

A Study on consumer preference towards purchase of durables extended warranties from Indian modern retail stores

¹Venugopal Vivek & ²A.J Joshua (Dr)

¹Research Scholar, Research & Development centre, Bharathiar University, Coimbatore (India)

²Professor, Department of Management Studies, FISAT Business School, Hormis Nagar, Mookkanoor, Angamaly (India)

ARTICLE DETAILS

Article History

Published Online: 29 Sep 2018

Keywords

Extended warranty, Modern retail, Consumer durables, Service contract, Electronics, Retail

Corresponding Author

Email: bizvivek[at]gmail.com

ABSTRACT

In India, selling extended warranties on consumer durable products is a rapidly expanding business for modern retail stores. Modern retail or modern trade as the name suggests are large organized retailers with chain stores across various geographies. There is a time bound warranty provided to the customers by all the major electronics manufacturers on the electronic, digital and durable goods sold in India. In addition to this, many modern retailers sell extended warranties with electronic products as a value add and a market differentiation tool. An extended warranty (EW) is a contract that provides limited indemnification for the breakdown of the underlying electronics asset due to mechanical or electrical breakdown. The percentage of consumers buying the optional extended warranties range from 20% on products such as automobiles to 75% on products such as home electronics and appliances (Desai and Padmanabhan, 2004). The other aspect that makes the extended-warranty business attractive is the substantial profit margin. Retail profit margins on extended warranties range from 30 percent to 75 percent and typically generate more profit than the products covered (The New York Times, 1999). In addition to generating direct profits, extended warranties are used as a means to retain customers. This paper in particular attempts to explore the consumer preference towards purchase of extended warranties offered at the modern retail stores in Bangalore. This research investigates the popular ways in which modern retailers provide information about the availability of warranty extensions to customers and aims to understand the purchase dynamics of such extended warranty programs.

1. Introduction

An extended warranty is actually a service contract under which the provider promises to repair, replace, or maintain the product for free over a certain period of time after the manufacturer's original warranty expires in exchange for a premium. Extended warranties are sold separately from the products and usually offer additional benefits such as return and/or exchange privileges that are not provided by the manufacturer's original warranty. The terms of a typical extended warranty certificate specify the conditions of coverage, key exclusions, price and the duration for which the product is covered.

An extended warranty of the product is becoming increasingly popular both among modern retailers and consumers. These warranties provide retailers with an additional source of revenue in a market characterized by long repurchase cycles, with prices of extended warranties generally exceeding "...the average expected costs of repair by considerably more than what might be attributed to profit and overhead" (Fox and Day 1988, p. 337). They also offer dealers opportunities for repeat customer contact, with the goal of interesting customers in future purchases (Advertising Age 1985). Finally, the marketing of extended warranties offers retailers an opportunity to enhance the image of their store (Kelley et al 1988). When effectively marketed and implemented, extended warranties offer a win/win situation for consumers and retailers alike. Extended warranties appeal to consumers by reducing perceived risk and assuring consistent

and quality service. Since their introduction by large electronics chain stores in the late 1980s, extended warranties have become a core product for many modern retailers. Given the financial stake that retailers have and the costs to consumers, understanding the factors that affect consumer purchase decisions of extended warranties and whether the process can be influenced is both theoretically and substantively important. This research investigates the popular ways in which modern retailers provide information about the availability of warranty extensions to customers and aims to understand the purchase dynamics of such extended warranty programs. In this research, we attempt to understand what drives consumers to purchase durables extended warranty from modern retail stores. This paper in particular attempts to explore the changing dynamics of Indian consumers buying habits in the backdrop of extended warranties offered at the modern retail chain stores in India.

2. Literature Review

In the warranty literature, few papers illustrate how heterogeneity among customers can enable segmentation of the extended warranty market. For example, Padmanabhan and Rao (1993) consider pricing strategies in the presence of heterogeneous risk preferences and consumer moral hazard. Three papers discuss usage heterogeneity in the context of warranty pricing. Padmanabhan (1995) shows how manufacturers can design and price a menu of warranty options in the presence of consumer moral hazard and usage heterogeneity, and satisfy the warranty demands of various consumer segments. Hollis (1999) examines consumer welfare

in the extended warranty market when customers vary in usage, but the manufacturer cannot verify usage (and so cannot use usage as part of its warranty terms). Moskowitz and Chun (1994) study the design and pricing of a menu of usage and time based warranties in the presence of usage variation among customers. To those marketing such consumer durables, extended warranties can be very profitable. According to one study (Desai and Padmanabhan, 2004), the percentage of consumers purchasing such warranties ranges from 20% for automobiles to 75% on home electronics like stereos and computers. The Consumer Electronics Association estimated that only 20% of consumers purchasing an extended warranty for an electronic device ever use the service (Noel, 2001). It is clear that this is a big and highly profitable business, especially for retailers like Best Buy and Circuit City (Berner, 2005). Extended warranties offer retailers margins ranging from 44% to 77% (Noel, 2001), and can account for as much as 50% of an independent retailers' profits (Baird and Benady, 1996). The relationships between warranty, reliability, and quality have also been explored. Price and Dawar (1995) examine how the effects of brands and warranties affect consumer evaluations of quality. They find that, under certain conditions, the two signals may interact to convey quality. Warranty and quality issues, along with costs of warranty repair, in the automobile industry have been investigated. Douglas et al (1993) find an inverse relationship between quality and warranty in the US market. Gill and Roberts (1989) find empirical support for their model that predicts that there is a higher cost of warranty repairs, i.e. more trips to the mechanic, for people more willing to visit the shop. Agrawal et al (1996) look at the relationship between warranty levels and reliability and find that product age, increased market penetration, and greater variation in the reliability of brands lead to 'improvements' in this relationship. The presence of an independent insurer under writing extended warranty can change the manufacturer's warranty and pricing policies which can have the impact on manufacturer's profits and consumer's purchasing intention (Padmabhaban 1993). In general, consumers buy extended service contracts because they believe the contracts offer some value beyond the typical warranties of the manufacturers. Research indicates that consumers are more likely to buy extended warranties as the complexity and the price of the product increase ("Warranty Industry" 1991).

Further, many consumers consider extended service contracts a method of reducing financial and performance risk (Kelley and Conant, 1991). Sahin and Polatogu (1998) provide an excellent review of various warranty policies and product failure models. Mamer (1987) analyzes the trade-off between warranty and quality, and illustrates the sensitivity of warranty costs to environmental variables. Anderson (1977) develops an optimization decision model for the optimal choices of the warranty period and the product price. Balcer and Sahin (1986) derive total product replacement cost under both "pro rata" and "free replacement" warranty policies by assuming that the successive failure times form a renewal process. Opp et al. (2003) consider a cost minimization problem of outsourcing warranty services to repair vendors under static allocation. Another unique work related to warranties by Cohen and Whang (1997) develop a product life-cycle model in which warranty cost is incorporated in the profit function of a firm

seeking to maximize total lifecycle profit from a product. They assume that the warranty will run for a fixed interval and that the warranty cost is linear with the manufacturer's quality of after-sales service. Glickman and Berger in "Optimal price and protection period decisions for a product under warranty" consider the effect of warranty on demand by assuming that demand increases as the warranty period increases. According to Ursula Moran, analyst for Sanford C. Bernstein & Company, two types of consumers purchase extended warranties. "One is the people who live paycheck to paycheck who don't want to deal with any extra expenses. The second kinds are those who buy it for convenience." (St. Louis Post Dispatch, 1998). Chen et al. (2009) argued that extended warranties must be overpriced in order to compensate for the standard warranty time period. Desai and Padmanabhan (2004) looked at the warranty as a type of insurance for risk-averse customers.

3. Objective of the Study

This research investigates the popular ways in which modern retailers provide information about the availability of warranty extensions to customers and aims to understand the purchase dynamics of such extended warranty programs. This paper in particular attempts to explore the changing dynamics of Indian consumers buying habits in the backdrop of extended warranties offered at the modern retail chain stores in India. This research also aims to investigate the key decision drivers that motivates customers to buy extended warranty on durable goods purchased from modern retail stores.

4. Methodology

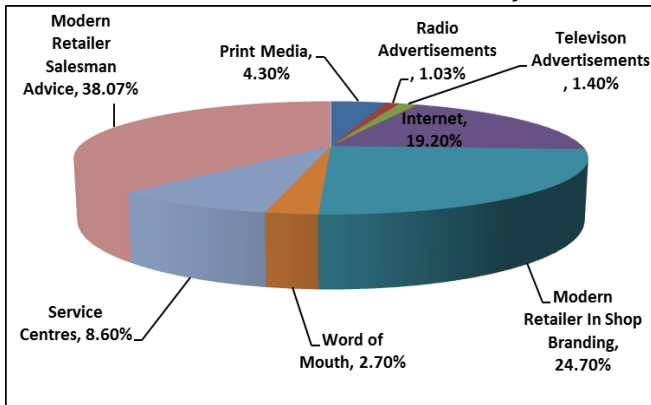
For this research, we had sampled 175 respondents who have purchased brown, digital and white goods from ten modern retail stores in Bangalore. These modern retailers are also offering extended warranties as a value added differentiator on after sales service to their customers. These warranties are customized and branded as modern retailers' "white label". Ten modern retailers in Bangalore were accessed to gather sample of customers who have purchased electronic/digital/large appliances from these retail outlets during the period 2nd June to 30th June, 2018. A heterogeneous population was desirable in order to increase the generalizability of the results to other populations. Questionnaires were used as an instrument of data collection and the sampling element employed were customers of these ten modern retail stores in Bangalore. Mall intercept method was employed to select a sample size of 175 respondents. Closed and open ended questions were drafted for this purpose and a proper sequence was employed while constructing the questionnaires.

5. Results and Discussions

Out of 175 respondents, 112 were males which constituted 64.00% of the data whereas females were only 63 (36.00%). The median age categories of the respondents were between 26-35 years. Education influences what, where and when one can buy and consume, however it depends on one's own income and occupation. It also influences how one thinks, makes decisions, and relates to others. Those with a limited education are generally at a disadvantage not only in earning money but in spending it wisely. In our study educational level

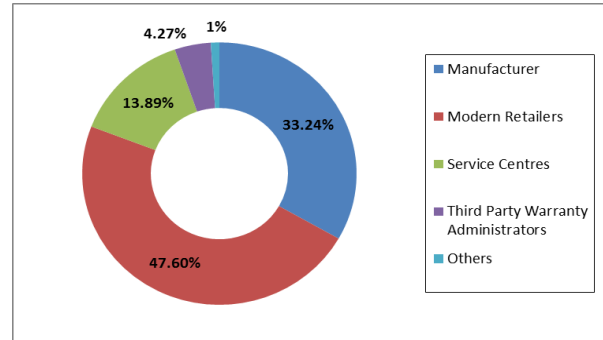
of respondents are classified into four categories 42% of the consumers are possessing Graduation as their educational qualification, 31% of the consumers are possessing Post graduation, 17% of the consumers are Professionals and 10% of the consumers are with school level education. It is observed that most of the consumers (53%) planning to buy an extended warranty are possessing Graduation and above as their educational qualification. It is strongly believed that occupation of an individual provides status and income. In addition, the type of work one does directly influence one's values, lifestyle, and all aspects of the life as well as their consumption pattern. In our study, majority (74.43%) respondents were salaried and 52% of the respondents were within the annual salary bracket of less than 5 Lakhs. Marital status possibly plays an important role in consumption. 72% of the respondents are married and the remaining 28% of the consumers were living as single. It is observed that majority of the consumers (72%) planning to buy extended warranties was married. During the study, 83.4% of the respondents expected manufactures' to provide warranty on the electronic products sold with 31% of the respondents expecting this warranty to be more than 5 years. 74.1% of the respondents had heard about availability of extended warranties on consumer durable/ electronic products. From figure 1, the most effective media identified during the study was modern retailer salesman advise (38.07%) followed by modern retailer in shop branding (24.70%) and internet (19.20%).

Figure-1
Effective media for extended warranty



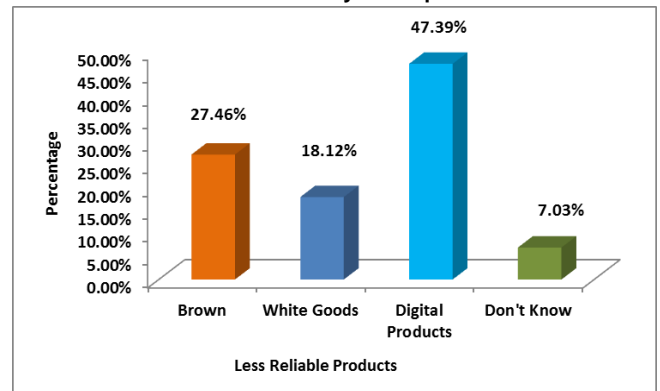
Hence, from Figure No. 2, the most preferred channel to buy EW was modern retail shops (47.60%) followed by manufacturer (33.24%) and service centers (13.89%). Generally, extended warranty in India is offered at the POS location or within a stipulated time after purchasing the product, the buyer is aware of the cost and terms of the extended warranty while determining the perceived reliability and value of the product. The extended warranty is generally introduced at the end of the product sale mostly during the final billing process. The store sales person explains the manufacturing warranty terms and explains the benefits of extending the base warranty to the customers. The sales person advice is crucial determinant factor for retailer driven extended warranty programs.

Figure – 2
Preferred channel to buy EW



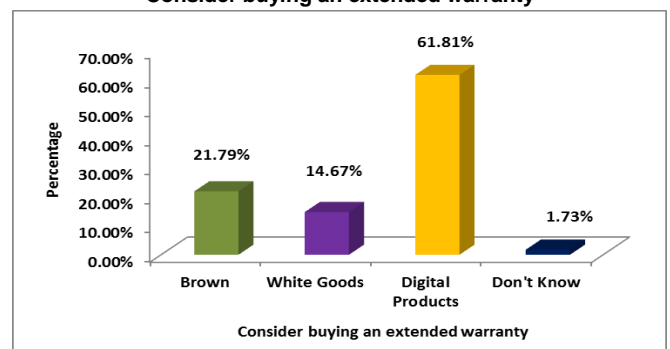
Perceived reliability of the product under consideration was a key factor in deciding the need to buy an extended warranty. Generally, customers are more inclined to think about buying an extended warranty for the products which had lower perceived reliability. Idea of buying an extended warranty on such products will ensure complete peace of mind to the buyers. Figure 3 indicates that 47.39% of the respondents considered digital products (Mobile Phones, laptops, tablets etc.) to be less reliable followed by 27.46% considering brown goods (LCD/LED, home theatres, Hi-Fi systems etc.) and 18.12% considering white goods (Refrigerators, washing machines, air conditioners etc.) as less reliable.

Figure-3
Perceived reliability of the products



From figure No. 4, it is clear that due to perceived lowest reliability of digital products, 61.81% of the respondents were ready considering an extended warranty on these products. Customers were more concerned regarding the reliability of digital products like mobile phones, cameras, laptops and tablets etc as compared to brown and white goods which motivated them to think about an extended warranty option on digital products.

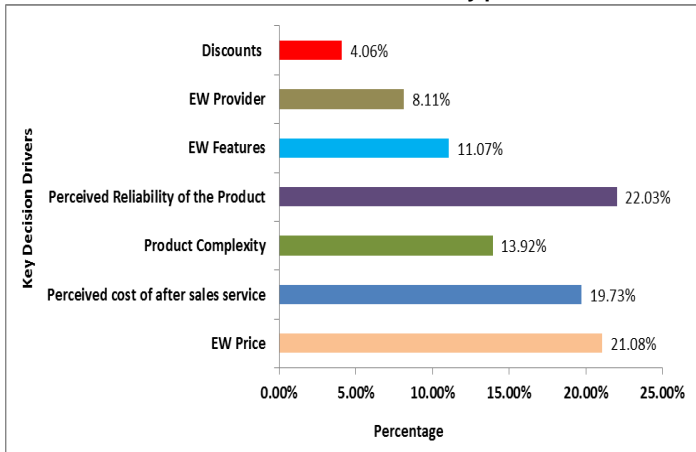
Figure- 4
Consider buying an extended warranty



As shown in figure No.5 below, 22.03% of the respondent considered perceived product reliability as the most important attribute while making EW purchase decision followed by extended warranty price (21.08%), perceived cost of after sales service (19.73%), product complexity (13.92%), EW features (11.07%), EW provider (8.11%) and discount (4.06%). There is a marginal difference between perceived reliability of the product under purchase and price of extended warranty contract. Hence, perceived product reliability and price sensitivity are critical decision drivers while considering an extended warranty purchase.

Figure- 5

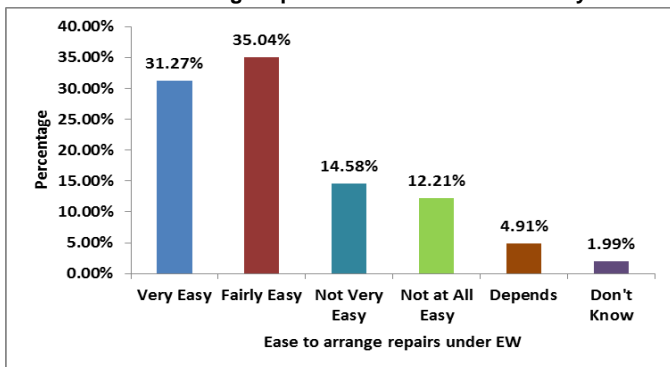
Critical decision drivers for extended warranty purchase decision



An extended warranty is an extended coverage for electrical or mechanical breakdown. It may or may not cover peripheral items, wear and tear, damage by computer viruses, re-gassing, normal maintenance, accidental damage, or any consequential loss. The indemnity is to cover the cost of repair and may include replacement if deemed uneconomic to repair. Hence, from Figure No.6, it is evident that perceived ease of arranging repairs under EW was a critical determinant factor during the study. It could be argued that what customers are really buying when they buy an extended warranty service plan is customer service and technical support.

Figure- 6

Ease to arrange repairs under extended warranty

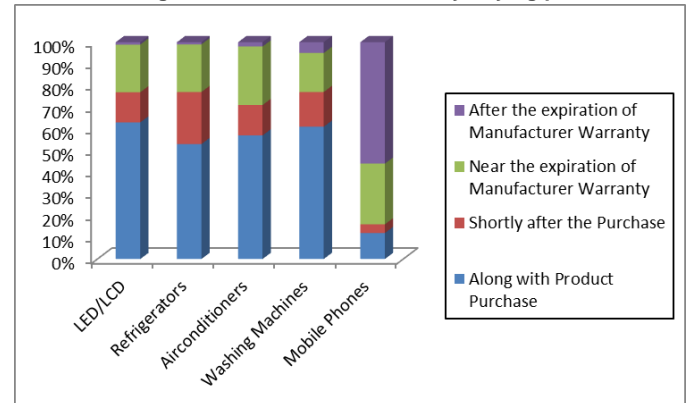


As shown in figure No.7 below, among 73% who said they were interested in purchasing an extended warranty, LED

(63%), refrigerators (53%), Air conditioners (57%) and Washing machines (61%) said they would like to do so at the time and place of the product purchase. The point-of-sale probably won out because the respondents had either recently bought or were about to buy a product. So the point-of-sale was fresh in their minds. Interestingly in case of mobile phones (56%) of the customers said they would like to buy an extended warranty only after the expiry of manufacturer warranty owing to short usage cycle. Generally, people change mobile phones frequently to keep up with the technological advancement in the phone.

Figure- 7

Product segment wise extended warranty buying preference



5.1 Analysis of Variance and ANOVA test

Analysis of Variance (ANOVA) is a statistical method used to test differences between two or more means. From table no 1, it was found that generally as the income level increases the perception about Benefits and Comfort increases and as seen in table no 2, when ANOVA test was performed it is found that the differences among the various income level groups are significant statistically at 95% confidence level. This means it pays to target higher income groups for marketing extended warranty. This is a key finding and implies that the marketers should focus their attention on higher income group where the probability of extended warranty purchase is higher.

Table- 1

Analysis of variance test

		N	Mean
Benefits	< 5 LAKHS	77	3.7835
	5-10 LAKHS	58	4.2069
	10-15 LAKHS	29	4.2126
	15-20 LAKHS	5	4.6333
	ABOVE 20 LAKHS	6	3.9444
	Total	175	4.0248
Comfort	< 5 LAKHS	77	3.9177
	5-10 LAKHS	58	4.2443
	10-15 LAKHS	29	4.2299
	15-20 LAKHS	5	4.6667
	ABOVE 20 LAKHS	6	4.8611
	Total	175	4.1314

Table- 2
ANOVA test

		Sum of Squares	df	Mean Square	F	Sig.
Benefits	Between Groups	9.318	4	2.33	2.894	0.024
	Within Groups	136.852	170	0.805		
	Total	146.17	174			
Comfort	Between Groups	9.162	4	2.291	3.321	0.012
	Within Groups	117.259	170	0.69		
	Total	126.422	174			

5.2 Factor Analysis of Consumers' Attitude towards Extended Warranty

Factor analysis is a statistical method used to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors. It allows researchers to investigate concepts that are not easily measured directly by collapsing a large number of variables into a few interpretable underlying factors. Factor analysis searches for such joint variations in response to unobserved latent variables. The information gained about the interdependencies between observed variables can be used later to reduce the set of variables in a dataset.

In this study, the factor analysis is done to determine the dimensions of attitude of the consumers towards extended warranty. Batteries of 31 items have been used to measure the various types of attitudes and perceptions of the consumers towards extended warranty. Factor analysis will indicate those items which are unidirectional thereby reducing the number of items into a small manageable number. In this case the 31 items have been reduced to six dimensions.

Table- 3
KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.885
Bartlett's Test of Sphericity	Approx. Chi-Square	4226
	df	465
	Sig.	0

In table 3 above, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (MSA) was first computed to determine the suitability of using factor analysis. The MSA was found to be 0.885 which is greater than 0.5, so the factor analysis is appropriate in this case (Malhotra 2005). Bartlett's test of sphericity was significant at 4225.9 at degrees of freedom df of 465, and hence the data can be subjected to factor analysis.

Principal component analysis (PCA) is a statistical procedure that uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components. PCA is sensitive to the relative scaling of the original variables. According to Malhotra (2005), principal component analysis is recommended when the primary concern

is to determine the minimum number of factors that will account for maximum variance in the data for the subsequent multivariate analysis. To determine the minimum loading required to include an item in its respective constructs Hair et al. (1998) suggested that variables with loadings greater than 0.3 were considered significant; loadings greater than 0.4, more important; and loadings 0.5 or greater very significant. In the study the criteria used was to accept items with loadings greater than 0.4.

The 31-item scale was found to have a Cronbach Alpha of 0.929, which indicated good reliability of the battery of items used for measuring the consumer attitudes and perceptions. The Cronbach Alpha falls in the acceptable range according to Nunnally (1967). . These 31 items have loaded on to six factors showing underlying dimensions of the consumer perceptions regarding extended warranty. These factors have been selected through exploratory factor analysis, using principal component analysis, employing varimax rotation and their Eigen values are greater than one. Together these factors are able to explain 70.82 percentage of variation. In table no 5, looking at the unidirectionality of the items these factors have been named as the following: Benefits, Comfort, Confidence, Negatives, Motives of Purchase, and Assurance.

Table- 5
Summary of unidirectional factors

FACTORS	DESCRIPTION
Benefits	These items mainly represent the perceived benefits accrued by extended warranty.
Comfort	These are mainly items that give perceived comfort and peace of mind to the consumers through extended warranty.
Confidence	These items represent the given perceived confidence and trust in consumers through extended warranty.
Negatives	These items have been reverse coded and represent the perceived negative aspects of extended warranty.
Motives of Purchase	Represents those items that motivate the consumers to go in for extended warranty.
Assurance	Represents those items that give assurance to consumers by availing extended warranty.

Table- 4
Factor analysis of consumers' attitude towards EW

	Variables	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
BENEFITS	B1 EXTENDED WARRANTY MAKES REPAIR EASIER	.717	.200	.140	.021	.284	.305
	B2 EXTENDED WARRANTY CAN HELP REDUCE FUTURE REPAIR COSTS MORE EFFECTIVELY	.777	.185	-.032	.065	.241	.270
	B3 EXTENDED WARRANTY SAVES TIME	.736	.149	.395	-.052	-.037	.266
	B4 IT WILL BE EASY TO LODGE A COMPLAINT DURING EXTENDED WARRANTY	.801	.173	.345	.026	-.047	-.025
	B5 EXTENDED WARRANTY IS A CONVENIENT WAY TO MAINTAIN MY GADGETS	.759	.249	.286	-.002	.167	.033
	B6 FRIENDS AND COLLEAGUES HAVE PURCHASED EXTENDED WARRANTY	.758	.240	.241	-.050	.211	-.050
COMFORT	C1 COMFORTABLE WITH THE IDEA OF BUYING AN EXTENDED WARRANTY	.159	.785	.267	.091	.281	.046
	C2 EXTENDED WARRANTY GIVES ME COMPLETE PEACE OF MIND	.232	.814	.136	.073	.169	.204
	C3 SUGGEST MY FAMILY, FRIENDS AND PEER GROUPS TO ALWAYS BUY EXTENDED WARRANTY	.211	.722	.410	.009	.120	.054
	C4 FIRST AMONG MY FRIENDS AND RELATIVES TO BUY EXTENDED WARRANTY	.304	.612	.392	-.074	-.121	.318
	C5 EXTENDED WARRANTY IS VALUE FOR MONEY CONTRACT	.356	.558	.342	.033	.335	.110
	C6 EXTENDED WARRANTY SAVES COST OF FUTURE REPAIRS	.267	.566	.199	.021	.303	.374
CONFIDENCE	CO1 FEEL CONFIDENT OF BUYING RETAILER BACKED EXTENDED WARRANTY	.272	.318	.704	-.069	-.006	.007
	CO2 RETAILER EXPLAINED ALL THE TERMS AND CONDITIONS OF EW	.371	.336	.585	.067	.263	.110
	CO3 EW INCLUSIONS AND EXCLUSIONS WERE EASY TO UNDERSTAND	.436	.072	.668	.050	.064	.090
	CO4 TRUST THE RETAILER WHO SELLS EW ON THE PRODUCTS SOLD	.252	.324	.658	-.051	.344	.048
	CO5 EXTENDED WARRANTY IS A HASSLE FREE SERVICE CONTRACT	.272	.357	.500	-.040	.254	.487
	CO6 EXTENDED WARRANTY COMPLEMENTS MY PURCHASED ELECTRONIC GADGETS	.178	.232	.575	.013	.402	.387
	CO7 AVAILABILITY OF EW IMPROVES MY CONFIDENCE IN A PARTICULAR RETAILER	.093	.318	.630	-.064	.353	.102
NEGATIVES	EXTENDED WARRANTY IS JUST A MARKETING GIMMICK	-.179	-.109	.013	.713	-.017	-.192
	EXTENDED WARRANTY IS TOO MUCH OVER PRICED	.079	.020	.058	.840	-.076	-.172
	DON'T FEEL THE NEED TO BUY AN EXTENDED WARRANTY	.043	.008	-.058	.887	.065	-.114
	MANUFACTURER WARRANTY IS ENOUGH	.164	.048	.045	.789	-.150	.359
	ELECTRONIC PRODUCT WILL NEVER BREAK DOWN	-.091	.176	-.147	.723	.041	.360
MOTIVE	DON'T MIND PAYING LITTLE EXTRA FOR A GOOD SERVICE CONTRACT LIABILITY	-.047	.306	.399	.058	.591	.014
	RETAILER ENCOURAGES TO BUY EXTENDED WARRANTY	.294	.082	.117	-.178	.579	.111
ASSURANCE	DON'T LIKE WARRANTY TERMS AND CONDCTIONS THAT ARE COMPLEX AND MISLEADING	.291	.299	.209	-.104	.295	.503
	EW WILL ENSURE 100% AUTORISED REPAIR AND 100% GENIUENE SPARE PARTS	.312	.298	.459	-.092	.231	.521
	Initial Eigen Values (Factors are selected those which are having Eigen values greater than 1)	12.70	3.3	2.15	1.47	1.23	1.1
	Percentage of variance explained by each factor	40.97	10.66	6.93	4.73	3.98	3.55
	Cumulative variance explained in percentage	40.97	51.63	58.56	63.29	67.27	70.82

The total variance explained by the 6 factors together is 70.82%						
--	--	--	--	--	--	--

Table- 6
T-test for independent samples

Negatives	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig.(2-tailed)
	2.245	0.136	3.551	173	0

Table- 7
Mean Value

Negatives	GENDER	N	Mean
	MALE	112	3.5
	FEMALE	63	2.876

In table no. 6, when a t-test for independent samples was done for the construct 'Negatives' it was found that there is significant differences between males and females with females being more positive about the extended warranty than males as seen from the mean value in the table no. 7 (reverse coded mean value being greater in case of males).

6. Conclusion and scope for further research

Modern retailers generally market extended warranties to durable-goods buyers. Extended warranties are optional and need be purchased at an additional cost. Such extended warranty offering from modern retail serves as a market differentiation tool and also adds to the bottom-line of the modern retailer. In this research, we use consumers' purchase decisions of extended warranty to understand their decision making under uncertainty. The decision to purchase extended warranty requires consumers to assess the probability and the possible magnitude of loss and make a decision on the basis of their perceptions of risk and the level of premium charged. During the study it was clear that modern retailer sale staff advises followed by in shop branding after arriving at the modern retail store was determinant factor while making EW purchase decision. The customers were persuaded to buy

extended warranty by the sales man after their arrival at the retail store. This gives a clear sense of direction to modern retailers to use these mediums as an effective sales tool for extended warranty. An extension to this argument is the high customer preference to buy such extended warranty from modern retail stores as compared to any other channels followed by manufacturer. Women are more risk averse and positive towards extended warranty as compared to male counterparts. The perceived reliability of the product under consideration was a key factor in deciding the need to buy an extended warranty and digital goods (mobile, laptops etc.) with least perceived reliability were showing highest probability for extended warranty cross sell. This study was done in Bangalore and can be replicated to other cities in India to get a wholesome picture of warranty decision-making process. It would be helpful to extend this research to examine literature on consumer understanding, misunderstanding, or knowledge of other complimenting value offering and services. Hopefully, this would provide insights that could lead to the development of research questions, hypotheses, or propositions regarding extended warranties and modern retailers for subsequent testing.

References

1. Agrawal, J., Richardson, P., and P. Grimm. (1996). "The Relationship between Warranty and Product Reliability," *Journal of Consumer Affairs*, v30 n2: 421-43.
2. Anderson, E. (1977), "Product Price and Warranty Terms: An Optimization Model," *Operational Research Quarterly*, Vol. 28, No. 3, 739 – 741.
3. Baird, R. , Benady, D. 1996. Money trap guarantees. *Marketing Week* 19 (July 26), p.32
4. Balcer, Y. and I. Sahin. (1986), "Replacement Costs Under Warranty: Cost Moments and Time Variability," *Operations Research*, Vol. 34, No. 4, 554 – 559.
5. Berner, R. 2005. Watch out, Best Buy and Circuit City 3960 (November 21), pp. 46-48.
6. Chen, T., Kalra, A., & Sun, B. (2009). Why do consumers buy extended service contracts? *Journal of Consumer Research*, 36, (4), 611–623.
7. Cohen, M. and S. Whang. (1997), "Competing in Product and Service: A Product Life-Cycle Model," *Management Science*, Vol. 43, No. 4, 535 – 545.
8. Douglas E., Glennon, D., and J. Lane. (1993) "Warranty, Quality and Price in the US Automobile Market," *Applied Economics*, v 25 n1 January, pp. 135-141.
9. Fox, Richard J., and Ellen Day (1988), "Enhancing the Appeal of Service Contracts: An Empirical Investigation of Alternative Offerings," *Journal of Retailing*, (Fall), 335-352.
10. Gill, H., and D. Roberts. 1989. "New Car Warranty Repair: Theory and Evidence," *Southern Economic Journal*, v55 n3: 662-78.
11. Hollis, A. 1999. Extended warranties, adverse selection and aftermarkets. *Journal of Risk and Insurance* 66 321–343.
12. Kelley, and Craig A. (1988), An Investigation of Consumer Product Warranties as Market Signals of Product Reliability. *Journal of the Academy of Marketing Science*, 16(summer): 72-78.
13. Kelley, C., and J. Conant. (1991). "Extended Warranties: Consumer and Manufacturer Perceptions," *Journal of Consumer Affairs*, v25 n1: 68-83.

14. Mamer, J. (1987), "Discounted and Per Unit Costs of Product Warranty," *Management Science*, Vol. 33, No. 7, 916 – 930.
15. Moskowitz, H., Y. H. Chun. 1994. A poisson regression model for two-attribute warranty policies. *Naval Research Logistics* 41(3) 355–376.
16. Noel, C.P. (2001). More coverage with that? Consumers seldom benefit from extended warranties. *Christian Science Monitor*, October 15, p. 15.
17. Opp, M., I. Adan, V. Kulkarni, and J. Swaminathan. (2003), "Outsourcing Warranty Repairs: Static Allocation," Working Paper, University of North Carolina, Chapel Hill.
18. Padmabhaban, V., Rao, R.C. (1993). "Warranty Policies and Extended Service Contract: Theory and an Application to Automobiles." *Marketing Science* 12: 230-247.
19. Padmanabhan, V. 1995. Usage heterogeneity and extended warranties. *Journal of Economics and Management Strategy* 4(1) 33–53.
20. Price, L. J., and N. Dawar. (1995). "The Joint Effects of Brands and Warranties in Signaling New Product Quality," INSEAD Working Paper: 95/86/MKT, PP. 1-43.
21. P. S. Desai and P. Padmanabhan, (2004) "Durable good, extended warranty and channel coordination," *Review of Marketing Science*, vol. 2, no. 1.