

Customer Equity Drivers in Prepaid and Postpaid Airtime Markets

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Abstract

Customer value is specified as the exogenous construct in a dependent relationship with brand and relationship constructs as endogenous in path modeling research. The combination of value, brand and relationship strategies to acquire and retain customers has been described as customer equity management. This study used a multinomial logit model to measure relative importance of customer equity drivers in the mobile telephony industry. The results confirm larger logit coefficients for value equity. As expected, value is more important to customers locked in by contracts. The managerial implication is that mobile broadband airtime services should principally compete on value. In conclusion customers are less interested in brand or relationships when it comes to purchasing airtime in both prepaid and postpaid markets.

Introduction

Strategic marketing battle lines drawn on value, brand and relationship as drivers of customer acquisition and retention in a competitive brand switching environment have been described as customer equity management (Rust, Lemon and Zeithaml, 2000; Rust, Lemon and Zeithaml, 2004; Rust, Zeithaml and Lemon, 2001). While in most instances building brand strategies and customer relationships are secondary, success cannot be achieved without value as the primary ingredient to satisfy customer needs (Parasuraman, 1997; Rust, Lemon and Narayandas, 2005; Woodruff, 1997). Aaker (1991) argues the case of brand equity developing brand awareness and associations to influence customer choice. A secondary function of the brand is to lock the customer in, and build an emotional bond with the customer (Keller, 2008, p. 68). Relationship marketing scholars have consistently documented the shift from transactions to relationships espousing the view that "...the primary focus of marketing is the exchange relationship" (Hunt, 1983, p. 9). Dwyer, Schurr and Oh (1987, p. 11) have warned against treating "buyer-seller relationships as discrete events" and argued for ongoing relationships as a basis for marketing strategy development. Customer surveys have been used to rate performance on customer equity drivers combined with purchase intentions data to model the impact on customer lifetime value (Rust, Lemon and Zeithaml, 2004) and on future sales (Vogel, Evanschitzky and Ramaseshan, 2008).

This paper contributes to the literature by modeling customer equity profiles of prepaid (no contract) versus postpaid (24 month cap contract) customers from four mobile telephony companies. It investigates economic utility gained by switching brands, as determined by the value offering, with brand and relationship as secondary considerations. The original customer equity study surveyed middle aged affluent communities in northeastern USA reporting airline industry data (Rust, Lemon and Zeithaml, 2004). In a follow-up study 5694 respondents answered customer equity questions about an European do-it-yourself retailer. Neither of the previous studies reported the marginal effects of the customer equity drivers on probabilistic choice of competitive firms from the same industry. The American study reported impact on customer lifetime value for the airline industry. The European study sampled customers from a single firm, making comparison of driver impact on competitors unfeasible. The implications for managers explore how competitors use different value, brand and relationship strategies to compete in a brand switching business environment. The paper concludes with some limitations, avenues for further research and concluding remarks.

Customer Equity Drivers

Consumers have defined value as “low price”, “whatever I want in a product”, “the quality I get for the price I pay”, and “what I get for what I give” (Zeithaml, 1988, p. 13). Woodruff (1997, p. 142) defines value as “a customer’s perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer’s goals and purposes in use situations”. These findings influenced the formulation of the term *value equity* that consists of three components: quality, price and convenience. Value Equity has been defined as “the objective assessment of the utility of the brand, based on perceptions of what is given up for what is received (Rust, Lemon and Narayandas, 2005). Rust, Lemon and Narayandas (2005, p. 268) emphasise the priority status of providing value, if it is not perceived to be adequate, “any advertising campaign or loyalty program will have little effect in retaining that customer” Berry (2000) adds that by providing what customers value, and outperforming competitors on that aspect, a company can build its brand. *Proposition 1: Perceived value equity has a greater impact than brand equity in switching propensity in mobile telephony markets.*

Differentiation by brand leads to lower price elasticity and higher market share (Boulding, Lee and Staelin, 1994), more loyalty and less vulnerability to competitive attack (Srivastava and Schocker, 1991), price premiums (Farquahar, 1989), and more responsiveness to marketing communications (Smith and Park, 1992). Keller (1993, p. 8) describes brand equity as “the differential effect of brand knowledge on consumer response to the marketing of the brand”. Aaker (1991) breaks brand equity down into four components: brand awareness, perceived quality, brand associations, and brand loyalty. The customer equity model treats *brand equity* more narrowly using three components: brand awareness (familiarity), brand attitude (associations) and corporate ethics (Rust, Lemon and Narayandas, 2005). Retention equity has been described as the “relationship elements that link the customer with the brand” (Rust, Lemon and Zeithaml 2001, p 26). It is also defined as “the tendency of the customer to stick with the brand, above and beyond the customer’s objective and subjective assessments of the brand” (Rust *et al.*, 2004). This implies that without the brand, relationships are less important to influence switching. *Proposition 2: Perceived brand equity has a greater impact than relationship equity in switching propensity in mobile telephony markets.*

Customers enter into long-term relationships to reduce transaction costs and uncertainty of future benefits (Crosby, Evans, and Cowels 1995). Relationships also provide benefits for the supplier firm, and maintaining long-term relationships with customers does not come at the expense of sales growth. Relationships help to reduce costs over time through better inventory utilization and increase profitability by reducing the firm’s customer maintenance expenses (Kalwani and Narayandas 1995). The creation of relationships may be most useful when the firm provides a complex service, which is delivered over multiple time periods, with many buyers that are unsophisticated about the service, when future demand and supply are uncertain (Crosby, Evans, and Cowels 1995).

Value equity affects a customer’s brand switching propensity (Rust, Lemon and Zeithaml, 2004) and is significant in influencing customer loyalty (Lam *et al.*, 2004; Vogel, Evanschitzky and Ramaseshan, 2008). This implies that value equity, brand equity and relationship equity is related, with value equity having a larger influence on brand switching. *Proposition 3: Perceived value equity has a greater impact than relationship equity in switching propensity in mobile telephony markets.*

Multinomial Logit Model

The multinomial logit model (MNL) simultaneously estimates binary logits for comparisons of J alternatives, the four mobile telephony companies, in this study. The dependent variable is choice of mobile service provider as the nominal outcome. Competitors are identified in the notation as brand A, B, C and D, with B as the base. The logit coefficient $\beta_{1,B|A}switch$ serves as a dummy variable measuring brand inertia. It follows classic brand switching literature where the nominal outcome is the utility of brand k to individual i , who currently buys brand j (Guadagni and Little, 1983). The dummy $\beta_{1,B|A}switch$ below is equal to one if $j=k$ and zero otherwise. In Equation 1 the effect of the customer equity drivers on mobile company choice can be estimated by three binary logits. With J alternatives, only $J-1$ binary logits need to be estimated (Greene and Henscher, 1995). The subscripts to the β_s for independent variables indicate the comparisons made. Running a second model later included the control variable $\beta_{5,B|A}prepost$ as a dummy to test the effect of prepaid (no contract) from postpaid (24 months cap contract) customers.

$$\begin{aligned}
 (1) \quad & \ln\Omega_{B|A}(x_i) = \beta_{0,B|A} + \beta_{1,B|A}switch + \beta_{2,B|A}value + \beta_{3,B|A}brand + \beta_{4,B|A}relationship + \varepsilon_i \\
 & \ln\Omega_{B|C}(x_i) = \beta_{0,B|C} + \beta_{1,B|C}switch + \beta_{2,B|C}value + \beta_{3,B|C}brand + \beta_{4,B|C}relationship + \varepsilon_i \\
 & \ln\Omega_{B|D}(x_i) = \beta_{0,B|D} + \beta_{1,B|D}switch + \beta_{2,B|D}value + \beta_{3,B|D}brand + \beta_{4,B|D}relationship + \varepsilon_i
 \end{aligned}$$

The data for this analysis came from an Australian consumer panel covering mobile and telecommunications respondents maintained by an international marketing research company. A total of 17 survey items were measured, brand inertia labelled as switch X_1 (Guadagni and Little, 1983) and the customer equity categories (i) perceived value (Parasuraman, 1997; Zeithaml, 1988), (ii) brand equity (Aaker, 1991; Keller, 2008), and (iii) relationship equity (Rust, Lemon and Zeithaml, 2004). In Table 1 the value equity items are represented by X_2 - X_4 , brand equity X_5 - X_{10} , and relationship equity X_{11} - X_{17} . Respondents rated each of the four competitors of each customer equity driver.

Four random samples were drawn to select respondents from the mobile and telecommunications panel as the sampling frame. The first sample drew respondents from a national fixed line and mobile services telecommunications company. The second and third samples were from two independent carriers with established global operations. The fourth sample came from a smaller competitor in terms of relative national market share. Four screening questions were asked to qualify the respondents before answering the survey items. First, respondents were asked to indicate which payment plan they prefer for airtime purchases. Only respondents that indicated: (i) prepaid customers (no contract) and (ii) postpaid customers (24 months cap contracts) were selected to proceed. Second, customers capable of entering into a legal contract were selected based on a minimum age of 18 and weekly spending budget of at least \$150. Third, brand inertia, was captured by asking respondents to identify their *current* mobile carrier, and which carrier would be their *next* preferred carrier of choice.

A total of 1600 requests for completion of the online questionnaire were emailed to panel members, 400 to each group. In the fixed line and mobile services telecommunications group 105 questionnaires were eligible. With the two independent groups, the response was 161 and 117 respectively. The smaller competitor sample returned 26 questionnaires, resulting in a total of 409 eligible questionnaires completed. The overall response rate was 25.56%.

Results

Table 1 presents the coefficients for brand inertia and the customer equity drivers for each competitor relative to Brand B as the base using Equation 1. Several impactful results are striking. First, as expected brand inertia is highly significant for the larger competitors as indicated by the switch X_1 coefficients for B|A and B|C comparisons. The odds ratio $\exp(\beta_{B|C})$ of switching for Brand C is 1.72 times higher relative to Brand B. Brand A runs a lower risk of loosing customers at 1.51 times. The smaller competitor B|D is less vulnerable to large switching flows ($b=-0.045$; $p>0.860$). Second, value equity is a significant driver in influencing choice of mobile carrier. Variation of competition on overall quality, price and signal coverage drives value equity. Brands D, A and C (in order of odds ratio performance) are all significantly poorer performers on overall quality relative to Brand B. Price produced the lowest logit coefficients for all value equity items. Brands D, B, A are all closely clustered together indicating similar pricing structures, but all significantly different to Brand C that charge higher prices. Competition on signal coverage is the reverse of performance on overall quality. Brands D, C and A are again clustered together but all significantly outperforming Brand B. Signal coverage produced the largest coefficients on average 1.68 times better than the base, whereas overall quality on average was only 30% less than the base brand. Price coefficients were approximately in the middle between overall quality and signal coverage.

Table 1
Logistic Coefficients for Brand Inertia and Customer Equity Drivers Predicting the Odds of Mobile Carrier Choice Relative to Base Brand B.

Logistic Coefficients	Comparisons								
	B A			B C			B D		
	$\beta_{B A}$	$\exp(\beta_{B A})$	$\rho> z $	$\beta_{B C}$	$\exp(\beta_{B C})$	$\rho> z $	$\beta_{B D}$	$\exp(\beta_{B D})$	$\rho> z $
X_1 Switch	0.409	1.505	0.009	0.543	1.721	0.002	-0.045	0.955	0.860
X_2 Quality	-0.357	0.699	0.000	-0.324	0.722	0.001	-0.388	0.678	0.015
X_3 Price	0.053	1.055	0.478	0.257	1.293	0.002	-0.160	0.851	0.219
X_4 Signal	0.467	1.595	0.000	0.485	1.624	0.000	0.596	1.815	0.000
X_5 Media	0.008	1.008	0.912	0.223	1.250	0.004	-0.040	0.960	0.749
X_6 Pay attention	0.054	1.055	0.496	-0.210	0.810	0.015	-0.016	0.983	0.903
X_7 Citizen	-0.070	0.932	0.458	-0.282	0.754	0.005	-0.139	0.869	0.392
X_8 Sponsor	-0.080	0.922	0.298	0.183	1.201	0.027	-0.161	0.850	0.232
X_9 Ethical	0.285	1.331	0.005	0.158	1.171	0.141	0.414	1.513	0.016
X_{10} Personality	-0.261	0.769	0.010	-0.250	0.778	0.020	-0.104	0.547	0.900
X_{11} Loyalty	0.120	1.127	0.173	-0.094	0.910	0.323	0.028	1.028	0.849
X_{12} Treatment	-0.012	0.987	0.889	-0.008	0.991	0.931	-0.152	0.858	0.315
X_{13} Procedures	0.270	1.310	0.001	0.398	1.490	0.000	0.420	1.522	0.002
X_{14} Information	-0.059	0.942	0.379	-0.171	0.842	0.021	-0.245	0.782	0.045
X_{15} Special	-0.095	0.908	0.361	0.127	1.136	0.266	-0.133	0.874	0.430
X_{16} Community	0.018	1.018	0.841	-0.128	0.879	0.207	0.127	1.136	0.391
X_{17} Trust	0.084	1.088	0.361	0.118	1.126	0.234	0.358	1.430	0.023

Third, the logit coefficients for brand and relationship equity are significantly lower than for value equity. The value equity coefficients range from -0.388 to 0.596. Brand equity ranges from -0.282 to 0.414, and relationship equity from -0.245 to -0.398. Relationship nests within the logit coefficient range for brand. Brand equity in turn nests within value equity, with the order of relative importance value, brand and relationship. Brand and relationship simply matter less when it comes to airtime purchases irrespective of mobile carrier. Fourth, adding the control variable $\beta_{5,B|A}$ *prepost* to Equation 1 running a second MNLM, the range for

postpaid customers becomes the largest value equity logit coefficients, from -0.56 to 0.98¹. For prepaid customers the value equity coefficients range from -0.4 to 0.45. As expected customers locked into a 24 month cap contract (postpaid) are significantly more concerned about value equity than prepaid customers. Prepaid customers can simply walk away by buying a new sim card from a competitive carrier that offers better value. Postpaid customers cannot switch at will, unless punitive contractual cancellation fees are paid. The established pattern of brand and relationship being less important holds in the same order when controlling for type of payment plan.

Implications for Management

The data for this study was collected before the launch of the iPad tablet mobile computing device earlier in 2010. It was a break from the past when the USA carrier AT&T chose not to lock customers into long-term broadband data contracts. Data plans were sold like everyday commodities in a supermarket. The only real consideration for the customer was the value offered by different price plans. A month later in Australia, Telstra was the first carrier to announce data plans for the iPad. Telstra, like AT&T, only offered prepaid, no-contract plans on a monthly usage basis. Some carriers in the UK offer both prepaid and postpaid data plans. There are good reasons for this: the low launch price of the iPad made it less attractive for the product to be bundled with airtime as with more expensive mobile telephones. Another explanation could be that mobile carriers have been privy to a real change in consumer decision-making. The recent global financial crisis has been credited for forcing customers into reconsidering purchases from a primary value point of view. This is especially true when broadband data is nothing more than a basic commodity sold by a touch sensitive button on a mobile device. It has become harder to convince value sensitive customers of the relationship benefits of buying commodity bandwidth from an expensive branded mobile carrier. Essentially customers gain economic utility by comparing price and quality for different products and services, and when the gain ratio is low even more expensive shopping goods can become vulnerable due to lack of clear cut distinctiveness (Holton, 1958). This is solid proof that value equity is back in vogue.

Further Research

More research is needed to measure if value equity considerations by customers are encroaching on shopping and speciality goods where brand and relationship matter more. Cross sectional data used in studies such as the current study has a major limitation. Any long-term shift taking marketing investment away from brands and relationships can only be confirmed using panel data over a longitudinal timeframe. Such data is becoming more and more available in the discipline of marketing. Future research should focus on modeling customer equity driver impact on luxury goods and services where brand and relationship are considered more important than value equity. An econometric mixed model testing for main and random effects over multiple time periods would be a fruitful endeavour to continue studies, which improve the understanding of marketing metrics.

¹ Due to page limit constraints the full set of logit coefficients for the MLMN model including the control variable are available from the authors on request.

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