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How Does Web Personalization Create Value for Online Retailers? Lower Cash Flow Volatility or Enhanced Cash Flows

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Abstract

This study examines the performance consequences of web personalization (WP), a type of personalization in which web content is personalized and recommendations are offered based on customer preferences. Despite the growing popularity of personalization, there is a dearth of research at the firm level on whether and how web personalization creates shareholder value. We develop and test a conceptual model that proposes that the impact of WP on shareholder value is mediated by (1) cash flow volatility and (2) premium price. The hypotheses are tested based on 603 firm-quarter observations spanning 80 firms over six years in the online financial services industry. The results suggest that while WP lowers the volatility of cash flows, it only enables firms to charge premium prices when online trust is high. Additional tests reveal that the reduction in cash flow volatility is because of lower churn as opposed to acquiring new customers or greater cross-buying. Finally, online trust positively moderates the relationships between WP and cash flow volatility and price premia. Practical implications of the findings are discussed.

Keywords: Web personalization; Retail strategy; Cash flow volatility; Price premium; Market-to-book ratio; Marketing-finance interface

Introduction

Retailers invest significant dollars in information technology (IT) and customer intelligence tools to enhance their capabilities. The increased emphasis on IT tools stems from changes in the business environment, availability of large amounts of data, and advances in intelligence technologies. A significant trend in the marketplace pertains to retailers using personalization technologies to build stronger relationships with customers. *Personalization* refers to tailoring offerings and communications to meet customer preferences based on stated, observed, and predictive data (Aguirre et al. 2015; Bleier, De Keyser, and Verleye 2018). Personalization is increasingly used as a tool by online retailers because the Internet provides tremendous opportunities to collect and process information. Although personalization is easier to accomplish in offline settings because of greater opportunities to learn about customer preferences (e.g., personal selling), it is pursued increasingly in online settings because customers generate logs of important transactional information when interacting with firms in the online space. Data-driven personalization strategies have been labeled as the “life-blood of retail” (National Retail Federation n.d., p. 20).

The type of personalization implemented by online retailers varies (Bleier, De Keyser, and Verleye 2018). For example, the options range from offering transaction flexibility (e.g., personal account maintenance, user recognition, order tracking), targeting banner advertisements (e.g., Facebook and Google advertisements based on search history), morphing website looks (e.g., McDonald’s homepage personalization based on user’s detected location/time or cognitive style), and offering product recommendations (e.g., Amazon’s recommended items or Spotify’s weekly/yearly personalized song suggestions). The focus of this paper is on *web personalization* (hereinafter WP) where content is adapted and personalized recommendations/advice are offered to customers based on their preferences.

The popularity of personalization is underscored by the fact that 94% of senior-level executives believe personalization is critical to reaching customers (Forbes Insights 2016) and is therefore worthy of investment. For example, Netflix spends

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$150 million on an annual basis on personalizing recommendations (Roettgers 2014). Despite the growth in the number of firms offering personalization and the significant increase in retailers' investments on personalization, empirical evidence on whether personalization creates value for firms is scarce. Reports from the business press are not reassuring either. According to Jupiter Research, only fourteen percent of customers noted that personalized recommendations on shopping websites would result in their returning to that website. Moreover, more than two-thirds of consumers are concerned about how firms and brands use their personal data (Gigya 2017). However, claims that personalization tools offer opportunities to retailers to build tighter and more profitable customer relationships are quite common in the press (BCG 2017; Nunes and Kambil 2001). Moreover, business reports have cited personalization as the primary driver of FANG, that is Facebook, Amazon, Netflix, and Google, market capitalization and stock market performance (Investopedia 2017). Overall, while investments in personalization systems continue to increase, evidence on returns from such efforts is missing.

How could WP impact firm performance? Prior research in marketing suggests that marketing initiatives create shareholder value for firms by reducing the vulnerability and volatility of cash flows, enhancing cash flows, or both (Rao and Bharadwaj 2008; Srivastava, Shervani, and Fahey 1998, 1999). A significant proportion of the market value of firms today lies in intangible, off-balance sheet assets such as brand value and customer satisfaction rather than in tangible book assets (Kerin and Sethuraman 1998; Madden, Fehle, and Fournier 2006; Tuli and Bharadwaj 2009). "Market-to-book" ratios for the Fortune 500 firms are approximately 3.5, which suggests that more than 70% of the market value of the Fortune 500 firms lies in intangible assets (Capraro and Srivastava 1997). Our argument is that WP helps firms to create off-balance sheet assets. These relational assets could enable firms to increase switching costs, build entry barriers to competitors, acquire new customers at lower cost, and allow firms to charge higher prices. Therefore, forward looking performance metrics such as shareholder value are more likely to reflect the future value of intangible assets compared to accounting metrics.

We develop and test a conceptual framework that delineates two distinct routes through which WP creates shareholder value. WP could create shareholder value by stabilizing firm cash flows (Hollensen 2015). It is well known that stable and predictable cash flows reflect firm's stable operations and lower firm risk and cost of capital. For example, although promotional activities (e.g., price-offs) temporarily lift firm revenues, they do not always translate into higher shareholder value because such growth is expensive, introduces volatility in cash flows, and increases firm's working capital requirements. WP could stabilize cash flows in various ways. First, WP could lead to greater customer lock-in (Novshek and Thoman 2006; Peppers and Rogers 1997) because customers invest time and effort in providing information to facilitate personalized services. As a consequence, switching to competitors may not be feasible without customers incurring considerable costs. Second, WP could enable the firm to acquire new customers at lower costs and offset revenues from lost customers. This possibility is based on the assumption that new customers might find the firm's personalized offerings differentiated and valuable and therefore firms may not need to incur high costs to acquire them. Lastly, WP could stabilize cash flows by increasing cross-buying and offsetting lost revenues from churned customers. Because existing customers (those that have not churned) find value in the firm's personalized web content, it is possible that such customers would be willing to purchase other products from the firm. All of these mechanisms would have a cash flow stabilizing effect which subsequently leads to higher valuation by stock markets.

In addition to lowering cash flow volatility, WP could improve shareholder value by enhancing the net present value of cash flows. Specifically, the ability to personalize content might translate into premium prices as customers might find the service to be valuable as it is tailored to their preferences. Premium prices, in turn, imply greater gross margins and therefore enhanced cash flows. The 'cash flow stabilizing' and 'cash flow enhancing' pathways are not mutually exclusive. It is plausible that WP creates shareholder value through both pathways similar to mindset metrics such as customer satisfaction (Fornell et al. 2006; Gruca and Rego 2005). Nonetheless, understanding whether and how these effects manifest is a managerially relevant issue. Specifically, understanding whether shareholder value is created because of lower working capital needs or enhanced cash flows could help retailers to better articulate the business value of WP efforts.

We test our hypotheses on 603 firm-quarter observations spanning 80 firms and six years in the online retail industry in the financial services sector. The model accounts for reverse causality, sample selection, and unobserved heterogeneity. Our study offers a rigorous test of hypotheses, generates insights that provide guidance to retailers, and develops a research agenda.

Conceptual Framework and Research Hypotheses

Prior research has investigated the effectiveness of personalization as it relates to different aspects such as advertisements, web content, and recommendations. There is significant research on whether ad personalization and targeting improve consumer responsiveness. The issues examined are whether personalized ads matched to cognitive styles (Urban et al. 2013) and the stage of the consumer's buying process and preference (Bleier and Eisenbeiss 2015a) improve consumer attitude and behavior towards the personalized effort.

Our study is related to prior research that has examined the effectiveness of personalized website content and recommendations. For instance, previous research examines website morphing (i.e., personalizing the 'look and feel' of a website) and analyzes the impact of all prior clicks to determine when to morph for each customer and finds substantial improvement in purchase intentions (Hauser et al. 2009; Hauser, Liberali, and Urban 2014). Likewise, research on personalized recommendation systems finds that higher quality personalization is associated with better decision quality for consumers, greater trust in the recommendation agent, and greater consumer store

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