MANAGEMENT DEPARTMENT

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NON-FINANCIAL PERFORMANCE INDICATORS AND

BUSINESS PERFORMANCE

Correlation results from the Chinese automotive market

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CONTENTS

EXECUTIVE SUMMARY

Goal of this study is to evaluate the relevance of non-financial performance indicators on business performance. The work discusses the chance of using non-financial measures as predictive methods of business growth.

In particular, a regressive model captures the relation between two indicators:

- Customer satisfaction measures and satisfaction growth, representing non-financial indicators;
- Market share and market share growth, proxy of business performance and development.

Market share data refer to ten main Chinese automotive players, covering almost 65% of total market volume, while relative five customer satisfaction measures are elaborated from J.D. Power and Associates' information. Customer satisfaction measures are divided in indicators of reliability (Initial Quality Study and Vehicle Dependability Study), indicators of connected services (Customer Service Index and Sales Satisfaction Index) and indicators of initial satisfaction and impressions (APEAL index).The analysis takes into account data from 2008 to 2013.

The choice to study the Chinese automotive market is driven by its dynamic context and the availability of information on customer satisfaction, This background provide an opportunity to analyze significant changes in market share and to connect these market shifts to non-financial performance indicators.

The regressive analysis follows three main steps:

DATA COLLECTION

- Market share and market share growth

- Customer satisfaction measures

HYPOTHESES DEFINTION

- H_1: Customer satisfaction has a positive influence on market share *(point in time correlation)*

- H_2: Customer satisfaction growth rate has a positive impact on market share *(predictive correlation)*

- H_3: Customer satisfaction growth rate shows positive correlation and equivalent trend of market share growth *(parallel correlation)*

REGRESSION RESULTS

- Assessment on statistical significance of the regression models

- Discussion of results

Significant results of correlation are found when analyzing 5-years customer satisfaction growth and 2013 market share relation, and 5-years customer satisfaction growth and 5-years market share growth. Relevant indicators that influence market share are measures of vehicle reliability (IQS and VDS), while no connection is found for satisfaction measures on quality of connected services and first impressions.

Finally, Audi and Toyota cases provide details of correlation between indicators mentioned above. In particular, while Audi successful story of increased customer satisfaction finds correlation with business results, Toyota decreasing market presence in the Chinese automotive market is strongly influenced by socio-political factors and no connection with satisfaction measures have been found.

1. INTRODUCTION

The evaluation of a firm is traditionally based on financial performance measures. However, this type of information indicates what the company has achieved in the past, but the real value of the company must include future perspectives. What we need is non-financial performance measures, which can tell us about what is going to happen with the financial results in the future (Neely, 2002).

Morissette (1996) provides a widely accepted definition of non-financial performance indicators. Non-financial measures include any quantitative measure of either an individual's or an entity's performance that is not expressed in monetary units. This includes any ratio-based performance measure that omits any monetary metric in either the numerator or denominator of that ratio.

Therefore, non-financial performance measures cover a set of variables such as customer satisfaction, job satisfaction, management control system etc., not measured by financial systems (Malgharni *et al.*, 2010).

One non-financial measure emphasized in this discussion is customer satisfaction. The work examines the value relevance of customer satisfaction measures on business results.

In particular, the work will follow the steps below:

- Overview of literature review and previous empirical evidence of customer satisfaction relation with business results;

- Definition of main customer satisfaction indexes: from country specific customer satisfaction indexes to industry specific ones;

- Focus on Chinese automotive market: data collection of customer satisfaction and business results, definition of the hypotheses on correlation and regressive results.

Goal of this work is to define a clear picture of the relation between non-financial performance indicators, customer satisfaction in this case, and business performance.

2. THE RELAVANCE OF CUSTOMER SATISFACTION FOR BUSINESS PERFORMANCE

"All too many companies seem to consider customers as nothing more than a necessary nuisance. Oh, they may say otherwise, but they do not deliver. If the road to hell is paved with good intentions, then the road to business failure is littered with placards proclaiming 'the customer is always right'" (Capodagli & Jackson, 1998).

Customer satisfaction is a central concept in modern performance measurement practice. Strong awareness about connection of delivering satisfaction to consumers and obtaining profits in return has led to a proliferation of research on consumer satisfaction over the past two decades.

Relevance of satisfaction in the business performance perspective is evident from the increasing number of consulting and marketing firms that promise to improve a client's ability to satisfy customers and from the increasing number of organizations actively using some form of customer satisfaction measurement in developing, monitoring and evaluating product and service offerings (Anderson *et al.*, 2006).

There is growing managerial interest in customer satisfaction as a means of evaluating performance. High customer satisfaction ratings are widely believed to be the best indicator of company's future profit.

According to Fornell, overall business strategy consists of two parts, the offense and the defense. To have a successful business, all firms apply some of the combination of offensive and defensive strategy, the offense for new customer acquisition and the defense to protect the existing customer. Traditionally, firms were putting more effort in acquiring new clients than to retain existing ones. However, in the current competitive landscape good defense is crucial. Defensive strategy involves reducing customer defeat and switching, consequently minimizing customer turn over. According to B2B International (2014), most of companies lose 45% to 50% customers in each five years and winning new customers may be up to twenty times more costly than current customer retention. Creating customer satisfaction represents a defensive strategy, a way to minimize customer turnover and consequently customers' acquisition costs.

Relation of customer satisfaction and business performance is intuitive. Essentially, Business performance takes into account three specific factors:

- Product market performance such as sales and market share;

- Financial performance such as profitability, return on investments and return on assets;

- Shareholder return such as economic value added and total shareholder returns (Richard *et al.*, 2009).

Empirical evidence suggests direct connection of customer satisfaction measures and all the specific factors of business performance mentioned above.

Positive evidence on the direct relationship between customer satisfaction and organizational performance is provided by Koska (1990) and Nelson *et al.* (1992) in hospital settings with higher profitability; Aaker and Jacobson (1994) found higher share return connected to improved quality perceptions; Anderson, Fornell and Lehmann (1994) assessed a significant association between customer satisfaction and return on assets; Ittner and Larckner (1996) found that shareholder value is highly elastic with respect to customer satisfaction.

However, relationship between customer satisfaction and business performance is not always clear. The association of customer satisfaction and profits is neither straightforward nor simple (Zeithaml, 2000). Three major problems in measuring the relationship are:

- The time lag between measuring customer satisfaction and measuring profit improvements;

- The number of other variables influencing company profits like price, distribution, competition etc.;

- The fact that other variables (e.g. behavioural issues) should be included in the relationship because they explain the causality between satisfaction and results.

Recent empirical evidence doubt on whether companies' efforts to improve customer satisfaction and quality through the implementation of specific tools to improve customer feeling about the offering, such as Total Quality Management techniques, are having the desired effects (Anderson *et al.*, 2006).

In view of these facts, it is not surprising that there is strong attention in defining if a link between customer satisfaction and firm performance exists. Specifically, theoretical and

empirical frameworks have been implemented in order to realize if economic benefits when improving customer satisfaction occur.

Within this chapter, I will focus, first, on defining the concept of customer satisfaction. Finally, I will present an appraisal of business literature and empirical results for supporting connection between satisfaction and performance.

2.1 DEFINITION OF CUSTOMER SATISFACTION

2.1.1. LITERATURE REVIEW

Customer satisfaction is frequently used term in business literature indicating how products and services offered by a company meet the expectations of customers. Tse and Wilton (1998) initially defined satisfaction as the assessment of the perceived discrepancy between expectations and the actual performance of the product. However, recent literature provide a number of diverse definitions of satisfaction. Satisfaction may be termed as an individual's reaction in the form of sequence of an information processing, valuation of the degree to fulfil the functions which a good service should possess (Suneeta & Koran, 2014). Customer satisfaction includes the feeling of happiness or joy of matching the expectation and having pleasure while consuming the service. It is a measure of the ability of a company to offer its products and services while meeting or exceed customers' expectations.

Oliver (2010) suggests a distinction of different aspects within customer satisfaction:

- Satisfaction with final outcomes;
- Satisfaction with events that happen during consumptions;
- Satisfaction with level of received happiness.

According to Oliver, satisfaction is the consumers' fulfilment response. It is a judgement that a product/service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfilment, including levels of under-or over-fulfilment.

Part of literature assumes it as result of cognitive dispensation of the information through comparison of expectations and effective delivery of service.

Alternative research suggests that it is not only a cognitive process but a relevant emotional component takes place, hence, linking the rational phenomenon, during or before purchase, to emotions and state of mind on consumption. According to this perspective, satisfaction is considered an evaluation of the emotions experienced. Thus, perceptions becomes important component in service delivery. When perception matches the expectations, what so ever nature, customer is satisfied with the offer. This satisfaction would lead to repeat business and improve referrals to other customers. (Johnston and Clarke, 2008)

2.1.2 IMPORTANCE-PERFORMANCE ANALYSIS

Importance-Performance Analysis (originally introduced by Martilla and James, 1977), provides deeper insights on product or service attributes related to customer satisfaction. IPA is based on a two-dimensional matrix, where importance is shown along the x-axis and performance (satisfaction) along the y-axes. Customers rate each attribute on its performance. Attribute importance is measured using self-stated importance (e.g., rating scales, constant sums scales, etc.) or derived importance (multiple regression weights). Performance and importance dimensions divide the matrix into four quadrants:

Exhibit 2.1. IPA Matrix
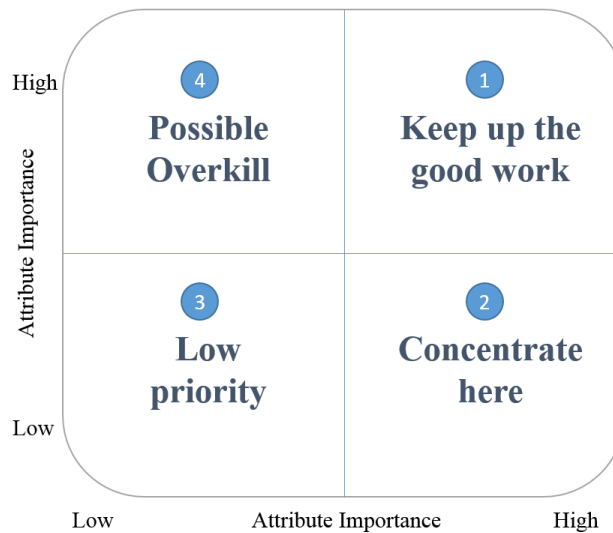
Source: Matzler, Bailom, Hans, Hinterhuber, Renzl and Pichler (2004)

Attributes in *Quadrant 1*, evaluated high in both satisfaction and importance, show occasions for gaining or sustaining competitive advantage. In this area a firm should *"keep up the good work",* continuing on satisfying current customers with current offer.

Low satisfaction on highly important attributes *(Quadrant 2)* need immediate consideration. To improve overall satisfaction, firms shall concentrate on these attributes. Ignorance of these attributes provides a serious threat to the firm.

Quadrant 3 contains attributes both low in satisfaction and importance. It is not necessary to focus additional effort here. These product or service attributes are of ''low priority.''

Attributes located in *Quadrant 4* are evaluated as high in satisfaction but low in importance, implying that resources committed to these attributes are inefficiently used and would be

better employed elsewhere. High performance on unimportant attributes indicates a *"possible overkill."*

IPA has been implemented in a wide range of models (e.g., Sampson & Showalter, 1999). Later literature have employed some modifications and extensions, such as Yavas and Shemwell (1997) that suggested to include competitor's performance to widen the analysis. However, the underlying assumptions have remained equal: importance and performance are the key decision factors. They are independent and the relationship between attribute level performance and overall satisfaction is linear and symmetric. There is growing evidence, however, that this relationship is more complex.

2.1.3. THE THREE-FACTOR THEORY OF CUSTOMER SATISFACTION

The dominant model in customer satisfaction research distinguish between different types of quality attributes or factors. Matzler, Sauerwein and Heischmidt (2004) provide a deeper analysis on customer satisfaction defining three factors:

- *Basic factors* (dissatisfiers) are minimum requirements that lead to dissatisfaction if not fulfilled; negative performance on these attributes has a greater impact on overall satisfaction than positive performance. The accomplishment of basic requirements is a necessary, but not sufficient condition for satisfaction. Basic factors are entirely expected. The customer regards them as prerequisites, taking them for granted;

- *Excitement factors* (satisfiers) are factors by whose delivering the service, provider could increase satisfaction but do not lead to dissatisfaction if they are not delivered. Excitement factors are not in expectation list of customers; instead, they could

surprise costumers and generate delight for them. Positive performance on these attributes has a greater impact on overall satisfaction than negative performance;

- *Performance factors* (hybrids) could bring about satisfaction if performance is high and dissatisfaction, if performance is low. In this case, the attribute performance–overall satisfaction relationship is linear and symmetric.

Exhibit 2.2. Three-factor theory of customer satisfaction
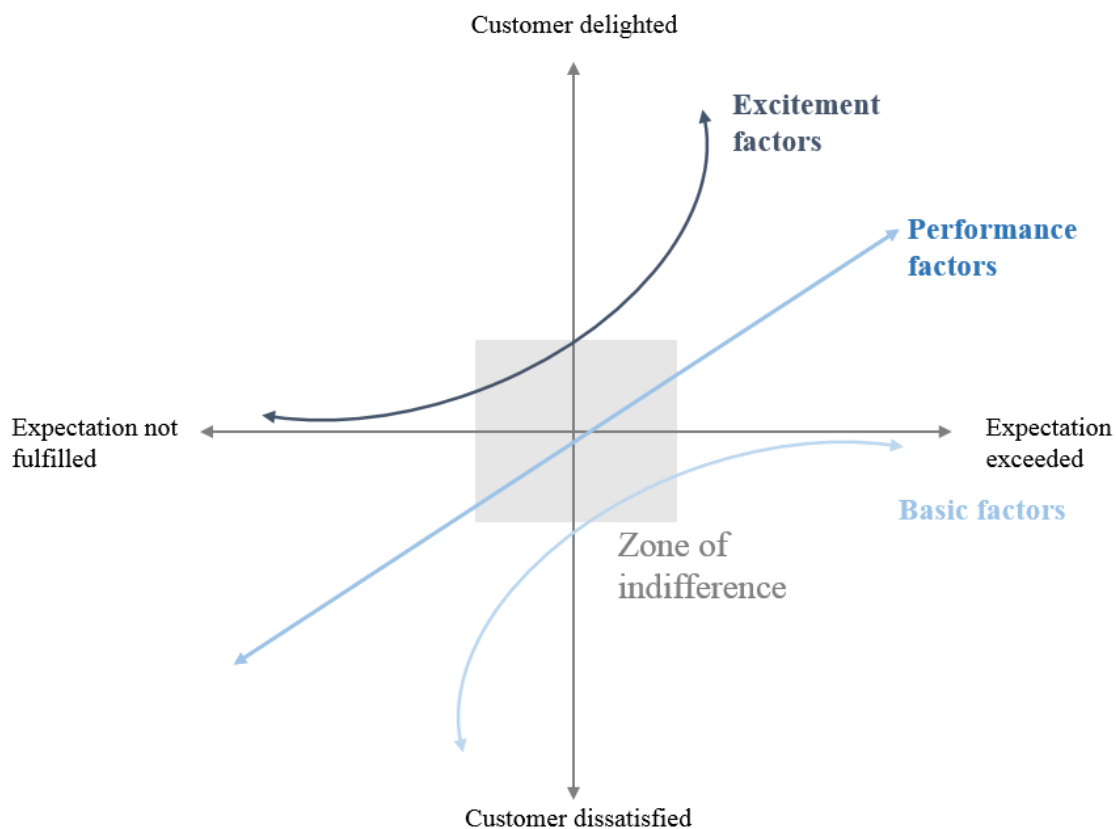
Source: Matzler, Sauerwein and Heischmidt (2004), revised from Kano (1984)

Therefore, the three-factor theory suggests that *Basic factors* establish a market entry "threshold". If they are offered at a satisfactory level, an increase of their performance does not lead to an increase of customer satisfaction. *Performance factors* typically are directly

connected to customers' explicit needs and desires. Therefore, a company should be competitive with regard to performance factors. *Excitement factors* are unexpected and surprise the customer. As they generate ''delight,'' a company should try to stand out from the rest as regards these attributes. According to this theory, quality attributes have two key characteristics:

- Importance of a basic or an excitement attribute depends on its performance. Basic attributes are decisive if performance is low, but are unimportant if performance is high. Excitement factors are important if performance is high but are not relevant when performance is low. The three-factor theory of customer satisfaction contradicts the traditional view that the relative importance of service attributes is adequately represented as a point estimate. Rather, it has to be seen as a function of satisfaction;

- Consequently, the relationship between attribute-level performance and overall satisfaction is asymmetric. (Matzler, Sauerwein, & Heischmidt, 2004).

2.2   ANTECEDENTS OF CUSTOMER SATISFACTION

2.2.1. DRIVERS OF CUSTOMER SATISFACTION

First theories on customer satisfaction argue that satisfaction play on two major drivers of customer satisfaction:

- Product's quality;

- Product's value (relation of price and quality).

In detail, satisfaction drivers were initially defined in two models in the literature:

1. *Disconfirmation model*, which is often associated with transaction-specific satisfaction;

2. *Performance model* used in studies of cumulative satisfaction.

Both theories and differences between them are described below:

1) Disconfirmation model

Referring to disconfirmation model, the difference between perceived product's performance and expected performance is a driver of satisfaction.

The Disconfirmation model assumes that satisfaction increases if performance exceeds expectations. In such case, a positive disconfirmation has been achieved. In the opposite case, when product or service performs below expectations, there is negative disconfirmation effect, which leads to decline in satisfaction.

The Exhibit below graphically presents the reasoning of disconfirmation model (Johnson, 1996).

Exhibit 2.3. Disconfirmation Model

Performance	**–**	Expectations	**=**	Customer Satisfaction

Source: Johnson, M.D. (1996)

Expectations may have both positive and negative influence on satisfaction. If performance increases over constant expectations, there is positive disconfirmation, which positively influences satisfaction. However, if expectations grow above constant performance, there is negative disconfirmation of expectations and satisfaction decreases. Such transaction specific gaps are than aggregated into an overall customer satisfaction.

2) Performance model

According to the performance model, expectations of product or service performance are connected to product's image, based on either personal experiences with the product or information and opinions heard and learned from other users. Differently from the disconfirmation model, expectations have only positive influence on satisfaction.

Given that expectations shall have positive impact on perceived performance, they are able to predict current level of performance. In addition, if expectations are strong, than they shall positively influence the perceived performance. Therefore in such case the evaluation of performance may be far from real performance level.

Despite the expectations importance in the performance model, it is the performance the main driver of customer satisfaction. Based on the model, performance has positive effect on satisfaction level. The graph below shows the performance model (Johnson, 1996).

Exhibit 2.4. Performance Model
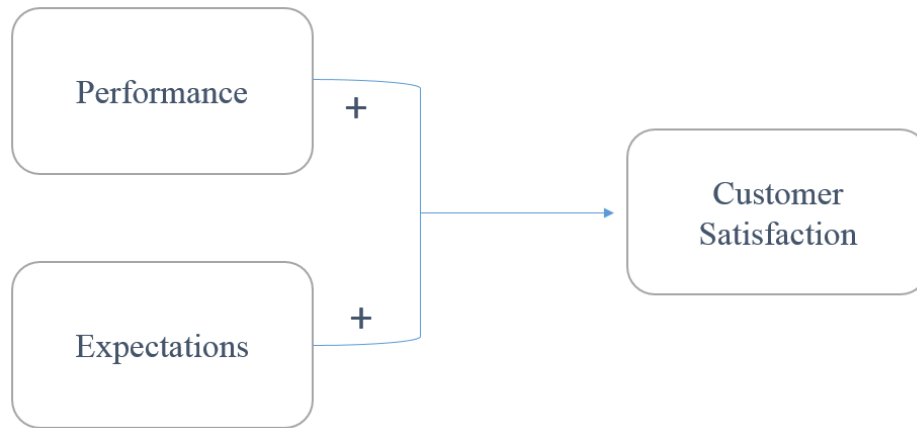
Source: Johnson, M.D. (1996)

While comparing disconfirmation and performance models, a widespread acceptance of superiority of the performance model for predicting customer satisfaction has emerged. In general, empirical studies of satisfaction confirm that expectations have rather positive than negative influence on satisfaction. Moreover, disconfirmation model is adjusted to studies of transaction specific satisfaction, while majority of empirical studies understand satisfaction as cumulative, not transaction specific. As an effect of the above arguments, performance model is evaluated as superior to disconfirmation model in the studies of customer satisfaction. Such conclusion will be also valid in the practical part of this work, as the satisfaction measurement system used will be assessing up cumulative experience of clients, rather than single transaction satisfaction.

2.2.2. RESULTS OF CUSTOMER SATISFACTION

Satisfaction has not only drivers (performance and expectations), but also its results, loyalty and retention. Those two consequences are related to each other, even though are distinct results of customer satisfaction.

Loyalty expresses psychological tendency toward purchasing and/or using a particular product/service once again, however it does not guarantee a success to an organization measured as customer retention. In other words, loyalty is a high perceived or expressed likelihood of repurchase or willingness to pay a higher price, but does not mean, that customer will repurchase from an organization (Johnson, 1996).

Retention, instead, is ultimate consequence of satisfaction and the actual act of repurchase. There are various explanations for customer switch to competitors, even if loyalty is established.

The Customer Experience Model (presented in the Exhibit below) clarifies why loyalty does not necessarily end up with retention.

Exhibit 2.5. The Customer Experience Model
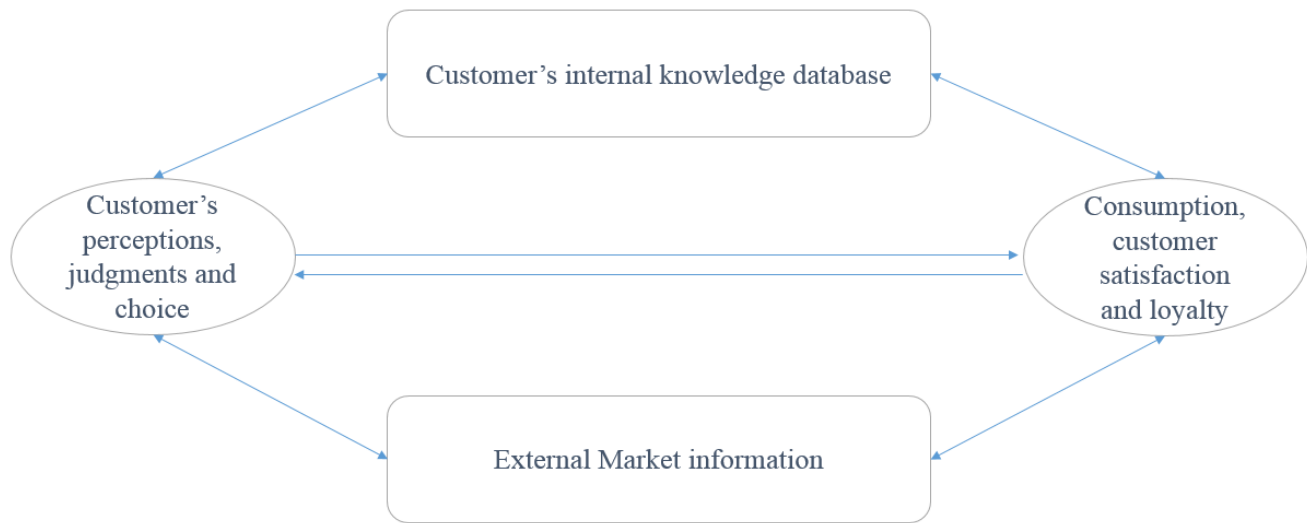
Source: Johnson, M.D. (1996)

The model divides the consumption experience, resulting satisfaction and loyalty from the repurchase decision and describes, what happens, when potentially satisfied consumer does not repeat the purchase with the same company. According to the Customer Experience Model, there are three aspects of product or service consumption and the consecutive satisfaction and loyalty.

- Customer relation with the company begins with the decision of the product or service acquisition and consumption. Resulting from consumption experience, customer forms the product's assessment, perception and expectation, while at the same time he or she becomes more or less satisfied with the product.

- During the consumption process, consumer stores in mind all the information learned regarding experience with the product. He or she uses those experiences and

information when making decision about the future repurchase, hence, building up an internal knowledge database.

- Finally, the customer comes to decision of repurchase of the product. He or she will most probably make the decision based on the internal knowledge and experience gained so far. However, customer is exposed to new information during the consumption and repurchase process. He or she receives information about new offerings, is exposed to word-of-mouth and to other information channels. As a result, even if customer is satisfied with the current product and expresses to be loyal, external markets conditions may affect his decisions, generating an opportunity to switch to other competitors. Such customers are called satisfied switchers – they may switch from a company's product to other competitors' products even when he or she expresses satisfaction on previous purchase. On the other side, the scenario described above may not take place. Even if a customer is exposed to external information and knows other options, he may stick with the current brand and repurchase. Such case will most often happen by habitual, daily purchases. In case of durables – and such is the automotive industry, external information can make the difference and companies need to make sure, that they have an absolute competitive advantage and that no other brand is capable of attracting its current customers.

Both satisfaction drivers and results are associated in a theoretical framework in order to recognize the relation between drivers and effects of satisfaction. The framework is presented in the Exhibit below.

Exhibit 2.6. Linking drivers and results

Source: Johnson, Hermann, Huber Gustafsson (1997)

At the beginning of the whole process, the actual production of product or service take place and the offering is delivered to customers. Assuming that the product matches consumers' needs, the consumption process starts. During that process, customers evaluate the product with regard to its performance, evaluating quality, value and comparing actual performance versus expectations. Such evaluation lies in the first perception of satisfaction – the extent to which product or service met customers' needs. The level of satisfaction or dissatisfaction strongly affects and predicts customer loyalty and as a result customer retention. However, it is not a guaranty for future repurchase, as even satisfied customers may switch to competition. Therefore, in order to retain customers, companies need to continuously improve current offering, present revolutionary and innovative products and constantly deliver higher customer value. In other words, satisfying a customer is a constant process, which means that new and better ways need to be found to customer needs.

In conclusion, satisfaction influences loyalty and consecutive retention. In other words, dissatisfied consumers may substantially negatively impact business results. Therefore, it is

of extreme importance to assess the current satisfaction levels to be able to find problems,

eliminate them and deliver improved products and services to customers.

Having discussed initial theories of satisfaction, the connection between drivers and results,

I will now discuss in the next paragraph how theoretical frameworks and empirical models

link customer satisfaction and business performance.

2.3. CUSTOMER SATISFACTION AND BUSINESS PERFORMANCE IN CUSTOMER ORIENTED MODEL

Customer satisfaction concept has been positioned at the heart of customer orientation model. Based on this model, companies are divided in two types:

- *Product oriented companies*, trying to sell products without focusing on actual customers' needs. Product oriented companies are searching for customers, whose needs can be matched with the products that the company is currently offering. Often those companies end up in the business stagnation phase, given their inability to understand the natural development of customer needs. They continue to offer what they think is desired by the consumers instead of delivering what is actually desired.

- On the opposite side, there are *customer oriented companies*, focused on matching customer's needs and satisfying them, believing that satisfaction is a precondition of retention, turning in positive impact on the long-term strength of their business. Customer orientation is an ongoing process, in which organizations pursue three goals:

  - Attain customer information;

  - Disseminate and use that information when making decisions;

  - Implement change (Johnson *et al.*, 1997).

  "Attain customer information" means that a firm need to collect information regarding its customers. Various research techniques are implemented in order to find out what are the needs and values of customers and how they are served by current

products and services. The information obtained shall also point out future customers' needs and the direction in which they will be developing.

Second goal of a customer-oriented company is to *"disseminate and use the information"*. Therefore, it is necessary to make sure that the information collected is shared within the company and between all departments involved in production and delivery of products or services.

Finally, to fulfil the third goal, *"implement the change",* it is necessary to translate the conclusions and recommendations from the research into actions, which will enable the company to deliver improved products and services.

In conclusion, a customer-oriented company has one fundamental goal: to satisfy its customers. This is realized by understanding customer needs and values, sharing this knowledge throughout the company and converting it into improved products and services, able to satisfy the customer to largest possible extent.

Satisfying customers is a continuous process, due to the dynamic change of customers' aspects and desires. Moreover, it is important to underline the incessant revolution of macroeconomic conditions that directly affect clients' choice. Therefore, companies follow or even go ahead of customer's needs in order to ensure business growth. The process to satisfy customers' desires never comes to an end, requiring a sequence of repetitive stages.

Customer orientation distinguishes four major phases, in order to ensure business growth:

1. Customer strategy and focus;

2. Customer satisfaction measurement;

3. Analysis and priority setting;

4. Implementation (Johnson, Herrmann, Huber, Gustafsson, 1997).

Exhibit 2.7. The four phases of customer orientation
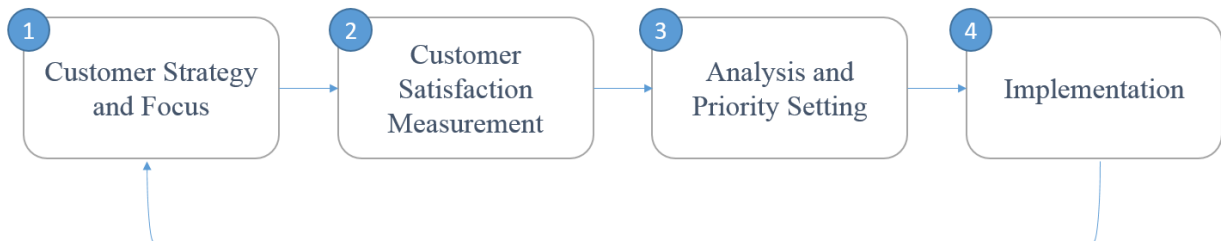
Source: Johnson, Herrmann, Huber, Gustafsson, 1997

During *Phase 1* of the process, it is important to realize how important is the customer for their business performance and to what extent is the customer orientation their business priority. It should be clearly argued how and to what extent the company needs adjust their strategy to consumers' desires. Moreover, during Phase 1 the firm need to specify which customer segments shall be targeted (e.g. referring to automotive industry, may the company focus on premium or mass cars' users, shall the company target young and dynamic or adult and affluent customers?)

Phase 2 of customer orientation process requires the development of an appropriate measurement system, which enables to evaluate the level of customers' satisfaction of particular target groups. Through the measurement system, the organization has the opportunity to understand which needs, values and benefits are key for target consumers.

In detail, the research must evaluate, to what extent current products and services' attributes bring the desired benefits, hence, filling customers' needs.

As Phase 2 provides the assessment of benefits' importance and the extent to which current offerings fill those benefits, during *Phase 3* organization shall evaluate the information gathered and set priorities for further actions. The organization shall pursue for product benefits that are very important for target customers but not delivered by current products or services. These benefits are key priority and main focus in order to make customers more satisfied, hence, to increase the probability of customer retention.

Phase 4 of customer orientation process involves that all the priorities set in Phase 3 are converted into specific actions and processes. These actions should result in getting customer more satisfied, thanks to the delivery of improved product or service.

This customer orientation process shall never end and shall be repeated verifying if the improved product actually satisfied customer to larger extent.

Based on this model, only customer oriented companies trying to provide offerings tailored to customer' needs can expect returns from their actions. Returns follow higher satisfaction levels, which turn into higher probability of repeat purchases and as a result increased returns for the organization. Although customer orientation model has stressed the importance of customer satisfaction for business performance, it has not quantified the importance. This weakness of the customer-oriented framework leads to the next model: the EFQM Excellence Model.

2.4 THE EFQM EXCELLENCE MODEL

The EFQM Excellence Model is a comprehensive management framework used by over 30,000 organizations in Europe. The EFQM Excellence Model is reviewed and updated on a 3-year cycle, based on the learning, experience and insight of leading organizations. It is designed to be a practical and pragmatic tool, enabling an organization to gain a holistic overview of their current level of excellence and prioritise their improvement efforts to maximise their impact (European Foundation for Quality Management, 2013).

Organizations are assessed based on nine criteria. Five of them are *"enablers"*, covering organization actions, while the remaining four are *"results"*, which include what an organization achieves. A connection is formed between the two groups. The model's framework is presented below.

Exhibit 2.8. EFQM Excellence Model
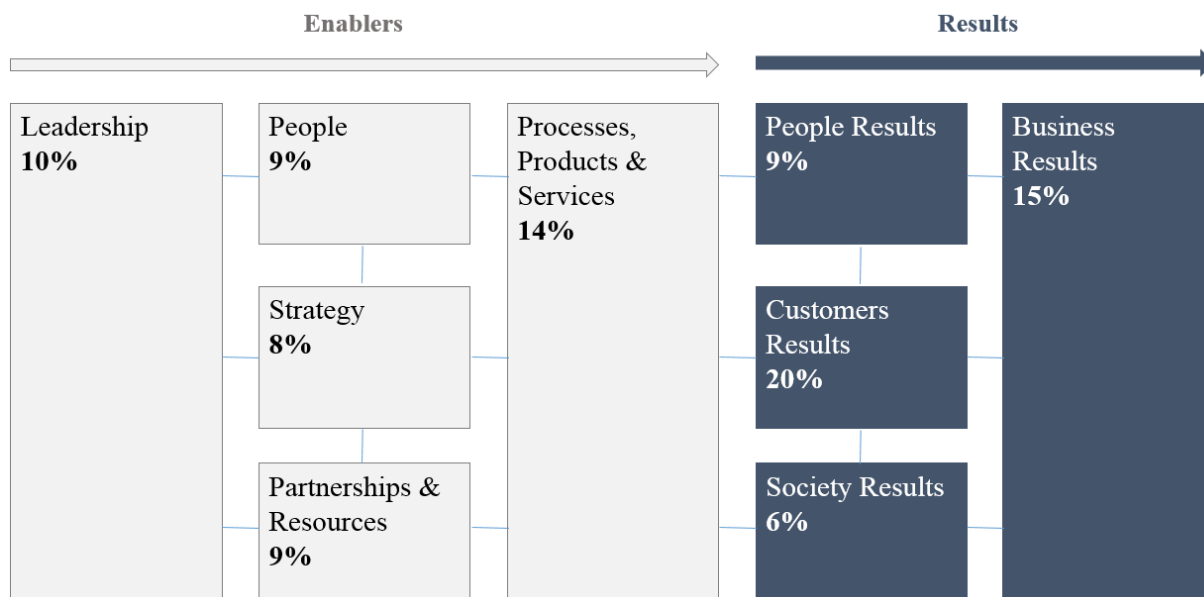
Source: European Foundation for Quality Management (2013)

Each of the nine boxes shown above has a high level, including thirty two sub-criterion elements (see Appendix 1) and providing questions to be considered when assessing the performance of applicant organisations.

The percentages shown in the diagram are weightings used when assessing overall companies' performance.

The EFQM Excellence Model is the evidence supporting the importance of customer satisfaction for the business performance. The EFQM Excellence Model, similarly as customer orientation model, puts customer and his satisfaction at the heart of its theory. Indeed, the concept of customer satisfaction becomes relevant on three of its nine criteria:

- **Customer results"** criterion is entirely focused on customers' satisfaction. Measures within this criterion are supposed to assess customer's perception of overall organization's image, his or her satisfaction with products/services, sales and after sales support and evaluate customer loyalty to the organization. "Customer results", called also customer satisfaction criterion, is the weightiest criterion in the model accounting for 20% of the total scoring system when assessing companies' excellence (Gronholdt, Kristensen, Martensen, 2002). Moreover, customer satisfaction has not only the largest impact on evaluation of organization excellence, but most importantly understanding customer needs and feelings is an important step in quality improvement, resulting in higher satisfaction levels, improved business results and business excellence.

- Finally, the concept of customer satisfaction is stressed in the EFQM Excellence model **"Leadership"** and **"Processes"** factors. Company leaders, and consequently

processes implemented need to meet, understand and answer needs and expectations of stakeholders, including customers as one of the most important groups. (The EFQM Excellence Model 1999 manual).

In conclusion, according to the EFQM Excellence Model, customer satisfaction is one of the most significant factors driving the organization towards excellent performance and improved financial results.

2.5 EVIDENCE OF POSITIVE IMPACT OF CUSTOMER SATISFACTION ON BUSINESS PERFORMANCE

Empirical studies conducted on satisfaction influence on company's performance are provided by the recent literature. Research were piloted taking into account customer satisfaction measurement models and using the data acquired during models testing in order to evaluate if positive correlation between increased satisfaction and financial indicators exists. Recent empirical research suggest following connection of customer satisfaction indexes and financial indicators:

- Positive impact of growing satisfaction on return on investments (ROI);

- Not significant influence on market share and market share growth;

- Positive Impact on Shareholder value;

- Positive impact on stock price.

2.5.1. SATISFACTION INFLUENCE ON ROI

First, Anderson, Fornell and Lehmann (1994) have analysed what is the effect of increased satisfaction on ROI. Linking the Swedish Customer Satisfaction Barometer index (SCSB, that will be discussed in the next chapter) and ROI of Sweden-located firms, Anderson Fornell and Lehmann have recognized a positive regression between the two indicators:

$$ROI_t = -1.10 + 0.75 * ROI_{t-1} + 0.40 * CUSTOMER\ SATISFACTION_t + 0.0012 * ROI\ TREND$$

The study revealed that as the customer satisfaction index changes by 1 percent, ROI changes by 0.4 percent, with a level of significance of 0.01. Additional studies conducted on SCSB

by Anderson, Fornell and Rust (1997) proved that average elasticity of ROI is higher for goods – 0.265 than for services – 0.14, implying that it is more difficult for service companies to satisfy their clients than it is for production companies. Such difference is justified assuming that it is easier for customers to distinguish between and objectively assess the quality of the product rather than the service.

2.5.2. CUSTOMER SATISFACTION AND MARKET SHARE CORRELATION

During first studies regarding correlation of customer satisfaction and ROI (1994), Anderson, Fornell and Lehmann tried also to analyse the correlation between SCSB and market share of 77 Swedish firms. However, negative results emerged. Customer satisfaction and market share indicate negative correlation (-0.25, p-value of 0.03), as well as year over year growth rate of both indicators show a negative regression (-0.37, p-value of 0.05).

A recent study by Rego, Morgan and Farnell (2013) has investigated at the customer satisfaction-market share relationship over a longer period of time than previous research. By researching on a sample of U.S. customers, the analysis actually delivers a negative customer satisfaction - market share relationship. In examining why there was a negative relationship between customer satisfaction and market share, the research revealed that the type of product demand was a key influencing factor, supporting earlier suggestions that satisfying a customers' needs does not necessarily result in higher market share, unless there was homogenous demand (homogeneous preferences) (Gounaris *et al.*, 2001).

Finally, latest studies have focused their attention on the temporal connection between customer satisfaction and market share. (European Marketing Confederation, 2014). The aim was to establish the effects of time on both indicators, whilst seeking to understand the nature

of the relationship between them. Data from this study came from The National Quality Research Centre at the University of Michigan's Ross School of Business, which consisted of American Customer Satisfaction Index data for approximately 200 companies from 1994-2006. Analysis revealed that current customer satisfaction was positively associated with future market share, whilst current market share was negatively associated with future customer satisfaction (EMC, 2014). The results demonstrate how customer satisfaction measure can define, or even forecast, future market trends. The correlation between market share and customer satisfaction analysed in this paragraph will be reported later on, when analysing the Chinese Automotive market trends.

2.5.3. CUSTOMER SATISFACTION INFLUENCE ON SHAREHOLDERS' VALUE

Ittner and Larcker (1998) examined the correlation between satisfaction and shareholders value. Results of their study prove that a 1% change in the satisfaction index translate into 7% change in shareholder value. Customer satisfaction leads to repurchase. The continuous repurchase of company's product by the customer gives a stable relationship between customers and firms. Through customer experience, the company is significantly lowering down the relationship costs. Furthermore, cost for acquiring new customers decrease and as a result, shareholders' value increases. The stable customer base can enhance the firm's shareholder value in a multiple ways (Ittner and Larcker, 1998):

- The faster acceptance of new products by loyal customers accelerates market penetration and cash flows;

- A large stable customer base reduces the volatility of cash flows;

- The lower volatility of the cash flows also leads to a lower cost of capital and thereby to an enhancement of cash flow;

- Finally, customers' loyalty enhances the residual value of the firm through size and quality of the customer base.

2.5.4. CUSTOMER SATISFACTION AND STOCK PRICE CORRELATION

Ittner and larke have performed a correlation analysis (2009) between the American Customer Satisfaction Index (ACSI, that will be discussed in the next chapter) and stock price. The study results were in line with the shareholders' value results and they confirmed that there is relation between satisfaction levels and stock prices; companies with highest customer satisfaction indexes earn return on stock price of 1-2 % per month above the average return on the market. "Our re-examination of the stock market's pricing of ACSI information suggests that customer satisfaction information, as captured in the ACSI, is value-relevant in that it is incrementally predictive of future operating performance, and could therefore be important to managers attempting to improve share price." (Ittner *et al.*, 2009).The study, however, does not suggest any evidence of correlation between the ACSI and long-term stock price trend.

Same results for short-term correlation between the two indicators has been found recently by Neupane (2014) measuring customer satisfaction and stock price of Lloyds Banking Group during a period of three months (December 2012, January and February 2013). A high level of customer satisfaction and strong stock price of Lloyds Bank in stock exchange supports that customer satisfaction is positively correlated with stock price. This result is

similar to the findings by Aksoy *et al.*, (2008), suggesting that customer satisfaction is an important intangible asset and creates positive returns to the organisation (Neupane, 2014).

After discussed the importance of customer satisfaction on business performance, its definition, the theoretical connection with organizational performance and supporting empirical evidence, I will introduce in the next chapter the most accepted customer satisfaction measurement systems.

3. CUSTOMER SATISFACTION MEASUREMENT SYSTEMS

3.1 RATIONALE FOR DEVELOPMENT AND USE OF UNIVERSAL CUSTOMER SATISFACTION MEASUREMENT INDEXES

A number of customer satisfaction barometers have been introduced in the last decades. Once acquired customer needs and desires' information, a firm is ready to evaluate current offerings' performance, comparing customers' perceptions and expectations. This evaluation shall be performed using customer satisfaction measurement systems.

Satisfaction measurement system is a central part of customer research, supporting the analysis of satisfaction levels. Several tools, mainly qualitative, were developed by companies to measure customer satisfaction. However, regardless of the advancement of methodology used, satisfaction measurement systems developed internally by a single organization have major limitations:

- Internal measurement systems can not verify whether satisfaction index outcomes are comparable with other companies' results in the same industry, as there is no benchmark. Since companies implement satisfaction measurement systems based on different methodologies and measurement indexes, personalized to their organization's environment, results are not comparable between the organizations. In this case a satisfaction index of 70 scored by company A's may be in reality higher result than index of 80 reached by company B. Furthermore,

- Secondly, such indexes provide results not comparable between industries. Therefore, it can not be assessed if companies in industry A satisfy their customers better than companies in industry B.

- Finally, without unified international indexes, satisfaction levels can not be compared across companies from other countries.

In order to respond to such limitation and enable comparisons, national and industry specific measurement models were developed worldwide. Most relevant customer satisfaction indicators are:

- National customer satisfaction indexes;

  1. Swedish Customer Satisfaction Barometer – SCSB;

  2. American Customer Satisfaction Index – ACSI;

  3. European Customer Satisfaction Index – ECSI;

- Net Promoter Score;

- Automotive specific customer satisfaction index: J. D. Power.

In the following it is reported an introduction of such customer satisfaction barometers and relative differences.

3.2 NATIONAL CUSTOMER SATISFACTION INDEXES

Since 1970s, specialists of consumer behaviour and marketing have started to develop comprehensive studies on customer satisfaction (e.g. Oliver (1977), Churchill and Suprenant (1982), Olshavsky (1993)). In 1989, Fornell and his colleagues in Michigan University built the first nation-level measurement system of customer satisfaction, the Swedish Customer Satisfaction Barometer (SCSB) (Fornell, 1992). Later in 1994, American Customer Satisfaction Index (ACSI) was launched (Fornell, 1996). In the middle of 1990s, satisfaction measure systems were gradually recognized by national governments and companies worldwide as good tools to understand nation's or company's output quality. Nation-level Customer satisfaction indexes are Swedish Customer Satisfaction Barometer (SCSB), American Customer Satisfaction Index (ACSI), Norwegian Customer Satisfaction Barometer (NCSB), German Barometer Swiss Index of Customer satisfaction (SWICS), Korean Customer Satisfaction Index (KCSI), Malaysian Customer Satisfaction Index(MCSI). In addition, Brazil, Argentina, Mexico, Canada, Australia, Hong Kong and some regions like Taiwan, are have built in last years their own CSI systems. The most relevant national indicators are reported below.

3.2.1. THE SWEDISH CUSTOMER SATISFACTION BAROMETER

In 1989, Sweden became the first country in the world to have an uniform, cross-company, cross-industry national measurement instrument of customer satisfaction and evaluations of quality of products and services, denominated the Swedish Customer Satisfaction Barometer (SCSB) (Martensen *et al.*, 2000),

Since SCSB implementation, customer information was collected annually. Customers of 100 companies from 30 leading industries were interviewed, resulting in 25.000 respondents answering to the survey questionnaire every year. Respondents were contacted via telephone and during eight-minute survey, they were answering to questions, using 10 point scale (Fornell, 1992). Customers assessed satisfaction with organizations' product or services at brand level. However, in case of companies with multiple brands, the largest brand was chosen to represent the company.

After data collection, survey's results were analysed using Least Squares methodology. The structure of the original SCSB model is presented in the below Exhibit.

Exhibit 3.1. The SCSB (Swedish Customer Satisfaction Barometer)
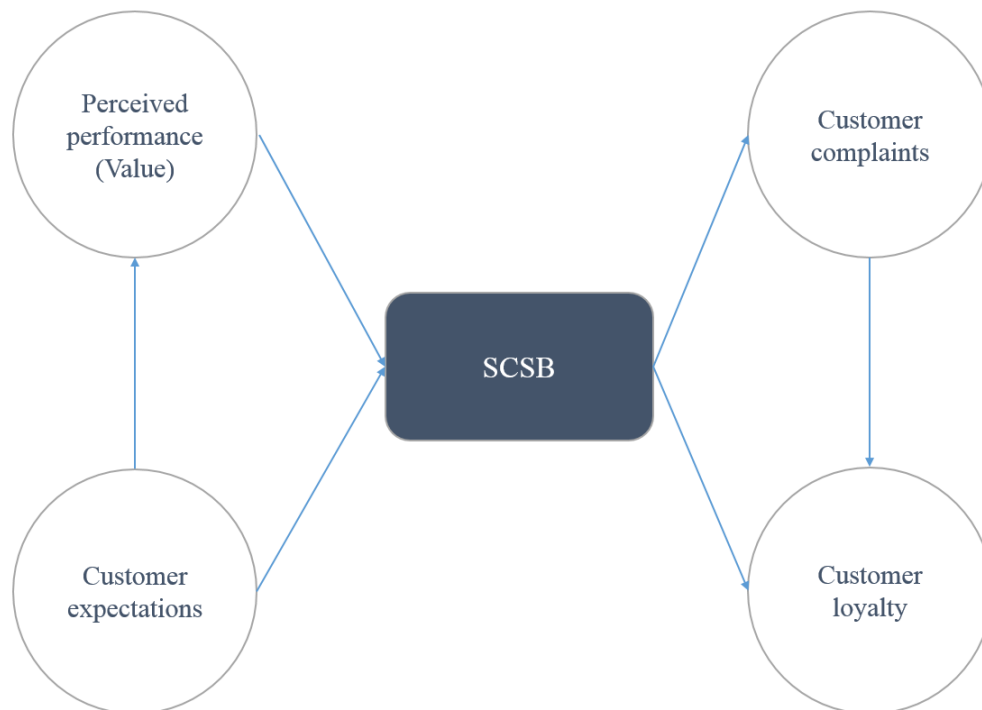
Source: Fornell, 1992

Within the SCSB model, satisfaction is a function of two drivers, expectations and perceived performance. This part of the model is based on the performance model described in the chapter 2.2.1:

- *Expectations* are defined as customers' prospects regarding product performance. In the SCSB model, expectations play an important role as determinants of satisfaction. According to the SCSB, expectations positively affect perceived performance, as demonstrated by the Performance model (See chapter 2.2.1). The SCSB model gives substantial importance to confirmation / disconfirmation of expectations, as driver of satisfaction. Expectations are not only included as a separate construct, but also influences perceived performance. If expectations are strong, they are able to modify the perception regarding the offering, indirectly affecting customer satisfaction.

- *Perceived performance* is the second driver of customer satisfaction in the SCSB. It is defined as relation of product price to product quality. The authors of the SCSB model believe that customers evaluate product's performance by comparing the quality of the offering versus price paid. Perceived performance is expected to positively influence customer satisfaction. Customer satisfaction improve when perceived performance increases.

Satisfaction variable (SCSB) in the model mentioned above is described by three measures:

1. General satisfaction;

2. Confirmation of expectations;

3. Distance from the customer's hypothetical ideal product or service (Fornell, 1992).

Satisfaction is expected to have two immediate consequences:

- Customer complaints are measured as percentage of customer indicating complaints to a company directly about a product or service within a specified period of time. Customer complaint is assessed by two variables:

    - Complaint to personnel;

    - Complaints to management.

- Customer loyalty is a combination of customers' professed likelihood to repurchase from the same supplier in the future, and the probability to purchase a company's products or services at different price points (Angelova *et al.*, 2011). Customer loyalty is measured by:

    - Elasticity to price increase (willingness to pay higher prices for same product);

    - Declared repurchase intention.

Customer complaint and customer loyalty derives from Hirschman's Exit – Voice theory. According to the Exit – Voice theory, customer dissatisfaction can lead to a stop or relationship between customers and a company (Exit) or to complaints (Voice).

In the SCSB model, a strong relation exists between customer complaint and customer loyalty. The model suggests that developing an appropriate complaint management system, a company can turn complaining customers in loyal ones. However, in case of inattention in managing complaints, exit of unsatisfied customers is likely.

The SCBS model, the first national satisfaction measurement system, provided following key findings:

- First, the SCSB was higher for industries, where products or services were differentiated and customer demand was composed by heterogeneous preferences. In this case, match between supply and demand was possible. An example is the automotive industry, where heterogeneous demand was satisfied by differentiated offerings.

- Consequently, lowest satisfaction levels were visible for industries, where heterogeneous demand could not match with supply, since the low level of differentiation. Good example of such industry was television broadcasting, which received one of the lowest scores of SCSB index in 1991.

- Finally, services received lower scores on satisfaction index than products (Fornell, 1992).

The Swedish Customer Satisfaction Index, as the first truly national satisfaction measurement system, was a starting point for developing satisfaction indexes in other countries.

3.2.2. THE AMERICAN CUSTOMER SATISFACTION INDEX

Second national satisfaction measurement index was developed in United States in 1994. Produced by a consortium of the Stephen M. Ross School of Business at the University of Michigan and Customer Feedback Insight Group, The American Customer Satisfaction Index (ACSI) is an independent national benchmark of customer satisfaction and quality of products and services available to household consumers in the United States.

The methodology of the ACSI reflects the SCSB model. However, given the size of the American economy, ACSI is applied to a larger number of companies, industries and sectors.

ACSI measures ten economic sectors in the North American Industry Classification System (NAICS) that produce products and services sold directly to U.S. household customers.

The Sectors included are: Utilities, Manufacturing/Nondurable Goods, Manufacturing/ Durable Goods, Retail Trade, Transportation and Warehousing, Information, Finance and Insurance, Health Care and Social Assistance, Accommodation and Food Services, Public Administration. The sectors assessed by ACSI cover 66% of the U.S.GDP (ACSI, 2005).

Each year, 70,000 randomly selected customers are surveyed (see Appendix 2 for questionnaire details) about products and services they use the most. (ACSI, 2014) The survey data are used as inputs to ACSI's cause-and-effect model, estimating customer satisfaction as result of survey-measured inputs of customer expectations, perceptions of quality and perceptions of value. The ACSI model, in turn, connects customer satisfaction with survey-measured outcomes of customer complaints and customer loyalty. Respondents are invited to answer brand or model level questions using a 10-point scale, then converted in a 100-point scale. Finally, the ACSI provides four levels of composite index measures. These are:

- General national customer satisfaction index;

- Satisfaction indexes for 10 sectors of the economy;

- Satisfaction Indexes for 41 industries;

- Specific indexes for over 200 major companies and federal or local government services, including indices for an "all others" category in each industry.

As in case of SCSB, least squares methodology is implemented. The structure of the ACSI model presents few differences from the SCSB regarding the model structure and measurement properties of the model:

Exhibit 3.2. The American Customer Satisfaction Index (ACSI)
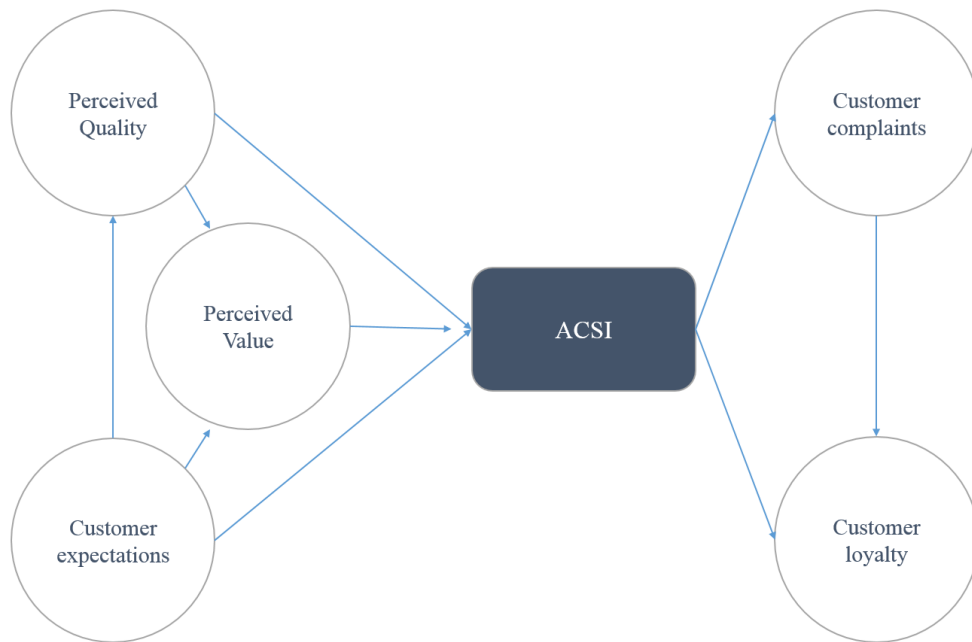
Source: Anderson, Bryant, Cha, Fornell, Johnson, 1996

Major changes in the ACSI versus SCSB models are:

- Perceived performance (value) construct used in SCSB model is divided in two separate components, perceived quality and perceived value.

    Perceived quality has a direct, positive effect on satisfaction. As a general psychological phenomenon, satisfaction is primarily a function of a customer's quality experience with a product or service (Churchill and Surprenant, 1982; Fornell, 1992; Tse and Wilton, 1988; Westbrook and Reilly, 1983).

    Quality experts underline two primary components of perceived quality:

- *Customization*: the degree of fulfilment of key customer requirements;

- *Reliability*: How reliably these requirements are provided.

The greater the perceived quality, the higher the level of customer satisfaction. This prediction is coherent with several analyses in marketing and consumer research literature (Yi, 1991).

In some industries, particularly in the Manufacturing/Durable Goods and Retail Trade sectors, services are required for after-sales maintenance over different time periods.

In such case, there is an initial purchase followed by a period of maintenance. The service provider could not be the manufacturer. For instance, in retailing, products are manufactured by a company, but another provides connected services. For those industries where related services become a strong value added to total offering, ACSI implemented an expanded model shown in Exhibit 3.3, distinguishing between product quality and service quality while evaluating overall perceived quality. Customer ratings of product and service quality are often statistically significantly different, with product quality rated higher than service quality (ACSI, 2005).

Exhibit 3.3. The Expanded American Customer Satisfaction Index (ACSI)
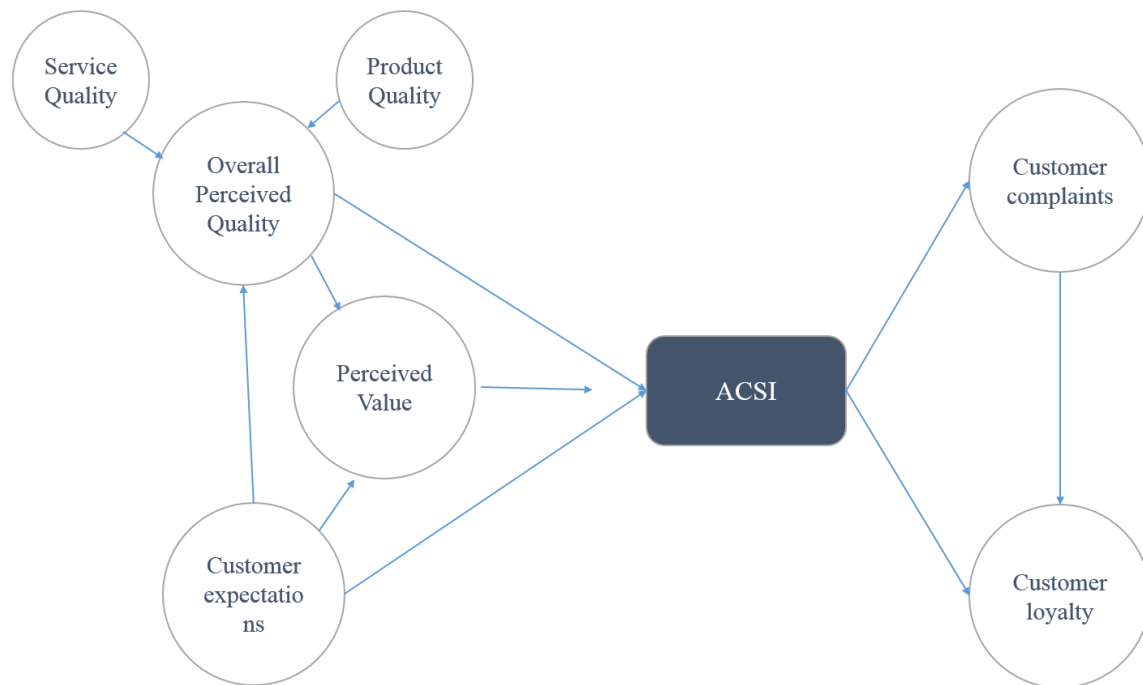
Source: ACSI, 2005

Perceived value construct includes the quality perception of customers relative to the price paid. Adding perceived value, the model incorporates price information, increasing the comparability of companies, industries, and sectors' results. Using value perceptions to measure performance also controls for differences in income and budget constraints across respondents (Hauser and Shugan, 1983; Lancaster, 1971), allowing to compare products and services with different price ranges. Like perceived quality, the basic expectation is a positive relation between perceived value and customer satisfaction, hence, as value increases, customer satisfaction improves. The distinction of the impacts of perceived quality and perceived value in the model provides relevant information. As the impact of value increases relative to quality, price becomes a more important determinant of satisfaction. This adjustment enables
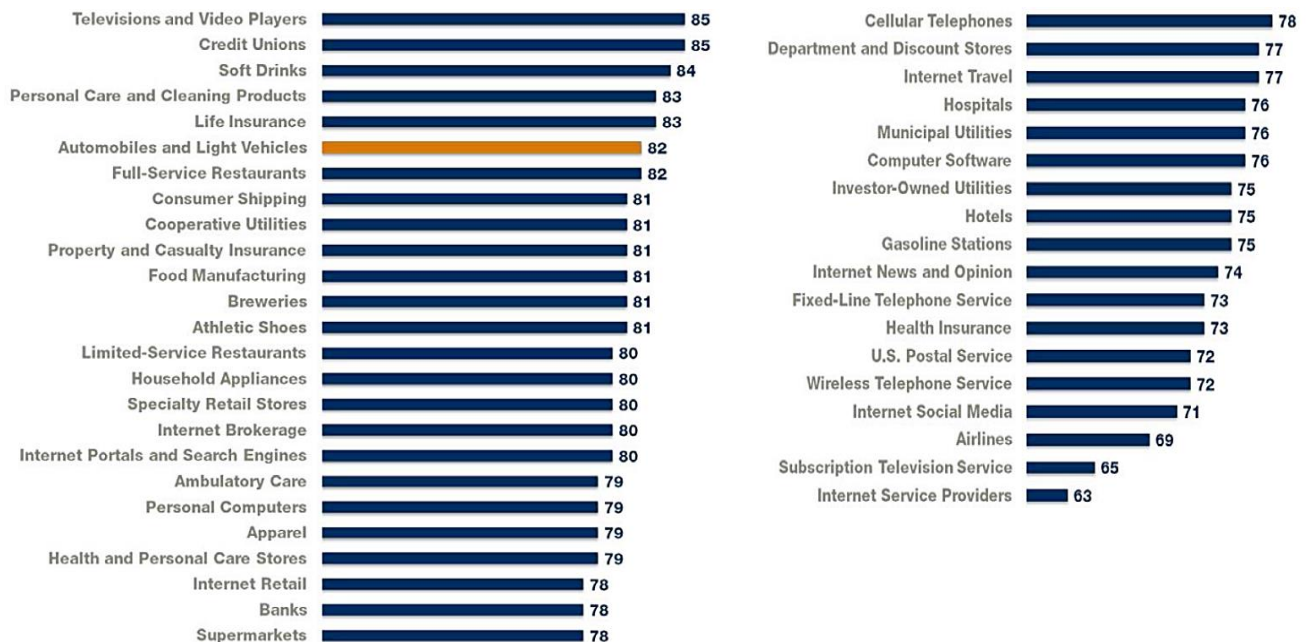
to evaluate what is the main driver for satisfaction, price or quality, in specific industries and companies.

- Customer loyalty includes one extra variable compared to SCSB index. With this additional variable, the ACSI tries to include in the analysis how much the price would need to decrease to encourage customers to repurchase, given that they are unlikely to repurchase.

Results from ACSI index contributed greatly and empirically to customer satisfaction theory. In general, in line with findings from SCSB index, the ACSI Model confirmed, that satisfaction is greatest in goods, lower in services and definitely lowest in public administration. In Exhibit 3.4. are shown the ACSI 2014 results for 43 industries:

Exhibit 3.4. 2014 Customer Satisfaction Benchmark by industry (ACSI)

Industry	Score		Industry	Score
Televisions and Video Players	85		Cellular Telephones	78
Credit Unions	85		Department and Discount Stores	77
Soft Drinks	84		Internet Travel	77
Personal Care and Cleaning Products	83		Hospitals	76
Life Insurance	83		Municipal Utilities	76
Automobiles and Light Vehicles	82		Computer Software	76
Full-Service Restaurants	82		Investor-Owned Utilities	75
Consumer Shipping	81		Hotels	75
Cooperative Utilities	81		Gasoline Stations	75
Property and Casualty Insurance	81		Internet News and Opinion	74
Food Manufacturing	81		Fixed-Line Telephone Service	73
Breweries	81		Health Insurance	73
Athletic Shoes	81		U.S. Postal Service	72
Limited-Service Restaurants	80		Wireless Telephone Service	72
Household Appliances	80		Internet Social Media	71
Specialty Retail Stores	80		Airlines	69
Internet Brokerage	80		Subscription Television Service	65
Internet Portals and Search Engines	80		Internet Service Providers	63
Ambulatory Care	79			
Personal Computers	79			
Apparel	79			
Health and Personal Care Stores	79			
Internet Retail	78			
Banks	78			
Supermarkets	78			

Source: ACSI, 2014

2014 ACSI results confirm strong differences in satisfaction between goods and services industries. Companies offering products rank higher with respect of companies playing in the services sector. A likely motivation is the high complexity in measuring perceived quality and perceived value, drivers of satisfaction, when assessing experience of consuming services.

Regarding the automotive industry, main topic of next chapter, the ACSI shows a high customer satisfaction within the U.S. market, demonstrating great balance between a differentiated supply and a heterogeneous demand. In this case, the component of perceived quality, customization, plays an important role when driving customer satisfaction.

The ACSI Index has been and steel is tested and applied in many empirical studies. ACSI model also laid ground for development of European based index, the European Customer Satisfaction Index (ECSI), discussed below.

3.2.3. THE EUROPEAN CUSTOMER SATISFACTION INDEX

ECSI (European Customer Satisfaction Index) is an analytical tool, designed to provide a solid basis for European companies in measuring customer satisfaction. ECSI supports companies in discovering which factors are most important to the creation of customer satisfaction and loyalty. The purpose of the European Customer Satisfaction Index development was to offer to European firm similar diagnostic tools as in the Unites States. Development of ECSI allowed comparisons between countries within Europe, but also between Europe and North America.

ECSI was developed by the EU Commission in collaboration with the European Foundation for Quality Management and the European Organization for Quality (EOQ) along with a

network of universities and business schools. The ECSI model was implemented for the first time in 1999. Twelve European countries participated in the project. In each country, about 250 of customers for each company responded to a telephone survey, resulting in almost 55 000 interviews collected. A 10-point scale was used in the survey even though results were adjusted to ACSI 1-100 points scale to enable comparisons between ACSI and ECSI index.

As discussed previously, ECSI methodology is based on ACSI model. As in case of SCSB and ACSI, least squares model is used for customer satisfaction estimation. The ECSI model is shown in Exhibit 3.5:

Exhibit 3.5. The European Customer Satisfaction Index (ECSI)
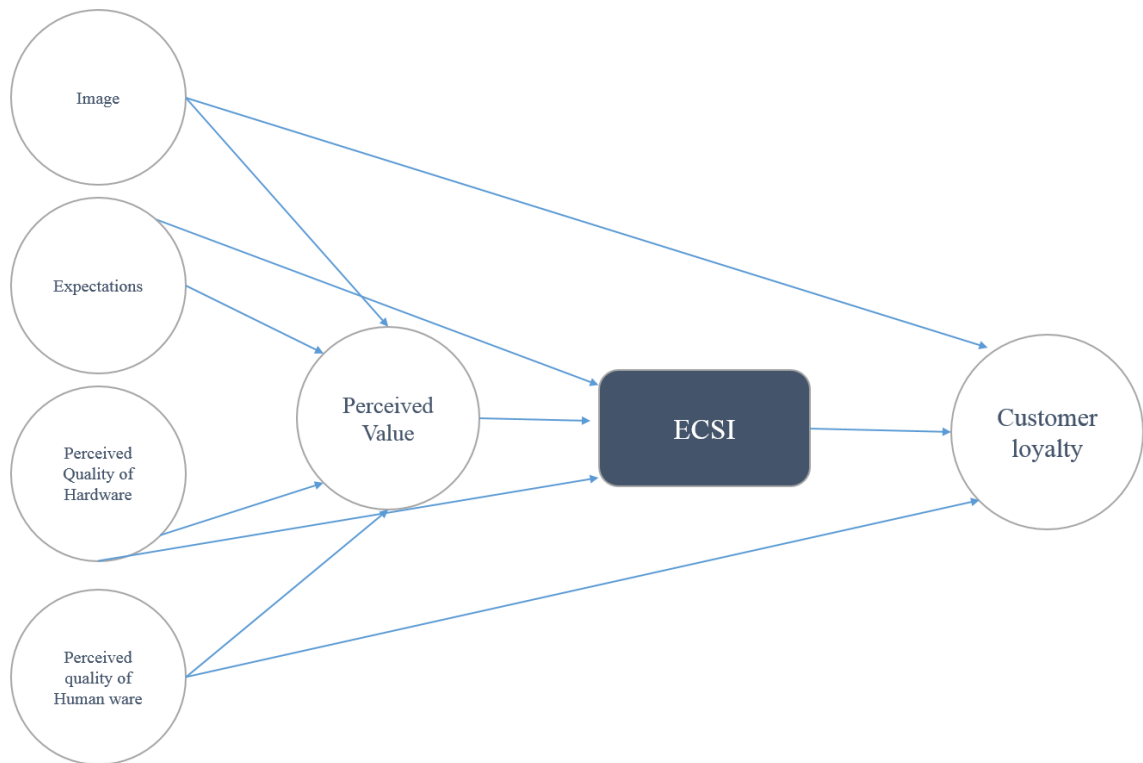
Source: Juhl, Kristensen, Ostergaard, 2002

From Exhibit 3.5 some differences emerged between the ECSI model and the ACSI:

- Image variable was included as driver of satisfaction, expecting to influence perceived value, satisfaction and customer loyalty variables.

- Perceived quality is divided into separate variables:

    - Product quality, the "hardware quality", indicating performance of product/service attributes;

    - Service quality, the "human ware quality", describing quality of connected services delivered to customers (Juhl, Kristensen, Ostergaard, 2002).

- Customer complaint variable is excluded from the ECSI model, differently from ACSI index.

- Differences compared to ACSI model regarding the loyalty construct, the ultimate variable explained by the model. In ECSI model loyalty is measured as:

    1. The product repurchase likelihood;

    2. The probability of buying another product from the same company;

    3. Intention to switch to competitor - price tolerance;

    4. Intention to recommend the offering to other consumers (Gronholdt, Kristensen, Martensen, 2000).

The difference of ECSI, compared to ACSI, in loyalty construct lies in second and fourth determinant.

While in ACSI, last three determinants are focused on price elasticity and tolerance, in ECSI only the third question, tries to evaluate customer resistance to price changes. Remaining questions in ECSI examine the probability of purchase extension to other offerings within

the same company (question 2) and probability of positive word of mouth and probability of product repurchase (question4).

Among results of ECSI pilot study from 1999 several key conclusions were drawn. For instance, the study revealed that connection between satisfaction and loyalty is stronger in competitive industries. The positive effect of customer satisfaction on loyalty increases with the degree of competition in the market (Gronholdt, Kristensen, Martensen, 2000).

In recent years, the European Customer Satisfaction Index has been renamed EPSI, standing for European Performance Satisfaction Index. The change reflects the opening of the ECSI to other performance measures like employee satisfaction and society trust.

EPSI Rating assesses both business to consumer (B2C) and business-to-business (B2B) segments. The EPSI database encompasses more than 200,000 indices from over 5 Million interviews collected in 25 countries over two decades. The number of interviews in 2012 approaches 1 million annually. The number of included industries varies country by country. For instance, in Sweden more than 40 industries/sectors are covered by EPSI, covering over 75% of GDP.

EPSI operates in more than 20 countries through national (sub-regional) entities, located in Czech Republic, Denmark, Estonia, Finland, Latvia, Lithuania, Norway, Russia, Spain and Sweden (also R&D office) (EPSI, 2014).

Currently, EPSI is running surveys in the following industries: Banking, General Insurance, Life/pension insurance, Trade and Distribution, Telecoms (fixed lines, mobiles and broadband), Utilities (electricity, water gas etc.), Health services, Education, Police and

public safety, Public transport, Public administration, Postal Service and Logistics, Business

Services (IT, auditing, legal, recruitment agencies, etc.) (EPSI, 2014).

In countries with highest coverage, 75/80 % of GDP is covered. Main companies, mostly

those with at least 8% market share) are assessed. In Exhibit 3.6 2012 EPSI results are

reported:

Exhibit 3.6. 2012 European Performance Satisfaction Index

Customer satisfaction trends
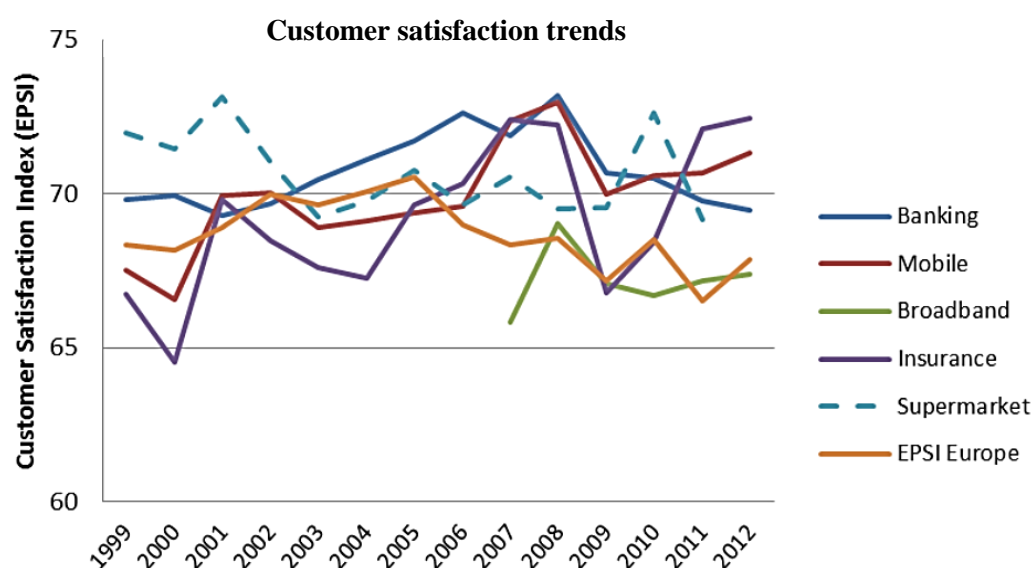
2012 Satisfaction score by country
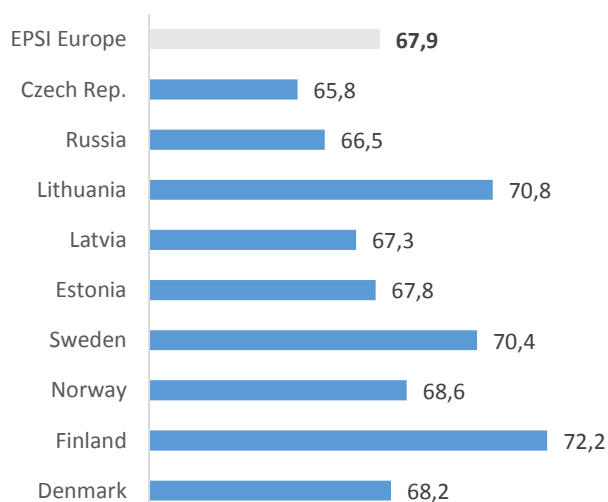
2012 Satisfaction score by Industry

Source: EPS, 2013
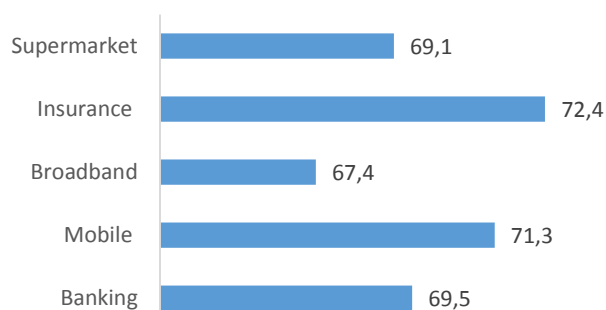
From the graphs in Exhibit 3.6 and comparing the EPSI and ACSI it is possible to reveal some limitations of the EPSI model

- Lower level of industry coverage. In 2012 only 5 sectors among 10 European countries were assessed, compared to more than 40 industries for ACSI.

- The EPSI analysis is only focused on services industry, hence, comparison between customer satisfaction performance between product and service market is not available.

- Customers are different and satisfaction levels differ in all countries between socio-economic groups as well as geographically. On average females and people, living in rural areas - smaller communities – are more satisfied than males and people in large metropolises. Further Satisfaction tends to increase with age (EPSI, 2012).

3.3 NET PROMOTER SCORE: AN ALTERNATIVE CONCEPT OF CUSTOMER SATISFACTION MEASUREMENT

Customers who are satisfied may show greater retention and express more positive word of mouth (PWOM) about the brand, leading to customer acquisition and further sales. Thus, measures of satisfaction and word of mouth (WOM) may predict brand performance.

Reichheld, in collaboration with Bain & Company and Sametrix, (2003) designed the NPS to measure the effect of word of mouth on sales. To establish the NPS, customers specify their probability of recommending a brand / firm on a 10-point scale. Customers that score 9 or 10 are promoters of the brand, while those scoring 0 to 6 are detractors; 7 or 8 scores are passives. The NPS is simply calculated as difference between promoters percentage and detractors percentage.

Exhibit 3.7. The Net Promoter Score
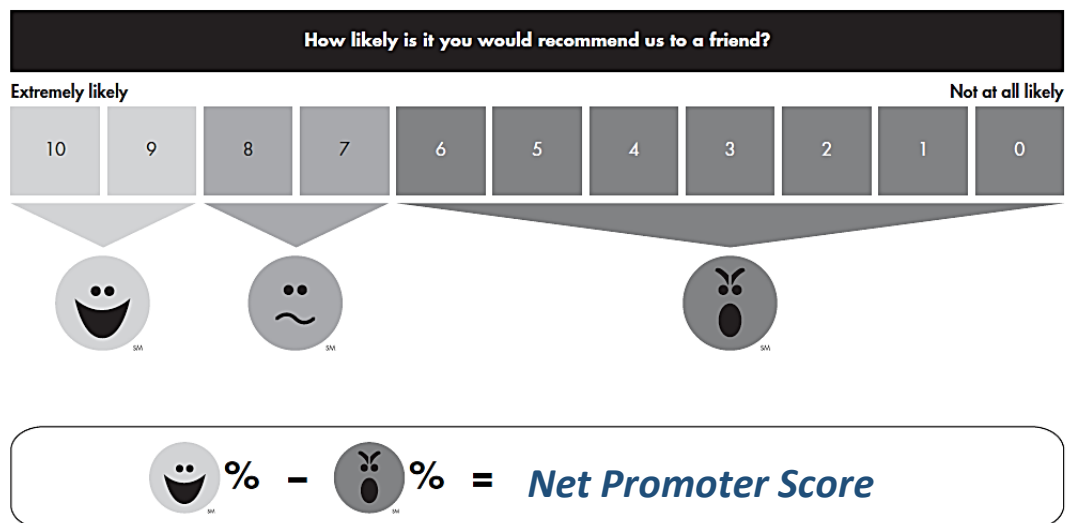
Source Bain & Company, 2014

The NPS is computed from a single easy question, "How likely is it that you would recommend this company to your friend or colleague?" In reality, the implementation of the NPS and the analysis of customer surveys requires a methodical process, involving eight essential elements:

Exhibit 3.8: Net Promoter Score process
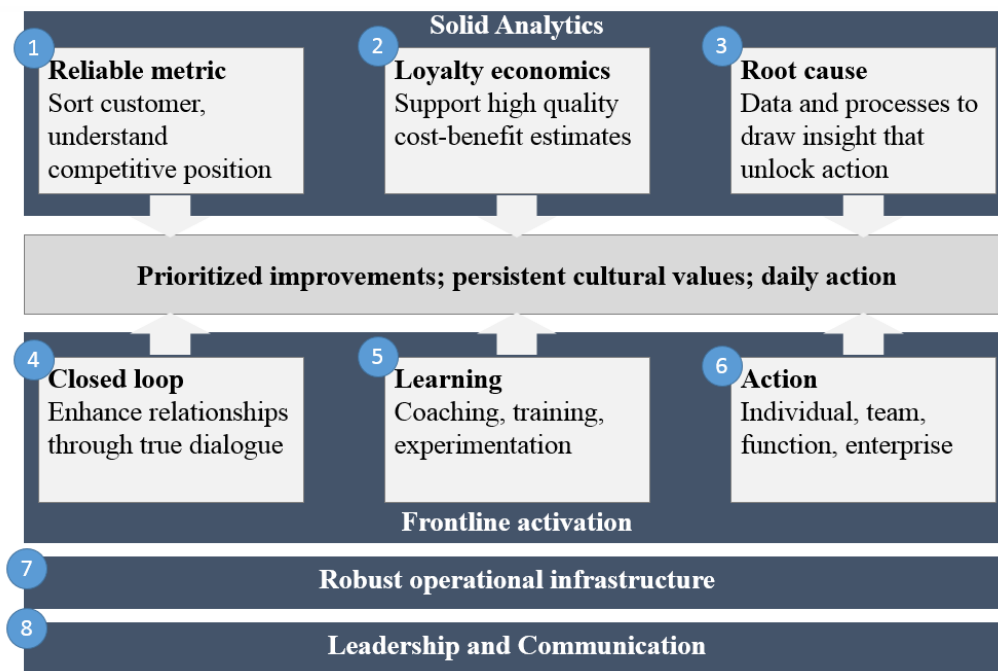
Source Bain & Company, 2014

Exhibit 3.8. summarizes the following process:

1. *Accurate scorekeeping:* It is necessary, first, to develop, test customers' sampling and survey techniques feeling within the organization complete confidence in both the individual customer classifications and the organization's Net Promoter scores;

2. *Loyalty economics:* define the different lifetime value of customers (promoters, passives and detractors) in order to estimate benefits and costs of investing in improving the customer experience;

3. *Root-cause searches:* track down the initial cause of an individual customer's experience (why the customer in this situation, our marketing, our products or our operations have produced the given result?);

4. *Closed-loop procedures:* develop practical and consistent methods for sharing customers' feedback within employees and constantly contacting clients to learn more about their experiences;

5. *Learning.* The organization, as a whole, needs systems for discovering improvement opportunities in products, policies and procedures;

6. *Action.* Create more promoters, solving individual customers' issues, addressing systemic issues and improve products and services;

7. *Robust support systems*: Integrate Net Promoter processes into company's operating and IT systems;

8. *Commitment and communication*: leader must not only commit to the Net Promoter system, but it must clearly communicate to the entire organization the relevance of the system.

The most successful companies work hard on all eight elements, and they try hard to live up to the Golden Rule values that are the system's foundation. But, when you do it right—as Charles Schwab, Rackspace and American Express have discovered—you leave the competition in the dust. (Bain & Company, 2014)

NPS is currently widely recognized as consistent indicator of actual and future performance However, conflicting empirical evidence are reported in recent years.

Reichheld (2003), the NPS developer, demonstrates a link between the NPS and sales in a regression study in the US; Marsden, Samson and Upton (2005) reported similar results in the UK. Keiningham *et al.* (2007), studying three industries, selected by Reichheld, found same performance of ACSI and NPS in predicting sales.

On the other hand, Morgan and Rego (2006) found that NPS was not as effective as other methods, predominantly the ACSI, in forecasting company performance. Pingitore *et al.* (2007) tested several measures as predictors of brand performance, concluding that there were no grounds for preferring the NPS from other customer satisfaction measures.

The traditional prerogative of NPS is that it requires asking only one single question. In effect, making customer surveys' results actionable it is necessary to "why" that result has been obtained. As a result, companies adopting the Net Promoter Score model still develop additional and more complex surveys or interview tools to better understand customer opinion.

Further limit of NPS is that customer satisfaction results are embedded in one single number, not realising how a company gets to that result. There are different ways, for instance, to arrive at and NPS score of 50. It could be that 50% of customers are enthusiasts about the offer (promoters) while the other 50% are generally satisfied but less vocal, falling into the "passive" category. On the other hand, it could be that 75% are promoters customers, but 25% are actually warning friends to stay away (detractors). The NPS hides such vast differences in composition of final score.

Yet another concern comes from grouping answers into only three categories, potentially leading to misinterpretation of customer behaviour. If a customer tells you they are 80% likely to recommend you to a friend, is that customer truly passive? Is a neutral customer (who might respond with a six) really the same as one who is highly dissatisfied and likely to spread negative word of mouth? (Koelemeijer, 2013)

The Customer Satisfaction Indexes described so far in this chapter , national and the NPS are the most used indexes for measuring customer satisfaction and customer loyalty. They are universal methodologies and can be applied to various industries, sectors and on various markets. In conclusion, they permit comparisons of results and benchmarking between industries and companies.

However, specific industries often tailor satisfaction measurement studies to the specifics of the concrete industry or even company. Since the analysis in the next chapter is focused on the automotive industry, it is necessary to introduce industry specific indicators, relevant for the regression study.

3.4 AUTOMOTIVE INDUSTRY SPECIFIC CUSTOMER SATISFACTION INDEXES: J. D. POWER

Within the automotive industry, focus of this study, J.D. Power and Associates is the most important and most referred marketing information organization in measuring customer satisfaction.

J.D. Power, a business unit of McGraw Hill Financial, is a global marketing information services company providing performance improvement, social media and customer satisfaction insights and solutions. The company's quality and satisfaction measurements are based on responses from millions of consumers annually (J. D. Power, 2015).

Since 1968, J.D. Power is a trusted advisor for many companies around the world, relying on deep expertise in the industries and a proven record of successes for driving results.

J.D. Power brings the language of customer satisfaction to consumers and businesses in an increasing number of countries around the world, including Brazil, India, Japan, Taiwan, China, Philippines, Indonesia, Singapore, Thailand, Malaysia, Vietnam, Canada, Mexico, Europe, Australia, Germany, and the UK; the industries assessed are: automotive, energy, financial services, healthcare, insurance, travel and telecom, (J. D. Power, 2015).

3.4.1. J.D. POWER ASIA PACIFIC, CHINA AUTOMOTIVE

Established in 1990 in Japan, J.D. Power Asia Pacific is a subsidiary of J.D. Power and Associates. To respond to increasing client demand in China for the automotive industry, J.D. Power Asia Pacific started to implement independent benchmarking studies in 2000, later establishing a representative office in Shanghai in 2005.

From 2008 five different reports on various aspects of customer satisfaction have been delivered for Chinese automotive industry. Today, J.D. Power China provides 12 different benchmarking reports every year (see Appendix 3). However, this study is focused only on the initial five measurement systems in order to allow a comparative analysis of results obtained for the whole period assessed (2008-2013).

Therefore, the J. D. Power benchmarking studies discussed are:

1. Automotive Performance, Execution and Layout Study (APEAL).

2. Customer Service Index (CSI);

3. Initial Quality Study (IQS):

4. Sales Satisfaction Index (SSI);

5. Vehicle Dependability Study.

1. Automotive Performance, Execution and Layout Study (APEAL).

The APEAL Study provides an industry benchmark for new-vehicle appeal, assessing customer gratification for owning and driving a new vehicle during the first two to six months of ownership. The study evaluates 82 attributes across 10 vehicle performance categories: vehicle exterior; vehicle interior; storage and space; audio/ entertainment/ navigation; seats; HVAC; driving dynamics; engine/ transmission; visibility and driving safety; and fuel economy (J. D. Power, 2013)

The study is built on evaluations from 20.926 owners of new vehicles purchased. The assessment analyses models in 21 vehicle segments and includes 213 different passenger-vehicle models from 65 different brands[1].

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[1] Data refer to 2013 APEAL study and include vehicles purchased between October 2012 and June 2013.

2. Customer Service Index (CSI)

The CSI study evaluates satisfaction of vehicle owners who have owned their vehicle between 12 and 24 months and who visited an authorized dealer's service department for maintenance or repair work during last six months. The 12 to 24 month ownership period typically covers a substantial portion of the vehicle warranty period (J. D. Power, 2013). The study assesses five determinants to define overall satisfaction with dealer service:

Exhibit 3.9. Customer Satisfaction Index's determinants[2]
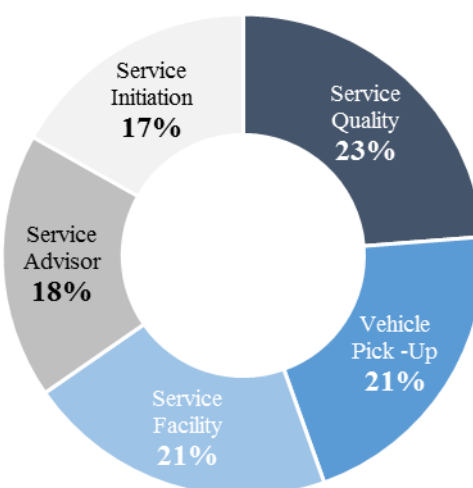
Source: J. D. Power, 2013

China Customer Service Index study is based on face-to-face interviews with 16.928 new-vehicle owners and assesses 67 passenger vehicle brands in 46 mayor Chinese cities[3].

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[2] Percentages may not total 100% due to rounding.
[3] Data refer to 2013 CSI study and include vehicles purchased between February 2011 and May 2012.

3. Initial Quality Study (IQS)

The IQS study, examines problems experienced by new-vehicle owners within the first two to six months of ownership in two distinct categories: design-related problems and malfunctions. Total initial quality score is defined as problems reported per 100 vehicles (PP100). A lower rate of problems experienced indicates higher quality (J.D. Power, 2013).

China Initial Quality study is based on evaluations from 21.181 vehicles purchased, analysing models in 12 vehicle segments and including 213 different passenger-vehicle models from 65 different brands[4].

4. Sales Satisfaction Index

The Sales Satisfaction Index study measures customer satisfaction with the new-vehicle purchase experience, based on following factors:

Exhibit 3.10. Sales Satisfaction Index's determinants
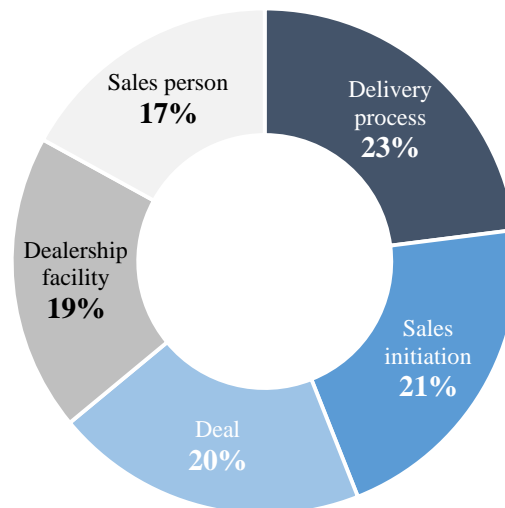
Source: J. D. Power, 2013

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[4] Data refer to 2013 IQS study and include vehicles purchased between October 2012 and June 2013.

China Sales Satisfaction Index study is built on survey responses from 14,462 vehicles in 46 major cities in China[5].

5. Vehicle Dependability Study

The Vehicle Dependability Study examines problems experienced during the past six months by vehicle owners after 25 to 36 months and includes 202 problem symptoms across eight categories: engine and transmission; vehicle exterior; driving experience; features/ controls/ displays; audio/ entertainment/ navigation; seats; heating, ventilation and cooling (HVAC); and vehicle interior (J. D. Power, 2013)

The China Vehicle Dependability Study assessed 17,883 vehicles purchased, covering 161 models from 59 different brands[6].

The indexes reported above will be analysed in details in the next chapter. The regressive analysis will allow to realise if any relation between customer satisfaction indexes and business performance occurs.

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[5] Data refer to 2013 SSI study and include vehicles purchased between July 2012 and February 2013.
[6] Data refer to 2013 VDS study and include vehicles purchased between June 2010 and August 2011.

4. *CUSTOMER SATISFACTION AND BUSINESS GROWTH: EMPIRCAL EVIDENCE FROM THE CHINESE AUTOMOTIVE MARKET*

This chapter will focus on the elaboration of a regressive study between customer satisfaction indexes and market share indicators in the Chinese automotive industry. In particular, the analysis assess the relevance and significance of connection between different customer satisfaction indexes, mentioned in the previous chapter, developed by J.D. Power for the Chinese Automotive industry and market share. The study will try to establish two different connections:

- Static connection between Market Share and Customer Satisfaction;

- Connection between Market share and Customer Satisfaction's growth rate.

The analysis is based on a sample of 10 main players of Chinese automotive market, representing almost 65% of total market, as of 2013. Data collected reflect customer satisfaction and market share results during period 2008-2013[7]. The study is divided in 3 parts:

1. Data description: overview of the Chinese automotive market trends and customer satisfaction results;

2. Introduction of methodology and process of the analysis, discussion of results;

3. Outline of specific case studies (Audi and Toyota cases).

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[7] The analysis does not consider 2014 results, since data for 2014 market share are not available.

Following the pattern described above we will have a clear picture of Chinese trends in business growth and customer satisfaction, in order to evaluate any relation between financial and non financial performance indicators.

4.1. DATA DESCRIPTION

4.1.1. CHINESE AUTOMOTIVE MARKET TRENDS

China has become the world's largest automobile market in 2009 with annual sales of nearly 14 million vehicles (APCO, 2010). Numbers have continued to climb to almost 20 million in 2013, at the exceptional compound annual growth rate (CAGR) of 18,1 percent in least ten years. There is no doubt that Greater China will remain the number one car-buying nation for years to come (Accenture, 2013). Market analysts of IHS Automotive forecast that vehicle sales will still grow through 2020, however, by a lower 8,8 % speed. 31 million passenger cars and light vehicles will be sold in Greater China in 2020:

Exhibit 4.1. Light vehicles sales development

(Millions of units)

Source: Accenture, 2013
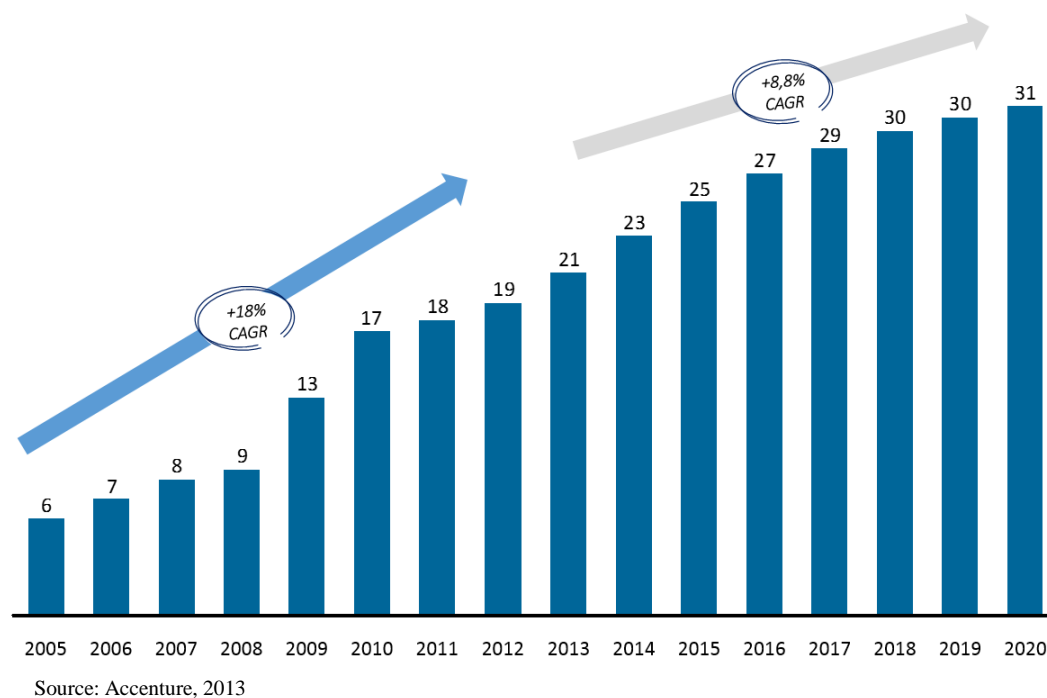
Primarily powered by domestic demand, China's rapidly expanding automotive industry has outpaced the nation's already impressive GDP growth rate. Rising incomes and Chinese

government policies' improvements in obtaining drivers licenses have spurred the demand for passenger vehicles (APCO, 2010). Unlike developed market, where automotive demand has been largely stagnant, China's domestic sales for new automobiles has risen steeply in the past and same trend is expected in the future. By comparison, Europe, second largest market, will report auto sales of only 23 million.1 in 2020, compared to 31 Million of units sold in the Chinese market (Accenture, 2013). It is not surprising that main automotive players from around the world are placing China at the centre of their long-term growth strategies. The ownership rate of 5% in 2014 is a solid indication that China's domestic market is far from being saturated and offers all auto makers very attractive prospects for long-term growth of around +8% to +10% per year (Euler Hermes, 2014).

Market structure

Passenger vehicle (PV) market is defined by the China Association of Automobiles Manufactures (CAAM) to include sedans, sport utility vehicles (SUVs) and multi-purpose vehicles (MPVs). Market trends by segment are shown below:

Exhibit 4.2. Chinese automotive market structure
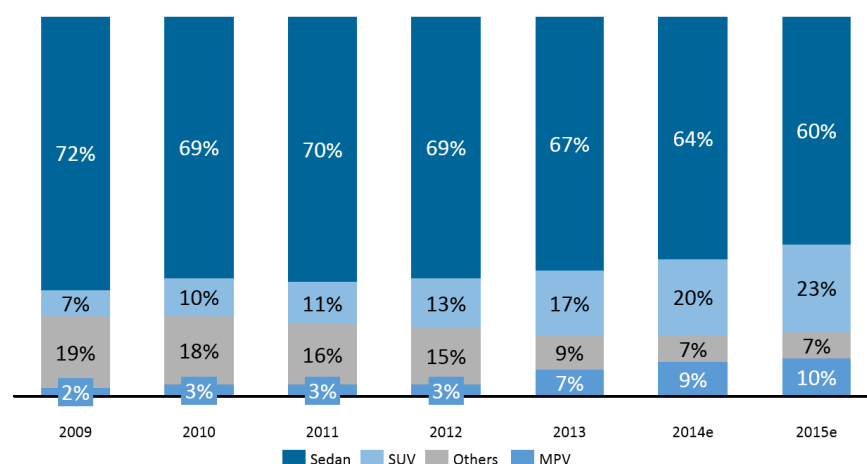
Source: Nomura, 2014

Strong dominance of sedan vehicles is evident from Exhibit 4.2 However, Multi-Purpose vehicles and Sport Utility Vehicles are growing faster, showing Chinese customer tastes changing overtime. As for whole year 2014, while growth rates of production and sales of sedan cars both remained at 3,1%, production and sales of SUV were up to 37,7% and 36,4%, while figures for MPV were even up to 49.4% and 46.8% (CAAM, 2015). Sales in the SUV segment increased almost 50% for locally produced models in China in the first quarter. Automakers are ramping up product offerings in the SUV segment in China, aiming to gain market share and growth (IHS, 2015).

Market players

Western automotive manufacturers dominate the Chinese market. Market shares of Chinese brands, which still lack brand power, have been declining steadily. Even though the CAAM lists more than 80 private and state-owned Chinese automotive makers, Chinese market is still controlled by foreign automakers:

Exhibit 4.3. 2013 Market share breakdown (by country, by OEM)
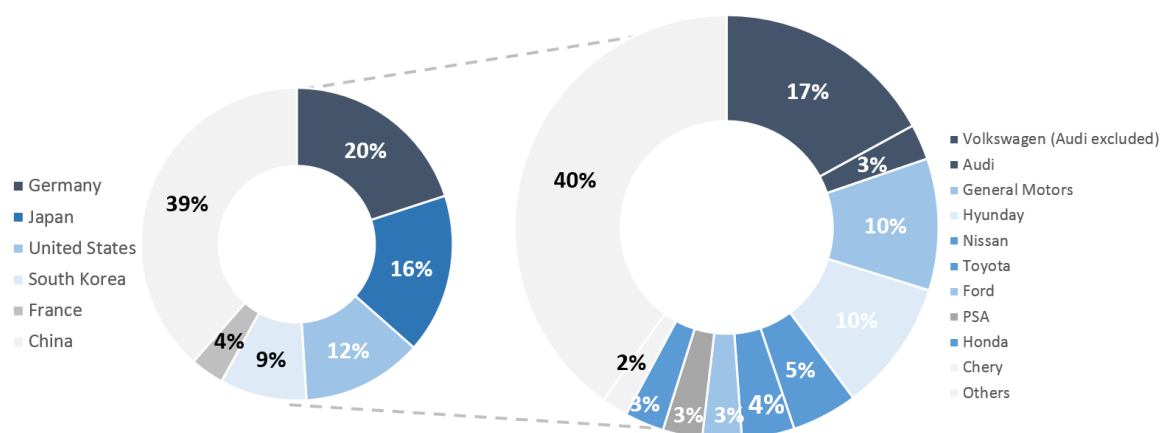
Source: Euler Hermes, Volkswagen, 2014

German, Japanese and American Original Equipment Manufacturers (OEMs) play a principal role currently in China (see Appendix 4 for details in market share by segment). In particular:

- *Volkswagen Group* is market leader with more than 3,3 million vehicles, including imports, sold in 2013, resulting in 20% market share. The presence of Volkswagen Group in the Chinese passenger car comprises over 60 models from Volkswagen, Audi, Skoda, Seat, Lamborghini, Bentley, Porsche and Bugatti brands[8] (Volkswagen, 2014).

- *General Motors* and its eleven joint ventures hit 3 million sales[9] in 2013 GM and its joint ventures offer more than 40 different models under seven brands in China. Their products range from mini-cars to luxury sedans and from mini-commercial vehicles to light-duty trucks. Buick and Cadillac passenger cars show relevant sales increase from 2012, reaching respectively 800.000 and 57.541 units.

- *Hyundai Motors* and affiliate Kia Motors reached respectively 970.000 and 500.000 vehicles sold in 2013, with a growth rate from 2012 of 13% and 4% (Bloomberg, 2014). The two carmakers sold a combined 1.47 million units, becoming the third biggest seller in China, behind Volkswagen and General Motors.

- Residual 50% of market share is divided between few foreign OEMs (Ford, Honda, PSA Peugeot Citroen) and several local firms.

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[8] 93% of total sales come only from Volkswagen and Audi branded vehicles' deliveries.
[9] Data on GM sales do not match Figure 4.3 market share since does not include Chinese branded vehicles sales (e.g. Baojun, Jiefang and Wuling).

Market share evolution

In order to implement regressive studies, focus of this chapter, it is necessary to evaluate market share progression in recent years. Exhibit 4.4 shows trends in market share during 2018-2013 period:

Exhibit 4.4. Market share trends
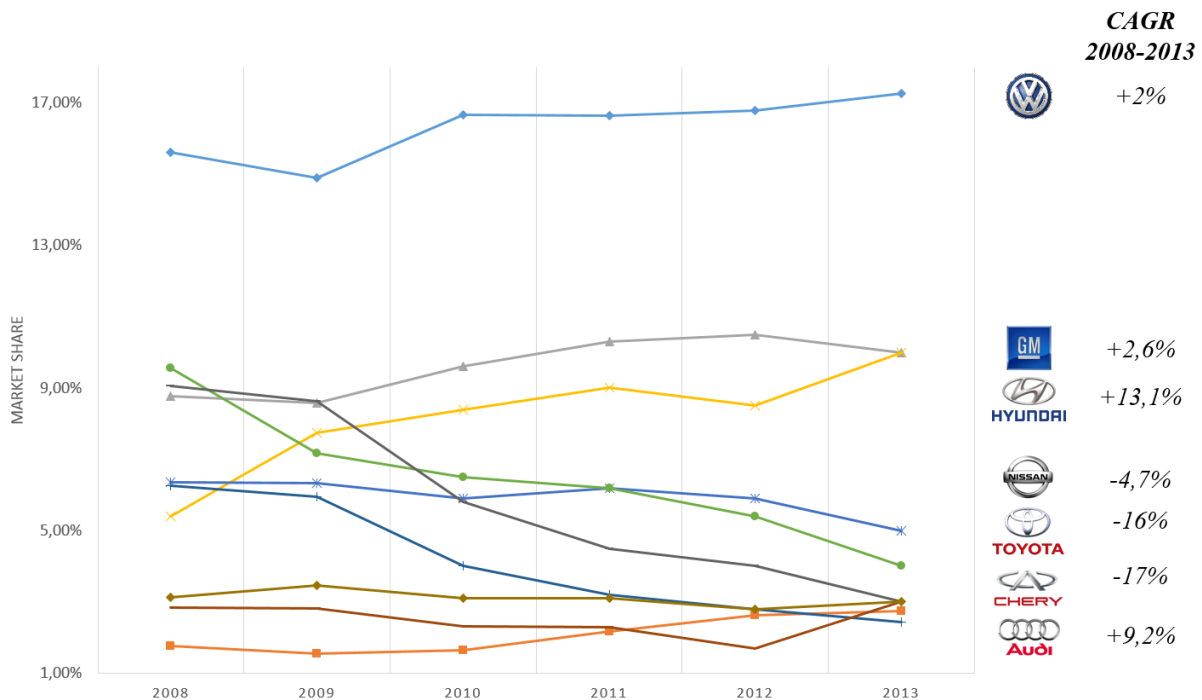
Source: Volkswagen, 2014

Market share trends provide a dynamic picture of the Chinese automotive industry. It is possible to identify three relevant tendencies:

- *Disruptive players:* Hyundai and Audi show highest growth rate in market share from 2008 (Compound Annual Growth Rate of 13,1% and 9,2% respectively). In particular, Audi became top seller of premium cars delivering in 2013 almost 500.000 vehicle. Analyses forecast its deliveries in the world's largest auto market will increase by a "double-digit" percentage in next years (Bloomberg, 2014)

- *Stable players:* GM and Volkswagen, excluding Audi branded vehicles, reached 2% growth yearly during 2008-2015 period.

- *Shrinking* players: Japanese OEMs faced a strong loss of market share in recent years. Despite the depreciating yen that foster Japanese cars imports, Toyota and other Japanese automakers were hurt by political and social tensions flared in the recent years (International Business Times, 2013).

It is important to highlight that, due to a double-digit growth of the overall automotive market, negative changes in market share do not consequently reflect in decrease of vehicles' deliveries. However, the evaluation of market share trends provides a dynamic and progressive perspective of business performance.

Market share and market share growth results will be later used in a regressive model together with customer satisfaction indicators.

Future trends

China's automotive sector grew at a compound average rate of 18% between 2005 and 2011, exceeding the U.S. market volume in 2009. According to McKinsey (2013), growth will slow in next years to 8%, reaching 30 million of vehicles sold in 2020.

As the market matures, customer are growing more sophisticated and their tastes are evolving, highlighting differences in expectations and perceptions in geographical and customer segments. To succeed in such volatile context, automaker need to realize what customer want and how their expectancies differ from segment to segment.

Trends that will shape Chinese auto market in next 10 years are presented below:

- **Going bigger**

Customers will increasingly buy bigger vehicles. Sales volume of Sport Utility Vehicles are expected to growth at 13% CAGR until 2020. According to McKinsey (2013), number of SUV deliveries will triple in 2020 from 2011 levels. SUV sales progression will arise from wealthy customers that need to satisfy their driving needs and their need to show off their personal tastes and lifestyles.

Exhibit 4.5. Body type mix comparison
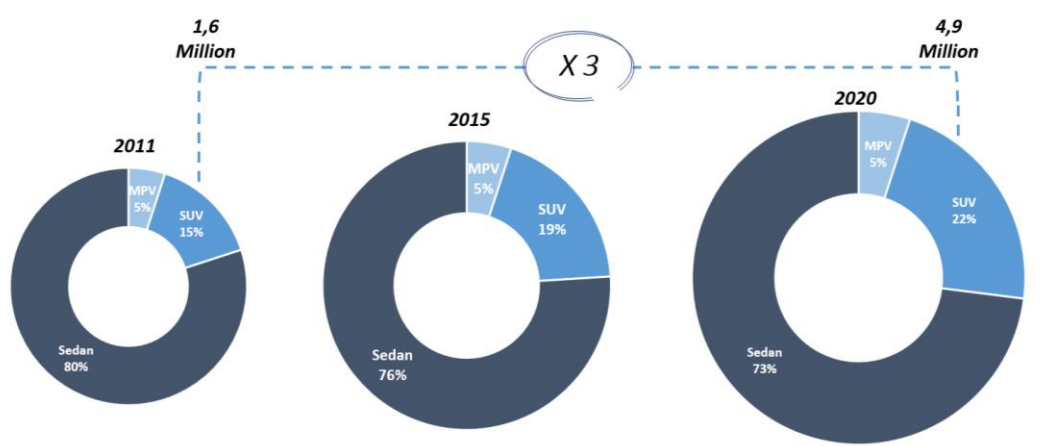
Source: McKinsey, 2013

Despite forecasted high growth, market share of SUVs in 2020 (20%) will still be low in comparison with mature markets' structure. Sedans vehicles will maintain 70% of market by 2020. Within the sedan segment, preferences for bigger cars will rise, increasing sales volume for E and F models and squeezing compact sedan models' market share.

However, according to McKinsey (2013), although "going bigger" is clearly a trend, there are still strong sales opportunities in the small car segment, especially as a new

urban lifestyle emerges. Small car segment (Segment A) will reach 8% of market share in 2020, from 2% of sales volume of 2011.

- **Going premium**

Forecasts suggest that Chinese customers will be more disposed to buy high priced cars by 2020. Currently, vehicles with a price range between 80.000 RMB and 150.000 RMB is the dominant price segment, with almost 40% share of total vehicles sold in 2011.

Exhibit 4.6. Price segment share in China
Million units, RMB, percentage

100% =	4	11	16	21	Segment	06-11 CAGR Percent	11-15 CAGR Percent	15-20 CAGR Percent
				25	<80K	16%	7%	3%
	45	33	29					
				42	80-150K	29%	13%	7%
	30	37	41					
					150-250K	25%	10%	8%
	18	19	19	20	250-400K	31%	11%	9%
		6	6	7	400-600K	49%	12%	9%
	4	2	3	3	>600K	42%	12%	10%
	1	3	3	3				
	2006	2011	2015	2020				
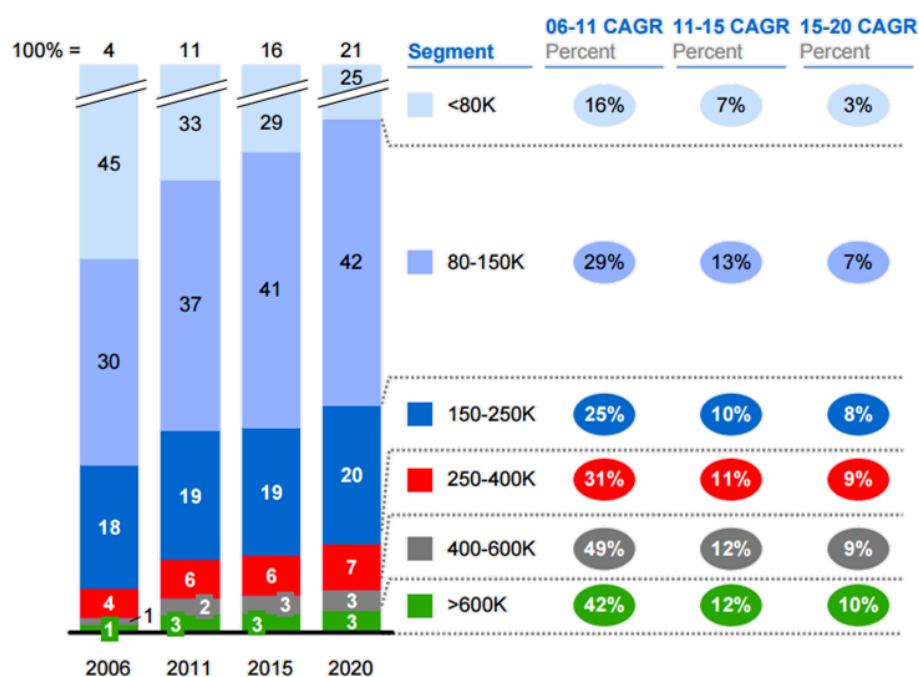
Source: McKinsey, 2013

Dominant price segment (80.000 RMB-150.000 RMB) will continue to be the most relevant segment by 2020. However, as Exhibit 4.6 shows, high priced cars' share (vehicles priced more than 150.000 RMB) is expected to grow at higher growth rates reaching 33% of market by 2020.

Drivers of such increasing trend in buying expensive cars are not only the increasing disposable income of Chinese customers, but also the aggressive marketing and sales activities of premium brands.

- **Going to lower tier cities**

With car purchase restrictions most implemented in Tier-1 cities[10], automakers are likely to focus their marketing efforts on lower-tier cities that are enjoying faster growth in disposable income levels and costumer affordability. BMW, for instance, opened in 2013 60% of its new 4S shops in Tier-4 and -5 cities. Exhibit 4.7 links disposable income trends in Chinese cities and the average car price during 2001-2014 (forecasted) period:

Exhibit 4.7. China auto sales growth and disposable income
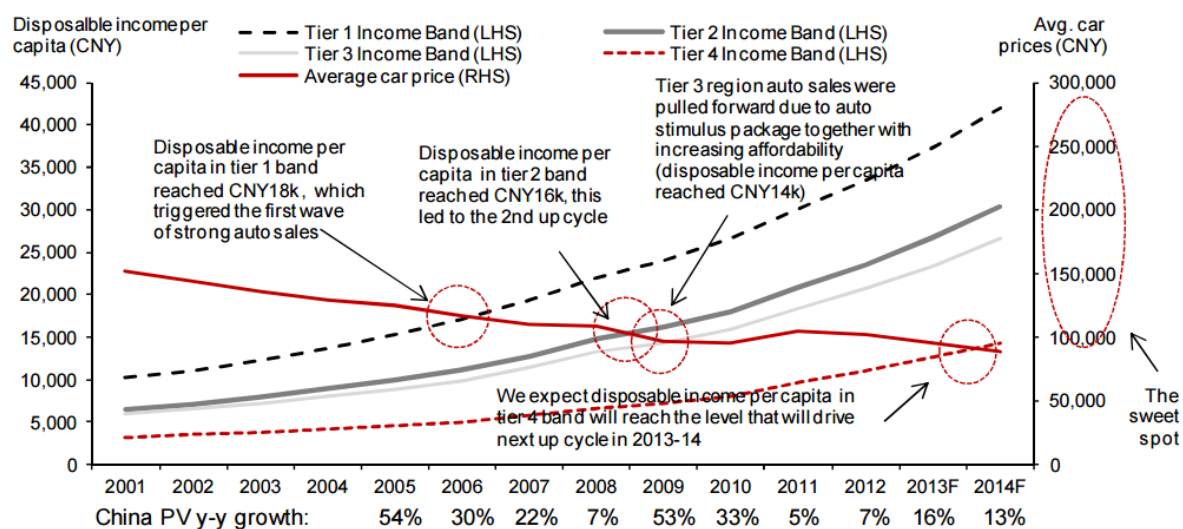
Source: Nomura, 2014

Rising affordability in lower-tier markets is indeed an increasingly critical growth driver for the automotive market. China's auto industry has seen typically a boom of

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[10] City tiers are defined by 2010 nominal urban GDP: Tier 1 > 932 billion RMB, Tier 2 > 120 billion RMB, Tier 3 > 22 billion RMB and Tier 4 < 22 billion RMBV

sales in specific cities when rising incomes intersect car prices (Nomura, 2014). The auto market experienced matches in 2006, 2008 and 2011, corresponding respectively in the affordability threshold of inhabitants of Tier-1, Tier-2 and Tier-3 cities. According to Nomura, a fourth boom has burst around the middle of 2013, continuing in 2014, when the income band of Tier-4 markets matches the threshold.

The shift in focusing on lower tier cities is expected to continue in following years, as cars penetration rate is far behind levels of car ownership per inhabitant of high Tier cities:

Exhibit 4.8. Car penetration rate and Tier city segment share
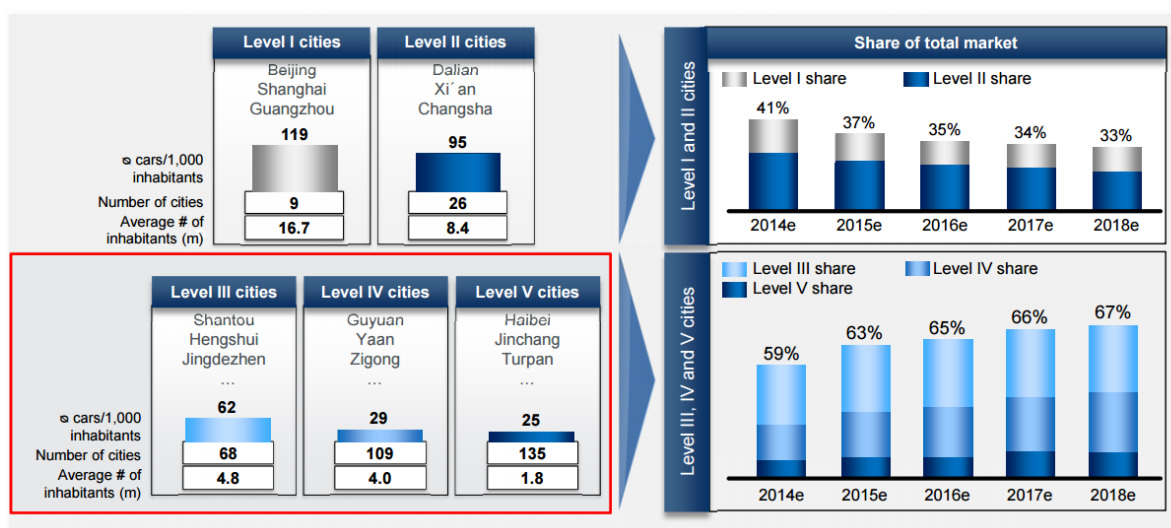
Source: Volkswagen, 2014

Volkswagen estimates show minor penetration rates of low tier cities (LHS graph) compared to high tier cities, resulting in strong opportunities to market growth. Forecasts suggest increasing share of Tier-3, Tier-4, and Tier-5 cities on total market, reaching 67% of deliveries in 2018.

4.1.2. CHINESE AUTOMOTIVE CUSTOMER SATISFACTION RESULTS

This section releases 2013 customer satisfaction results for J. D. Power indexes discussed in the previous chapter. Data provided will take into account 2013 values of customer satisfaction and Compound Annual Growth Rate for 2008-2013 period. Information collected will be used in next paragraph for regressive analyses with market share and market share growth.

Automotive Performance, Execution and Layout 2013 results

As discussed in Chapter 3, APEAL study examines satisfaction in owning and driving new vehicles during first two to six months. Customer satisfaction is measured on a 1.000-points scale. 2013 results and 2008-2015 CAGR are provided in Exhibit 4.9:

Exhibit 4.9. 2013 and 2008-2013 CAGR APEAL results[11]

		CAGR 2008-2013
Volkswagen	839	-0,1%
Audi	848	+0,9%
GM	845	+0,4%
Hyundai	840	+0,5%
Nissan	785	-0,1%
Toyota	822	-0,3%
Chery	780	+0,9%
Ford	790	-0,3%
Honda	815	0%
PSA	805	-0,9%
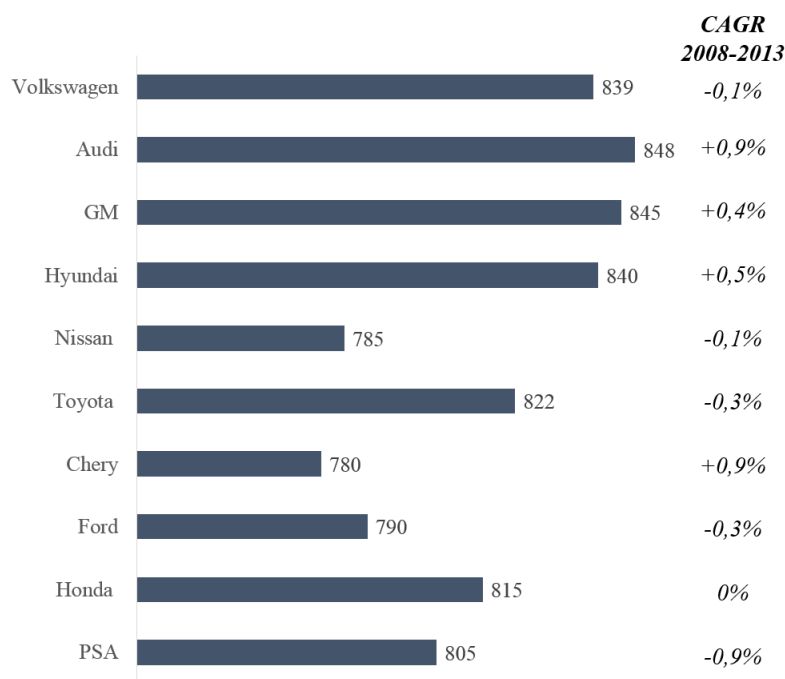
Source: J. D. Power, 2013

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[11] Customer satisfaction results reported for GM refer to Buick, Cadillac and Chevrolet branded vehicles, for PSA refer to Citroen and Peugeot branded vehicles

The average APEAL score reached 804 points in 2013, decreasing by 18 points from 2012. Such drop is attributed to customers that are becoming more discerning, given an ever-increasing range of new vehicles from which to choose (J.D. Power 2013).

Indeed, with more than 500 passenger vehicle models in the market, competition increases and customers become more critics about vehicles attributes and performance. According to Dr. Mei Songlin, vice president and managing director of J.D. Power China. "Data shows that new-vehicle shoppers consider 2.62 brands, on average, before making their purchase decision, compared to 2.48 in 2012. Such comparisons have resulted in customers becoming more critical when rating their experience with their vehicle."

Main market players (Volkswagen, including Audi branded vehicles, GM, and Hyundai) show highest APEAL scores in 2013 and no radical changes in satisfaction rankings from 2008 outcomes are recorded.

Customer Service Index 2013 results

CSI analysis evaluates customer satisfaction in after sales services, between 12 and 24 months from car purchase. Customer satisfaction is measured on a 1.000-points scale.

Overall customer satisfaction for after-sales services decreased to 815 in 2013 from 832 in 2012, due to a decline in satisfaction with domestic brands and Japanese and European brands, while Korean OEMs have made minor improvements. According to Tony Zhou, director of automotive research at J.D. Power China, Shanghai "The competitive landscape continues to be aggressive, driven by product proliferation and rising customer expectations, making it imperative for manufacturers and dealerships to develop points of differentiation on delivering a superior customer experience in after-sales services". 2013 results and 2008-2015 CAGR are provided in Exhibit 4.10:

Exhibit 4.10. 2013 and 2008-2013 CAGR CSI results

CAGR 2008-2013

Brand	Score	CAGR 2008-2013
Volkswagen	838	+0,4%
Audi	880	+0,7%
GM	859	+0,8%
Hyundai	877	+1,4%
Nissan	865	+0,7%
Toyota	829	-0,2%
Chery	831	+0,3%
Ford	830	+0,2%
Honda	881	+1,5%
PSA	879	+0,9%
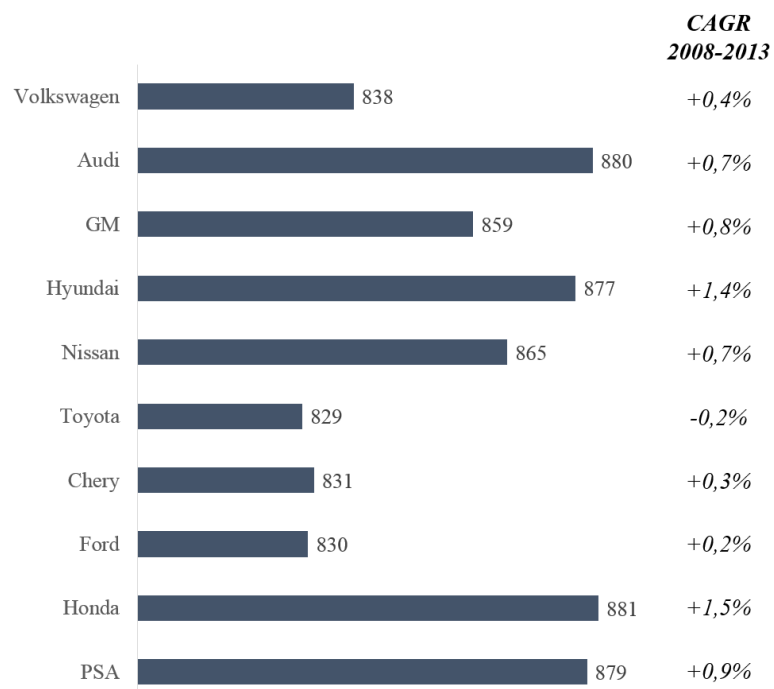
Source: J. D. Power, 2013

Initial Quality Study 2013 results

The IQS study analyses problem experience of new vehicles in first two to six months. The initial quality score is determined by problems reported per 100 vehicles (PP100).

Overall IQS averages 119 PP100 in 2013, the lowest number of problems since the start of the study in 2000. Initial quality average of domestic brands improves to 155 PP100 in 2013, a significant decrease of 57 problems experienced for 100 vehicles from 2012 levels. Foreign brands also improves year over year, from 117 PP100 in 2012 to 104 PP100 in 2013. The gap in quality scores between domestic brands and international brands has narrowed by 44 PP100 with respect of 2012 gap. 2013 results and 2008-2015 CAGR are presented in Exhibit 4.11:

Exhibit 4.11. 2013 and 2008-2013 CAGR IQS results
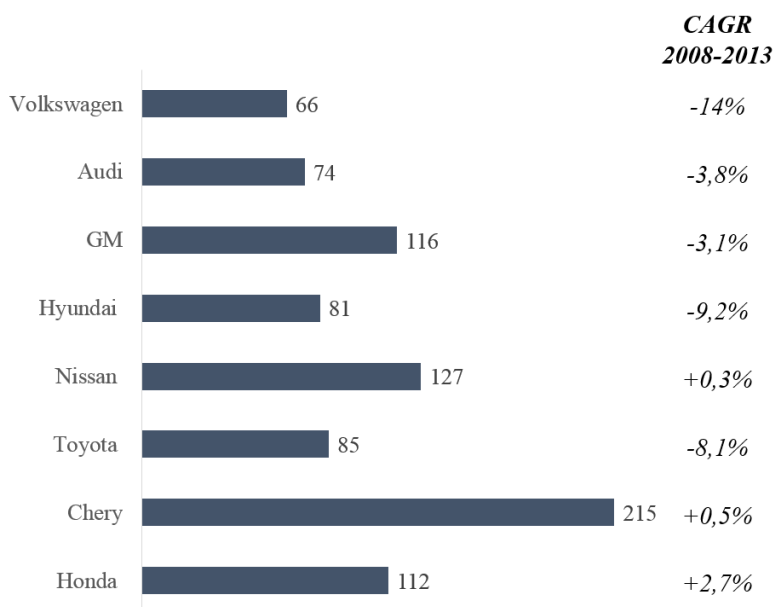
Source: J. D. Power, 2013

Sales Satisfaction Index 2013 results[12]

Sales Satisfaction Index study evaluates customer satisfaction during the sale process. Customer satisfaction is measured on a 1.000-points scale. Overall satisfaction is 649 points (on a 1,000-point scale) in 2013. Among all OEMs, Korean automakers achieve the highest satisfaction score. European and Japanese brands trail with 671 and 669 points, respectively. U.S. brands follow with an average of 638 points. Chinese domestic brands are far behind with an average score of 599. The gap in SSI satisfaction scores between foreign and domestic OEMs has increased to 70 points in 2013. 2013 results and 2008-2015 CAGR are presented in Exhibit 4.12:

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[12] Due to study redesign in 2013, SSI results are not comparable with previous years' outcomes. Values provided in Exhibit 4.12. have been normalized on 2008-2012 results

Exhibit 4.12. 2013 and 2008-2013 CAGR SSI results

		CAGR 2008-2013
Volkswagen	812	*0%*
Audi	871	*+0,6%*
GM	798	*-0,8%*
Hyundai	865	*+1,1%*
Nissan	882	*+1,1%*
Toyota	816	*-0,8%*
Chery	663	*-3,7%*
Honda	817	*-0,4%*
PSA	853	*+0,5%*
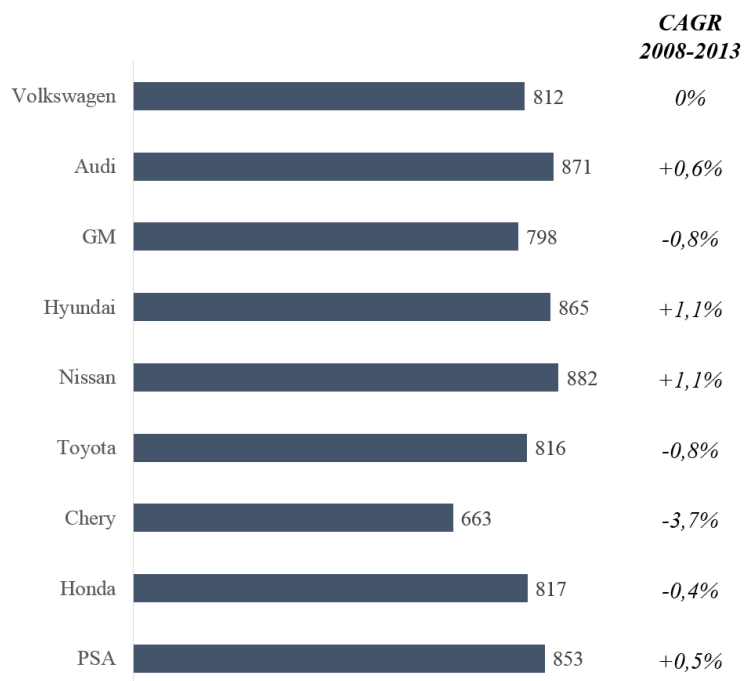
Source: J. D. Power, 2013

Vehicle Dependability Study 2013 results

Vehicle Dependability study examines long-term reliability of vehicles. The VDS score is determined by problems reported per 100 vehicles (PP100) between 25 and 36 months of vehicles ownership.

Overall vehicle dependability in 2013 averages 201 PP100, a small increase from 196 PP100 in 2012. Audi ranks highest with 117 PP100 in 2013, followed by Volkswagen branded vehicles and Hyundai. Chinese automakers' average VDS has improved from 2012 score, filling slightly the gap with foreign OEMs. 2013 results and 2008-2015 CAGR are presented in Exhibit 4.13:

Exhibit 4.12. 2013 and 2008-2013 CAGR VDS results
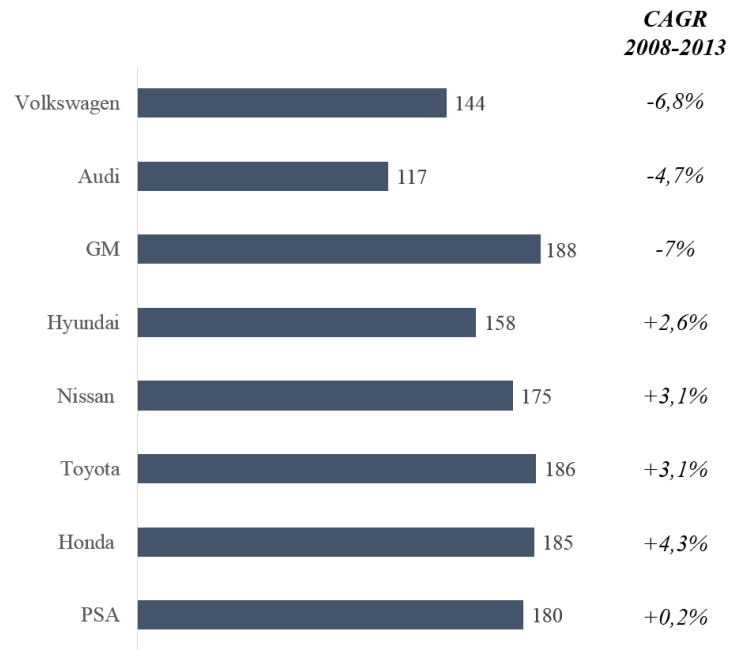
Source: J. D. Power, 2013

4.2. CUSTOMER SATISFACTION AND MARKET SHARE REGRESSIVE ANALYSIS

4.2.1. HYPOTHESES DEFINITION

Goal of this study is to evaluate any relation between customer satisfaction and business performance. In particular, following hypotheses are tested:

- H_1: Customer satisfaction has a positive influence on market share *(point in time correlation).* Customer satisfaction and market share are analysed in 2013 absolute values. The analysis is performed taking into account 2013 market share of 10 main players of Chinese automotive market (65% market coverage) and 2013 results for J.D. Power customer satisfaction indexes (APEAL, CSI, IQS, SSI, VDS). Hypothesis 1 states that high (low) customer satisfaction in a specific year results in high (low) market share in same year.

- H_2: Customer satisfaction growth rate has a positive impact on market share *(predictive correlation).* In this case, the regression analysis is performed between customer satisfaction 2008-2013 CAGR and 2013 absolute value of market share. Hypothesis 2 outlines the connection between growth rate of customer satisfaction in previous years (2008-2013), and market share at the end of the period considered (2013). In case of positive and significant results, the analysis can argue the predictive quality of customer satisfaction over market share.

- H_3: Customer satisfaction growth rate shows positive correlation and equivalent trend of market share growth *(parallel correlation).* The analysis is implemented taking into account 2008-2013 CAGR of both customer satisfaction and market share in order to understand if satisfaction growth impacts simultaneously on market share growth.

Exhibit 4.13. Hypotheses summary of customer satisfaction and market share correlation
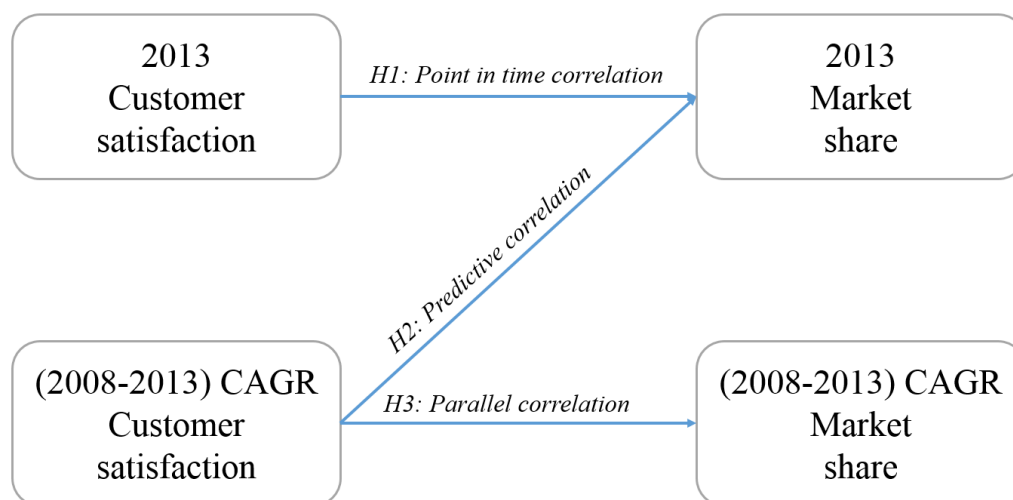
4.2.2. STATISTICAL TOOL INTRODUCTION

Simple linear Regression models are used to test the hypotheses mentioned above. Regression analysis generates an equation to describe the statistical relationship between one or more predictor variables and the response variable. In a simple linear regression model, the variable of interest, in this case market share or market share growth, is predicted by another variable (custome satisfaction or satisfaction growth) using a linear equation (Nau, 2014).

Three statistics are observed to evaluate the significance of regression between the indicators:

1. *Pearson Product Moment Correlation* shows the linear relationship between two sets of data ranging from -1 to +1. A value of +1 is the result of a perfect positive relationship between two or more variables. Conversely, a value of -1 represents a perfect negative relationship. Pearson correlation measure does not guarantee the significance of correlation between two data series. However, it estimates what kind of relationship occurs between two variables.

- *R-squared* is defined as deviation of the actual values of the dependent variable from the regression line. R-squared statistic is a measure of the extent to which the total variation of the dependent variable is explained by the regression (Jackman, 2011). R-squared takes value from 0 to 1. A high value of R-squared (higher than 0,5) suggests that the regression model explains the variation in the dependent variable well, evaluating the goodness of the regression line (the Least squares line) and the fit within data observed. R-squared statistic alone is not sufficient to assess the significance of relation between two variables. The strength of relationship can be, instead assessed, by p-value statistic.

- *P-value,* defined as the probability of finding the observed results when the null hypothesis is accepted (Gelman, 2013). Having established a significance level, p-value indicates if the null hypothesis (hypothesis of non-correlation between two variables) is true. When a p-value is less than or equal to the significance level[13], you reject the null hypothesis, hence, reject the hypothesis of non-correlation between two variables. P-value lower than 0.05 shows strong significance in correlation between the variables studied.

4.2.3. REGRESSION RESULTS

Summary of regression results are presented below (see Appendix 6 for details):

Table 4.1. Regression results[14]

H₁: Customer satisfaction has a positive influence on market share *(point in time correlation).*

	2013 value				
	APEAL	CSI	IQS	SSI	VDS
2013 Market share	✗	✗	✗	✗	✗

H₂: Customer satisfaction growth rate has a positive impact on market share *(predictive correlation).*

	2008-2013 CAGR				
	APEAL	CSI	IQS	SSI	VDS
2013 Market share	✗	✗	✓	✗	✓

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[13] Typically, values of significance levels are 0,1, 0,05, 0,01.Regression significance increases as p-value is less or equal than lower significance levels.

14 Regression defined strongly significant (✓) if p-value is lower than 0,05. Modest significance in case of p-value lower than 0,1.

H₃: Customer satisfaction growth rate shows positive correlation and equivalent trend of market share growth *(parallel correlation)*.

	2008-2013 CAGR				
	APEAL	CSI	IQS	SSI	VDS
2008-2013 CAGR Market share	✗	✗	✓	✓	✓

1. *Hypothesis 1*; There is no statistical proof of correlation between market share and customer satisfaction in a specific point in time. Contradictory to popular thought, market leaders' customers do not show higher customer satisfaction. Previous research confirm these results, believing that larger companies are not able to satisfy a large customer base with their differing needs and requirements, which therefore results in dissatisfied customers (Rego *et al.*, 2013).

2. *Hypothesis 2;* Statistical significance is observed for correlation between market share and CAGR of two customer satisfaction indicators. In particular:

   - 2008-2013 CAGR of Initial Quality Study and 2013 Market share regression provide significant results. Pearson correlation shows a negative connection of -0,68 between the two variables. Therefore, 1% increase in IQS CAGR (measure of problems experienced in the short term) is reflected in 0,68% loss of market share at the end of the period. The regression line fits well the data series with a R-squared of 0,54, while statistical significance is proved by a p-value lower than 0,05.

   - 2008-2013 CAGR of Vehicle Dependability Study and 2013 Market share regression show significance. Pearson correlation indicates a negative

connection of -0,76 between the two variables. Therefore, 1% increase in VDS CAGR (measure of problems experienced in the long term) is reflected in 0,76% loss of market share at the end of the period. Despite the R-squared lower than 0,5, modest statistical significance is proved by a p-value equal to 0,06 (significant at 0,1 level of significance).

3. *Hypothesis 3;* Statistical significance is observed for correlation between market share CAGR and CAGR of three customer satisfaction indicators. In particular:

- 2008-2013 CAGR of Initial Quality Study and 2008-2013 CAGR of Market share regression provide significant results. Pearson correlation shows a negative connection of -1,32 between the two variables, meaning that 1% increase in IQS CAGR is reflected in 1,32% loss of market share growth rate over the same period. Even though the regression line fits weakly the data series (R-squared lower than 0,5), p-value of 0,08 proves modest significance of the regression (significant at 0,1 level of significance).

- 2008-2013 CAGR of Sales Satisfaction Index and 2008-2013 CAGR of Market share regression deliver significant results. Pearson correlation shows a positive connection of +5,036 between the two variables. A 1% increase in SSI CAGR is reflected in 5% increase of market share growth rate in the same period. Even though the regression line fits weakly the data series (R-squared lower than 0,5), p-value of 0,06 proves modest significance of the regression (significant at 0,1 level of significance).

- 2008-2013 CAGR of Vehicle Dependability Study and 2008-2013 CAGR of Market share regression provide significant results. Pearson correlation shows a negative connection of -1,87 between the two variables, meaning that 1% increase in IQS CAGR is reflected in 1,87% loss of market share growth rate over 5 years' period. The regression line fits well the data series (R-squared equal to 0,57) and p-value of 0,03 proves strong significance of the regression (significant at 0,05 level of significance).

In conclusion, it is possible to state following arguments:

- No connection between current indicators has been found (point in time correlation), providing similar results to previous research. For this reason, the study has shifted its focus on growth rate indicators in order to capture the improvements in terms of market share and customer satisfaction of main players of the Chinese automotive market.

- Relevant outcomes emerge from growth of customer satisfaction and final market share regression. Specifically, the correlation is strong, when analysing IQS and VDS, measures of reliability of vehicles delivered. No connection, instead, has been found for customer satisfaction indicators evaluating pre and post-sale services (CSI and SSI) and first impressions of vehicles purchased (APEAL).

- Finally, significant correlation is achieved when analysing customer satisfaction and market share trends in last 5 years. Still, significance in regression comes from indicators measuring reliability and problems experienced after vehicles purchase. However, in this case a strong relation takes place even when evaluating Sale

Satisfaction index, hence, when measuring the impact of pre-sale service on market share growth. A possible reason of such difference from results in hypothesis 2 might be the short-term effect of quality of pre-sale service and sale process on customer satisfaction. This particular part of the overall customer satisfaction journey is reflected instantaneously on market share growth, but does not affect results in final market share.

4.3. CASE STUDIES OUTLINE

This section presents two opposite case studies: the success of Audi in China and its correlation with customer satisfaction, and the strong decrease of market presence of Toyota in the Chinese market.

The goal is not to perform a comparative analysis of Audi and Toyota customer satisfaction and market results, since the different customer base and brand positioning. Rather, Audi and Toyota case studies can support in defining the relation between market share and customer satisfaction in positive cases (Audi) and negative ones (Toyota).

4.3.1. AUDI SUCCESS IN CHINA

Audi is a manufacturer of exquisite cars, attractive, sophisticated and technically perfect. Success stems from creativity, commitment and enthusiasm. The wishes and emotions of our customers are the guiding principle behind our approach (Audi, 2015).

The 100% AUDI AG owned China subsidiary was established in 2009 with its headquarter being located in Beijing. Audi, the largest earning contributor to Volkswagen China, reached almost half million vehicles delivered in 2013, growing at 9% annual growth rate from 2008 levels. Audi range of products for Chinese market comprises 36 different models in 2014,

from only 8 models in 2009. Market share for premium and luxury segments varies from 30 to 40% in each sub-segment (see details in Appendix 4). Market share on total Chinese market reached almost 3% in 2013:

Exhibit 4.14. Audi Sales, market share and customer satisfaction results
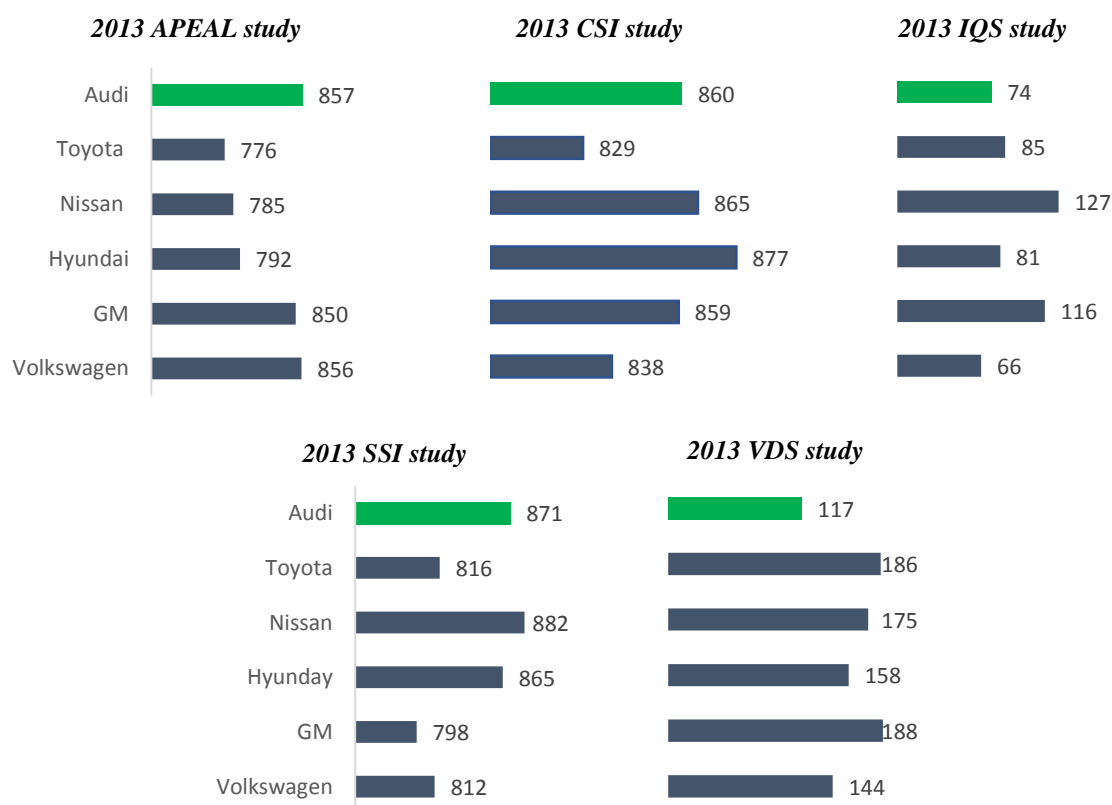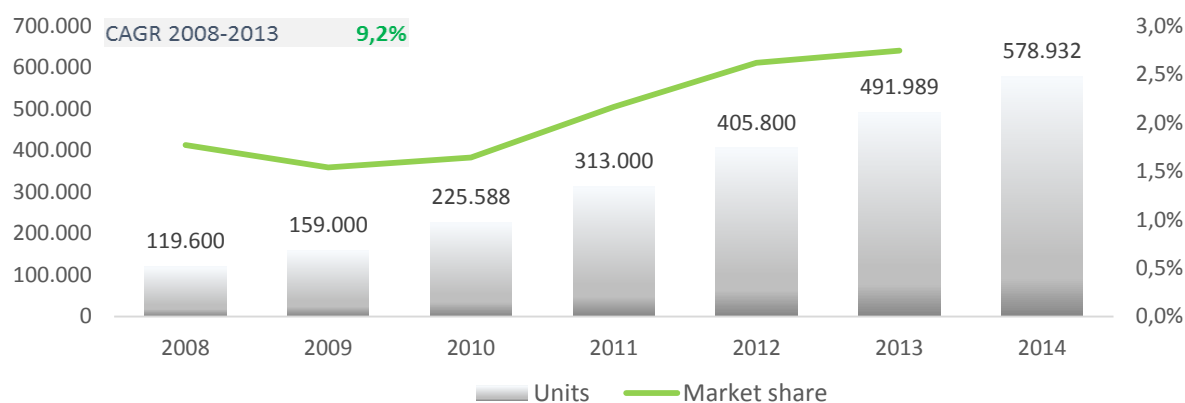
Source: Audi, J.D. Power, 2014

Overall satisfaction for Audi customers follows same patterns of the business performance achieved in the last 5 years. From Exhibit 4.14, it is easy to understand how Audi has successfully delivered a differentiated product and service, in terms of pre and post sales processes, and in terms of reliability.

Regression analysis shows Audi market share related to Vehicle Dependability Index and Sales Satisfaction Index. No relation is observed for IQS, CSI and APEAL indicators.

Exhibit 4.15. Audi regression results

SSI Index- Market share correlation (2008-2013)

$y = 0,0002x - 0,1318$
$R^2 = 0,4866$

VDS Index- Market share correlation (2008-2013)

$y = -0,0003x + 0,0563$
$R^2 = 0,6317$
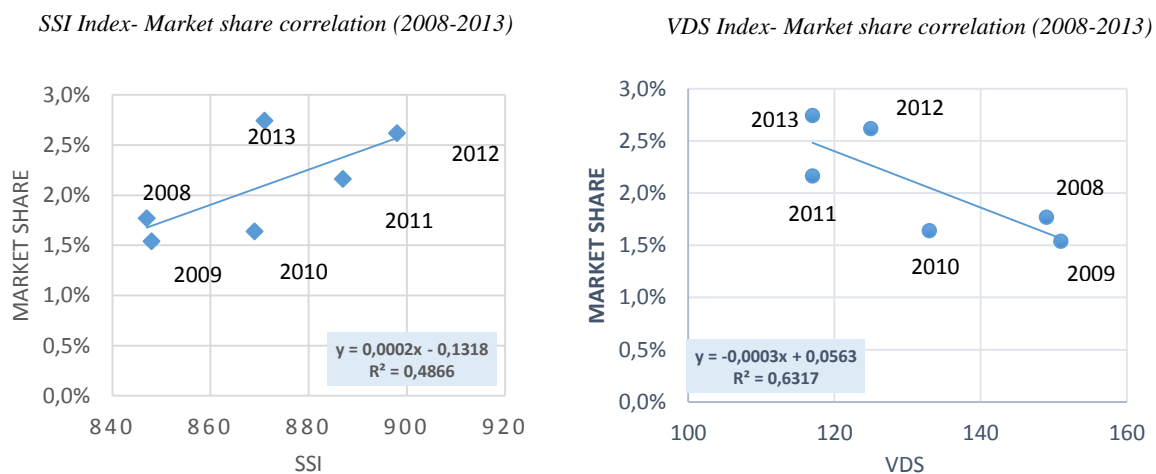
Exhibit 4.15 shows how the SSI and VDS impacts on market share from 2008 to 2015:

- Sale customer services adjusted to local preferences and the expansion of sales network (Audi, 2014) has pushed market growth.

- Problems experienced for Audi vehicles (VDS) has been consistently decreasing from 2008. VDS shows a strong correlation with increasing market share, confirming previous results on the overall market study.

In conclusion, the Audi case in China strongly shows how customer satisfaction can affect significantly market share and business growth. However, it is clear that customer

satisfaction is not the only driver of business growth and is necessary to consider further conditions (e.g. market structure, competition, regulatory policies).

4.3.2. TOYOTA'S MARKET SHARE DROP

Toyota Motor Corporation (TMC) is the world's largest automobile manufacturer as of 2014, overtaking GM in 2008. Japan-based company Toyota and its subsidiaries Hino Motors and Daihatsu Motor Co. delivery compact and subcompact cars, mini-vehicles, mid-size, luxury, sports and specialty cars, SUVs, pickup trucks, minivans, trucks and buses. Toyota brands under its name models such as Camry, Corolla, Land Cruiser, Yaris (Vitz in Japan, Vios in China and Taiwan), Prius and luxury Lexus line, as well as the Tundra truck. (Reuters, 2011).

Toyota, compared to the other two big OEMs (GM and Volkswagen), entered the Chinese market last. The company announced its plans to enter in 1994, but the government permission was obtained in 2000.

Although sales volume has increased slightly from 2008, Toyota has seen a huge drop in market share from 10% in 2008 to 5% in 2013.

Exhibit 4.15. Toyota Sales, market share and customer satisfaction results
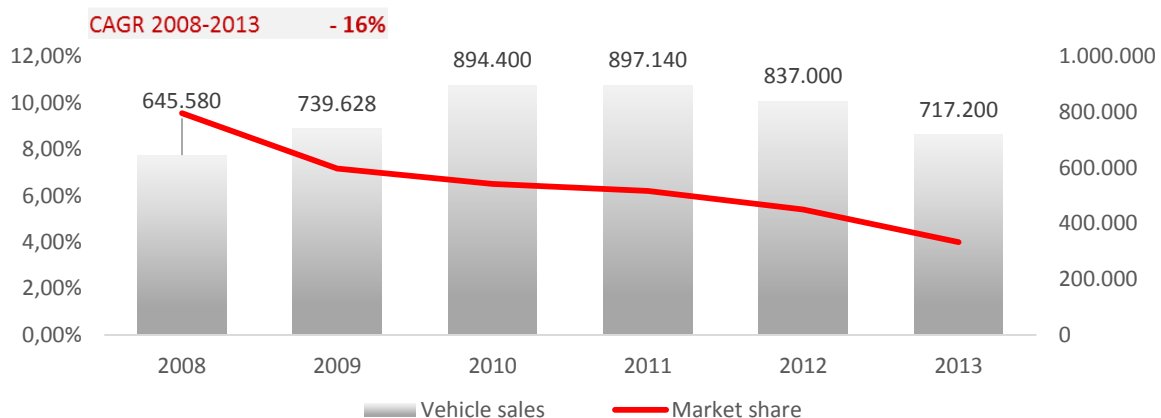
2013 APEAL study

Audi	857
Toyota	776
Nissan	785
Hyundai	792
GM	850
Volkswagen	856

2013 CSI study

860
829
865
877
859
838

2013 IQS study

74
85
127
81
116
66

2013 SSI study

Audi	871
Toyota	816
Nissan	882
Hyunday	865
GM	798
Volkswagen	812

2013 VDS study

117
186
175
158
188
144
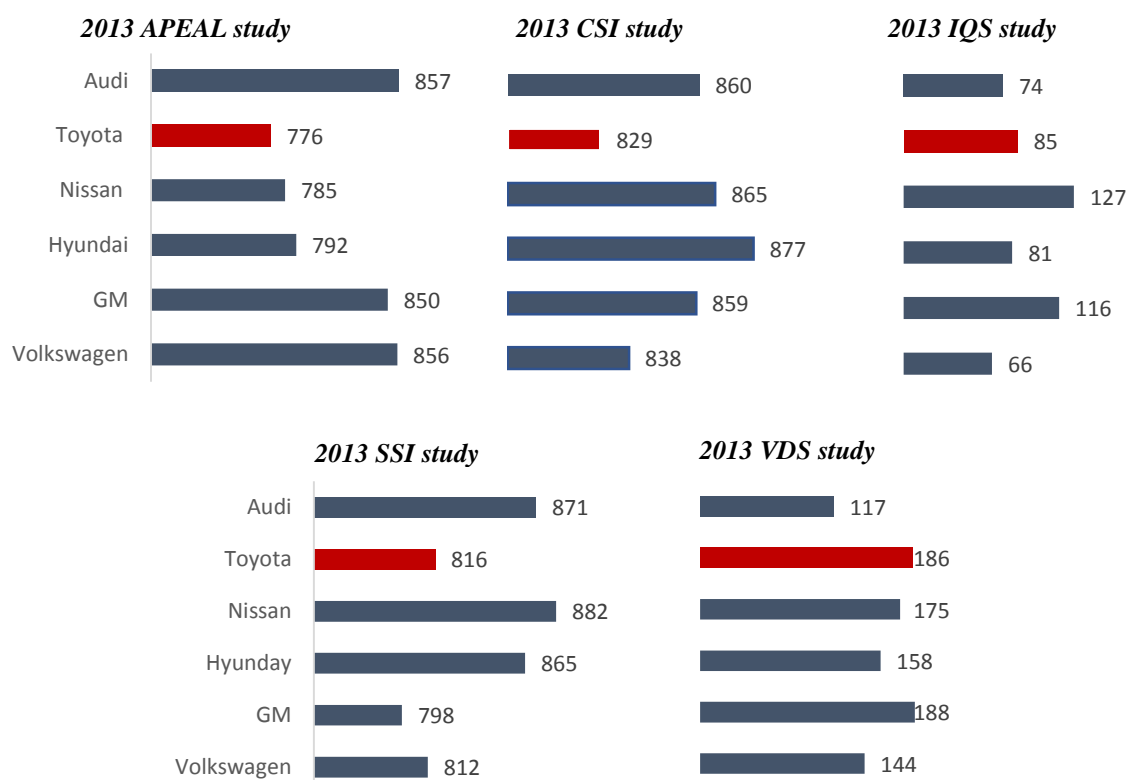
Source: Toyota, J.D. Power, 2014

2013 Customer satisfaction indexes show Toyota lower levels in satisfaction compared to other main players, both in terms of reliability and connected services. However, from the regressive analysis implemented to Toyota case during 2008-2013 period, it is not possible to state a connection between decrease in market share and customer satisfaction. Indeed, while market share has decreased at 16% CAGR from 2018 levels, customer satisfaction measures show low but stable outcomes during the whole period. As mentioned before, market share is certainly influenced by a wide range of drivers and conditions. In this case, a possible reason of such market share drop lies in the increasing political tension between China and Japan.

Toyota and other Japanese automakers were hurt by the tensions that first flared last year over the disputed island territory. Chinese buyers shunned Japanese vehicles, causing their sales to drop (International Business Times, 2013).

Results obtained from Toyota study do not confirm overall results of connection between customer satisfaction and market share. However, it is clear that other factors impacted strongly Toyota pattern in China, consequently influencing the regression results.

5. CONCLUSIONS

Goal of this work is to assess quantitatively customer satisfaction impact on business results, in order to define if customer satisfaction can be adopted as a forecasting method for business performance.

The study first provided a wide overview on customer satisfaction and its theoretical frameworks, assessment and quantification. As described in chapter 2, different theories have tried to explain the relation of customer satisfaction and business growth. Models have been partially confirmed by empirical evidences regarding connection between customer satisfaction results and different financial indicators (ROI, shareholder value, market share etc.).

In chapter 3, an introduction to major customer satisfaction measurement systems is provided, specifically discussing advantages and limits of national and industry specific indexes.

Chapter 4 is focused on the regressive analysis process. First, data regarding customer satisfaction and market share on the Chinese automotive market are collected. Furthermore, three different hypotheses on connection between customer satisfaction and market share are defined:

- H_1: Customer satisfaction has a positive influence on market share *(point in time correlation)*;

- H_2: Customer satisfaction growth rate has a positive impact on market share *(predictive correlation)*;

- H₃: Customer satisfaction growth rate shows positive correlation and equivalent trend of market share growth *(parallel correlation)*.

Regression studies provide following results: while no connection between current indicators has been found (Hypothesis 1), relevant outcomes emerge from 2008-2013 growth of customer satisfaction and final 2013 market share regression (Hypothesis 2) and from customer satisfaction and market share trends in last 5 years (Hypothesis 3). In particular, for both hypotheses, significance in regression comes from reliability indicators measuring problems experienced after vehicles purchase, while no satisfaction for connected services (pre and post-sales services) and initial satisfaction (first impressions about vehicles in first 6 months) is found.

Therefore, two key messages arise from the study:

- Customer satisfaction influences market share when looking at indicators' growth rates;

- Satisfaction indexes, measuring reliability of vehicles, show strong connection with business results, proving their predictive quality of market share trends.

Finally, Audi and Toyota cases provide further details of correlation. In particular, while Audi successful story of increased customer satisfaction finds correlation with business results, Toyota decreasing market presence in the Chinese automotive market is strongly influenced by socio-political factors and no connection with satisfaction measures have been found. The Toyota case highlights the limits of the regressive analysis, since the impact of several factors on the overall business performance. Eventually, further studies are necessary in trying to isolate the relation customer satisfaction-market share from external conditions.

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APPENDICES

APPENDIX 1: EFQM EXCELLENCE MODEL SUB-CRITERION DEFINITIONS

1. LEADERSHIP

Definition

How leaders develop and facilitate the achievement of the mission and vision, create values required for long term success and implement these via appropriate actions and behaviors and are personally involved in ensuring that the organization's management system is developed and implemented

1a - How leaders develop the mission, vision and values and are role models for a culture of excellence in the organization

1b - How leaders are personally involved in ensuring the organization's management system is developed, implemented and continuously improved

1c - How leaders are involved with customers, partners and representatives of society

1d - How leaders motivate, support and recognize the organization's people

2. POLICY & STRATEGY

Definition

How the organization implements its mission and vision via a clear stakeholder focused strategy supported by relevant policies, plans, objectives, targets and processes.

2a - How policy and strategy are based on the present and future needs and expectations of stakeholders

2b - How policy and strategy are based on information from performance measurement, Research, learning and creativity related activities.

2c - How policy and strategy are developed, reviewed and updated

2d - How policy and strategy are deployed through a framework of key processes

2e - How policy and strategy are communicated and implemented

3. PEOPLE

Definition

How the organization manages, develops and releases the knowledge and full potential of its people at an individual, team-based and organization-wide level and how these activities are planned in order to support its policy and strategy and the effective operation of its processes.

3a - How people resources are planned, managed and improved

3b - How people's knowledge and competencies are identified, developed and sustained.

3c - How people are involved and empowered

3d - How people and the organization have a dialogue

3e - How people are rewarded, recognized and cared for

4. PARTNERSHIPS AND RESOURCES

Definition

How the organization plans and manages its external partnerships and internal resources in order

4a - How external partnerships are managed

4b - How finances are managed

4c - How buildings, equipment and materials are managed

4d - How technology is managed

4e - How information and knowledge are managed

5. PROCESSES

Definition

How the organization designs, manages and improves its processes to support the policy and strategy and fully satisfies and generates increasing value for its customers and other

5a - How processes are systematically designed and managed

5b - How processes are improved, as needed, using innovation to fully satisfy and generate increasing value for customers and other stakeholders

5c - How products and services are designed and developed based on customer needs and

5d - How products and services are produced, delivered and serviced

5e - How customer relationships are managed and enhanced

6. CUSTOMER RESULTS

Definition

What the organization is achieving in relation to its external customers

6a -Perception Measures

6b -Performance Indicators

7. PEOPLE RESULTS

Definition

What the organization is achieving in relation to its people

7a -Perception Measures

7b -Performance Indicators

8. SOCIETY RESULTS

Definition

What the organization is achieving in relation to local, national and international society as Appropriate

8a -Perception Measures

8b -Performance Indicators

9. KEY PERFORMANCE RESULTS

Definition

What the organization is achieving in relation to its planned performance

9a-Key Performance Indicators

9b -Key Performance Outcomes

APPENDIX 2: ACSI QUESTIONNAIRE MODEL

ACSI Questionnaire

INTRODUCTION

Your name will be confidential, and I will ask you only about products and services you have recently purchased and used. Your participation is voluntary and you may stop at any time or skip any question you do not wish to answer.

I am going to ask you three questions about your expectations. Each time we will use a scale of 1 to 10, although the meaning of the scale will change slightly from question to question. Let's begin:

Q1. Before you purchased [PRODUCT NAME INSERT], you probably knew something about this particular [PRODUCT NAME INSERT]. Now, think back and remember your expectations of the overall quality of the [PRODUCT NAME INSERT]. Please give me a rating on a 10-point scale on which "1" means your expectations were "not very high" and "10" means your expectations were "very high."

How would you rate your expectations of the overall quality of [PRODUCT NAME INSERT]?

1. TO 10_____

1.1 Don't know

1.2 Refused

Q2. (Again/At that same time), you probably thought about things you personally require from a [PRODUCT NAME INSERT], such as [INSERT PRODUCT ATTRIBUTES]. Using a 10-point scale on which "1" now means "not very well" and "10" means "very well," how well did you expect your [PRODUCT NAME INSERT] to meet your personal requirements?

1. TO 10_____

Q3. (Again/At the same time), thinking about your expectations before you purchased (or your recent experiences with) [PRODUCT NAME INSERT] . . . you probably thought about how often things could go wrong with the [PRODUCT NAME INSERT] regarding such things as [INSERT PRODUCT ATTRIBUTES]. Using a 10-point scale, on which "1" now means "very often" and "10" means "not very often," how often did you expect that things could go wrong with your [PRODUCT NAME INSERT]?

1. TO 10_____

1.1 Don't know

1.2 Refused

Next, I want you to think about your actual experience with your [PRODUCT NAME INSERT]. I am going to ask you five questions, the first deals with your overall experience with [PRODUCT NAME INSERT]. The next two questions deal with how well the [PRODUCT NAME INSERT] met your personal requirements, and how often things go wrong with [PRODUCT NAME INSERT]. The other two questions are about specific characteristics of the product or service...

Q4. First, please consider all your experiences in the past [INSERT TIME PERIOD FROM PRODUCT NAME] with your [PRODUCT NAME INSERT]. Using a 10-point scale, on which "1" means "not very high" and "10" means "very high," how would you rate the overall quality of your [PRODUCT NAME INSERT]?

1. TO 10 _____|

1.1 Don't know

1.2 Refused

Q5. Now thinking about your personal requirements for a [PRODUCT NAME INSERT], such as [INSERT PRODUCT ATTRIBUTES], please tell me how well your [PRODUCT NAME INSERT] has actually met your requirements. Using a 10-point scale on which "1" now means "not very well" and "10" means "very well," how well has your [PRODUCT NAME INSERT] actually met your personal requirements?

1. TO 10_____

1.1 Don't know

1.2 Refused

Q6. Now please think about how often things go wrong with the [PRODUCT NAME INSERT], regarding such things as [INSERT PRODUCT ATTRIBUTES]. Using a 10-point scale on which "1" now means "very often," and "10" means "not very often," how often have things actually gone wrong with your [PRODUCT NAME INSERT]?

1. TO 10_____

1.1 Don't know

1.2 Refused

Q7 (OPTIONAL QUESTION ABOUT CHARACTERISTICS OF PRODUCT/SERVICE)

1. TO 10 _____

1.1 Don't know

1.2 Refused

Q8 (OPTIONAL QUESTION ABOUT CHARACTERISTICS OF PRODUCT/SERVICE)

1. TO 10 _____

1.1 Don't know

Q9. (FIRST/NEXT) Given the quality of your [PRODUCT NAME INSERT], how would you rate the price that you paid (or prices that you pay) for [PRODUCT NAME INSERT]? Please use a 10-point scale on which "1" means "very poor price given the quality" and "10" means "very good price given the quality."

1. TO 10 _____

1.1 Don't know

1.2 Refused

Q10. (FIRST/NEXT) Given the price that you paid (or prices that you pay at) for your [PRODUCT NAME INSERT], how would you rate the quality of your [PRODUCT NAME INSERT]? Please use a 10-point scale on which "1" means "very poor quality given the price" and "10" means "very good quality given the price."

1. TO 10_____

1.1 Don't know

1.2 Refused

Satisfaction includes many things. Let's move on and talk about your overall satisfaction with your [PRODUCT NAME INSERT].

Q11. First, please consider all your experiences to date with your [PRODUCT NAME INSERT]. Using a 10- point scale on which "1" means "very dissatisfied" and "10" means "very satisfied," how satisfied are you with your [PRODUCT NAME INSERT]?

1. TO 10_____

1.1 Don't know

1.2 Refused

Q12. Considering all of the expectations that we have discussed, to what extent has your [PRODUCT NAME INSERT] fallen short of your expectations or exceeded your expectations? Using a 10-point scale on which "1" now means "falls short of your expectations" and "10" means "exceeds your expectations," to what extent has your [PRODUCT NAME INSERT] fallen short of or exceeded your expectations?

1. TO 10_____

1.1 Don't know

1.2 Refused

Q13. Forget your [PRODUCT NAME INSERT] for a moment. Now, I want you to imagine an ideal product. How well do you think your [PRODUCT NAME INSERT] compares with that ideal product? Please use a 10-point scale on which "1" means "not very close to the ideal," and "10" means "very close to the ideal."

1. TO 10_____

1.1 Don't know

1.2 Refused

Next, I want you to think about any communication you may have had with the company that produced your [PRODUCT NAME INSERT] regarding complaints about your experience.

Q14. Have you complained to the company about your [PRODUCT NAME INSERT] within the past [INSERT PRODUCT NAME TIME PERIOD]?

1. Yes

2. No

3. Don't know

4. Refused

{IF Q14 = 1, ASK Q14A; OTHERWISE GO TO Q15}

Q14A. How well, or poorly, was your most recent complaint handled? Using a 10-point scale on which "1" means "handled very poorly" and "10" means "handled very well," how would you rate the handling of your complaint?

1 TO 10_____

11 Don't know

1.2 Refused

Q15. The next time you are going to [INSERT PURCHASE/USE/SHOP AT] a [PRODUCT NAME INSERT], how likely is it that it will be a [PRODUCT NAME INSERT] again? Using a 10-point scale on which "1" means "very unlikely" and "10" means "very likely," how likely is it that it will be a [PRODUCT NAME INSERT] again?

1. TO 10_____

1.1 Don't know

1.2 Refused

{IF Q15 = 6-10, ASK Q16; OTHERWISE GO TO Q17}

Q16. Let us imagine that [PRODUCT NAME INSERT] raises its prices. If other [COMPANIES/SUPPLIERS] remain at the same prices, how much can [PRODUCT NAME INSERT] raise its price before you definitely would not choose a(n) [PRODUCT NAME INSERT] the next time you purchase a [INSERT GENERIC NAME FOR PRODUCT]?

Please provide your answer in percentages up to 25%

0 TO 25_____

1.26% or higher

1.1 Never would [PURCHASE/USE/SHOP AT] any other [PRODUCT NAME INSERT]

1.2 Don't know

1.3 Refused

{IF Q15 = 1-5, ASK Q17; OTHERWISE GO TO QD1 CONTINUE/END}

Q17. Let us now imagine that [PRODUCT NAME INSERT] lowers its prices. If other [COMPANIES/SUPPLIERS] remain at the same prices, how much must [PRODUCT NAME INSERT] lower its price before you would definitely choose a(n) [PRODUCT NAME INSERT] the next time you purchase a [GENERIC NAME FOR PRODUCT]?

Please provide your answer in percentages up to 25%

0 TO 25_____

1.26% or higher

1.1 Never would [PURCHASE/USE/SHOP AT] any other [PRODUCT NAME INSERT]

1.2 Don't know

1.3 Refused

APPENDIX 3: J.D. POWER ASIA PACIFIC BENCHMARKING STUDIES

Index	Description
Auto Media Study (AMS)	The J.D. Power Asia Pacific Auto Media StudySM (AMS) provides a comprehensive strategic perspective of the media preferences of and purchase factors influencing new-vehicle buyers. Automotive manufacturers and advertising agencies may improve ROI on media investment by using the information contained in this study on attitudinal, recreational, and media consumption behaviors of recent new-vehicle buyers to develop targeted marketing initiatives
Automotive Performance, Execution and Layout Study (APEAL)	The J.D. Power APEAL study has become a benchmark for measuring the appeal of new vehicles. The study's unique approach measures how much customers like or dislike virtually every aspect of their new vehicle. Containing 10 categories and 82 attributes covering powertrain, exterior design etc., the APEAL study transfers the customer's experience and perception into a very powerful and useful analytical tool.
Brand Competitiveness Index Report (BCI)	The Brand Competitiveness Index Report (BCI) provides OEM a dashboard to understand its competitiveness status and priorities to improve market share in the long term. The report focuses on how customers are impacted by OEM's Awareness, Favorability, Affordability and Availability. Also, it tells how each business function of the OEM contributes to above factors. These business functions include Product, Planning, Marketing, Sales, Service and Network. The report integrates part of the insights from syndicate studies of NVIS, IQS, APEAL, VDS, SSI, CSI.
Brand Website Evaluation Study (BWES)	The J.D. Power Brand Website Evaluation Study (BWES)SM is designed to provide services to fully evaluate the effectiveness of auto brand websites on the basis of Voice of Consumers by: Measuring the usefulness of auto brand websites in terms of meeting the needs of consumers shopping for a new vehicle. Help auto brand website developers determine best practices used by auto brand websites. Quantify the relationship between site usefulness and a site's ability to drive traffic to the showroom

Customer Service Index Study (CSI)	The study is conducted among customers who have owned their new vehicle for 12 to 24 months and focuses on the dealer service experience; what matters most to customers when they take their vehicles in for service. The objective of the study is to measure retail performance pertaining to after-sales service. The study analyzes the processes that define the dealer experience and looks at convenience items such as days/ hours of operation, service location, and ease of scheduling an appointment
Dealer Attitude Study (DAS)	The study examines 4S dealers' satisfaction with the nameplates and opinions & attitudes regarding a variety of issues relevant to the automotive industry and the retail distribution system. Dealers see radical change all around them in the marketplace and are looking to manufacturers for support and direction. The Dealer Attitude Study supplies the information needed to address these issues. Dealer principal evaluations form the basis of this annual study. The study profiles 4S dealerships, examines issues of importance to manufacturers and dealers, and measures dealer satisfaction with the nameplates they carry
Initial Quality Study (IQS)	The study provides a measurement of "Voice of Customer" during the first 2-6 months of ownership to identify those problems that vehicle owners encounter in this initial ownership period. The study addresses issues of build quality and design quality by make, model, and vehicle segment. IQS provides information on issues such as: Which new vehicles provide the most trouble-free experience? What type of problems are experienced by customers? How vehicle problems influence customer satisfaction and advocacy
New Vehicle Intenders Study (NVIS)	The study provides insights into new vehicle purchase intenders' awareness, perceptions and detailed purchase considerations regarding brands and models offered. It identifies clues and opportunities to strengthen the brand influence and delivers actionable insights that can help OEMs and dealers successfully attract more purchasers to their brands and models. This study utilizes demographic segmentation to optimize interventions for specific consumer target groups

New Vehicle Tire Satisfaction Index Study (NV-TSI)	The New Vehicle Tire Satisfaction Index Study (NV-TSI) provides a measurement of "Voice of Customer" during the first 12-24 months of ownership to identify those problems that vehicle owners encounter regarding their new vehicle tires. This study aims to discover the quality related problems regarding new vehicle tire. Meanwhile, the study's approach measures how much customers like or dislike virtually every aspect of their new vehicle tires. The approach matrix is containing 5 factors and 15 attributes covering tire ride, handling, traction etc., hence this study identifies the customer satisfaction also with customer perception on tire products.
Sales Satisfaction Index Study (SSI)	The study offers a complete perspective on sales and delivery process, analyzing customers' satisfaction with the pre-sales, sales, and delivery experience. SSI focuses on what is important to today's new vehicle owners - process/ transaction related factors, the customer's interaction with the salesperson, and the delivery process - and highlights what contributes most to customers' satisfaction with the dealer/ retailer. Customers are surveyed at 2 to 6 months of ownership.
Service Loyalty Study (SLS)	The study measures loyalty toward the authorized dealership (or other non-authorized dealerships / maintenance shops) among 37 to 48 new vehicle owners, based on their service experiences in the past 12 months. The study provides essentials insights about vehicle owners' satisfaction, recommendation and loyalty toward the dealership. The objective of the study is to understand the factors triggering vehicle owners' patronizing of the purchased dealership for after services, and to forecast their re-purchase behavior in the future
Vehicle Dependability Study (VDS)	The study, which focuses on problems experienced in the last 6 months of 37-48 months old vehicles, ranks vehicles in segments and examines eight categories: Exterior, Driving Experience, Features/ Controls/ Displays, Audio/ Entertainment/ Navigation, Seats, HVAC, Interior, and Engine/ Transmission. Overall dependability is based on the number of problems reported per 100 vehicles (PP100), with lower scores indicating a lower rate of problem incidence and higher long-term vehicle quality

Source: J. D. Power

APPENDIX 4: 2013 CHINESE AUTOMOTIVE MARKET SHARE BY SEGMENT

Luxury Segment

Luxury Entry- level segment
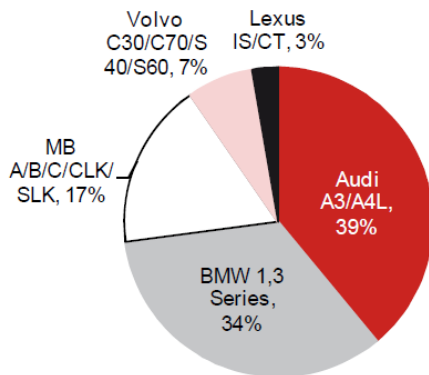
Volvo C30/C70/S 40/S60, 7%
Lexus IS/CT, 3%
MB A/B/C/CLK/ SLK, 17%
Audi A3/A4L, 39%
BMW 1,3 Series, 34%

Luxury Mid-end segment

Volvo S60/S80, 6%
Acura TL, 0%
Cadillac XTS, 6%
Lexus ES/GS, 9%
MB E-Class, 12%
Audi A5/A6L, 37%
BMW 5 Series, 30%

Luxury premium segment

Infiniti FX/M/G, 9%
Lexus LS, 0%
Porsche Panamera, 8%
Jaguar XF/XJ, 16%
MB S/CLS, 29%
Audi A8, 16%
BMW 7 Series, 22%

Luxury SUV segment

Cadillac Escalade/S RX, 5%
Lexus RX/LX/GX, 4%
Infiniti QX/EX, 1%
Volvo XC, 5%
Porsche Cayenne, 5%
BMW X Series, 19%
MB ML/G/GL/G LK/R, 12%
Audi Q Series, 34%
Land Rover, 15%
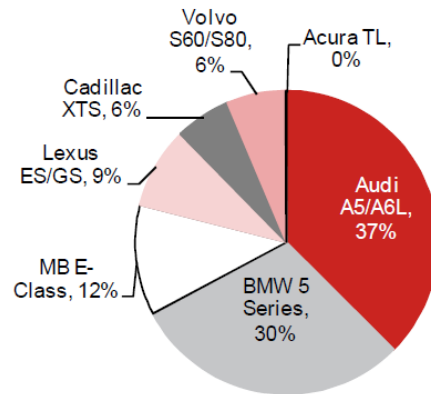
Medium-price segment

Medium size segment
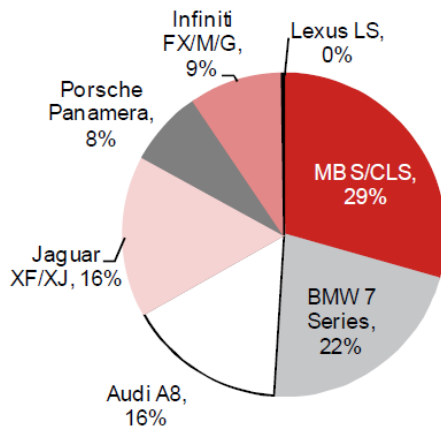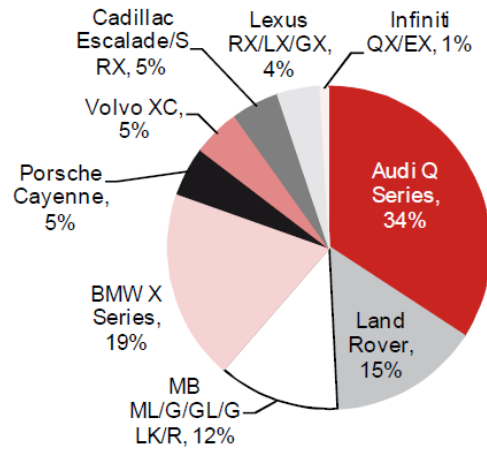
SUV segment

Low-price segment

Compact segment

Sub-compact segment
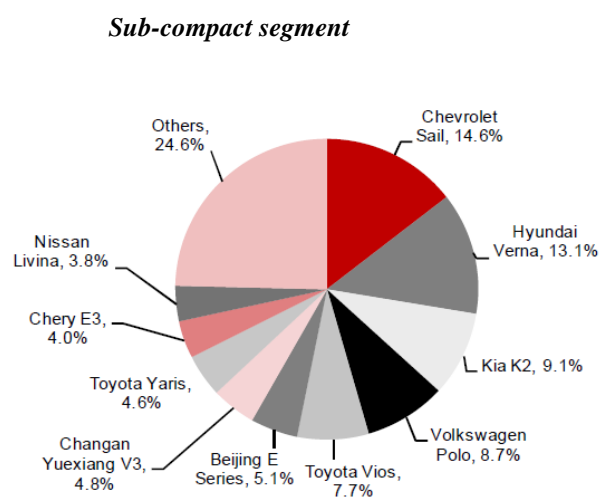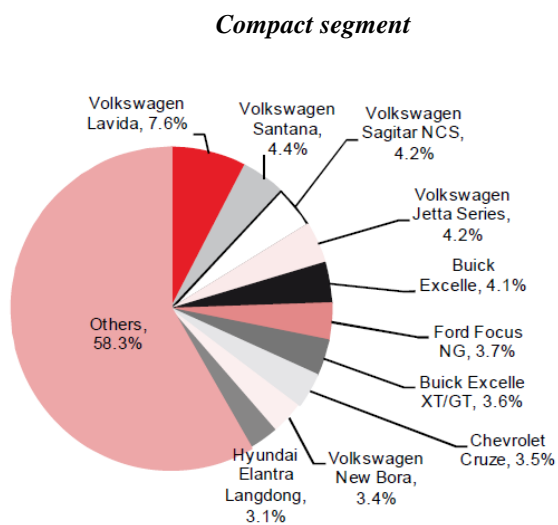
Source: Nomura, 2014

APPENDIX 5: J.D. POWER CUSTOMER SATISFACTION INDEXES

APEAL Study

OEM	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	CAGR APEAL	MS	CAGR MS
Volkswagen	815	830	840	831	843	837	862	850	847	839	**-0,1%**	17%	**2,0%**
Audi					810	870	882	896	888	848	**0,9%**	3%	**9,2%**
GM	817	833	823	832	827	828	830	842	858	845	**0,4%**	10%	**2,6%**
Hyundai			800	810	820	845	850	872	855	840	**0,5%**	10%	**13,1%**
Nissan		854	843	829	788	850	853	867	840	785	**-0,1%**	5%	**-4,7%**
Toyota	843	845	822	820	835	847	830	854	816	822	**-0,3%**	4%	**-16,0%**
Chery		739	720	712	746	743	756	767	786	780	**0,9%**	2%	**-17,2%**
Ford					800	820	810	805	800	790	**-0,3%**	3%	**-5,1%**
Honda	791	822	825	812	817	827	844	846	800	815	**0,0%**	3%	**-19,9%**
PSA		842		840	841		761	833	829	805	**-0,9%**	3%	**-0,8%**

CSI study

OEM	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	CAGR CSI	MS	CAGR MS
Volkswagen				818	823	821	838	865	867	838	**0,4%**	17%	**2,0%**
Audi	805	821	834	828	850	836	861	868	872	860	**0,2%**	3%	**9,2%**
GM	812	813	807	826	825	834	851	887	867	859	**0,8%**	10%	**2,6%**
Hyundai			811	821	820	824	827	849	861	877	**1,4%**	10%	**13,1%**
Nissan		829	814	827	837	838	840	874	880	865	**0,7%**	5%	**-4,7%**
Toyota			807	821	836	835	834	861	887	829	**-0,2%**	4%	**-16,0%**
Chery					820	815	830	845	854	831	**0,3%**	2%	**-17,2%**
Ford			810	806	821	817	832	820	834	830	**0,2%**	3%	**-5,1%**
Honda	810	810	814	816	819	870	874	891	905	881	**1,5%**	3%	**-19,9%**
PSA				806	840	838	853	883	885	879	**0,9%**	3%	**-0,8%**

IQS study

OEM	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	CAGR IQS	MS	CAGR MS
Volkswagen	204	159	127	131	140	108	105	103	98	66	**-14,0%**	17%	**2,0%**
Audi					90	67	80	79	76	74	**-3,8%**	3%	**9,2%**
GM	135	151	118	126	136	79	96		107	116	**-3,1%**	10%	**2,6%**
Hyundai				94	131				91	81	**-9,2%**	10%	**13,1%**
Nissan	174	134	105	152	125	118	91	85	108	127	**0,3%**	5%	**-4,7%**
Toyota	103	130	150	118	130	95	89	85	101	85	**-8,1%**	3%	**-5,1%**
Chery	374	391			210	210		206	190	215	**0,5%**	2%	**-17,2%**
Honda	145	153	139	118	98	96	99	80	88	112	**2,7%**	3%	**-19,9%**

SSI study

OEM	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	CAGR SSI	MS	CAGR MS
Volkswagen			814	815	810	840	842	869	873	812	**0,0%**	17,3%	**2%**
Audi	815	818	827	817	847	848	869	887	898	871	**0,6%**	2,7%	**9%**
GM			815		830	835	836	855		798	**-0,8%**	10,0%	**3%**
Hyundai			807		820	823		859	891	865	**1,1%**	10,0%	**13%**
Nissan		813	812	816	835	842	827	880	897	882	**1,1%**	5,0%	**-5%**
Toyota			809	818	850	842	830	853	860	816	**-0,8%**	4,0%	**-16%**
Chery					800				841	663	**-3,7%**	2,4%	**-17%**
Honda				823	834		826	866	881	817	**-0,4%**	3,0%	**-20%**
PSA				814	831	829		855	882	853	**0,5%**	3,0%	**-1%**

VDS study

OEM	2008	2009	2010	2011	2012	2013	CAGR VDS	MS	CAGR- MS
Volkswagen	205	210	200	174	119	144	**-6,8%**	17,3%	**2,0%**
Audi	149	151	133	117	125	117	**-4,7%**	2,7%	**9,2%**
GM	270	261	220	177	198	188	**-7,0%**	10,0%	**2,6%**
Hyundai	180	178	150	140	117	158	**-2,6%**	10,0%	**13,1%**
Nissan	150	163	115	154	171	175	**3,1%**	5,0%	**-4,7%**
Toyota	160	173	115	146	161	186	**3,1%**	4,0%	**-16,0%**
Honda	150	165	91	140	157	185	**4,3%**	3,0%	**-19,9%**
PSA	178			195		180	**0,2%**	3,0%	**-0,8%**

APPENDIX 6: REGRESSION RESULTS

**H₁: 2013 Market share (MS) and 2013 customer satisfaction indexes (*point in time correlation*)**

APEAL-Market share correlation

	MS	APEAL
Volkswagen Group	17%	856
Audi	3%	857
GM	10%	850
Hyiundai	10%	792
Nissan	5%	785
Toyota	3%	776
Chery Group	2%	780
Ford	3%	790
Honda	3%	791
PSA	3%	830
R-square	0,25	
P-value	0,14	

$y = 0{,}0007x - 0{,}5388$
$R^2 = 0{,}2507$
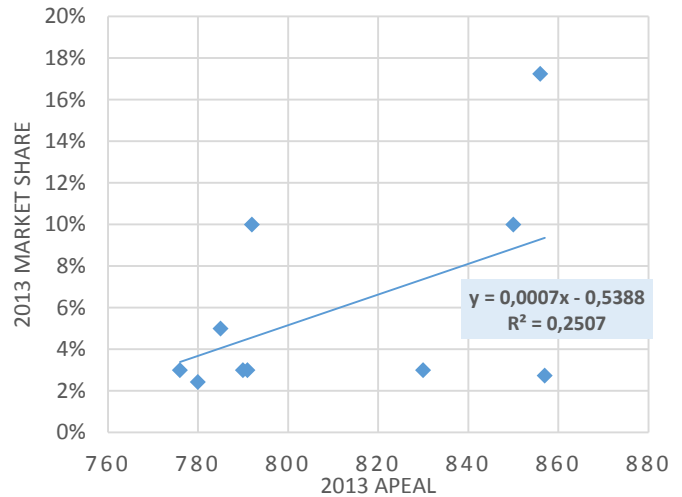
CSI-Market share correlation

	MS	CSI
Volkswagen Group	17%	838
Audi	3%	860
GM	10%	859
Hyiundai	10%	877
Nissan	5%	865
Toyota	3%	829
Chery Group	2%	831
Ford	3%	830
Honda	3%	881
PSA	3%	879
R square	0,0007	
P value	0,94	

$y = -6E{-}05x + 0{,}1123$
$R^2 = 0{,}0007$
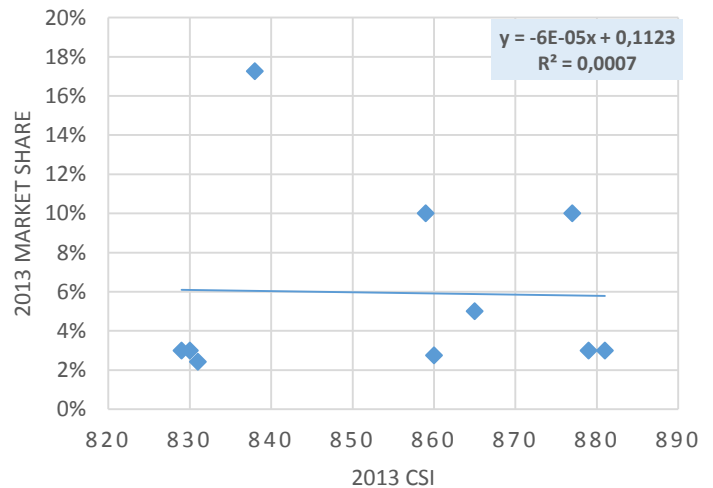
IQS-Market share correlation

	MS	IQS
Volkswagen group	17%	66
Audi	3%	74
GM	10%	116
Hyundai	10%	81
Nissan	5%	127
Toyota	3%	85
Chery	2%	215
Honda	0,03	112
R square	0,197	
P value	0,27	
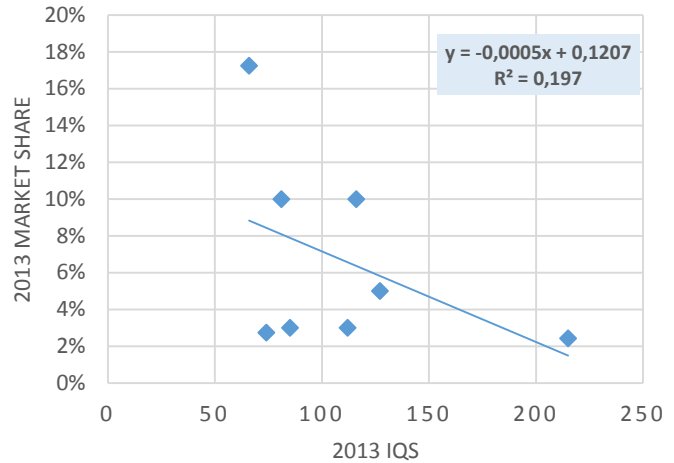
SSI-Market share correlation

	MS	SSI
Volkswagen Group	17%	812
Audi	3%	871
GM	10%	798
Hyiundai	10%	865
Nissan	5%	882
Toyota	4%	816
Chery	2%	663
Honda	3%	817
PSA	3%	853
R-squared	0,009	
P-value	0,8	
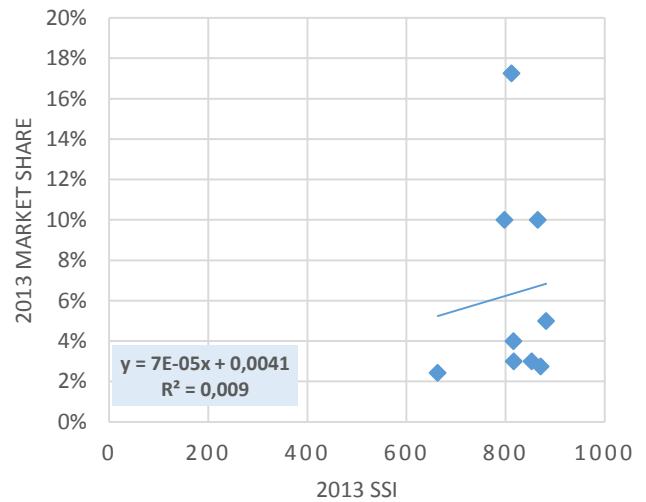
VDS-Market share correlation

|	MS	VDS
Volkswagen	17%	144
Audi	3%	117
GM	10%	188
Hyundai	10%	158
Nissan	5%	175
Toyota	4%	186
Honda	2%	185
PSA	3%	180
R square	0,05	
P value	0,9	
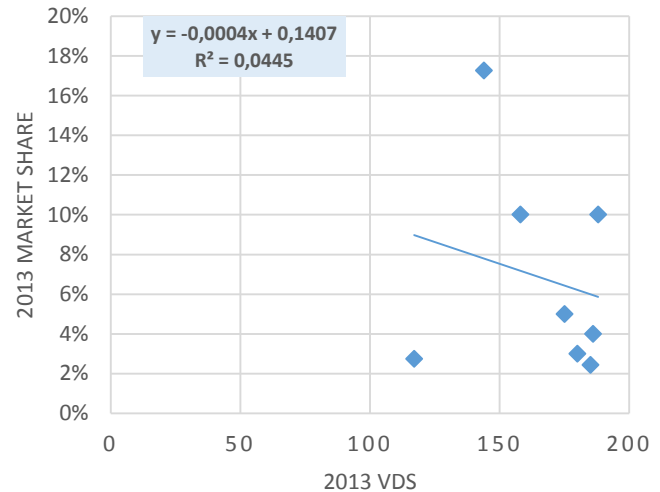
H₂: 2013 Market share (MS) and 2008-2013 CAGR customer satisfaction indexes

(*predictive correlation*)

APEAL CAGR -Market share correlation

	MS	CAGR APEAL
Volkswagen Group	17%	0%
Audi	3%	1%
GM	10%	0%
Hyiundai	10%	-1%
Nissan	5%	0%
Toyota	3%	0%
Chery Group	2%	1%
Ford	3%	0%
Honda	3%	0%
PSA	3%	0%
R-square	0,0123	
P-value	0,46	
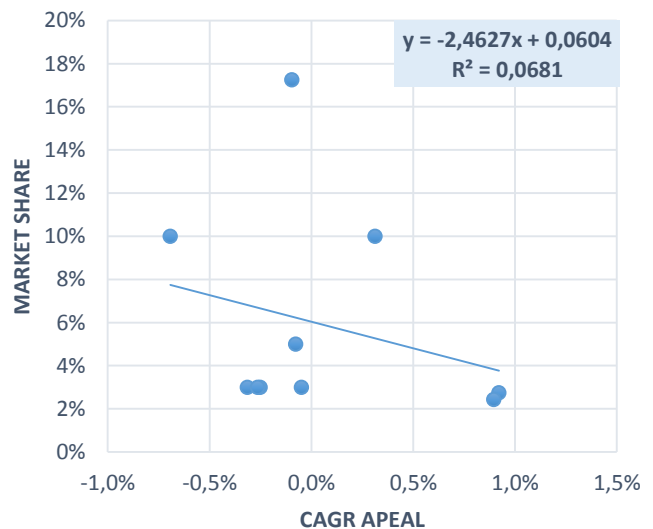
CSI CAGR -Market share correlation

	MS	CAGR CSI
Volkswagen Group	17%	2%
Audi	3%	9%
GM	10%	3%
Hyundai	10%	13%
Nissan	5%	-5%
Toyota	3%	-16%
Chery Group	2%	-17%
Ford	3%	1%
Honda	3%	-20%
PSA	3%	-1%
R-squared	0,21	
P-value	0,17	
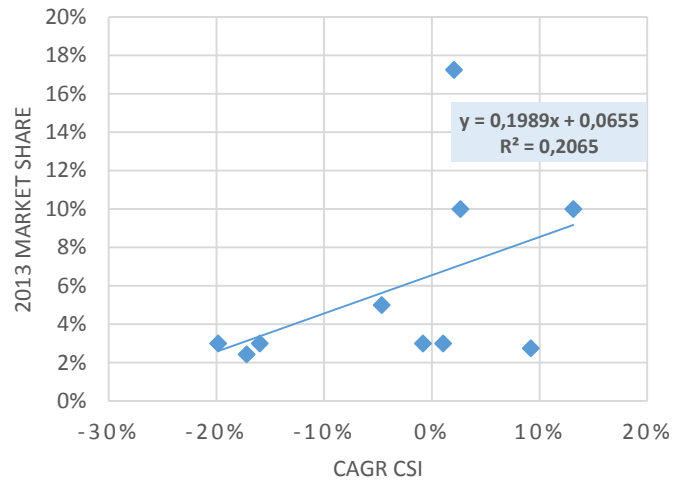
IQS CAGR -Market share correlation

	MS	CAGR IQS
Volkswagen group	17%	-14%
Audi	3%	-4%
GM	10%	-3%
Hyundai	10%	-9%
Nissan	5%	0%
Toyota	3%	-8%
Chery	2%	0%
Honda	3%	3%
R square	0,54	
P value	0,036	
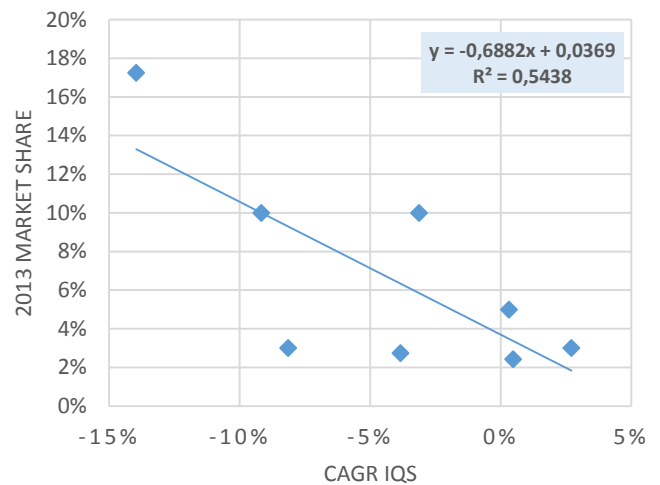
SSI CAGR -Market share correlation

	MS	CAGR SSI
Volkswagen Group	17%	0%
Audi	3%	1%
GM	10%	-1%
Hyundai	10%	1%
Nissan	5%	1%
Toyota	4%	-1%
Chery	2%	-4%
Honda	3%	0%
PSA	3%	1%
R-squared	0,05	
P-value	0,9	
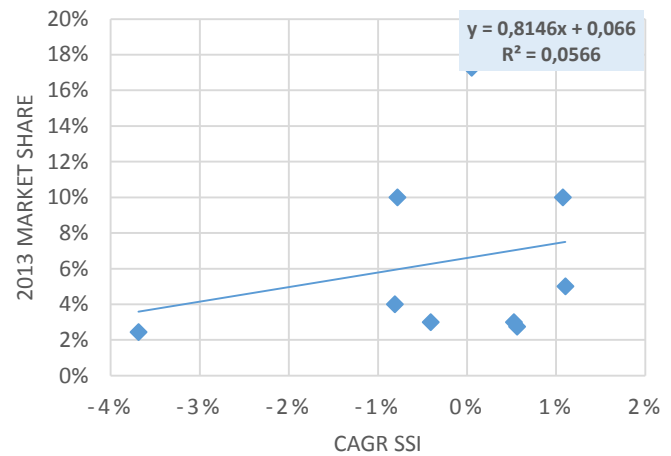
VDS CAGR -Market share correlation

	MS	CAGR VDS
Volkswagen Group	17%	-6,8%
Audi	3%	-4,7%
GM	10%	-7,0%
Hyundai	10%	-2,6%
Nissan	5%	3,1%
Toyota	4%	3,1%
Honda	3%	4,3%
PSA	3%	0,2%
R-squared	0,4844	
P-value	0,06	
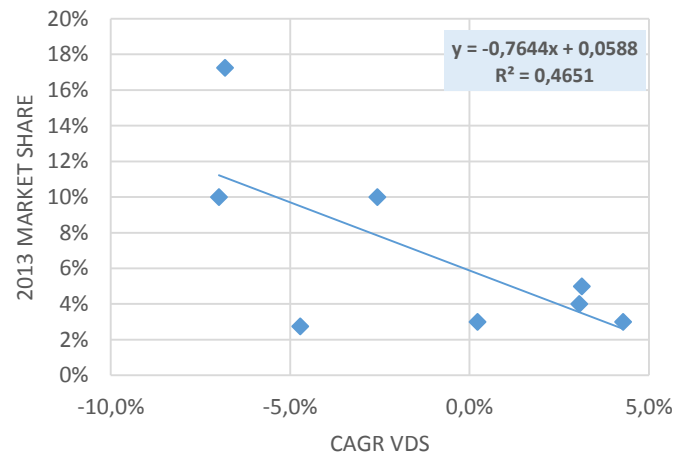
H₃: 2008-2013 CAGR Market share (MS) and 2008-2013 CAGR customer satisfaction

indexes (*parallel correlation*)

APEAL CAGR -Market share CAGR correlation

	CAGR APEAL	CAGR MS
Volkswagen Group	0%	2%
Audi	1%	9%
GM	0%	3%
Hyundai	-1%	13%
Nissan	0%	-5%
Toyota	0%	-16%
Chery Group	1%	-17%
Ford	0%	-5%
Honda	0%	-20%
PSA	0%	-1%
R-squared	0,09	
P-value	0,74	
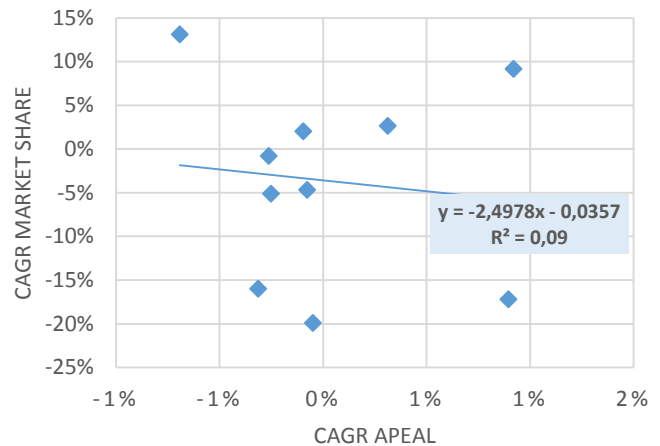
CSI CAGR -Market share CAGR correlation

	CAGR CSI	CAGR MS
Volkswagen Group	0%	2%
Audi	0%	9%
GM	1%	3%
Hyundai	1%	13%
Nissan	1%	-5%
Toyota	0%	-16%
Chery Group	0%	-17%
Ford	0%	-5%
Honda	1%	-20%
PSA	1%	-1%
R-squared	0,03	
P-value	0,63	
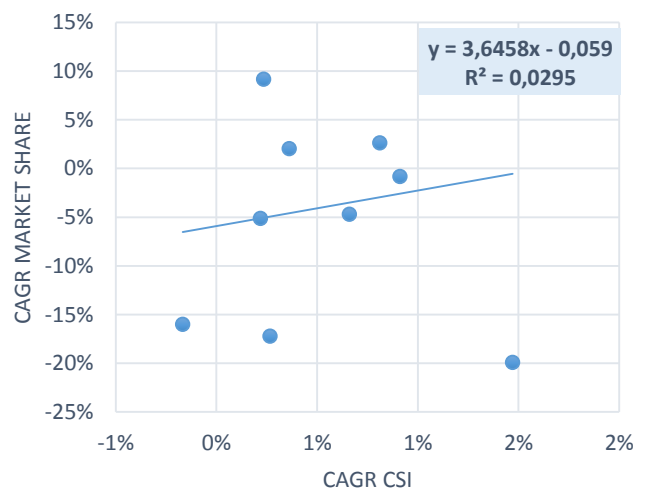
IQS CAGR -Market share CAGR correlation

	CAGR IQS	CAGR MS
Volkswagen group	-14%	2%
Audi	-4%	9%
GM	-3%	3%
Hyundai	-9%	13%
Nissan	0%	-5%
Toyota	-8%	-5%
Chery	0%	-17%
Honda	3%	-20%
R square	0,42	
P value	0,08	
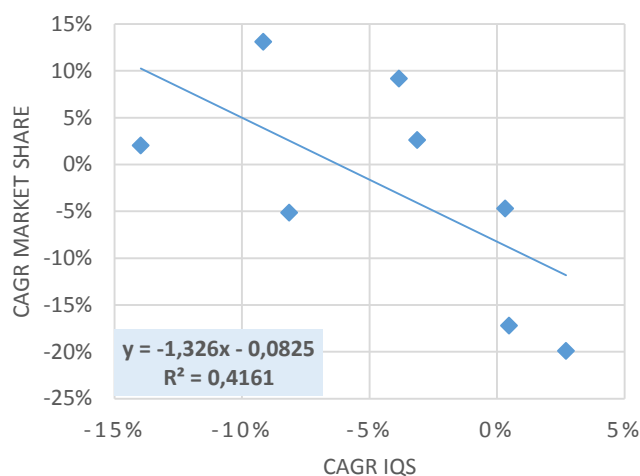
SSI CAGR -Market share CAGR correlation

	CAGR SSI	CAGR MS
Volkswagen Group	0%	2%
Audi	1%	9%
GM	-1%	3%
Hyundai	1%	13%
Nissan	1%	-5%
Toyota	-1%	-16%
Chery	-4%	-17%
Honda	0%	-20%
PSA	1%	-1%
R-squared	0,395	
P-value	0,06	
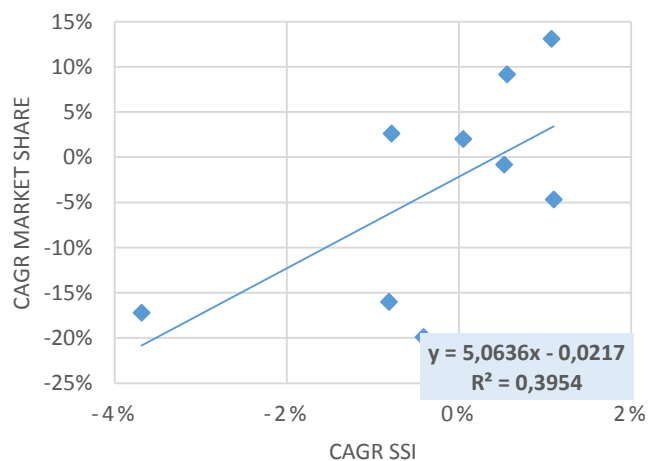
VDS CAGR -Market share CAGR correlation

	CAGR VDS	CAGR MS
Volkswagen Group	-7%	2%
Audi	-5%	9%
GM	-7%	3%
Hyundai	-3%	13%
Nissan	3%	-5%
Toyota	3%	-16%
Honda	4%	-20%
PSA	0%	-1%

R-squared	0,57
P-value	0,03

$y = -1,867x - 0,0422$
$R^2 = 0,5658$