

How Optimized Remarketing and Refurbishment Can Help Grow Revenue and Improve Circularity

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» Research Question Addressed

How should manufacturers allocate refurbished consumer returns between remarketing and warranty fulfillment to extract maximum value for the manufacturer?

How does the optimal allocation of returns to remarketing and warranty fulfillment change over the product life cycle?

How do return rates, remarketing potential, refurbishing costs, failure rates, and product pricing affect optimal allocation?

» Relevant Sectors

Manufacturing
Retail

» Primary Findings

Original Equipment Manufacturers (OEMs) of consumer electronics should use returns primarily for remarketing and warranty fulfillment and rarely scrap them.

The value of earmarking refurbished consumer returns to fulfill warranty claims is typically larger than the value of remarketing them. This is especially true for products with significant warranty coverage and refund costs.

OEMs of consumer electronics should strategically emphasize earmarking of consumer returns at the early stages of the life cycle to build up inventory for the future warranty demand, whereas they should consider remarketing at the later stages of the life cycle after enough earmarked inventory is accumulated or most of the warranty demand uncertainty is resolved.

The optimal level of remarketed returns increases towards the end of the product life cycle but rarely surpasses the level of returns earmarked to fulfill warranty claims.

» Keywords

Circular economy
Closed-loop supply chains
Consumer electronics
Consumer returns
Refurbishing
Remarketing
Warranty

» Firms/Industries Appearing in Research (partial list)

Apple Inc.
Durable goods
Electronic goods
Manufacturing
Retailing





» Highlights

In the U.S. market, consumer returns have been estimated at \$200 billion per year and average 8.2% of total retail sales.

Consumer returns depend on recent sales while warranty claims occur throughout the product life span. This leads to greater uncertainty in warranty demand (2% to 30% of sales) than in consumer returns (8% to 12% of sales).

The research found that, on average, consumer electronics OEMs should refurbish about 30% of returns for remarketing and 65% of returns for warranty claims. Few returns should be salvaged.

» Topic Overview

Retailers cannot resell returned consumer electronics as new, so they typically return the items to OEMs. Rather than simply scrapping the returned goods, OEMs can refurbish returns and set them aside for meeting warranty claims or remarketing, both of which offset the costs generated by the returns. Using refurbished returns for warranty claims reduces costs at the expense of revenue loss, as the refurbished products could be resold at a discount. However, when manufacturers remarket refurbished goods, they risk reducing sales of new products, though they may also expand the OEM's share on the secondary market.

» Link to Article

Pinçe, Ç., Ferguson, M., & Toktay, B. (2016). [Extracting maximum value from consumer returns: Allocating between remarketing and refurbishing for warranty claims](#). *Manufacturing & Service Operations Management*, 18(4), 475-492.

» Related Links

Retail Dive. (2016, October 25). [Returns: Meeting customer expectations and inventory challenges](#).

Molinari, Lori. (n.d.). [Reducing E-waste of consumer electronics through reverse logistics](#). FedEx Supply Chain.

Tabuchi, Hiroko. (2015, Dec. 28). [In season of returning, a start-up tries to find homes for the rejects](#). *The New York Times*.

» Implications for Sustainable Business

Manufacturers can refurbish returned products to reduce the financial and environmental costs generated by consumer returns. The incentive to refurbish returned goods is greatest when OEMs can identify the proper balance between remarketing refurbished goods and using them for warranty fulfillment. Refurbishing not only reduces the environmental cost associated with discarding or processing returns but also minimizes the financial cost that returns impose on manufacturers.