings demonstrate that random inspection in refund transactions is imperative to reduce the possibility of employee involvement in returns fraud activities (see Section 5.2.5 for details).

#### 6.5. Reviews and communication

Reviews and communication are activities to assess, evaluate, review and communicate the consequences of returns fraud and its management. The value of this component is to improve the management practices to reduce the incidence of fraudulent returns, and to align with other managerial facets. Three key activities can be considered in this stage: One is a regular assessment to review and quantify the outcome of applying this returns fraud framework. Second, it is imperative to regularly communicate with other departments regarding fraud-related loss, fraud management performance, and related business disruptions. Thereby, top managers from various departments can collaborate to



enhance their business position and profitability, and balance the returns fraud interventions with other departments' policies (e.g., customer-centric policy, KPLs of marketing department) and resource constraints (e.g., the costs of prosecutions). Third, information sharing with other retailers and external collaboration with counter-fraud organisations can be very beneficial (Amasiatu and Shah, 2019). The more comprehensive information is shared with the retailers about returns fraud, the more effectively retailers can improve their fraud interventions and mitigate the loss.

This framework and related interventions are based on the practical findings obtained from our interviews. Notably, the interventions for addressing fraudsters' behaviour largely rely on the effective application of information technology resources and staff from different departments. Additionally, the organisation's internal activities regarding fraud management, monitoring and communication ensure the accomplishment of interventions' values in tackling fraudsters' behaviour and, subsequently, the success of the fraud management framework as a whole.

## 7. Conclusion

Evidence shows that fraudulent returns cause great losses for retailers. Retailers try to be robust by implementing strategies to enhance customer experience and mitigate fraudulent returns. However, extant research on returns fraud tends to identify the driving factors on the side of dishonest customers, whilst ignoring those on the retailer's side. Furthermore, current literature lacks an understanding of the impact of the COVID-19 pandemic on returns fraud. In response, we conducted a qualitative study via interviews with retailers and returns experts to address these research gaps.

In response to the research questions, we can identify (RQ1) the critical factors enabling fraudulent returns in retail as being lenient returns policies with a dominant focus on providing excellent customer service, underdeveloped product identification systems, underdeveloped returns portals, fragile supervision in returns management, and the lack of data-driven information systems. Strategies that retailers can use to address fraudulent returns (RQ2) address these weaknesses by tightening and enforcing returns policies, implementing returns process improvements, introducing unique product IDs, adopting an effective returns portal, collecting and analysing data strategically, using fraud investigation and civil recovery routes, increasing supervision in returns and refunds, and strengthening internal communication regarding the costs of returns fraud. In response to RQ3, a framework for product returns fraud management is proposed in Section 6.

### 7.1. Research contributions

This study extends prior research and practical implications in several ways. First, we expanded the list of known types of returns fraud and distinguished them by the initial purchase methods and return channels. These results address gaps in previous studies which only generally described returns fraud instead of classifying fraud types by their characteristics. The findings also advance previous research on returns fraud (e.g., Piron and Young, 2001; Speights and Hilinski, 2005; Chang and Yang, 2022) by providing details on how each fraud type occurs (Table 2). The existence of 'refunder services' and shared online instructions for committing refund fraud add to the rapidly expanding field.

Second, we identified the drivers of returns fraud on the retailer side by analysing the weakness of their returns processes and management. Our data analysis sheds new light on lenient returns policies and retailers' customer-centric orientation, always putting customers first, which leads to even higher costs for retailers (Frei et al., 2020). Additionally, inefficient data-recording systems, slow adoption of new technologies, and insufficient supervision of returns processes can easily be exploited by serial returners and fraudsters. Furthermore, payment

methods such as PayPal and 'Buy now and Pay later' provide more opportunities for fraudsters to abuse retailers' refund systems. Further investigation of the impact of different payment methods on returns and fraud costs and sales volumes are needed. The discussion of employee-related returns fraud revealed that employees can process a refund to their personal account without any purchases if there is insufficient supervision in the returns process.

Third, we propose interventions that retailers can implement to combat returns fraud with little impact on the shopping and returns experience of good customers (Tables 3–5). It is worth noting that despite the new technologies and well-established information systems, the investment in human resources (e.g., an effective loss prevention team, a skilled fraud analysis team) is key to ensuring all the anti-fraud actions take effect. We observed that the typical size of the loss prevention team (or the anti-fraud team) is relatively small, ranging from 5 to 10 persons. One retailer suggested that 'fraud is constantly evolving, and tools are only as good as the people overseeing them'. There is a lack of research on how to build a robust system and team to mitigate returns fraud. Our recommendations can help retailers review their returns and refund systems, as well as their management, to limit the opportunities for fraud attempts in the first place (e.g., using item-level identification systems). Preventing fraud from happening reduces unnecessary losses and the need to engage in a complicated investigation process.

Fourth, the current study contributes to investigating the implications of COVID-19 on retailing (Roggeveen and Sethuraman, 2020; Schleper et al., 2021). Our findings show that the problems with returns fraud that were costly in pre-pandemic periods (e.g., wardrobing, fraudulent refunds, serial returners) have worsened since the beginning of the pandemic. Retailers are more vulnerable to returns fraud via post or courier than before, and many more variations of this type of fraud have appeared during the pandemic. A key driver of this development is the restrictions introduced to control the pandemic (Zhang et al., 2022b). Whilst the restrictions have been eased in many parts of the world, the advanced level of organised returns fraud is here to stay. To survive, retailers are forced to assess the vulnerability of their returns and refund systems and, subsequently, take actions to be more resilient in the long run, mitigating unexpected disruptions in the future.

Fifth, based on the findings of this research, we developed a framework for product returns fraud and its management. Our framework explains the various factors that enable fraud and provides essential elements for successful fraud management in returns. This not only extends the application of the current fraud management lifecycle theory but can also be used to assist practitioners in better understanding, assessing, and managing fraudulent returns. Furthermore, our framework shows that these components do not occur sequentially; they support each other and are interrelated. It also supports the suggestion that for fraud management, a coherent strategic intervention is needed (Bishop, 2004; Durbin, 2006).

### 7.2. Limitations and future direction

The limitations of this study include its focus on larger omnichannel retailers in the UK, US and Canada, and the interviewees being from the senior level. Future research could investigate small-medium retailers or the same types of retailers but in other countries to explore whether they also face similar returns fraud patterns. The eCommerce platforms and their low-trust security measures in China, South Korea, Japan and India are of particular interest.

Another aspect to investigate further is the influence of socio-demographic factors on fraudulent returns behaviours. Younger people are more likely to return products fraudulently (Jolson, 1974; Harris, 2008). Whilst there is no retail data that has measured the rate of wardrobing because it is extremely difficult to identify, we extrapolate that younger people might engage in more wardrobing as they are more affected by financial constraints and often attribute more importance to wearing the latest fashion in pictures and videos shared on social media.

Further research is needed to confirm this.

The current study only collected qualitative information on factors that drive returns fraud and interventions that can mitigate them. It would be interesting collect quantitative data reflecting on the effectiveness of the interventions, with a detailed 'before and after' data analysis. This requires retailers or returns service providers to be able to provide sales and returns transaction data covering the time before and after the introduction of an intervention. Despite our requests to numerous retailers and service providers, we have struggled to obtain such data, but we will persist. Our current and future research will continue to further explore the costs and benefits of fraud interventions to assist retailers in making effective judgments regarding the dilemma of balancing return policies, costs, and profits in retail businesses.

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## Data availability

The data that has been used is confidential.

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