

The impact of co-branding on consumer purchase intentions in the automotive industry



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ABSTRACT

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This study aims to delve into the influence of co-branding on consumer purchase intentions in the automotive industry and the impact of brand image. It seeks to analyze how co-branding is carried out, its characteristics, and how it affects consumers' brand perceptions and purchase decisions, especially exploring consumers' acceptance and willingness to buy co-branded products. A quantitative research methodology is adopted, involving questionnaire design and data collection through an online survey. Multiple analyses, such as frequency, reliability, validity, factor, correlation, and regression analyses, are conducted to examine the data. Co-branding has a positive effect on consumer purchase intention. Brand fit, innovativeness, and product complementarity are crucial factors contributing to the success of co-branding. Brand image has a positive moderating impact, and complementary brand images enhance consumers' purchase intention. The study also reveals that these factors can explain a significant portion of the variance in purchase intention. Automobile brands can enhance their attractiveness and market competitiveness by engaging in co-branding with suitable brands, focusing on brand fit, innovation, and product complementarity. Maintaining and enhancing a positive brand image is of great importance. Additionally, demographic information can help brands target consumers more effectively and design co-branding campaigns that better meet consumers' needs and preferences. These findings offer practical guidance for marketers to utilize co-branding strategies more efficiently and boost brand value.

Contribution/ Originality: This study focuses on the automotive industry, where co-branding research is less, and explores cross-industry co-branding effects, providing a new perspective on cross-industry collaboration.

1. INTRODUCTION

As the global automotive market grows, it becomes more competitive. International research institutes say the global market's annual growth rate averaged 2.5% in the past decade and is expected to be 1.5-2% in the next five years (Carlier, 2023). Behind this is consumer demand diversification and tech innovation acceleration, like electric vehicle tech maturing and popularizing, and driverless tech slowly entering the public. These changes force auto companies to seek new marketing strategies, with co-branding being prominent.

Co-branding, as a marketing method that combines the power of two or more brands, has proved its value in many industries. In the automotive industry, this strategy not only enhances brand image but also expands market reach (Gogri, 2022). However, research on how co-branding marketing strategies influence consumer purchase intentions, especially within the specific domain of the automotive industry, is not comprehensive enough.

The aim is to explore co-branding in the automotive industry and its impact on consumers' purchase intentions. Objectives: a) Analyse how co-branding is implemented and its characteristics, understand how different types of collaborations (e.g., with tech, fashion) appeal to the target group. b) Assess the impact on consumers' brand perceptions and decisions, especially how it enhances trust and interest. c) Explore consumers' acceptance and willingness to buy co-branded products, and analyse the impact of different consumer characteristics. d) Based on the study, offer recommendations to help marketers use co-branding more effectively to enhance brand value and competitiveness.

Though many studies on the impact of co-branding strategies on purchase intention exist, this study expands to the automotive industry. It enriches existing marketing theories by deeply analysing the impact on purchase intention, especially in brand management and consumer behaviour. Findings offer practical guidance to automotive marketers. Exploring consumers' responses gives new insights. With the changing market and diverse demands, co-branding is an important tool. This study provides strategic guidance in the automotive industry and may inspire in other industries, promoting cross-industry collaboration.

This paper has five parts. The first briefly introduces the background, co-branding in the automotive industry and its impact, research gaps, objectives, and significance. The second explores prior literature on co-branding, brand perception, and consumer behavior, defines concepts and presents hypotheses. The third outlines the research methodology and tools. Chapter 4 analyzes and presents main conclusions on the impact of co-branding on consumer decisions. The conclusion summarizes findings and implications, acknowledges limitations, and suggests future research questions, especially about co-branding in different automotive segments.

This study, by examining co-branding's influence on consumer purchase intention in the automotive sector, will present innovative points to contribute to theory and practice. Firstly, it focuses on the automotive industry where co-branding research is less, revealing unique impact and challenges of high-value products. Additionally, its segmentation analysis offers targeted insights, and by exploring cross-industry co-branding effects, it reveals complex impacts on brand image and purchase intention, providing a new perspective on cross-industry collaboration.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Co-Branding

Based on the findings of Turan (2021) co-marketing is a strategic marketing approach where multiple brands are positioned as one product to consumers simultaneously. The goal is to generate a collective brand equity that surpasses the equity of each individual brand. This approach merges the unique attributes of the involved brands and conveys the respective value of each brand to the new co-brand, aiming to foster synergies, boost recognition, and elevate the worth of the associated brands. Pinello, Picone, and Destri (2022) summarise co-marketing as a strategic alliance between brands. Gogri (2022) describes co-branding as a strategic decision and marketing strategy whereby one brand's success affects the success of its partner brands. It involves two or more brands joining forces to launch an independent and unique co-brand, which is a long-term strategic decision that will impact on the organisation over a number of years and even after the project has ended.

Recent studies show that co-branding has various impacts on consumers' purchase intentions. For example, men and women respond differently to co-branded products; men prefer branded polo shirts and are indifferent to co-branded ones, while women prefer fashion brands and dislike co-branded polo shirts. So, co-branding doesn't always make a product more attractive (Wu & Chalip, 2014). Also, the bond between co-brands is more important for the success of co-branding than individual brand attributes; brand image alignment is more significant than product category fit and brand equity. This means consumers prioritize the harmony between co-brands in purchasing decisions (Turan, 2021). Based on research, the alignment of two brand attributes in a jointly branded

item increases consumers' favorable feelings and purchase intentions; as customers see a strong alignment, their willingness to buy jointly branded items increases. Hence, this study puts forth the subsequent hypotheses:

H₁: Co-brand marketing has a positive effect on consumer purchase intention in the automotive sector.

2.2. Three Key Dimensions of Co-Brand Marketing

Brand fit: In co-brand partnerships, brand compatibility pertains to the level of alignment among the attributes, principles, and customer views of the partnering brands. Studies have indicated that the connection between co-brands is pivotal in the effectiveness of a co-branding initiative. Particularly, brand image alignment holds greater significance compared to product category alignment and brand worth. This indicates that co-branding initiatives have a higher chance of success when brands with substantial brand image alignment team up, as the merging of brand worth generates a synergistic impact that elevates the worth of each involved brand (Turan, 2021). Research revealed that consumers view co-branding more favorably when they recognize a strong alignment between the collaborating brands. This suggests that the suitability of the co-brand concerning market positioning, principles, and customer demographic plays a crucial role in the co-brand's appeal to the intended audience (Ahn & Sung, 2012).

Innovativeness: In the case of co-branding, innovativeness refers to the skill and imagination of the two brands in creating new and unique products or services in the process of collaboration. It refers to utilising the strengths and qualities of both brands to bring new products to the market that neither brand could have achieved on its own (Tyson, 2019). It may involve combining different technologies, design concepts, or marketing approaches to develop products or services that reflect the innovative qualities of both brands (Deana, 2019). Innovative brands tend to appeal to consumers who value creativity and new experiences, which can enhance consumers' impressions of co-branded products. When two brands work together, especially if one or both brands are perceived as innovative, they can use this trait to create a unique value proposition that differentiates the co-branded product from competitors (Turan, 2021). research has shown that customer innovativeness positively moderates the impact of customer brand engagement behaviour on co-production (Casidy et al, 2022). This means that innovative customers are more likely to interact with brands and participate in co-creation activities, leading to increased satisfaction and loyalty. In addition, sensory fit between brands, especially in terms of innovativeness, affects the evaluation of co-branding across industries (Turan, 2021).

Product complementarity: Complementarity in co-brand marketing refers to a strategic alliance between two brands that combine their unique strengths and attributes to create a product or service that adds value to consumers.

This approach capitalises on the individual strengths of each brand to enhance overall perception, increase consumer interest and drive sales (Sausaman, 2024). Complementary branding is particularly effective when related brands have similar customer segments or when their products or services can be naturally integrated to deliver new experiences. This is a win-win situation where both brands can leverage each other's strengths and market influence to thrive together (Sausaman, 2024). Based on the above dimensions, this study further proposes:

H_{2a}: Brand fit positively influences the impact of co-branding on consumer purchase intention in the automotive industry.

H_{2b}: Innovativeness positively influences the effect of co-branding on consumer purchase intention in the automotive industry.

H_{2c}: Product complementarity positively influences the effect of co-branding on consumers' purchase intention in the automotive industry.

2.3. Brand Image

Brand image is a multifaceted concept that exists in the minds of consumers and is a culmination of perceptual and rational perceptions (Arai, Ko, & Ross, 2014). The information disseminated by the organisation and the personal interaction of the consumer with the brand shape the brand image (Išoraitė, 2018). This perception is not just a passive reception of information, but an active construction of meaning involving visible and invisible elements of brand image, such as slogans, logos and service standards (Kannappan, 2023). As a key driver of brand equity, brand image influences purchasing decisions and is a testament to a brand's ability to resonate with consumers on a deeper level. It is the visual and emotional embodiment of the brand's promise to its customers and represents a unique association in consumers' memories, which in turn guides their preferences and loyalty (Išoraitė, 2018).

To stand out from the crowd, a differentiated perception of brand image is key. A clear and distinctive brand image enables the brand to hold a place in the minds of consumers and increase its appeal to them (Hamlett, 2022). In addition, brand image also satisfies consumers' social identity needs, people express their identity, values and the group they belong to by using the products of a particular brand (Xi, Yang, Jiao, Wang, & Lu, 2022) when the brand image matches consumers' self-image and social identity, such brand naturally becomes a way of self-expression for consumers, and it naturally becomes the first choice for consumers.

Brand image comes from consumers' comprehensive view of a brand and multiple dimensions of perception, and has an extremely important influence on consumers' purchase decisions (Wijaya, 2013). This influence is firstly reflected in the ability of a brand to build a bridge of trust with consumers through its own good image. When consumers believe that a brand can consistently provide high-quality products or services, they are more inclined to choose this brand when making purchase decisions because this trust greatly reduces the uncertainty and risk they feel in the decision-making process (Sung, Chung, & Lee, 2023). By combining the strengths of two or more brands, co-branding aims to create a new product with a strong brand image, thereby increasing consumers' perceived value and willingness to buy. Consumers are more likely to have positive attitudes towards co-branded products and show higher purchase intentions when they have a positive brand image of at least one of the partner brands (Hamlett, 2022). A strong brand image is a powerful marketing tool that can influence consumer buying behavior. Consequently, the hypothesis put forward in this research is as follows:

H₁: Positive brand image of at least one brand in co-branding marketing positively influences consumers' willingness to purchase co-branded automotive products.

Complementarity of brand images in co-branding plays a key role in motivating consumers' purchase intentions (Turan, 2021). This strategy allows two or more brands to work together to complement each other's image, values, attributes or market positioning in the minds of consumers, thus enhancing the attractiveness of the products or services of both or more parties. When co-branded brands are able to complement each other in terms of values or brand stories, consumers are more likely to feel emotional empathy, which not only fulfils their functional needs for the product, but also adds additional emotional value to the product, which in turn increases purchase intentions (Ribos, 2021).

The success of co-branding marketing relies largely on the compatibility of brand images between partner brands. Collaboration of complementary brands can broaden a brand's audience base and enhance brand image and awareness. This mutual leverage not only allows brands to stand out in a competitive market, but also enhances brand trust in the marketplace, allowing their respective loyal consumers to trust the partner's products and thus be willing to try new products (Dragilev, 2021). Co-branding with highly complementary brand images can better fulfil consumers' needs and expectations and attract them by offering a unique value proposition. For example, Mercedes-Benz collaborated with Hugo Boss to launch an exclusive fashion collection for the Mercedes-Benz brand.

This collaboration not only deepened the image of Mercedes-Benz as a luxury car brand, but also strengthened Hugo Boss' position in the high-end fashion world (Ultimz, 2019). Therefore, this study further proposes:

H: Complementarity of brand image positively influences the impact of co-branding on consumer purchase intention.

2.4. Buying Behaviour of Consumers in the Automotive Industry

Consumers in the automotive sector are affected by a range of aspects including economic circumstances, societal shifts, technological progress, environmental consciousness, brand reputation, and individual requirements and habits (Rodrigues, Sousa, Gomes, Oliveira, & Lopes, 2023). Economic conditions have a direct impact on consumer purchasing power; in times of economic prosperity, people are more inclined to buy new cars, especially those from premium brands, while in times of economic downturn, consumers may seek the second-hand car market or more affordable car brands (Bienstock, LaPerla, & Seaman, 2017). At the same time, societal trends, particularly the quest for sustainable living and environmental protection, have significantly influenced consumers' purchasing decisions, pushing them to choose more electric and hybrid vehicles (McGrath, 2024).

Advances in technology, especially in areas such as self-driving cars and electric vehicles, and consumers' openness to new technologies, especially among the younger generation, have fuelled the demand for cars equipped with the latest technologies (Deichmann et al., 2023). In addition, increased global concern about climate change and environmental protection has led consumers to pay more attention to energy efficiency and environmental standards when choosing a car, fuelling increased demand for low-emission vehicles (Reichheld, Peto, & Ritthaler, 2023).

The image and market positioning of a car brand deeply influences the choice of consumers, who tend to base their decisions on the brand's reputation, history and personal experience, and brand loyalty is a non-negligible factor in this process (Eklund, 2022). Finally, consumers' personal needs and lifestyles play a key role in the decision-making process, with family users and young consumers choosing different types of cars due to their different needs and preferences (Oluwatoni, 2023).

3. DATA AND EMPIRICAL STRATEGY

3.1. Research Methodology

The authors employed quantitative research methodology in this investigation, a research approach that emphasizes the collection and analysis of quantitative data. It includes gathering and examining numerical data (Wikipedia, 2024). Such research is valuable for uncovering trends and means, predicting outcomes, assessing causality, and extrapolating findings to a broader populace (Bhandari, 2023). Questionnaire design and data collection were carried out using an online survey tool (Questionstar). In terms of quantitative research, the online questionnaire enabled the authors to collect a wide range of data to assess consumers' willingness to buy from car brand co-branding campaigns. This approach enabled the researcher to quantitatively analyse specific attributes of consumer preferences and their impact on purchase decisions (Regmi, Waithaka, Paudyal, Simkhada, & Van Teijlingen, 2016). In the literature review session, the authors conducted an extensive literature review by accessing major academic databases such as ResearchGate, JSTOR, and SpringerLink, with the aim of constructing a research framework and developing initial research hypotheses. Through the combination of these research methods, this paper aims to explore how co-branding influences the purchase decision-making process of consumers in the automotive industry and how this influence is realised through consumers' perceived value and brand image.

3.2. Research Design

3.2.1. Research Questions

The study aims to explore how co-branding strategies influence consumers' intent to purchase within the automotive sector. It also examines the significance of brand fit, innovativeness, product complementarity, and brand image in shaping the relationship between co-branding and purchase intent.

3.2.2. Questionnaire Design

The survey is created in Mandarin because the focus of the study is on Chinese customers. It comprises seven sections. The initial part covers demographic details of the participants to aid in analyzing purchase intent variations among various demographics, such as gender, age, education, profession, and monthly earnings. The second section examines co-branding, the third section explores brand compatibility, the fourth section delves into novelty, the fifth section evaluates product supplementarity, the sixth section scrutinizes brand reputation, and the seventh section assesses buying inclination. Each of sections two through six contains five inquiries, while section seven includes six questions. Sections two to seven are evaluated on a five-point Likert scale. The choices are "strongly disagree," "disagree," "neutral," "agree," and "strongly agree," coded as 1, 2, 3, 4, and 5 correspondingly (Bhandari & Nikolopoulou, 2020). To ensure response precision and avoid participant confusion, each section is clearly labeled.

3.3. Measurement of Variables

3.3.1. Control Variables

The respondents' personality characteristics include age, gender, education level, occupation, and monthly income. In addition to brand fit, innovativeness, product complementarity, and brand image of co-branding, these factors are also regarded as potential influencers of consumers' purchase intention.

3.3.2. Independent Variables

The study's independent variables include:

- 1) Co-branding: a collaborative strategy in which two or more brands work together to introduce a joint product or service, leveraging their respective market influence and customer bases for a mutually advantageous marketing impact.
- 2) brand fit: In co-branding, the similarity and coordination between the cooperating brands in terms of brand image, target market and consumer perception.
- 3) Innovativeness : Cooperative parties combine their respective advantages and characteristics to create unique and novel products or services to attract consumers and expand market influence.
- 4) Product complementarity: In co-branding marketing, the products or services provided by both partners can complement each other in terms of functions, usage scenarios or target customers, increasing the overall market appeal and consumer value.
- 5) Brand image: a collection of the public's overall perception of a brand, which includes the brand's trademark, reputation, values, etc., as well as the brand's personality and characteristics communicated to consumers through various channels.

3.3.3. Dependent Variables

The dependent variable of this study is consumer's willingness to buy, which refers to the intensity of the consumer's inner motivation and desire to buy, and it reflects the likelihood and positivity of the consumer's purchase of a specific product or service.

3.4. Data Collection and Analysis Method

This study takes Chinese consumers as the research object, and surveys consumers in various industries, age groups and different consumption levels. Additionally, the research employed an internet-based survey, encompassing a diverse participant pool, enhancing efficiency and facilitating data quantification. However, potential biases in the data collection process may lead to inaccuracies. After collection, this study used IBM SPSS Statistics 27 as a tool for frequency analysis, reliability analysis, validity and factor analysis, correlation analysis and regression analysis to test and compare the data. There were 324 questionnaires recovered and 22 invalid questionnaires, invalid questionnaires were those that took less than one minute to answer or chose the same answer for all the questions (Moss & Litman, 2024) invalid questionnaires were not involved in the subsequent data analysis and the questionnaire validity rate was 93.2%.

4. EMPIRICAL FINDINGS

4.1. Frequency Analysis

Turney (2023) states frequency analysis examines data distribution by determining frequency and percentage. Gender: male 149 (49.338%), female 153 (50.662%), male majority, female minority. Age: under 18 7 (2.318%), 46+ 10 (3.311%), 41-45 22 (7.285%), 36-40 32 (10.596%), 31-35 52 (17.219%), 26-35 81 (26.821%), 18-25 98 (32.450%), highest under 18, lowest 18-25. Education: junior high or below 12 (3.974%), senior high 20 (6.623%), postgraduate 91 (30.132%), university 179 (59.272%), highest junior high, lowest university.

Table 1. Frequency statistics results.

Name	Options	Frequency	Percentage %
1. Your gender is:	Male	149	49.338
	Female	153	50.662
2. Your age is:	Under 18	7	2.318
	46 and over	10	3.311
	41-45 years	22	7.285
	36-40 years	32	10.596
	31-35 years	52	17.219
	26-30 years	81	26.821
	18-25 years	98	32.450
3. Your level of education is:	Junior high school and below	12	3.974
	Senior secondary	20	6.623
	Postgraduate student	91	30.132
	Universities (Specialized and undergraduate)	179	59.272
4. Your occupation is:	Retirees	3	0.993
	Office-bearer	8	2.649
	Farmers and herdsmen	12	3.974
	A private firm (PRC usage)	15	4.967
	Practitioners in financial institutions	15	4.967
	Student at school	30	9.934
	Workers	71	23.510
	People in enterprises and institutions	148	49.007
5. Your monthly income is (RMB):	15,001 and above	9	2.980
	10,000-15,000 yuan	27	8.940
	Less than 3,000	30	9.934
	8,001-10,000 yuan	56	18.543
	3,001-5,000 yuan	69	22.848
	5,001-8,000 yuan	111	36.755

Table 1 presents frequency statistics results, including information on gender, age, education, occupation, and monthly income. Occupation: retired 3 (0.993%), civil servant 8 (2.649%), farmer/herdsman 12 (3.974%), self-employed 15 (4.967%), financial sector 15 (4.967%), student 30 (9.934%), laborer 71 (23.510%), corporate/institutional 148 (49.007%), highest retiree, lowest corporate/institutional. Monthly income: 15001+ 9

(2.980%), 10000-15000 27 (8.940%), 3000 or less 30 (9.934%), 8001-10000 56 (23.510%), 148 from enterprises/public institutions, highest retiree, lowest enterprises/public institutions. Income categories: 10000 56 (18.543%), 3001-5000 69 (22.848%), 5001-8000 111 (36.755%), highest 15001+, lowest 5001-8000.

4.2. Reliability Analysis

Cronbach coefficient is a metric used to evaluate the dependability of a survey, commonly used in examining real data. Typically, if the Cronbach alpha value of a scale produced by the survey drops under 0.7, it signals weak internal consistency among the factors in the scale, requiring a modification; conversely, a Cronbach alpha value over 0.7 implies solid internal consistency among various factors in the scale. If the value of the Cronbach alpha for the scale exceeds 0.9, this suggests a high level of internal consistency within the scale (Frost, n.d). Furthermore, the study utilized the Corrected Item-Total Correlation (CITC) method to evaluate the reliability of individual question items. In this investigation, a question item will be excluded if it satisfies two conditions: (1) the overall CITC correlation value of the question item is below 0.4; and (2) the Cronbach alpha value of the scale after removal of the question item is higher than the initial Cronbach alpha value of the relevant dimension (Questionmark, 2009). Table 2 exhibits reliability analysis, showing the Cronbach coefficient and Corrected Item-Total Correlation (CITC) for each variable. The results of the analysis on reliability can be seen in the table below:

Table 2. Reliability analysis.

	Item	Corrected item-total correlation	Cronbach's alpha if item deleted	Cronbach alpha
Co-branding	Co-branding 1	0.666	0.808	0.844
	Co-branding 2	0.707	0.796	
	Co-branding 3	0.592	0.827	
	Co-branding 4	0.618	0.820	
	Co-branding 5	0.669	0.807	
Brand fit	Brand fit 1	0.718	0.847	0.876
	Brand fit 2	0.689	0.854	
	Brand fit 3	0.676	0.857	
	Brand fit 4	0.712	0.848	
	Brand fit 5	0.733	0.843	
Innovativeness	Innovativeness 1	0.651	0.815	0.845
	Innovativeness 2	0.653	0.814	
	Innovativeness 3	0.680	0.806	
	Innovativeness 4	0.629	0.820	
	Innovativeness 5	0.650	0.815	
Product complementarity	Product complementarity1	0.707	0.836	0.868
	Product complementarity2	0.685	0.842	
	Product complementarity3	0.682	0.843	
	Product complementarity4	0.671	0.845	
	Product complementarity5	0.711	0.835	
Brand image	Brand image 1	0.697	0.851	0.875
	Brand image 2	0.722	0.845	
	Brand image 3	0.712	0.847	
	Brand image 4	0.681	0.854	
	Brand image 5	0.708	0.848	
Purchase intention	Purchase intention 1	0.713	0.872	0.892
	Purchase intention 2	0.695	0.875	
	Purchase intention 3	0.717	0.872	
	Purchase intention 4	0.718	0.872	
	Purchase intention 5	0.700	0.874	
	Purchase intention 6	0.720	0.871	

The results suggest that the co-branding factor correlates with a Cronbach alpha value of 0.844, the brand compatibility factor aligns with a Cronbach alpha score of 0.876, the level of innovation corresponds to a Cronbach alpha value of 0.845, the product synergy variable is associated with a Cronbach alpha value of 0.868, the brand

perception factor has a Cronbach alpha coefficient of 0.875, and the intention to purchase variable yields a Cronbach alpha coefficient of 0.892. Each variable's Cronbach alpha coefficient value exceeds 0.7, while the CITC value and Cronbach alpha value for the excluded items all satisfy the research criteria, indicating high variable stability in the questionnaire and overall reliability of the study's findings. Table 3 shows the KMO and Bartlett tests, indicating the suitability of the data for factor analysis.

Table 3. KMO and Bartlett tests.

KMO	0.911
Kaiser-Meyer-Olkin measure of sampling adequacy.	4811.548
df	465
Sig.	0

4.3. Validity and Factor Analysis

In information enrichment research, factor analysis is utilized to analyze the suitability of research data. The KMO value shown in the table is 0.911, surpassing the required threshold of 0.6 and meeting the necessary conditions for factor analysis. Moreover, the research data has passed the Bartlett sphericity test with a significance level of $p < 0.05$, verifying its suitability for factor analysis according to Hassan (2024b). Table 4 examines the extraction of factors and the quantity of information derived from them.

Table 4. Total variance explained.

Component	Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	9.864	31.819	31.819	9.864	31.819	31.819
2	2.512	8.103	39.921	2.512	8.103	39.921
3	2.285	7.369	47.291	2.285	7.369	47.291
4	2.095	6.759	54.05	2.095	6.759	54.05
5	1.852	5.973	60.024	1.852	5.973	60.024
6	1.667	5.377	65.401	1.667	5.377	65.401
7	0.676	2.182	67.583			
8	0.648	2.09	69.674			
9	0.617	1.989	71.662			
10	0.602	1.942	73.605			
11	0.59	1.903	75.508			
12	0.541	1.746	77.254			
13	0.531	1.712	78.965			
14	0.516	1.664	80.629			
15	0.483	1.558	82.187			
16	0.477	1.539	83.727			
17	0.46	1.484	85.21			
18	0.434	1.401	86.612			
19	0.422	1.361	87.973			
20	0.398	1.285	89.258			
21	0.383	1.234	90.492			
22	0.376	1.213	91.705			
23	0.348	1.122	92.827			
24	0.339	1.093	93.921			
25	0.336	1.084	95.005			
26	0.32	1.033	96.038			
27	0.308	0.994	97.032			
28	0.27	0.87	97.902			
29	0.242	0.779	98.681			
30	0.21	0.676	99.358			
31	0.199	0.642	100			

The table shown above examines the extraction of factors and the quantity of information derived from them. As per the table, it is evident that: 6 factors were extracted through the analysis, with eigenroot values exceeding 1. Rotating these 6 variables reveals 12.361%, 10.201%, 10.309%, 11.077%, 10.517%, and 10.936% of the total variation, leading to a combined explanation of 65.401%.

Table 5. Table of factor load factors after rotation.

Name	Factor load factor						Commonality (Common factor variance)
	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	
Co-branding 1	0.096	0.780	0.039	0.136	0.102	0.022	0.649
Co-branding 2	0.138	0.785	0.126	0.062	0.128	0.092	0.679
Co-branding 3	0.066	0.685	0.109	-0.019	0.282	0.090	0.573
Co-branding 4	0.164	0.750	0.042	-0.049	0.021	0.154	0.618
Co-branding 5	0.137	0.762	0.119	0.197	0.067	0.042	0.659
Brand fit 1	0.145	0.123	0.079	0.793	0.095	0.103	0.692
Brand fit 2	0.245	0.056	0.100	0.714	0.165	0.176	0.641
Brand fit 3	0.109	0.052	0.083	0.779	0.100	0.080	0.645
Brand fit 4	0.053	0.054	0.142	0.784	0.163	0.143	0.688
Brand fit 5	0.225	0.043	0.127	0.775	0.123	0.146	0.706
Innovativeness1	0.142	0.160	0.750	0.033	0.119	0.083	0.630
Innovativeness2	0.145	0.065	0.745	0.169	0.096	0.064	0.623
Innovativeness3	0.176	0.086	0.768	0.076	0.095	0.106	0.653
Innovativeness4	0.162	0.090	0.709	0.185	0.127	0.052	0.591
Innovativeness5	0.155	0.027	0.749	0.050	0.156	0.097	0.622
Product complementarity1	0.186	0.169	0.158	0.120	0.737	0.142	0.666
Product complementarity2	0.206	0.142	0.183	0.144	0.730	0.083	0.656
Product complementarity3	0.129	0.167	0.118	0.173	0.736	0.142	0.651
Product complementarity4	0.089	0.054	0.108	0.091	0.754	0.230	0.652
Product complementarity5	0.228	0.098	0.102	0.159	0.749	0.138	0.677
Brand image 1	0.110	0.145	0.067	0.143	0.138	0.769	0.669
Brand image 2	0.134	0.143	0.116	0.169	0.151	0.768	0.692
Brand image 3	0.135	-0.022	0.136	0.123	0.140	0.789	0.695
Brand image 4	0.225	0.025	0.077	0.111	0.149	0.744	0.645
Brand image 5	0.215	0.146	0.037	0.095	0.122	0.764	0.677
Purchase intention 1	0.749	0.132	0.133	0.115	0.162	0.159	0.661
Purchase intention 2	0.709	0.092	0.179	0.215	0.180	0.111	0.634
Purchase intention 3	0.704	0.142	0.137	0.199	0.166	0.232	0.655
Purchase intention 4	0.707	0.162	0.206	0.175	0.138	0.161	0.644
Purchase intention 5	0.748	0.126	0.100	0.136	0.152	0.145	0.648
Purchase intention 6	0.753	0.113	0.246	0.063	0.118	0.157	0.683

Table 5 presents the factor load factors after rotation, showing the relationship between the study items and the factors. In order to analyze the data in this research, the varimax method was utilized to rotate the factors, aiming to determine the relationship between the study items and the factors (Statistics How To, n.d). The information concerning the factors for the research items and their correlation is shown in the table above. It can be seen from the table that all research items have a shared degree value above 0.4, and the factor loading coefficients exhibit a significant correlation with values exceeding 0.5, suggesting successful extraction of information. Consequently, the scale illustrates adequate structural validity.

4.4. Descriptive Statistics

Descriptive analysis is applied for examining the general state of quantitative data, detailing the overall data situation by utilizing metrics like the mean or skewness, as indicated in Table 6: all kurtosis values are under 3, and the current flat condition of the data distribution closely resembles a normal distribution. The skewness values hover near 0, and the present data distribution has shifted to mimic a normal distribution. Table 6 describes the statistical results, including the mean, standard deviation, skewness, and kurtosis of each variable.

Table 6. Describe the statistical results.

Variable name	Minimum	Maximum	Mean	Standard deviation	Skewness	Kurtosis
Co-branding 1	1	5	3.947	1.128	-1.097	0.563
Co-branding 2	1	5	3.914	1.126	-1.024	0.384
Co-branding 3	1	5	3.901	1.092	-1.034	0.659
Co-branding 4	1	5	4.036	1.003	-0.969	0.414
Co-branding 5	1	5	3.821	1.17	-0.999	0.35
Brand fit 1	1	5	3.728	1.301	-0.86	-0.32
Brand fit 2	1	5	3.738	1.226	-0.873	-0.168
Brand fit 3	1	5	3.914	1.189	-1.049	0.241
Brand fit 4	1	5	3.728	1.217	-0.881	-0.129
Brand fit 5	1	5	3.801	1.236	-0.838	-0.282
Innovativeness1	1	5	3.997	1.119	-1.167	0.778
Innovativeness2	1	5	3.947	1.137	-1.206	0.829
Innovativeness3	1	5	3.844	1.158	-1.088	0.568
Innovativeness4	1	5	3.98	1.059	-0.922	0.163
Innovativeness5	1	5	4.036	1.127	-1.178	0.665
Product complementarity1	1	5	3.728	1.206	-0.895	-0.019
Product complementarity2	1	5	3.901	1.169	-1	0.234
Product complementarity3	1	5	3.95	1.176	-1.125	0.504
Product complementarity4	1	5	3.795	1.172	-0.979	0.239
Product complementarity5	1	5	3.844	1.195	-0.967	0.036
Brand image 1	1	5	3.854	1.178	-0.967	0.096
Brand image 2	1	5	3.907	1.134	-0.985	0.224
Brand image 3	1	5	3.825	1.222	-0.957	0.044
Brand image 4	1	5	3.818	1.188	-0.839	-0.141
Brand image 5	1	5	3.772	1.2	-0.853	-0.076
Purchase intention1	1	5	3.526	1.296	-0.663	-0.623
Purchase intention2	1	5	3.579	1.299	-0.721	-0.5
Purchase intention3	1	5	3.586	1.285	-0.684	-0.608
Purchase intention4	1	5	3.576	1.291	-0.682	-0.623
Purchase intention5	1	5	3.659	1.276	-0.644	-0.658
Purchase intention6	1	5	3.616	1.283	-0.64	-0.686

4.5. Correlation Analysis

Statistical analysis typically begins by examining a single variable, followed by exploring relationships between pairs of variables and potentially among multiple variables. Correlation analysis evaluates the magnitude of linear relationships among variables. The primary goal of correlation analysis is to establish the strength and direction of linear correlation between two variables, regardless of their roles as either dependent or independent variables. The correlation coefficient R is typically used to gauge the degree of linear correlation between the variables. Positive and negative values of R indicate the direction of the linear relationship, where $R > 0$ represents a positive correlation, $R < 0$ signifies a negative correlation, and $R = 0$ suggests no correlation. The value of R reflects the closeness of the linear association, with values nearing 1 indicating a strong correlation and values nearing 0 indicating a weak correlation. Pearson's correlation coefficient, also known as the product-moment correlation

coefficient, is a commonly used tool for quantitatively evaluating the level of linear correlation (Hassan, 2024a). Table 7 shows the correlation analysis, exploring the link between purchase intention and various factors.

Table 7. Pearson.

	M	SD	PI	C	BF	I	PC	BI
PI	3.591	1.037	1					
C	3.924	0.867	0.379**	1				
BF	3.782	1.009	0.448**	0.245**	1			
I	3.961	0.881	0.465**	0.285**	0.330**	1		
PC	3.844	0.958	0.487**	0.372**	0.406**	0.394**	1	
BI	3.835	0.968	0.469**	0.277**	0.382**	0.294**	0.430**	1

Note: p<0.05 ** p<0.01.
M: Mean, SD: standard deviation, PI: Purchase intention, C: Co-branding, BF: Brand fit, I: Innovativeness, PC: Product complementarity, BI: Brand image.

The table above presents the correlation analysis, exploring the link between purchase intention and five factors: co-branding, brand alignment, innovation, product compatibility, and brand perception. The Pearson's correlation coefficient is employed to gauge the strength of these connections. The results demonstrate that the correlation coefficients for these factors are 0.379, 0.448, 0.465, 0.487, and 0.469. All coefficients exhibit positivity, implying a direct relationship between purchase intention and the factors. Specifically, a positive correlation exists between purchase intention and co-branding, brand alignment, innovation, product compatibility, and brand perception. These results affirm the proposed hypotheses.

4.6. Regression Analysis

Regression analysis is used to examine the correlation between X (quantitative or fixed class) and Y (quantitative), to determine the presence, direction, and magnitude of the influence. First, the model fit is evaluated by checking the R-squared value for model fit analysis, and by assessing the VIF value (or tolerance value, where tolerance = 1/VIF value; a VIF value above 5 indicates a covariance issue, while a tolerance value below 0.2 suggests a covariance problem). If a covariance problem is identified in the model, it can be addressed using techniques such as ridge regression or stepwise regression. Next, the model formula can be established (if desired), and the significance of X is examined; if X is deemed significant (with a p-value under 0.05 or 0.01), it shows an influencing relationship between X and Y. Further analysis is carried out to pinpoint the specific direction of this influence, taking into account the regression coefficient B value and determining the extent of X's impact on Y accordingly (Gallo, 2015). Table 8 presents the regression analysis results, including the model fit and the significance of the independent variables.

Stratified regression is employed to analyze the alterations in the model resulting from the growth of the independent variable (X) and is commonly utilized for testing model consistency. As illustrated in the table provided, this analysis of stratified regression encompasses a total of 2 models. The demographic factors in the first model include gender, age, educational attainment, occupation, and monthly earnings, while the second model incorporates co-branding, compatibility with the brand, novelty, product synergy, and brand reputation. Moreover, the dependent variable of both models is the intention to make a purchase.

Table 8. Regression analysis results.

	Delamination1					Delamination2				
	<i>B</i>	SE	<i>t</i>	<i>p</i>	β	<i>B</i>	SE	<i>t</i>	<i>p</i>	β
Constant	3.074**	0.378	8.139	0.000	-	-0.742	0.391	-1.899	0.059	-
Gender	0.137	0.120	1.141	0.255	0.066	0.133	0.091	1.460	0.145	0.064
Age	0.021	0.044	0.481	0.631	0.029	-0.017	0.034	-0.493	0.622	-0.023
Educational attainment	0.032	0.085	0.378	0.706	0.022	-0.034	0.065	-0.521	0.603	-0.023
Careers	0.039	0.036	1.080	0.281	0.069	0.046	0.027	1.690	0.092	0.082
Monthly salary	-0.005	0.053	-0.098	0.922	-0.006	-0.000	0.041	-0.006	0.996	-0.000
C						0.176**	0.059	2.997	0.003	0.147
BF						0.187**	0.052	3.605	0.000	0.182
I						0.279**	0.058	4.767	0.000	0.237
PC						0.173**	0.059	2.930	0.004	0.160
BI						0.247**	0.055	4.477	0.000	0.230
<i>R</i> ²	0.011					0.442				
Adjustment <i>R</i> ²	-0.005					0.423				
F-value	<i>F</i> (5,296)=0.678, <i>p</i> =0.640					<i>F</i> (10,291)=23.029, <i>p</i> =0.000				
ΔR^2	0.011					0.430				
ΔF value	<i>F</i> (5,296)=0.678, <i>p</i> =0.640					<i>F</i> (5,291)=44.877, <i>p</i> =0.000				

Dependent variable: Purchase intention

Note: $p < 0.05$ ** $p < 0.01$.

B: Regression Coefficient, SE: Standard Error, T: t-statistic, P: p-value, VIF: Variance Inflation Factor, TOL: Tolerance, β : standardized regression coefficient, PI: Purchase intention, C: Co-branding, BF: Brand fit, I: Innovativeness, PC: Product complementarity, BI: Brand image.

Gender, age, education level, occupation, and monthly income were considered as control variables in the linear regression analysis. Purchase intention was the dependent variable that was studied using these factors. The R-square value of the model was 0.011, indicating only 1.1% of the variation in purchase intention was accounted for by the control variables.

The results of the F-test indicated that the model did not meet the criteria ($F=0.678, p>0.05$), indicating that there was no significant impact of gender, age, education level, occupation, and monthly income on purchase intention. Consequently, no further investigation into the relationship between the independent and dependent variables was pursued. In the second model, additional variables such as co-branding, brand fit, innovation, product complementarity, and brand image were included. Adding these variables resulted in a significant change in the F-value ($p<0.05$), suggesting their substantial contribution to the model. The R-squared value also increased from 0.011 to 0.442, showing that these factors could explain 43.0% of the variance in purchase intention. Specifically, the regression coefficient associated with co-branding was 0.176 and statistically significant ($t=2.997, p=0.003<0.01$), indicating a positive impact on purchase intention and supporting H1.

The regression coefficient of brand fit is 0.187, showing significance ($t=3.605, p=0.000<0.01$), implying that brand fit will have a positive effect on purchase intention, providing support for hypothesis H1a. Innovativeness displays a regression coefficient of 0.279 with significance ($t=4.767, p=0.000<0.01$), indicating that innovativeness will positively impact purchase intention, supporting hypothesis H1b. The regression coefficient value for product complementarity is 0.173 and is significant ($t=2.930, p=0.004<0.01$), indicating that product complementarity will positively influence purchase intention, supporting hypothesis H1c. Brand image has a regression coefficient of 0.247, demonstrating significance ($t=4.477, p=0.000<0.01$), suggesting that brand image will positively impact purchase intention, supporting hypotheses H2 and H3.

Table 9 shows the linear regression analysis results, indicating the impact of the independent variables on purchase intention.

Table 9. Linear regression analysis results (n=302).

	Non-standardized coefficient		Standardized coefficient	<i>t</i>	<i>p</i>	Covariance diagnosis	
	<i>B</i>	SE	<i>Beta</i>			VIF	TOL
Constant	-0.491	0.285	-	-1.723	0.086	-	-
C	0.171	0.058	0.143	2.956	0.003**	1.212	0.825
BF	0.188	0.052	0.183	3.636	0.000**	1.321	0.757
I	0.272	0.058	0.231	4.681	0.000**	1.271	0.787
PC	0.190	0.058	0.175	3.254	0.001**	1.508	0.663
BI	0.232	0.054	0.216	4.263	0.000**	1.338	0.747
<i>R</i> ²	0.431						
Adjustment <i>R</i> ²	0.421						
<i>F</i>	<i>F</i> (5,296)=44.777, <i>p</i> =0.000						
D-W value	2.158						
Dependent variable: Purchase intention							

Note: $p<0.05$ ** $p<0.01$

B: Regression Coefficient, SE: Standard Error, T: t-statistic, P: p-value, VIF: Variance Inflation Factor, TOL: Tolerance, β : standardized regression coefficient, PI: Purchase intention, C: Co-branding, BF: Brand fit, I: Innovativeness, PC: Product complementarity, BI: Brand image

The above table presents the variables that were studied independently: co-branding, brand fit, innovativeness, product complementarity, and brand image. Purchase intention serves as the variable that is influenced by these independent variables in the linear regression analysis. The formula derived from the table is purchase intention = -0.491 + 0.171* co-branding + 0.188* brand fit + 0.272* innovativeness + 0.190* product complementarity + 0.232* brand image. With an R-squared of 0.431, it is evident that co-branding, brand fit, innovativeness, product complementarity, and brand image collectively explain 43.1% of the variability in purchase intention. The F-test

results ($F=44.777$, $p=0.000<0.05$) confirm that at least one of the variables significantly impacts purchase intention. Additionally, all VIF values were below 5, indicating no multicollinearity concerns. The Durbin-Watson (D-W) value near 2 suggests no autocorrelation in the model, demonstrating its validity. For further detailed analysis, refer to the specific findings below:

The regression coefficient for co-branding stands at 0.171 ($t=2.956$, $p=0.003<0.01$), showing a notable positive effect on purchase intention, providing support for H1. Brand fit displays a regression coefficient of 0.188 ($t=3.636$, $p=0.000<0.01$), indicating a significant favorable impact on purchase intention, aligning with H1a. Innovativeness exhibits a regression coefficient of 0.272 ($t=4.681$, $p=0.000<0.01$), demonstrating a substantial positive influence on purchase intention, in line with H1b. The regression coefficient for product complementarity is 0.190 ($t=3.254$, $p=0.001<0.01$), suggesting a significant positive impact on purchase intention, in agreement with H1c. Brand image's regression coefficient is 0.232 ($t=4.263$, $p=0.000<0.01$), showing a significant positive effect on purchase intention, providing support for H2 and H3.

In summarizing the analysis, it can be observed that co-branding, brand fit, innovation, product complementarity, brand image will all positively affect purchase intent.

5. DISCUSSION AND CONCLUSION

5.1. Limitations

This study has the following four limitations that may lead to biased results:

1) Utilizing an internet survey as the primary data collection method, this research may be susceptible to sample selection biases due to the exclusion of individuals who lack computer or internet proficiency. Additionally, ensuring the veracity of participants in online surveys can be challenging, as it is arduous to confirm the legitimacy of respondents and prevent duplicate entries.

2) The findings of this study are only applicable to explain consumer behaviour in the automotive industry, and may not be applicable to explain the consumer behaviour of co-branding on the rest of the industries, such as beauty and catering.

3) Since the survey sample consisted entirely of Chinese consumers, the findings of this study may not be applicable to markets outside of China.

4) There may be other factors that can influence the effectiveness of co-branding that have not been taken into account.

5.2. Discussion of the Findings

The primary objective of this research is to delve deeply into the effects of co-branding tactics on the intention of consumers to make purchases within the automotive industry, showcasing significant findings at both the theoretical and practical levels.

Co-branding strategies in marketing have a substantial influence on the intention of consumers to make purchases. This indicates that when automotive companies collaborate on co-branding initiatives with entities from other industries, they can successfully pique consumers' interest in making purchases. This result reinforces the value of co-branding as an effective marketing strategy in the automotive industry, especially in increasing brand awareness and attracting potential consumers. This result is consistent with the findings of Jin (2023) who noted that co-branding can create new brand value based on existing brands, thereby expanding the consumer base and improving brand equity performance.

Secondly, this study further found that brand fit, innovativeness and product complementarity are the key factors influencing the success of co-branding marketing. This implies that when designing a co-branding campaign, firms need to ensure that there is a good match between the partner brands, that the co-branded products are innovative, and that the products complement each other to maximise the co-branding effect. This coincides

with the findings of Kania et al. (2021) that compatibility of two brand characteristics in a co-branded product increases positive consumer attitudes and purchase intentions. The results of Turan (2021) study demonstrate that the association between co-brands plays a crucial role in the success of co-branding, surpassing the influence of individual brand traits. Moreover, the alignment of brand images emerges as a key factor in driving co-branding success, overshadowing the importance of product category compatibility and brand equity in this context.

In addition, brand image plays an important role in how co-branding influences consumer purchase intentions. The study shows that consumers are more favourable to co-branded products with positive brand images, which further confirms that a positive image of at least one party's brand in co-branding marketing can significantly increase consumers' purchase intention for co-branded products. Previously, Aziz and Ahmed (2023) found that consumer brand identity is the main driver of customer brand engagement, and that consumer brand engagement facilitates the link between consumer brand identity and purchase intention to some extent. This corroborates with the findings of this study.

Ultimately, this research also investigated how gender, age, level of education, occupation, and monthly income affect purchase intent. The results reveal that these demographic factors play a smaller role in influencing consumers' purchase intent when compared to the power of the co-branding strategy. This highlights the significant impact of the co-branding strategy itself.

5.3. Theoretical Implications

From a theoretical perspective, this research highlights the following three key insights:

The study provides empirical evidence supporting the idea that co-marketing between brands has a strong impact on consumers' intent to purchase within the automotive sector.

Additionally, the research uncovers three important factors that influence the success of co-branding initiatives: brand alignment, creativity, and product compatibility. All of these elements contribute positively to consumers' intent to purchase in the automotive industry. Moreover, the focus on the automotive sector distinguishes this study from previous work on co-branding.

Furthermore, the study confirms the notion that brand perception significantly influences consumers' purchasing decisions in the automotive industry. It emphasizes the importance of collaborating with brands that have strong positive images and align with complementary values to boost consumer intent to purchase.

5.4. Practical Implications

In addition to the theoretical implications, this study has the following four basic practical implications:

1) Automobile brands can enhance the attractiveness and market competitiveness of their own brands by co-branding with brands from other industries and utilising the positive images of the partner brands. By choosing to co-brand with brands that match or complement their own brand image, they can co-create new value and appeal to a wider group of consumers.

2) brand fit, innovation and product complementarity are the keys to success when co-branding. Co-branding with high brand fit can better meet consumer expectations, while innovation and product complementarity can bring fresh experiences and extra value to consumers, increasing purchase motivation.

3) It is crucial for auto brands participating in co-branding to maintain and enhance their brand image. A positive brand image not only increases consumers' trust and goodwill towards the co-branded product, but also promotes purchasing behaviour and increases overall market share.

4) Although studies have shown that demographic characteristics have a relatively small direct impact on purchase intentions, this information is still informative for brands to accurately target consumers. Understanding

the characteristics of target consumer groups can help brands design co-branding campaigns more effectively to better meet their needs and preferences.

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