What factors determine e-satisfaction and consumer spending in e-commerce retailing?

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ABSTRACT

Evidently, the Internet has resulted in a fundamental shift in retailing practice, creating a shift in both consumer and business behavior, which has been compared to that of the Industrial Revolution. The purpose of this paper is to analyze customer satisfaction in e-commerce market. In particular, we determine the factors that affect customer e-satisfaction and the relationship between customer satisfaction and consumer spending in e-commerce retailing. We focus on how American based e-commerce firms are impacted by these developments and how marketing practices have reflected the developing e-commerce situation. The results show that customer satisfaction does have an impact on consumer spending in American based e-commerce retailers. Further, the relationship between customer satisfaction and consumer spending is positive, where higher e-satisfaction results in more spending in e-commerce. The results also show that there is a direct relationship among e-service quality, e-satisfaction and e-loyalty in terms of online spending by consumers. However, the analysis shows that e-commerce still faces challenges compared with traditional offline retailers since customers cannot feel and try the products, and may end up choosing the products that they do not want.

1. Introduction

This research aims to provide an insight into the paradigm shift in retailing strategies utilized by firms within the retail industry. Literature demonstrates that there has been a significant structural shift towards online and digital retailing in recent years, resulting in more personalized and communicative marketing approaches; creating advantageous for both the firm and consumer (Anderson and Srinivasan, 2003; Cao and Li, 2015; Accenture Consulting, 2016). Technological advances made available upon the introduction of Web 2.0 have provided a number of platforms upon which to communicate with consumers. To achieve best results, firms must, therefore, consider the most effective platform to reach the target audience and with what message. The rapidly changing business environment requires a dynamic approach to remain competitive. The Internet is a revolutionary technological development which has impacted almost every industry. The retail industry has seen advantageous cost efficiencies offered by the Internet, which is also beneficial for the consumer for both ease of use and price transparency.

Due to the price transparency offered by the Internet and increased competition amongst companies, pricing power has shifted from producers to the consumer. This has forced retail companies to adapt their business activities to reflect consumer's needs; for example, increased availability of the Internet on multiple platforms as well as the savings available via price transparency has resulted in an online presence being imperative. As reported by Statista (2015), global e-retail sales amounted to around US$8 billion since 2013 and almost 40% of global Internet users purchased products online in 2013. Additionally, we also predict a growth of up to US$1.5 trillion by 2018 with sales increasing year-on-year (See Fig. 1). A survey of nearly 200 senior marketing managers concluded that the customer satisfaction metric is very useful in business management and review (Statista, 2015).

As a result, interesting questions about levels of customer satisfaction in terms of e-commerce retailers have been raised since the rapid growth of online transactions in the service industry. Most studies in this area show that systematic differences do exist between online and offline shopping environments toward customer satisfaction (Cao and Li, 2015; Ansari et al., 2008; Kusum and Farris, forthcoming). On one hand, the e-commerce platform permits customers to sort and group information and even access opinions from online customer reviews and ratings to improve the shopping process and increase the number of options available (Bamfield, 2013; Brynjolfsson et al., 2009). On the other hand, the decreased customer satisfaction may be generated mainly due to lack of security, relevant privacy, timely human contact
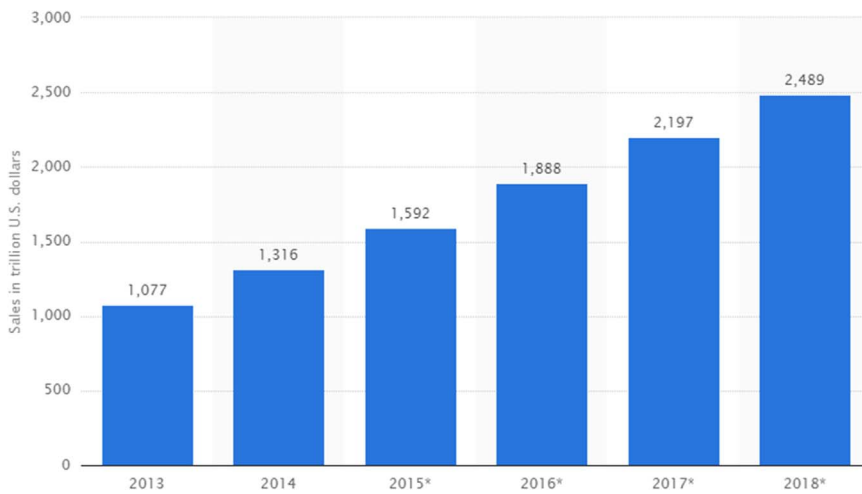
Fig. 1. Retail e-commerce sales worldwide from 2013 to 2018 (in trillion U.S. dollars).
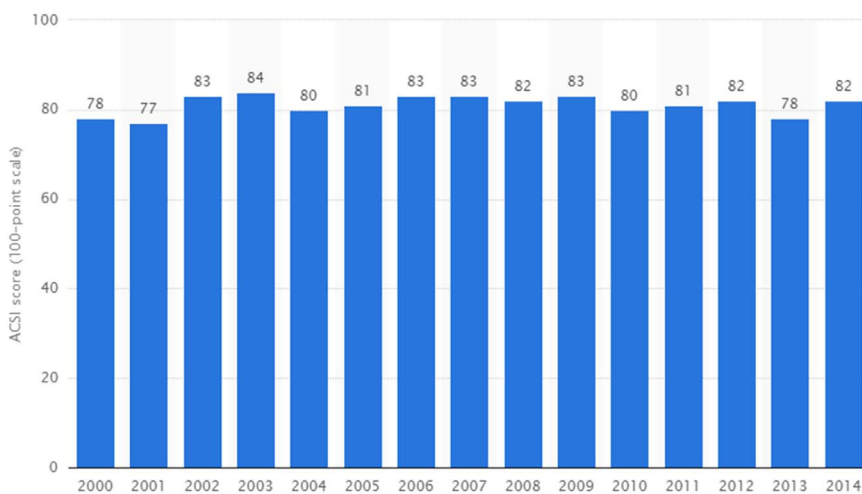*Source:* Statista (2015)

Fig. 2. U.S. customer satisfaction with online retail from 2000 to 2014 (index score).
Source: Statista (2015)

and service, up-to-date technology, and poor design of website pages (Pauwels et al., 2011; Bamfield, 2013). A high rate of customer retention and large sums of revenue and profits will be maintained because of the high level of customer satisfaction. That is to say; no business can survive or maintain competitiveness without appropriate levels of overall customer satisfaction. Overall, the most well-known form of online shopping is business to consumer (B2C) shopping, which is when online shoppers can order various products and, on most occasions, pay for their purchase directly via the Internet. Over the past decades, the e-commerce market in America has been developing constantly with B2C sales in the region amounting to almost 35% of global total B2C e-commerce sales in 2013. Moreover, within 14 years 2000–2014), the customer satisfaction index (ACSI) score of American-based electronic retailers increased from 78 in 2000 to 82 points in 2014, which is relatively high within the 0–100 scale (Statista, 2015) and can be demonstrated by Fig. 2 below:

Additionally, according to the US Commerce Department, for the entire year 2010, retail e-commerce sales reached US$167.3 billion, while retail e-commerce sales for the whole of 2013 were US263.3 billion, showing a 16.9% increase compared to 2012 (US$225.3 billion). It also estimates that the total retail e-commerce sales will reach US$491.5 billion by 2018. Up to 2014, e-retailers in the US made e-commerce sales gains of over US$305 billion and they intend to increase this amount to US$548 billion by 2019. Retail e-commerce sales amounted to more than US$53 billion during the holiday season during November and December 2014 in the United States (Statista, 2015). Amazon.com is the most successful web-only B2C e-retailer in the United States. In its 2014 annual report the

company revealed that the sales amounted to over US$80 million in the United States alone (Accenture Consulting, 2016), followed by Apple and Walmart with both online and offline shopping environments. In the United States, there are still several other successful web-only B2C e-retailers such as Netflix, Etsy and Amway. Therefore, through analysis of this paper, we attempt to find out what is the impact of customer e-satisfaction on consumer spending in terms of American-based e-commerce retailers? This analysis of the relationship between customer satisfaction and consumer spending in American based e-commerce retailers is based on a review of the following specific research questions: What is customer satisfaction in terms of online shopping environment? What factors affect the customer satisfaction in the concept of the online shopping environment? What is the relationship between customer satisfaction and consumer purchasing behavior (consumer spending) in the online shopping environment? In the literature survey section, we first review these questions in terms of the literature on e-commerce and e-satisfaction.

We further organize our paper as follows. In Section 3, we list our data summary, scope, and data reliability and validity. We then explain the models used to analyze the research topic based on collected data. In the empirical results and analysis in the subsequent Section, we analyze the results from the model analysis based on specific software in order to further study and prove the relationship between customer e-satisfaction and consumer spending in American-based e-commerce retailers. In Section 5, the implications and limitations of this paper are stated. The next section talks about directions for future research with respect to the research topic. Finally, conclusions are drawn.

2. Literature review

The rapid growth of the Internet has impacted dramatically on the retail industry, resulting in an online presence being paramount to achieving competitive advantage. There has been a significant increase in e-commerce, with consumers preferring to shop in the virtual marketplace. This method has become increasingly popular due to companies such as PayPal offering a secure payment method. The vast choices available online are infinitely more appealing to the modern shopper, accessible at the click of a button. This platform is advantageous for both the consumer and the company, allowing managers access to a gold mine of analytic tools to assist in effective retailing methods.

There are many businesses that compete on a global scale through their website alone, without the expense of a high street presence. These companies are highly successful because the virtual marketplace eliminates the costly maintenance of a physical shop. Examples of these include www.amazon.com, www.asos.co.uk and www.eBay.co.uk. Analytical tools and data are important factors in understanding a company's online performance and effectiveness. These have developed from basic web metrics, such as hits and page views, to advanced web analytics, combining consumer data to provide more insightful information. This advancement has occurred due to increased customer involvement and a significant move towards online engagement. These tools allow an in depth analysis of each individual consumer, providing the company with invaluable information to achieve competitive advantage. This revolutionary progress in technology has made the world a much smaller place, changing every aspect of business activities and improving efficiencies across the entire value chain. Resultantly, marketing communications have evolved over time, the models of which will provide a theoretical framework for this research paper. Marketing communications have been used for decades with the aim of developing a relationship with organizational stakeholders. Traditional communications consist of advertising, sales promotion, personal selling, public relations and direct marketing. The introduction of social media marketing has provided yet another platform for a multi-step theory of communication. The interactivity of Web 2.0 has resulted in the need for retail companies to monitor their social networking sites and consumer opinion created by external sources because of the potentially detrimental impact this may have on brand image.

3. E-commerce

Electronic commerce (e-commerce) alludes to transaction processing, such as buying and selling products and services through computer networks like the Internet (Chintagunta et al., 2012; Bamfield, 2013; Balabanis et al., 2006). It can be divided into five types: business-to-business (B2B), business-to-consumer (B2C), business-to-government (B2G), consumer-to-consumer (C2C) and mobile commerce (Chen et al., 2014). Among these five types of e-commerce, the transaction objectives of B2C and C2C are the same. Terminal consumers are their transaction objectives. With the development of e-commerce, the exploring of business domains, as one of the major approaches of retailers to enhance their own competitive advantages, increased. The operation modes of the online market, B2C and C2C, exhibit a trend of combining together. In detail, it can be defined as consumers browsing and buying products, or purchasing services from websites.

Online shopping is barely 20 years old, while offline stores have been built for thousands of years (Hansemark and Albinson, 2004; Heiner et al., 2004). Since ancient times, products have been exchanged at equal values. Online shopping is a new model or shopping experience. However, it has become increasingly important regarding current market competition with the spread of Internet usage. As a new shopping mode, it is different from the traditional shopping experience in regard to several aspects (Ansari et al., 2008; Kusum and Farris, forthcoming). Firstly, they are different in transaction locations.

Customers tend to choose a nearby store when shopping offline, while online shopping can be worldwide and used anytime (24/7). Secondly, for online store there is no physical store, changes can be made anytime. There can be a quick reaction to the changing of market conditions. However, establishing an offline store costs time and money. And changes and modifications are hard to make. To customers, online shopping has risks as most vendors have no physical store and most merchandise cannot be tried until the customer receives it. With offline shopping, consumers can of course try before they buy goods. The service before, during and after shopping online and offline is different as well.

Consumption is whereby people fulfill their personal requirements through buying a product or experience a service. Consumers of online shopping are the same as traditional consumers, except they use the Internet. Both online and offline consumers are looking at five categories when shopping, which are location, convenience, knowledge, personality and price (Pauwels et al., 2011; Brynjolfsson et al., 2009; Cao and Li, 2015). In this paper, online consumers are those who consume online. Brynjolfsson et al. (2009) study contends females have more spending power regarding online clothing than males. Cao and Li (2015) explain this phenomenon as Sheconomics, whereby females now have power to control and spend their own money, therefore, their influence on the profit of a company becomes more and more critical. Furthermore, they have a great impact on changing the purchasing decisions of those who are connected to them, like friends and family members (Brynjolfsson et al., 2009). They like to share either positive or negative shopping experiences face-to-face or via social networks thus information becomes more transparent and spreads quickly, which may increase or decrease the revenues of retailers. Thus, their power cannot be ignored and learning how to establish the loyalty of young females is necessary to a company.

E-commerce does not only concern the function of buying and selling goods and services online, it also facilitates the entire purchasing and selling processes for both sellers and buyers. In general, e-commerce is any business activity that operates via the electronic medium such as the Internet. The growth of e-commerce has numerous advantages over the traditional stores or brick-and-mortar stores, including more flexibility, enhanced market outreach, lower cost structures, faster transactions, broader product lines, greater convenience, and customization (Brynjolfsson et al., 2009). E-commerce provides opportunities to businesses to access the global market and reduce the transaction costs, and to overcome the world economy problems. Since e-commerce enables all businesses from anywhere in the world to access the global market, people generally have equal chance to compete with the others. Without e-commerce, it will be almost impossible for small-medium enterprises (SMEs) to compete with the large organizations due to the amount of capital that makes the larger organizations to hold the advantages over the smaller organizations. E-commerce is also used as a new innovation strategy to raise business competitiveness, which may require venders to implement new platforms and social web features as a must-have feature (Pauwels et al., 2011). E-commerce is also helping firms to retain the existing customers and attract new ones at the same time. The existing customers can visit the sites for the news, promotions, and any updates about the firms, while new customers are able to easily access to the firms and get to know the brands anytime. Moreover, customers can be anyone from anywhere in the world as e-commerce drive businesses to the only one global market. One of the most important activities of e-commerce is to create the online transactions. There are many significant effects from the diffusion of e-commerce that lead to the reduction of transaction and coordination costs such as the communication effect, the electronic integration effect, the electronic brokerage effect, and the electronic strategic networking effect. The communication effect means that more information can be communicated in the same unit of time, which helps businesses to reduce the transaction costs. The electronic integration effect is the establishment of connection between buyer and seller. The electronic

brokerage effect means that buyers and sellers are able to compare the offerings from various sources. For the electronic strategic networking effect, information technology (IT) allows firms to join the common achievements to gain competitive advantage (Pauwels et al., 2011). Moreover, business can generate the information from the transaction to update the inventory, production and accounting records by using software to automate, which can help businesses to save the labor costs as well (Brynjolfsson et al., 2009). Successful e-commerce sites enable businesses to build low cost channels, or create more efficient channels for products sales, and be able to create new business opportunities.

The success of e-commerce does not only come from the business side, but the consumer side as well. E-commerce is using the Internet technology, which is new to many people especially people from the older generations. Furthermore, in order to purchase goods online, the buyers are needed to pay by credit or debit cards, which are the most common online payment methods, and the online payment is quite complicated, and requires trust. Hence, many people who are trying to learn how to shop online will decide to quit due to the difficulty of online payment, and the security concerns. The online consumers for e-commerce business do not only accept the Internet technology as the viable transactions mean, but they are also considering the Web retailers as reliable merchants (Brynjolfsson et al., 2009). There are, however, two significant risks that buyers have to face, which are the risk of monetary loss and the risk of the loss of privacy. In addition, by providing personal information to web retailers, if the online retailers are unreliable, they might use the consumer's personal information in wrong ways, or sell the information for their own benefits. Nevertheless, convenience is the major factor that influence many people to shop online, and help the e-commerce to grow.

Oliver (1993a) first argued that consumer satisfaction was the consumer's fulfillment response. However, later, Oliver (1993b) suggested that satisfaction was not merely about the extent of being pleased, but can be described as a process as well. Oliver's (1993b) model about consumer satisfaction proved that the consumers' judgments on satisfaction were affected by both positive and negative emotions and cognitive disconfirmation. In addition, according to Balabanis et al. (2006) and Chen and Dubinsky (2003), customer satisfaction is seen as an important concept and a critical common goal for all business activities. In terms of the definition of customer satisfaction, Chen and Dubinsky (2003) define it in two different ways. Firstly, the customer satisfaction is the emotional decision by consumers in response to their most recent experience with a retailer in terms of product, or service aspects. Secondly, over a period of time, the cumulative customer satisfaction results from the customer's overall shopping experience with a specified online retailer. According to Hansemark and Albinson (2004) "satisfaction is the fulfillment of requirements, goals or desires and this can be reflected by the overall customer attitude towards e-commerce retailers, or an emotional interaction with respect of between what online customers expect and what they really obtain". Moreover, policy makers in the public arena hold the belief that customer satisfaction is the key response to national economic health and performance (Chen et al., 2014; Zeithaml et al., 2006).

Barnes and Vidgen (2001a) explained the original dimensions of customer satisfaction as ease of use and shopping directions, information including security and interrelation and additionally, interaction including accuracy, personality and review swapping. Nevertheless, in their subsequent work, Barnes and Vidgen (2001b) developed their initial instruments and included them into five SERVQUAL (service quality) elements, which stand for tangibles including aesthetics and navigation, reliability, competence, responsiveness, access, assurance and empathy. Further, in an analysis of service quality in terms of web portals, Gounaris and Dimitriadis (2003) combined SERVQUAL which consisted of transparence, dependence, sympathy, and warranty with the WEBQUAL instruments including function, information and interaction. They concluded that the quality dimensions can be grouped into

three main aspects; these are i) customer protection and risk decreasing comprising secure online payment and shipping aspects in terms of time, costs and options, and communication; ii) comprehensive information and its relevance; iii) and interaction consisting of online direction, website characteristics and ease of use. Since then, researchers have concluded that four main elements mostly influence customer satisfaction in the online shopping environment; these are i) website design, ii) delivery and refund service, iii) detailing extent with respect to product information provided, and iv) the product variety (Chintagunta et al., 2012; Cao and Li, 2015; Kumar et al., 2009). Furthermore, Yen and Lu (2008) advocate that online retailers should communicate with the online purchasers more often regarding their shopping experience in the online shopping environment and offer after-sales service with high quality in order to improve overall e-satisfaction to attract more clients: namely, to maintain good relationship with online purchasers in the online shopping environment.

Chintagunta et al. (2012) and Luo and Bhattacharya (2006) review the idea of product variety, and why product variety is another crucial element for customer satisfaction. They argue that it seems to be more successful for online retailers who offer a wide variety of products. Gounaris and Dimitriadis (2003) had earlier argued that, due to the potential to track down special goods or services, online customers have expectations of being provided a wide range of products by e-commerce retailers. In addition, another statement said: "if an item isn't easily accessible, the wider assortment of products may be more attractive to customers and therefore e-satisfaction would be increased" (Szymanski and Hise, 2000). However, from Prahalad and Hamel's (1990) viewpoint, continuing the developing of innovational products and service is the crucial element for attracting a larger number of valuable customers, which further proved the important role of product and service with respect of the success of the e-commerce retailers.

4. Factors in the American customer satisfaction index

A number of researchers have used the American Customer Satisfaction Index (ACSI) to measure the satisfaction of customers (Chintagunta et al., 2012; Luo and Bhattacharya, 2006). Perceived value, customer expectations, perceived quality and customer loyalty are all the key measures in terms of customer satisfaction in the ACSI model, which is a cause-and-effect model. We discuss these measures in more detail below.

4.1. Perceived value

Drawing on the perceived value literature, Chen and Dubinsky (2003) developed a model and suggested that customer online shopping experience, perceived product quality and perceptions of price all affected perceived value equally. Perceived value, in turn, strongly affected online purchase intentions. The purchase behavior of most online customers will depend on the price on the tag and each of them will measure the reasonableness of the price. Therefore, it is the key factor that will affect the customer's first purchase intention. In addition, perceived value is a measure between quality of the product once customers really received the item and price they actually paid. That is, customers will measure whether the price provided by the online sellers is reasonable, acceptable or justifiable (Brynjolfsson et al., 2009; Cao and Li, 2015). Finally, it is shown that customer satisfaction is directly affected by the price perceptions, whereas it is an indirect outcome of the perception of price fairness (Bamfield, 2013).

4.2. Customer expectations

Past shopping experience, peers' advice, and competitors' information will normally form the expectations of customers (Chintagunta et al., 2012; Nisar, 2011; Kotler, 2000); and then customers compare expectations with the conventional shopping environment in order to

make correct judgments about e-satisfaction (Cao and Li, 2015). In addition, Pine and Gilmore (2002) suggested that the better the online customer experience perceived by online customers, the fewer complaints will be received from customers, which in turn reinforces e-loyalty in terms of online shopping retailers, and thus the total profits of these firms would increase. Online retailers have to perform services properly for the first time in order to meet expectations, both current and in the future (Parasuraman et al., 1988). Hence, expectations from customers in relation to service are probably to rise if the service is not perceived as expected and, therefore, the e-commerce sellers experience an increase in customer satisfaction which results from the decrease in customer expectations. Meanwhile, "enjoyment" also determines the expectations of customers regarding the potential entertainment of Internet shopping. Childers et al. (2001) found that "enjoyment" is a consistent and strong precedent of positive attitude toward online shopping. That is to say, the more customers enjoy the online shopping experience, the higher positive attitude offered by customers in terms of online shopping, and the higher likelihood there is that customers will purchase from e-commerce retailers.

4.3. Perceived quality

The key role of the quality of products regarding customer satisfaction in the online shopping environment has been emphasized in various works, including that of Chintagunta et al. (2012) and Luo and Bhattacharya (2006). Taşkın (2005) shows that in order to achieve high customer satisfaction and to be successful in the whole e-commerce market, both the product and service quality are important factors that the e-retailers need to consider. Customers compare perceived quality with expected quality as customer satisfaction is a "post consumption" experience . Christian and France (2005) suggested creating more e-satisfaction by enhancing product quality, which would lead to a more positive outcome. Therefore, satisfied customers give recommendations and maintain loyalty towards the e-commerce retailers and, thus, customers are more likely to shop on the Internet medium.

4.4. Loyalty

Normally, it is considered difficult to sustain loyal consumers in the online shopping environment (Gommans et al., 2001). Customer e-loyalty is one of crucial antecedents for the success of e-commerce (Bamfield, 2013; Cao and Li, 2015). Luo and Bhattacharya (2006) view customer loyalty as a favorable attitude towards e-retailing that leads to the repetition of purchasing with extended investigation of customer loyalty in terms of e-commerce. Hence, loyalty is strongly linked to repeat purchases. In other words, when a customer does repeated purchases online, they are indicating that they are loyal to a particular e-commerce retailer. Olsen (2007) indicates that the relationship between satisfaction and loyalty is variable; it depends on different industries, and factors including commitment, trust, or the level of consumer involvement will affect the strength of the relationship. Overall, in the context of e-loyalty, online customers can access websites with just a click (Brynjolfsson et al., 2009). Moreover, once the relationship between overall loyalty and satisfaction has been strengthened, then a reciprocal relationship between loyalty and satisfaction will be finally generated, such that satisfaction increases loyalty, which in turn, reinforces satisfaction. In summary, e-service quality, produce, perceived value, customer expectations, perceived quality and e-loyalty mentioned above are all main factors that contributed to customer satisfaction in online shopping environment, by increasing and boosting consumer expenditure in the online shopping environment.

5. Relationship between customer satisfaction and consumer purchasing behavior in e-commerce retailers

Oliver (1980), and Oliver and Swan (1989) have variously investigated the relationship between customer satisfaction and consumer purchasing behaviors. In addition, LaBarbera, Priscilla and Mazursky (1983) also investigated the formation of consumer purchasing behaviors by exploring the relationship between service quality and customer satisfaction. It is known that the key to establishing loyal and long-term customer relationships is satisfaction (Chiou, 2004). In the electronic commerce environment, consumers can easily compare the same product characteristics and prices from different online retailers by evaluating product benefits and costs objectively due to the lower searching costs (Cao and Li, 2015). In respect of e-commerce, purchase intention refers to the customers' willingness to purchase from the e-retailers, which represents the outcome of attitude (Kimery and McCord, 2002). In addition, the purchasing intention can be used to represent the actual consumer purchasing behaviors in the online shopping environment. In other words, purchase intention is seen as the most reliable measuring variable to predict online consumers' purchase behavior. Zeithaml et al. (1996) defined purchase intention as both positive and negative, whereby a consumer with a positive intention will have preferences and more willingness to pay a higher price whereas consumers with negative intention may choose to reduce the purchased quantities or even cease purchasing.

Further, in respect of the e-commerce context, repurchase intention is about the repetitive purchases from the same online retailers that are based on their prior shopping experience with respect to consumers' evaluation (Durvasula et al., 2004; Olaru et al., 2008). According to Luo and Bhattacharya (2006), repurchase intention was seen as a measure of response behavior by online consumers and consumer reaction to certain experiences such as previous online shopping experiences. Kim and Kim (2004) stated that consumers' repurchase intention in online retailers can be potentially affected if those online retailers can provide detailed product information, consumer feedback review and decent store layouts with quality images to increase online customer satisfaction. In other words, consumer repurchase intention towards goods and services from online retailers has been defined as a form of loyalty towards consumer online shopping. Additionally, Kim and Kim (2004) pointed out that customer satisfaction was the strongest predictor of repurchase intention of customers in online retailers. Moreover, the term "word of mouth" (WOM), which refers to evaluation of consumers of online products for sale in oral form is positively linked to customer satisfaction and thus, the term "Word of mouth", which represents consumers' positive comments of items on shopping website for sale is positively associated with the consumer purchasing behavior in the online shopping environment (Park and Lee, 2009). Overall, the customer satisfaction in the online shopping environment is strongly increased when online satisfaction reduces the switching service providers benefits for online consumers and thus, in turn, generates stronger repurchase intentions in terms of online retailers (Szymanski and Hise, 2000; Chiou, 2004; Castaneda et al., 2009). Many investigators have found that satisfaction is positively associated with re-purchase intentions toward online shopping. That is to say, consumers with high satisfaction show a greater intention to purchase products repeatedly from an online retailer than purchasing from other e-stores (Kim and Kim, 2004). Hence, online retailers prefer to keep sustainable consumer repurchase growth through increasing online customer satisfaction and retaining their competitive advantage over other online retailers (Deng et al., 2010).

6. Relationship between customer satisfaction and consumer spending in American-based e-commerce retailers

6.1. Customer satisfaction effect on consumers spending in American-based e-retailers

In line with Oliver (1980), the higher the customer satisfaction, the stronger the intention to repurchase from the same e-retailers since the favorability of brand attitude has been increased. Overall, according to

the recent surveys, in the United States, the number of online shoppers reached 196 million in 2014 compared to about 172 million in 2010 with an increase of 14%; these account for 73% of total Internet users in the United States and represent more than 60% of the total population who carried out shopping online (Statista, 2015; Belicove, 2013). Furthermore, at the same time, the number of online shoppers who are using mobile devices for shopping accounted for more than 61% of those who are using the Internet for such transactions, and they do their transactions via iPods, tablet computers or smart phones. Again, in line with Oliver (1980), taking Amazon.com Inc. as an example, more than half of the sales come from repeat customer purchases from Amazon.com (Statista, 2015). In addition, in line with Franzak et al. (2001), personal data protection, provision for secure payment, and maintaining the privacy of online communication are the elements customers will consider when they shop online. Luo and Bhattacharya (2006) show that improvements in customer satisfaction result from the higher level of information quality in terms of e-commerce purchases. Then the accuracy of this information quality will be checked in terms of information comprehensibility, information completeness, and information relevance. Lee and Han (2007) found that e-satisfaction would be positively affected by website design, while Luo and Bhattacharya (2006) found that website design positively affects purchase intention. Keblis and Chen (2006) pointed out that the high customer satisfaction in Amazon.com results from its high-quality services relating to the customers, payment system and security, communication, comprehensive and relevant information, and website design. In turn, Amazon.com CEO Jeff Bezos announced that 30 million new customers have been added since 2013, bringing its total active users up to 244 million in 2014 (Accenture Consulting, 2016).

The research mainly focuses on investigating the impact of customer satisfaction on consumer spending and the determinants of e-satisfaction. To date, very few scholars have focused on the longitudinal effects of customer satisfaction on consumer spending (Chintagunta et al., 2012; Brynjolfsson et al., 2009). Regarding the research method, most studies tend to choose simple statistical comparisons and simple regression analysis, but few scholars use panel data analysis. As for the data selection, much of the literature reviewed only chooses a single index as the proxy variable of consumer spending. This paper instead conducts a study from two aspects to assess the influence of customer satisfaction on consumer spending. The first aspect refers to the aggregated effect of customer satisfaction on consumer spending and the second aspect refers to the longitudinal effects of customer satisfaction on consumer spending. The paper has three main innovations. First, the consumer price index constructed in this paper selects consumer spending in main American-based e-commerce retailers, on the basis of the United States' national conditions and data integrity without the influence of macroeconomic factors. Second, we conduct regression analysis to identify the relationship between customer e-satisfaction and consumer spending in terms of American-based e-commerce retailers, to see whether those two are correlated. Third, we take advantage of panel data modeling techniques to analyze the longitudinal effects of customer satisfaction on consumer spending with respect to consumer spending in main American-based e-commerce retailers. As the study intends to test the relationship between e-satisfaction and consumer spending in the US e-retailer market, our specific hypotheses are as follows:

H1:. e-Satisfaction has an impact on consumer spending in the e-retailer markets.

H2:. e-Satisfaction does not have an impact on consumer spending in the e-retailer markets.

7. Methodology

The sources of data used in this research are mainly quantitative

secondary sources gathered from DataStream and Statista.com websites. The data sample includes the American customer satisfaction index in terms of the leading 115 e-retailers in the United States and sales value of 115 leading e-retailers in the United States spent by consumers. In addition, the consumer price index (CPI) in relation to the 115 leading e-retailers in the United States is used, which measures the change in good and service price levels in an economy due to inflation. Thus, how American Customer Satisfaction Index affects CPI can be found out, which in turn, can help us see how e-satisfaction affects consumer spending in America's leading online retailers. Data are obtained in Datastream and the sampling is yearly. The index is formed by the data gained from customers who are surveyed about the products and services they use the most, and then those data serve as inputs to an econometric model. Table 1 provides a summary of this index for the first 15 leading online retailers.

7.1. Consumer spending value

Data are obtained from Datastream and the sampling is yearly. Units are in millions of USD and the data sample comprises the consumers' expenditures 115 leading American-based e-commerce retailers.

7.2. Consumer price index

The Consumer Price Index (CPI) is constructed as a "basket of goods and services" including multiple goods and service weighted at different amounts to determine the overall price level for each year. The equation for CPI can be Current price of basket ÷ Price of basket in base year × 100 written as:

Current price of basket ÷ Price of basket in base year × 100

Table 2 below shows the consumer price index of 15 e-retailers in the United States in term of e-commerce sales value spent by consumers. The data scope covers a five-year period, from 2010 to 2014. The frequency of the data collected is yearly.

8. Data validity and reliability

Because both the American Customer Satisfaction Index and the sale revenue of 115 leading e-retailers in the United States spent by consumers are measured by time series, it is necessary to check the stationarity of these series before the regression analysis. In this paper, the unit root test has been selected. The significance of the regression coefficient is determined to test the aggregate effect of e-satisfaction on consumer spending with e-commerce retailers in the United States. If the significant test of regression coefficient of the American Customer

Table 1
American Customer Satisfaction Index.

E-retailor	Year				
	2010	2011	2012	2013	2014
Amazon.com Inc.	87	86	85	88	86
Apple Inc.	86	87	86	87	84
eBay Inc.	81	81	83	80	79
Wal-mart.com	73	70	71	71	68
Staples Inc.	81	79	79	81	79
Sears Holding Corp	75	76	75	77	73
Netflix Inc.	86	74	75	79	81
Macy's Inc.	76	77	78	76	79
Office Depot Inc.	81	79	84	79	78
Office MAX Inc.	74	78	78	82	#
Costco Wholesale Corp	82	83	83	84	84
Best Buy Co.	77	77	78	77	77
Newegg Inc.	84	85	84	83	81
Target Corp.	78	80	81	77	80
Gap Inc.	74	77	76	77	75

Table 2
Consumer spending in e-retailers.

E-retailor	Year					
	2009	2010	2011	2012	2013	2014
Currency: $Million						
Amazon.com Inc.	24,509	34,200	48,080	61,093	74,452	79,480
Apple Inc.	NA	5200	6660	14,760	18,300	20,620
eBay Inc.	8727	9160	11,650	14,070	16,050	17,900
Wal-mart.com	3417	4100	4900	7150	11,260	12,140
Staples Inc.	9900	10,200	10,600	11,828	11,103	11,230
Sears Holding Corp	1025	1640	2010	4200	4900	5700
Netflix Inc.	1670	2163	3205	4610	4375	5510
Macy's Inc.	720	1200	2000	3168	4150	5400
Office Depot Inc.	3200	4100	4100	4060	4100	4300
Office MAX Inc.	NA	2860	2900	3200	3200	3760
Costco Wholesale Corp	1600	1679	1700	2080	3086	3740
Best Buy Co.	NA	2200	2500	2540	3040	3540
Newegg Inc.	2300	2408	2500	2.800	2730	3600
Target Corp.	NA	1210	1330	1930	2300	2990
Gap Inc.	1120	1300	1560	1860	2260	3530

Satisfaction Index (ACSI) is positive, this means that the e-satisfaction has a positive effect on sales of e-retailers based in the US spent by consumers; while if the result is negative, then the e-satisfaction crisis has a negative effect on consumer spending based on e-retailers in the US.

9. Regression analysis

The research employs regression analysis to analyze the impact of e-satisfaction on consumer spending in e-commerce retailers and investigate the relationships between different variables. The hypotheses formulate the key relationships between the variables of the American Consumer Satisfaction Index (ACSI) and American spending in the e-retailers index (CPI). Therefore, in line with Covin and Slevin (1988; 1989), McClelland and Judd (1993), and Slater and Narver (1994), the analysis procedure follows the standard regression model. A number of researchers including Aiken and West (1991), Arnold and Evans (1979), Cohen (1978) and Cronbach (1987) pointed out that a significant beta coefficient for the "XZ" cross-product term indicated that customer satisfaction did affect consumer purchase intentions, which in turn, affects the consumer spending.

Furthermore, in this paper, regression analysis based on panel data model is introduced. It is a type of statistical model used by various industries. First, panel data analysis has several major advantages for economic research. The panel data sets have three independent models: pooled, fixed effects and random effect models. Panel Data Analysis can reflect the change law of each consumer spending in e-retailers based in the United States in a certain period and can reflect the change law of variation of each consumer's spending in e-retailers over time based on the US (Luo and Bhattacharya, 2006).

10. Empirical results

In order to avoid spurious regression outcomes, the unit root test is applied to the variable to check whether or not the model series is stationary. The test results of standardized American Customer Satisfaction Index with respect to 115 leading US e-retailers series and consumer spending in online retailers based on the United States series in terms of 115 leading e-retailers in the United States are as follows. The test result shows that the series American Customer Satisfaction Index in 115 leading American e-retailers have no unit root, so they are stationary time series. We find similar results for the remaining 100 e-retailers in our sample. Next, a u-r test was run for the CPI. We find similar results for the remaining 100 e-retailers in our sample. The test results show that the series consumer consumption in the 115 leading e-retailers in the United States have no unit root, so they are stationary

time series.

As reported by Zeithaml et al. (1996), purchase intention can be either positive or negative: the consumer with a positive intention will have preferences and more willingness to pay a higher price whereas consumers with negative intention may choose to reduce or even remove the purchased quantities. Further, as reported by Park and Lee (2009), satisfaction is positively associated with re-purchase intentions in terms of online shopping. That is to say, consumers with high satisfaction show a greater intention to purchase products repeatedly from an online retailer other than purchasing from other e-stores while consumers with low satisfaction show the reverse performance (Kim and Kim, 2004). Table 3 shows R-square and adjusted R-square in the leading American-based e-commerce retailers. It reports the results of regression analysis on consumer spending, which depends on customer satisfaction in 115 leading American based e-commerce retailers. First of all, the coefficients of determination (R-Square and adjusted R Square) are almost 0.783 for the full sample, which means about 78.3% of the variation in the consumer spending data can be accounted for by the ACSI. Thus, the regression equation appears to be very useful for making predictions.

Table 4 presents the regression results of the relationship between customer satisfaction and consumer spending in 115 leading American-based e-commerce retailers. Under 5% significant level; it lists the regression coefficient of the ACSI for 115 leading American-based e-commerce retailers. Per our results, as the customer satisfaction in e-commerce retailers becomes higher in each level, the consumer will spend more based on that amount in these e-commerce retailers. The results further imply that the high customer satisfaction has a positive effect on consumer spending in terms of the 115 e-commerce retailers under investigation in this research. In other words, high customer satisfaction leads to high consumer spending in the online shopping environment. As discussed in the literature review, the consumer with positive intentions will have preferences and more willingness to pay a higher price: further, satisfaction is positively associated to re-purchase intentions in terms of online shopping. That is to say, consumers with high satisfaction show a greater intention to purchase products repeatedly from an online retailer than purchasing from other e-stores. In summary, these findings from the literature are consistent with the results of the regression analysis above.

11. The analysis of the longitudinal effect of customer e-satisfaction

For the longitudinal effect of customer e-satisfaction on consumer spending in leading e-retailers based in the United States, this paper standardizes the American Customer Satisfaction Index employed in the

Table 3
Regression Analysis between American Customer Satisfaction and American based e-commerce retailers (selective retailer results).

Model summary		
	R-Square	Adjusted R Square
Amazon.com Inc.	0.916	0.905
eBay Inc.	0.936	0.928
Wal-Mart. Com	0.823	0.800
Sears Holding Corp	0.918	0.908
Netflix Inc.	0.270	0.179
Macy's Inc.	0.884	0.870
Office Depot Inc.	0.874	0.858
Office MAX Inc.	0.615	0.567
Costco Wholesale Corp	0.825	0.803
Best Buy Co.	0.719	0.683
Newegg Inc.	0.905	0.891
Target Corp.	0.927	0.918
Gap Inc.	0.943	0.936
Full sample	0.783	0.773

Table 4
Regression analysis between American Customer Satisfaction and American based e-commerce retailers (selective results).

Coefficients			
Model	Beta	Std. Error	Sig. p-value
Constant		1723.543	0.062**
ACSI	0.921	0.001	0.000**
Constant		1703.817	0.124**
ACSI	0.961	0.001	0.000**
Constant		1827.236	0.276**
ACSI	0.928	0.001	0.000**
Constant		1329.532	0.037**
ACSI	0.853	0.001	0.000**
Constant		685.831	0.000**
ACSI	0.938	0.001	0.234**
Constant		362.862	0.034**
ACSI	0.987	0.000	0.000**
Constant		683.482	0.217**
ACSI	0.947	0.001	0.000**
Constant		784.056	0.038**
ACSI	0.931	0.000	0.007**
Constant		864.762	0.279**
ACSI	0.983	0.001	0.000**
Constant		5852.387	0.000**
ACSI	0.966	0.005	0.003**
Constant		671.753	0.845**
ACSI	0.984	0.000	0.000**
Constant		8524.683	0.003**
ACSI	0.953	0.003	0.000**
Constant		7735.684	0.000**
ACSI	0.963	0.003	0.000**

Level of significance: 0.05**.

first phase of the research to define the low customer satisfaction zone and medium and high customer satisfaction zones. In addition, we calculate the average yield in different periods and then carries out a panel data analysis to find the impact of customer satisfaction on consumer spending towards online shopping (see Table 5).

Next, the average yield and standard deviation in high, medium and low levels in terms of customer satisfaction index respectively were calculated; the results are as follows: Table 6 shows the mean and SD of customer satisfaction in terms of high, medium and low levels. In summary, when the customer satisfaction is high, the mean of yield is higher than it is when the customer satisfaction is medium or low. In addition, the volatility of yield of high customer satisfaction level is larger than that of medium and low customer satisfaction rates, indicating that when the customer satisfaction is high, online consumer spending in e-retailers based in the United States fluctuated significantly.

12. Panel data model

12.1. Pooled model

Table 7 shows the regression results of the pooled model. Under the pooled model based on panel data analysis, the period regression coefficient of the ACSI is around 0.378 for consumer price index (CPI), which passes the T-test. This means when the customer satisfaction with a specific e-retailer changes by one unit, the consumer spending in specific e-retailers based in the US will positively change by 37.8%,

Table 5
Customer Satisfaction Index representative.

Scores	What this means
Mean scores of over 80 out of 100	High Customer Satisfaction
Mean scores of 70–80 out of 100	Medium Customer Satisfaction
Mean scores of below 70 out of 100	Low Customer Satisfaction

Table 6
Mean and standard deviation of yield in different customer satisfaction level.

	High Customer Satisfaction	Medium & Low Customer Satisfaction	Difference	
Sample Size	40	35	5	
Mean		85.38	77.23	7.42
Std.		2.42	2.36	0.05

Table 7
Panel data analysis based on pooled model.

CPI	Coef.	Std. Err.	T	P > |t|	R-square	Adjusted R-square
ACSI	0.378**	0.156	2.27	0.025	0.069	0.053
_Cons	15.739**	1.953	8.07	0.000		

Level of significance is: **0.05.

which is consistent with the correlation analysis above. Moreover, it can be asserted that if the customer satisfaction improves by one unit, the consumer spending in 115 leading American based e-commerce retailers will increase by 37.8%. Then, in order to decide which model between fixed-effect and random-effect model is more appropriate, they can be tested through the Hausman theory:

Null hypothesis: Random-effect model is more appropriate;
Alt hypothesis: Fixed-effect model is more appropriate.

$$Chi2 (1) = (b - B)'[(Vb - VB)^{(-1)}](b - B)$$

$$= 0.07$$

Prob > chi2 = 0.764

As the probability is larger than 5%, we cannot reject the null hypothesis. He

12.2. Random-effect model

Table 8 shows the regression result of random-effect model. Under the random-effect model based on panel data analysis, the table shows that the period regression coefficient of American Customer Satisfaction Index (ACSI) is around 0.384 for consumer price index (CPI), which passes the T-test. This means that when the customer satisfaction of a specific e-retailer changes by one unit, the consumer spending in specific e-retailers based in the United States will positively change by 38.4%, which is consistent with the correlation analysis above. Moreover, it can be said that if the customer satisfaction improves by one unit, the consumer spending in 115 American based e-commerce retailers will increase by 38.4%.

13. Discussion

According to a number of previous studies, the positive relationship between customer satisfaction and customer loyalty in terms of both online and offline environments has been revealed (Zeithaml et al., 2006; Oliver, 1999). In addition, Park and Lee (2009) found a strong positive correlation with respect to overall e-service quality and consumers' satisfaction towards making online purchases, and confirmed the positive effects of overall e-satisfaction on consumer purchase

Table 8
Panel data analysis based on random-effect model.

CPI	Coef.	Std. Err.	t	P > |t|	R-square
ACSI	0.384**	0.176	2.08	0.042	0.027
_Cons	15.847**	2.245	7.06	0.000	

Level of significance is: **0.05.

intentions and repurchase intentions as well. Zeithaml et al. (2006) listed some other elements such as price and product quality that can affect customer e-satisfaction. The literature review findings are consistent with our results and indicate that other key factors such as product innovation, customer expectation, perceived value related to price, and perceived quality relative to product quality will also have a significant influence on e-commerce retailers rather than just on e-service quality. Thus, these positively affect the consumer purchase and repurchase intentions towards online shopping.

It can be concluded that the result from the random-effect works best to reflect the impact of customer satisfaction on consumer spending in terms of online retailers based in the United States. Hence, it can be asserted that the customer satisfaction has a positive impact on consumer spending in online retailers based in the United States, which is consistent with the hypothesis 1: e-Satisfaction has an impact on consumer spending based on American e-retailers. Then, together with the regression analysis and with further panel data analysis, both of the results show that the customer satisfaction is positive correlated with consumer spending in 115 e-commerce retailers based in the United States. In other words, the higher the e-satisfaction, the more money will be spent by consumers in American-based e-commerce retailers.

In terms of the pooled model, combined with the positive coefficient of 0.378 and p-value ≤ 0.05, this implies that the ACSI has a positive effect on consumer spending in terms of the 115 US e-retailers. Thus, it can be concluded that customer satisfaction has a positive effect on consumer spending with respect to e-commerce retailers. In terms of the random-effect model, combined with the positive coefficient of 0.384 and p-value ≤ 0.05, this implies that the ACSI has a positive effect on consumer spending in terms of the 115 US e-retailers. It can therefore be concluded that the customer satisfaction has a positive effect on consumer spending with respect to retailers' e-commerce. In the literature review, determinants of e-satisfaction were discussed from the points of view of previous researches. It was concluded that the higher the level of e-service quality, the higher the level of e-satisfaction. In addition, it seems that more e-satisfaction will be enjoyed by customers of online retailers who offer a wide variety of products and good customer expectations. Further, through the view of previous researchers, usability, information, interaction and other three other quality dimensions comprising customer care (risk reduction, payment system and security, delivery and shipping time, costs and options, and communication), information (comprehensive, relevant information) and interaction (ease of use, navigation, and website design) are all key elements that contribute to high e-service quality, satisfied customer experience, sustainable customer loyalty and in turn, increase and boost consumer spending in the 115 American-based e-commerce retailers that form the bases of this research. Furthermore, the indications from the outcomes of both pooled and random-effect models in terms of these retailers are consistent with the line of previous studies and show that the customer satisfaction has a positive effect on consumer spending with respect to e-commerce retailers. Therefore, through the regression analysis and panel data analysis, the results from both analyses agree with the literature, and prove that higher e-satisfaction leads to more consumers spending, not only in the leading American based e-commerce retailers studied but on a larger scale.

Another important implication is that following further analysis of how the customer satisfaction in the online shopping environment can raise and maintain consumer purchase and repurchase intentions (whether consumer spending among American based e-commerce retailers or among e-commerce retailers worldwide), it was found that answers could be derived from the top American-based e-commerce retailor, Amazon.com Inc. In addition, as a pure web-based merchant in the United States, it is a very successful example of customer satisfaction in an online shopping environment, which can be demonstrated by its highest customer satisfaction index score among 115 American-based e-commerce retailers over a five-year period 2010–2014). Amazon.com dramatically lowered prices, further increasing consumer

purchase and repurchase intentions, which can be indicated by its highest web sales over the stated five-year time period (shown in the data section above) among 115 leading American based e-commerce retailers. These success factors can be learned by other American-based e-commerce retailers or any e-commerce retailers based in other countries that are reporting a low customer satisfaction index score in order to increase their e-consumer web sales. In summary, from the result of the empirical analysis above, the null hypothesis (H1) is accepted and alternative hypothesis (2) is rejected. Namely, e-satisfaction has a positive impact on consumer spending based on American e-retailers. In other words, the higher the level of e-satisfaction, the more money will be spent by consumers in terms of e-retailers in the United States.

14. Conclusion

The paper uses regression analysis and panel-data analysis to study the effect of customer satisfaction on consumer spending in American-based e-commerce retailers. In addition, we build the consumer price index as a proxy variable of consumer spending, and examines the aggregate and longitudinal effect of customer satisfaction on consumer spending in the case companies by undertaking empirical tests. We select consumer spending in 115 leading American-based e-commerce retailers to construct the consumer price index. On the basis of the United States' national conditions and data integrity, the influences of macroeconomic factors such as GDP and inflation were eliminated. The American Customer Satisfaction Index and the consumer price index constructed in this paper prove a high correlation; the effect of American customer satisfaction in terms of consumer spending in American based e-commerce retailers is obvious. Through the analysis, we find that the customer satisfaction is important in both offline and online shopping environments. The e-commerce retailers continuously seek to increase online consumer spending through improving e-service quality, offering wide product ranges and updating customer expectations in a timely fashion. In addition, they intend to increase both perceived value and quality of online products in terms of the American customer satisfaction aspect so that they ultimately achieve sustainable e-loyalty. On the other hand, customers will pay extra fees for the shipping when the free shipping areas are not included. In summary, a positive relationship between customer e-satisfaction and consumer spending in American e-commerce retailers has been proved. Namely, the higher the customer e-satisfaction in this area, the more consumers will spend.

Our data analysis is based on the customer satisfaction index and consumer price index of 115 leading e-retailers in the US. The results show that there is a positive relationship between those two indices. Further areas of study in terms of e-commerce retailers can be analyzed. First, researchers such as Zeithaml et al. (2002) have postulated that post-purchase service is also a benchmark in measuring customer satisfaction and may give answers for why some websites will not be returned to by some customers. Therefore, the technology-based service capabilities can be further analyzed in future studies since not many post-purchase services are covered such as after-sell service, complaints handling or returns and exchange in this study. For example, future studies could look at customer complaints reviews and how these are dealt with; return policy that is directly relevant to online customer satisfaction of American-based e-commerce retailers; and worldwide-based e-commerce retailers with the aim of gaining sufficient evidence to identify whether these American retailers are doing well in terms of their customer satisfaction, and whether this has increased their web sales (Kusum and Farris, forthcoming; Pauwels et al., 2011). Second, as electronic commerce keeps on growing, the online service environment is going to play a crucial role in customer satisfaction aspects. Managing e-service technology will become more critical for e-retailers who are intending to compete online (Bamfield, 2013; Brynjolfsson et al., 2009). Hence, having effective management in terms of the integration and

technology is very necessary.

However, this is just the beginning in terms of understanding the influence of technology on customer satisfaction in terms of the e-commerce platform. Therefore, more work could be undertaken on how the 115 retailers in this study, and e-commerce retailers worldwide, achieve the effective management of business and technology aggregation, with the aim to figure out how technology affects customer satisfaction and increases in the customer satisfaction index score, which, in turn, affect consumer spending and repurchase intentions driving web sales growth. Third, for some purely web-based merchants, most of their products are from third parties such as Amazon.com Inc. and ebay.com. Taking Amazon.com Inc. as an example: according to the company's reports to investors, products sales that are mainly from third parties that are not affiliated with the website approximately account for 40% (Bamfield, 2013; Chintagunta et al., 2012). Hence, it is vital that all leading American based e-commerce retailers and worldwide-based e-commerce retailers make further efforts to control the quality of brands resold by third-party merchants.

Finally, the research investigated how post-purchase service, e-service technology and the product quality control from third-party merchants affect e-satisfaction, which in turn affects consumer spending in American-based e-commerce retailers and those worldwide. To find out the impact of e-satisfaction on consumer spending in the online shopping environment, regression analysis and panel data model analysis were undertaken based on the customer satisfaction index (CSI) and the consumer price index (CPI), which refers to consumer spending in terms of online shopping. However, since customers differ from each other with respect to level of satisfaction with goods and services in e-commerce retailers, it is sensible to further analyze the impact of customer satisfaction on consumer spending according to different types of online customers. For example, some customers prefer shopping in e-commerce retailers with good website design; so e-retailers should improve their web design. In the case where some customers pay more attention to the online shopping experience, then e-commerce retailers should try to improve the experience they offer their customers through widening the product range, providing more secure payment methods, offering free shipping and so on in order to meet the requirements of this group of customers.

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