MENDEL UNIVERSITY IN BRNO

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Evaluation of impact of government program for final car market on car dealers

DISSERTATION THESIS

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ABSTRACT

The objective of the dissertation is to evaluate the impact of the German 2009 AVR on the financial position of the German car dealership expressed as ROI and its main components EBIT and balance sheet total. Further specific strategies in this industry are indentified and related recommendation made.

A sample of dealerships of the major car brands by numbers of new registrations per year (VW, GM, Ford-Mazda) with an absorbtion of 58% of the AVR volume and a 25% to 30% increase in new registrations from 2008 to 2009 are compared to BMW dealers, the car brands distributed by those coming to a portion of just 2% of the AVR and new registrations' drop by 10% in that time span.

In accordance to expectation in the VW, GM, Ford-Mazda group (benefiter) ROI is improved substantially and significantly (α-level 0.05). Against expectation in the group of BMW dealers ROI also is improved as an average, but not significantly and to a much lower degree than in the benefiting group. In both of these groups improvement of financial position is based on higher EBIT and simultaneous lower average balance sheet total. Due to turnovers boosted by subsidized sales, economy of scale effect is the driver for increased EBIT in the benefiting group whereas in the non-benefiting group EBIT improvement is based on improved gross profit rate. In the group of the benefiters correction of selling policy is to be observed by refraining from turnover oriented, low profitable business with commercial buyers. Balance sheet total and related volume of financing credit was reduced significantly and substantially in both groups. Together with decreased effective interest rates, saving in interest expense contributed more to the observed increase of EBT, a crucial item for the dealerships in the sample as being closely held enterprises, than German 2009 AVR.

Various strategic measures and strategies are in place in the sample, none of them clearly advantageous in terms of financial position measured by ROI. From a comparison between brands it can be concluded that consumers'

brand loyalty is economically exploitable by car dealers, thus multi branding is the most recommendable strategy for German car dealership industry.

Key words: Accelerated vehicle replacement, car dealership industry, financial position, strategy

ABSTRAKT

Cílem disertační práce jeposoudit dopad německého programu zrychleného vyřazování vozidel (AVR) z roku 2009 na finanční pozici německých autorizovaných prodejců automobilů vyjádřenou návratností investic a jejími hlavními složkami, ukazatelem EBIT (zisk před úroky a zdaněním) a celkovou bilanční sumou. Byly identifikovány další konkrétní strategie v daném odvětví a učiněna související doporučení.

Vzorek prodejců sestavený z hlavních automobilových značek podle počtu nově registrovaných vozidel za rok (VW, GM, Ford-Mazda), který absorboval 58% z celkového objemu programu AVR a dosáhnul mezi roky 2008 až 2009 nárůstu nově registrovaných vozidel o 25% až 30%, je porovnán s prodejci značky BMW, jejichž prodeje představují právě 2 % podílu na AVR, a u kterých registrace nových vozů klesly v dotčeném časovém období o 10 %.

Podle očekávání došlo ve skupině VW, GM, Ford-Mazda (skupina, která měla z programu prospěch) k podstatnému a významnému zvýšení návratnosti investic (hladina významnosti 0,05). Oproti očekávání došlo v průměru ke zvýšení návratnosti investic rovněž ve skupině autorizovaných prodejců automobilů BMW, toto zvýšení však nebylo významné a bylo mnohem nižší než v případě skupiny, která měla z programu prospěch. U obou skupin vychází zlepšení finanční pozice z vyššího ukazatele EBIT a souběžné nižší průměrné celkové bilanční sumy. Díky obratům podpořeným dotovaným prodejem stojí za zvýšeným ukazatelem EBIT v případě skupiny, která měla z programu prospěch, především efekt úspory z velkovýroby, zatímco ve skupině, která z programu prospěch neměla, vycházelo zlepšení ukazatele EBIT ze zvýšené míry hrubého zisku. Ve skupině, která měla z programu prospěch, lze sledovat úpravu prodejní politiky spočívající v ústupu od obchodování s komerčními kupci, které je zaměřené na obrat, avšak není příliš rentabilní. U obou skupin došlo k významnému a podstatnému snížení celkové bilanční sumy a souvisejícího objemu finančního kreditu. Ve spojení s nižšími skutečnými úrokovými sazbami úspora úrokových nákladů přispěla k pozorovanému zvýšení ukazatele EBT, který podniky považují za klíčovou

položku pro autorizované prodejce ze vzorku, více než německý program AVR z roku 2009.

Ve vzorku jsou uplatňovány různé strategie a strategická opatření, žádné z nich přitom nejsou jednoznačně výhodné, pokud jde o finanční pozici měřenou prostřednictvím návratnosti investic. Ze srovnání jednotlivých značek lze dospět k názoru, že prodejci automobilů mohou ekonomicky využívat věrnost zákazníků příslušné značce, branding více značek je tedy nejvíce doporučovanou strategií pro německé odvětví prodeje automobilů.

Klíčová slova: Program zrychlené nahrazování vozidel, obor prodeje vozidel, finanční situace, strategie

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LIST OF ABBREVIATIONS

AVR	ACCELERATED VEHICLE RETIREMENT PROGRAM
C2C	CUSTOMER TO CUSTOMER
EBIT	EARNING BEFOR INTEREST AND TAX
EBT	EARNING BEFORE TAX
E.G.	FOR EXAMPLE (EXEMPLI GRATIA)
FEEC	GERMAN FEDERAL OFFICE OF ECONOMIC AFFAIRS AND EXPORT CONTROL (BUNDESAMT FÜR WIRTSCHAFT UND AUSFUHRKONTROLLE)
FMTA	GERMAN FEDERAL MOTOR TRANSPORT AUTHORITY (KRAFTFAHRTBUNDESAMT)
GROSS	GROSS PROFIT
INT_RATE	INTEREST RATE
INV	INVENTORY
MSRP	MANUFACTURER'S RECOMMENDED RETAIL PRICE
MVBER(EU)	MOTOR VEHICLE BLOCK EXEMPTION REGULATION (EU)
N.S.	NOT SPECIFIED
OEM	ORIGINAL EQUIPMENT MANUFACTURER
ROI	RETURN ON INVESTMENT
TOTAL	BALANCE SHEET TOTAL
TURNO	TURNOVER
W-Z-W	WER-ZU-WEM GMBH, HAMBURG / GERMANY

1 INTRODUCTION

Accelerated automobile retirement programs (AVR) are established since decades in numerous countries. Most of the AVRs aimed to reduce pollution and were designed as scrappage programs. The first such program scientifically examined was the privately funded “Unocal South Coast Recycled Auto Project (SCRAP)” (Hsu, Sperling, 1990) in California, United States of America. In recent AVRs environment protection is increasingly combined with economic goals, e.g. in order to “boost […] markets” ACEA - European Automobile Manufacturers' Association (16.03.2009) in the recessions attributed to the worldwide financial and economic crisis. The financial crisis spilled over to the German real economy leading to a recession in 2008 and 2009 (Illig, 2013).

German government started as a first time adopter a tax financed AVR being effective during 2009. Under this program two million passenger cars were scrapped and replaced by new cars and cars not older than fourteen months in a market with an pre-crisis annual average of 3.3 million new registrations (five year period from 2003 to 2007, see appendix 1). With this the German 2009 AVR was the “largest program implemented in Europe during the 2009/2010 automotive crisis […]” (Böckers, Heimeshoff, Müller, 2012). Accordingly the market for new cars as a total boomed in 2009 to 3.8 million new registrations, which makes an increase of 23,2 percent compared to 2009 and 15,6 percent compared to the pre-crisis average of 3.3 million. Benefiters of this boom were car classes and car brands belonging to the lowest price levels whereas new registrations of brands which stand for premium class cars fell substantially.

The budget of the German 2009 AVR was completely spent long before the end of period of validity. With respect to acceptance by consumers respectively the final car market this Governmental measure may be looked upon as successful from the political aspect.

AVRs provide a field for various research directions for instance natural scientific, macroeconomic, welfare or microeconomic.

This dissertation focuses on the economic issue of the impact of the German 2009 AVR on the on the financial position and results of operations of non-captive, closely held and conducted, authorized German car dealerships.

2 OBJECTIVES AND METHODOLOGY

2.1 Objectives

The objective of this dissertation is to evaluate impacts of the German 2009 AVR on the car dealership industry under the assumption of validity of economic theories on supply and demand functions and influences of German 2009 AVR on partial aspects of car dealing, as found in literature, in an empirical approach. Literature explains possible impacts under the Haavelmo theorem, the arbitrage principle and provides research on influences on discount levels for subsidised purchases as in short described in the introduction. Financial position will be measured by the commonly known return-on-investment (ROI) ratio, derived from EBIT and balance sheet total (total) and EBT. The impacts on ROI and EBT will be described by their components turnover (turno), gross profit (gross), interest expense and balance sheet total (total).

Impacts other than German 2009 AVR on dealerships' financial position will be indentified from the financial reporting and discussed.

A further objective is to identify strategic measures and strategies in place and derive recommendations.

2.2 Methodology

The dissertation follows a mixed methods methodology with the purpose of finding more precise and detailed and in this sense better answers to the research question (Wilkins, Woodgate, 2008), than in a study which would use quantitative data only: The dissertation is an empirical work based on the secondary data provided in the annual statutory financial statements of the firms in the sample. Those financial statements consist according to applicable German Commercial Code of

- financial numbers, presented in balance sheet and income statement and
- supplemental information, presented in accompanying management report.

Balance sheet and income statement according to stipulations of German Commercial Code have to be compiled in uniform formats. These formats are not generally open for industry-specific items or information, specifically disclosure of composition of turnover and related cost of goods sold according the categories new cars, used cars, spare parts and service, which would be of interest for the dissertation.

Management reports may be presented in form and content quite free, provided some minimum requirements are met[1]. Accordingly the management reports in the sample provide a great variety of information relevant for the dissertation, from none to detailed, pure narratives, additional numbers, or combined.

Financial data as presented in balance sheets and income statements of the dealerships of the sample are used for evaluation of the car dealerships financial position, expressed as ROI and EBT and the change of these two variables under German 2009 AVR conditions. Information from management reports will be used in order to assess whether or not a ceteris paribus assumption with respect to possible changes of the business areas as described above and their influence on the financial position can be made, whether management reports expressis verbis on direct impacts of German 2009 AVR on results of operations and/or financial position and to identify strategies in place with the dealership industry.

Since supplemental information in management report is voluntary and not standardized, its exploitation requires systematization and reduction to the smallest common content related to certain subjects in order to get an analyzable dataset. Further sample sizes are not identical for analysis of quantitative data (full sample) and supplemental data and information derived from management reports. Qualitative information as far as presented in management reports is systematized and compiled in a separate statistic according to the business areas “distribution of new cars”, “distribution of used cars” and “after-sales” and in the statistic distinguishably labelled as a subset in case the reporting entity puts that information in a direct cause and effect relation to the German 2009 AVR or to the economic crisis.

[1] Para 289 German Commercial Code

Narratives given in the management reports which are consistent with the numbers in balance sheet and income statement and are structured and/or explain strategic measures or decisions are presented in short.

Strategies and/or strategic measures as far as presented in management reports are identified in accordance with the definition of Mintzberg (1987).

To present the research process visually and the format of figure 1 follow the works of Guest (2013) and Wilkins and Woodgate (2008).

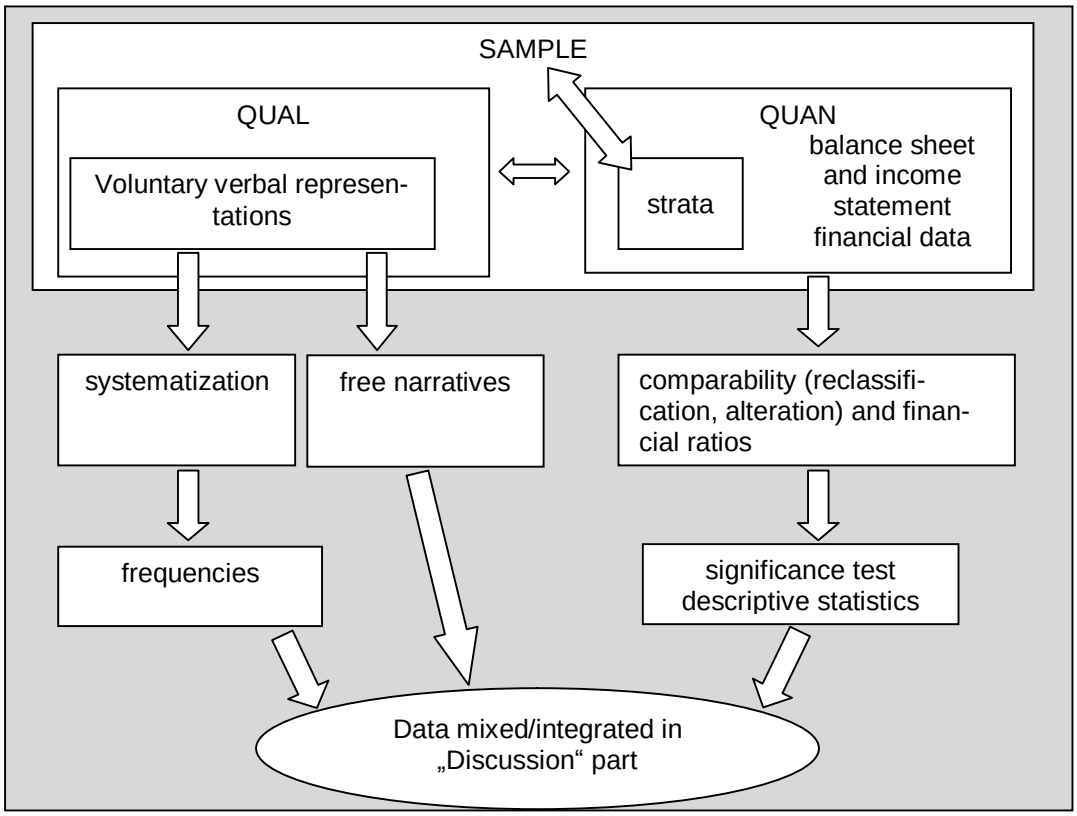

Figure 1 Design of the methodology of the dissertation

2.3 Methods

2.3.1 Definition of the object of research

Before starting sampling and hypotheses testing, "it is necessary to define the analyzed industries and their borders" (Zufan, Špačková, 2005). All business entities dealing with new and used passenger cars, commercial vehicles, buses and special purpose vehicles (e.g. agricultural tractors, ready mix trucks, rescue vehicles, fire fighting vehicles, police cars) , make the car dealership industry in the sense of the word. Due to the vertical restriction of competition, the subgroup of the

"commercial distributers of passenger cars certified by OEM and conducting their business in the German market"

is defined as the German car dealership industry for the purposes of the dissertation because this subgroup forms the market place for the vast majority of cars qualifying for German 2009 AVR bounties.

The C2C market of cars pre-owned by OEMs' employees qualifies for subsidized purchases if the fourteen-month-condition is met (see table 1 in chapter 1.1 with explanations) and thus makes a market share which is not covered by the above given definition, a limitation which has no impacts on the aims of the dissertation. The task of this paper requires the introduction of precision in the sense of limitations to the above mentioned definition. "Commercial distributers of passenger cars certified by OEM and conducting their business in the German market

- for the business volume of which the German market is key for the financial position and result of operations (e.g. export oriented entities)
- which are clearly focused on business with passenger cars (the other way round: For which the business with passenger cars is not just one of two (or more) footholds in the market for motor vehicles, which excludes Mercedes-Benz dealerships due to their typically two fold presence on the market for passenger cars and commercial vehicles)

- the business model of which is not governed by the aims and concepts of a direct controlling OEM (the other way round: Which are not captives)".

Figure 3 depicts the borders set up by the definition of car dealership industry relevant for this research.

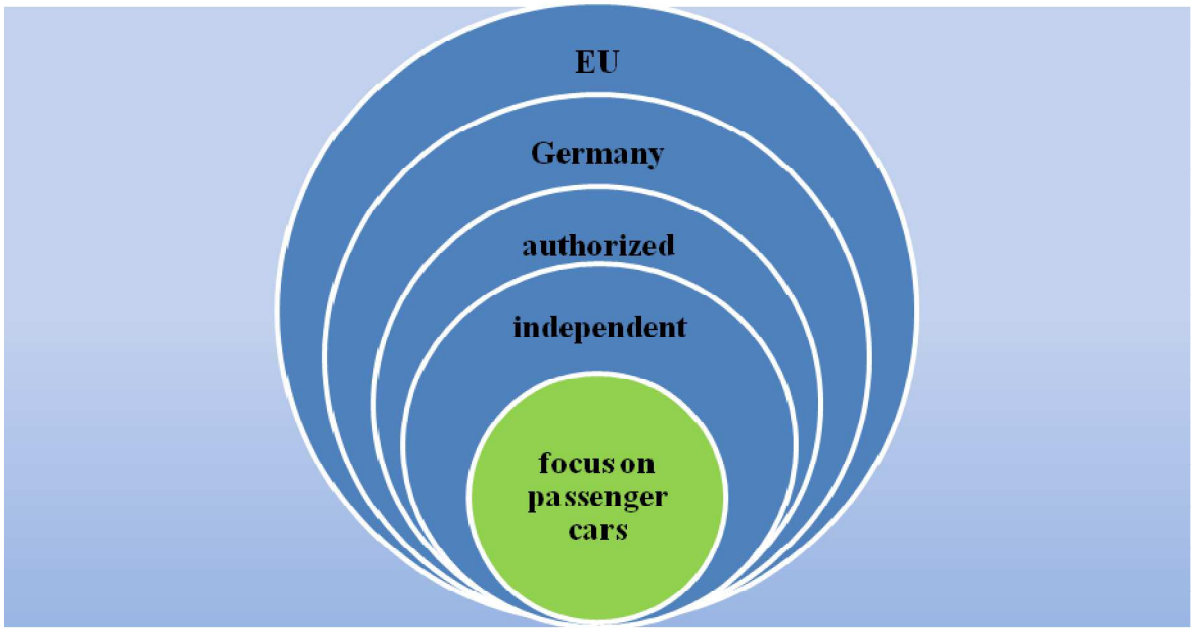

Figure 2 Object of research

2.3.2 Explorative sampling

There is no official statistic on the total number of German car dealers, thus no statistics on financial data or financial key figures of this industry are available. German Electronic Federal Gazette makes statutory annual financial statements accessible via a website[2] which requires the name of the reporting entity. Accordingly it is necessary to combine sources with names of dealerships and match their individual selection criteria in an explorative sampling process.

2.3.3 Hypotheses on quantitative data

Constructed counterfactual sales of passenger cars in 2009 do not substantially differ from sales realized in 2008 measured by numbers of new registrations in the small and upper small classes (Böckers, Heimeshoff, Müller

[2] https://www.bundesanzeiger.de

(2012); the total of new registrations of all classes of cars in 2009 as a constructed counterfactual excluding the impacts of the German 2009 AVR only, is 3.03 million (Proff, Fojcik, Koch, 2009) compared to 3.09 million in 2008 (FMTA statistics), a minus of 2.1 percent. This is considered to be a well acceptable basis for a two year comparison 2008 and 2009 in order to evaluate the impact of German 2009 AVR on the financial position of the car dealership industry taking the below mentioned measures for the years 2008 and 2009 as paired samples with German 2009 AVR as treatment .

Evaluation based on QUAN dataset is made by separated significance tests of the hypotheses

$H0_{ROI:}$	$ROI_{2009} - ROI_{2008} = 0$	versus	$H0_{ROI} > 0$,
$H0_{total}$:	$total_{2009} - total_{2008} = 0$	versus	$H0_{total} < 0$,
$H0_{EBIT}$:	$EBIT_{2009} - EBIT_{2008} = 0$	versus	$H0_{EBIT} > 0$,
$H0_{turno}$:	$turno_{2009} - turno_{2008} = 0$	versus	$H0_{turno} > 0$,
$H0_{gross}$:	$gross_{2009} - gross_{2008} = 0$	versus	$H0_{gross} > 0$,
$H0_{EBT}$:	$EBT_{2009} - EBT_{2008} = 0$	versus	$H0_{EBT} > 0$,

versus the directed $H1_{ROI}$, ..., $H1_{EBT}$ as the increase or decrease of the financial indicators.

Since ROI combines a dynamic item, EBIT, and a static item, balance sheet total, in the dissertation $total_t$ is calculated as $\frac{total_{t-1} + total_t}{2}$ and ROI_t as $\frac{ROI_t}{total_t}$.

EBT is derived from EBIT by subtraction of interest expense net of interest income, the drivers of which are funding volume as far as subject to interest and interest rate. As for the dissertation EBIT reflects ordinary income further items like gains and losses and income from investments come to the reconciliation from EBIT to EBT.

Evaluation of possible impacts of German 2009 AVR on EBT is made by testing, supplemental to the above mentioned hypothesis test, whether changes in interest expense depends on interest rate, or funding volume. From the assumption, that the interest rate, based on the national base interest rate will apply to all members of one specific industry, here: car dealerships, within a narrow range and that the interest rate applying to this industry is mirrored in the individual interest ratio, defined as $\frac{interst\_expense_t}{loan_{t-1}+loan_t} \times 2$ and denoted as int_rate_t, it is concluded, that the result of hypothesis test for EBT is attributable to impacts of German 2009 AVR if there is no significant change in int_rate_{2008} compared to int_rate_{2009}.

Upon the results of testing the distributions of the datasets on approximation to Gaussian distribution (chapter 5.2.3), the appropriate test statistic is chosen for processing significance tests.

2.3.4 Evaluation of qualitative data

Qualitative dataset in the dissertation denotes all information extracted from management reports, no matter whether presented there in numbers or language. Chapter 2.2 gives explanation on the fundamental difference between balance sheet and income statement information versus management reports' information concerning the levels of standardization and thus intersubjective and interperiodical comparability. Firm No. 19 gives an example for intended reduction of level of detail in a business year with extraordinary circumstances (above and Appendix 2). Even without obvious manipulation of the reporting style, in numerous cases the presentations of numbers need interpretation and / or consolidation to the common minimum for the purpose of intersubjective comparison. Examples are lacking

- information whether the turnovers from selling demonstration vehicles are allocated to turnovers from new or used cars
- allocation of discounts to items of given turnover composition.

In such cases interpretation of accompanying verbal explanation, if any, is used before using the numbers for statistical analysis.

The year 2008 is characterized by the financial and economic crisis. Turnover and related gross profits of car dealers are composed of the two main segments of

- sales and
- after-sales.

The word “sales”, which is used as a foreign word in the management reports, denotes the car trading and “after-sales”, a foreign word in the management reports, too, denotes the business of rendering maintenance and repair service as well as selling spare parts, lubricants and other. Turnover from after sales activities is by far smaller than those from sales (see figures 7 and 8 in chapter 5.2.2), but deserves attention in an evaluation of financial position using ROI and EBT, because it contributes disproportionate high to gross: The gross margin in the sales business is 8.2 percent in the average of 2006 to 2008 with a standard deviation of 0.0019 compared to 64.8 percent with a standard deviation of 0.0053 in the after sales business. Although this statement is based on firm No. 19 presentation only, it is assumed that under the specific legal, economic and competitive environment the object of research is subject to, the aspect of importance of after-sales for results of operations and financial position of car dealerships has certain universality in this industry. This dealer changed the reporting style in the management report in a way that transparency for the reader is substantially reduced in 2009 (see Appendix 2).

Numerical information in the qualitative dataset is used for testing the ceteris paribus assumption with respect to the after sales business.

Managements’ verbal presentations are sorted according to the areas of business “new car”, “used car”, “used cars on stock” and “after-sales” and classified into increase (+), decrease (-) or stabile (±), which enables presentation of like sign frequencies. With respect to the objectives of the dissertation the categories “German 2009 AVR” or “crisis” are attributed to the classified statements as far as they are presented by the reporting entity as causal or at least influential.

Further comprehensive presentations of the economic situation of the entity with details on operations, significant changes in businesses which make reference to the economic crisis and the influence of the German 2009 AVR are summarized and presented provided such presentation exceed typical key word language.

2.3.5 Evaluation of strategies

Under the definition of strategy by Henry Mintzberg's "5 P's" (Mintzberg, 1987) and the related explanations of P. Zufan in his lecture, verbal presentations in managements reports on

- acquisitions of competitors
- extension or reduction of numbers of sales points
- enhancement or reduction of brand portfolio

are identified in an ex-post analysis of presentations in management reports as manifestations of strategic measures. These strategic measures apparently are initiated by the individual entity ("planned"), implicit a communication with the market ("ploy"), expectedly will impact behaviours ("pattern") are aimed to improvement of market position (more sales points, more brands) or profitability (less low profitable business, less brands) and reduction of expenses and fix costs (less sales points) ("position") and are subject to operative missions ("perspective").

A further managerial decision is taken into consideration, the

- reduction of low profitable distribution of new cars to car rental companies, fleet operators and other large-scale customers,

because this measure is explicitly labelled by all reporting managements concerned as strategic measures, although it appears more as a change in the entity's sales policy, not as a strategy in the above presented sense.

Management reports' language is checked on reports on strategies or strategic measures, either stated expressively as being such, or implicitly complying with the definition of the five P's. Strategic measures and strategies identified from the verbal presentations are supplemented by such con-

cluded upon by significant deviations of turnover composition from the quantitative dataset. All findings from qualitative and quantitative datasets are presented in table 19, chapter 5.4.2. Effectiveness of strategies found in sample is tested against financial position criterion ROI by comparison with the total sample.

2.4 Materials

2.4.1 Market data

The aim of the dissertation (to come to results concerning the German car dealership industry) requires attention for relevance and representativeness . Data on market shares of car brands give a general orientation to focus on substantial demand and are used for selection of sources of possible sample elements in the listings of dealerships eligible for sampling. Further the ranks in market shares together with the ranks of shares of absorbtion of German 2009 AVR volume will be used for stratification of the sample. Available data for market shares follow two alternative approaches, the new registration per year and the total of valid registrations. Due to the character of cars as durable goods with the related use per car over many years and the shifts in demand the new registration per year approach is chosen for the assessment of market shares. Statistics on new registrations per car brand and car types are issued by the FMTA and available for a minor fee or in the internet in various websites as excerpts or copies, e.g. under <http://www.kfz-betrieb.vogel.de/pkw-neuzulassungen/>. These statistics do not provide information on the exact way of distribution of the new cars, via independent dealerships or via OEM outlet.

FEEC provides on its website statistics on the subsidized sales and the related allocation to car brands (FEEC, 2010); this source provides information substantial for the design of the research in the dissertation, since it reveals which brands and classes of cars are benefiters of the German 2009 AVR and which are not, or to an immaterial extend only.

2.4.2 Dealership data

Statutory annual financial statements as described in chapter 2.2 are the source of dealership data. These statements require careful examination

and in cases of inconsistencies critical remarks, alterations to information before getting included in elaboration of statistics or have to be omitted, upon the degree of inconsistency.

3 SURVEY OF LITERATURE

Literature on AVR's by number of publications is clearly concentrated on environmental aspects with a focus on AVRs' influence on the air pollutants, primarily measured by amounts of carbon dioxide emissions over time. Researches on those aspects come to different results including the extreme that the net effect of shortening motor vehicle lifetime by AVRs will lead to an increase in total carbon dioxide emissions (Kagawa, Nansai, *et al.*, 2011); the paper of Kagawa, Nansai et. al. (2011) provides numerous references to recent works in this field. A review of literature of environmental impacts of AVRs concludes that AVRs are not 'bad' by definition; effectiveness may be given under specific technological conditions and if exactly tailored to them. But incentives alternative to AVRs, like carbon dioxide tax would have deserved more attention. The same applies to the strategy of just leaving the market mechanisms untouched (van Wee, Jong, Nijland, 2011). In the context of researches on carbon dioxide reduction, economic considerations are made in the sense of calculation of expenses for the respective underlying incentive with the expenses per unit of avoided emission as a measure for effectiveness. In this context some works include VAT from turnovers resulting from the replacement of scrapped cars as an offsetting in researches on tax financed programs.

Only few works with a focus on economic aspects of AVR's are available. No work was found on the possible impact of German 209 AVR on car dealerships' overall financial position.

3.1 Car Dealership Industry in the EU and Germany

3.1.1 Regulatory Framework

Buzzavo (2008) takes the profound reorganization of the automotive distribution in Italy as a motivation for a work on some features of the reorganization, the strategies and key success factors of 22 of the 50 largest car dealerships.

Creutzig (2003) is commentator on legal aspects and details of MVBER (EU).

Buzzavo (2008) elaborates his work from an overview on the development of the distribution networks for passenger cars in Europe and Italy, starting prior to World War I to the present. A subdivision into three stages is provided as the basis for explanation of reorganization features. The last stage is of interest for the dissertation. It is marked by mass distribution as a consequence of mass production of cars in Europe. Since the 1990's the car dealership industry faces heavy competition, particularly intra-brand. Further pressure comes from falling margins, raising fixed costs caused by the necessity to fulfil corporate identity standards imposed by OEMs and developments in information and communication technologies. Regulation of the vertical restriction of competition by MVBER (EU) is addressed as an important issue in the dealer-manufacturer relationship. It is found that broadening the business mix and aiming at greater levels of customer loyality in the sense of a customer-to-dealer relation, not a customer-to-car brand loyality is a major means to improve profitability. Key success factors named by the investigated firms are more linked to conventional management tools and continuation of business rather than to changes of strategies or even business models: Business management and IT, low cost of capital (key factors for the whole dealership), active sourcing of used cars (key factor for vehicle sales department), incentive schemes and flexibility in labour costs and labour scheduling (key factors for repair shop). Growth strategies are in place in order to exploit economy of scale effects. All kind of growth techniques are used: Expanding the brand portfolio, extending the geographic area covered by the individual dealer's sales points, filling up open points in the geographic market or take-over of competitors. With 68 percent the organic growth is by far the preferred way for the dealers in Buzzavo's sample in striving for growth. Only 27 percent of the respondents prefer acquisitions and 5 percent are indifferent in this point. The expectation of organic growth is based on the strategy for so called qualitative growth, a bunch of dealer-individual measures to improve profitability.

These findings are used in the dissertation in terms of identifying analogous strategies in place in the sample n=77 (figure 4 in chapter 4.2.2), see table 19 in chapter 4.4.2. As fas as can be seen from Buzzavo's paper, the possible impacts of the Italian AVR effective in 1997 and 1998 (see chapter

3.2.1, the work of Hohlstein, Arnsmeyer et al.) on velocity (or retardation) and direction of the reorganization and concentration process in the car dealership industry are not considered.

In his commentary book on the MVBER (EU) 1400/2002 which is the version valid for the period of time covered by the dissertation, Creutzig provides interpretation on the overall mode of action and rationale of this regulatory framework. In the EU distribution of products manufactured by OEM, the so called contractual goods, in concrete words: New cars and spare parts, as well as rendering services (inspection, maintenance and repair) to cars qualified for perpetuation of manufacturer's warranty is subject to the regulatory framework MVBER (EU) since 1985. MVBER 1400/2002 as the successor of MVBER 123/1985 and MVBER 475/1995, originally expiring May 31, 2010, it is expected to "[…] still apply until 31 May 2013" (European Commission). The rationale of those regulations is to create a closed distribution and repair system for the contractual goods by vertical restriction of competition according to the extend set forth by the OEM. To spare parts a limited exemption applies which allows the car dealer to sell spare parts to repair shops inside and outside the system, provided the sales are restricted to the repair purposes of the buyer and do not create a wholesale business. This exemption is used by some of the dealers in the sample of the dissertation in order to form a focus on this part of the contract dealers' business area. Such focusing is looked upon as a strategy in the sense of chapters 2.3.5 and 4.4.2 and table 19.

3.1.2 Dealership Contracts

Arrunada, Garicano and Luis (2005) identify the core of the mechanism of the contractual stipulations which generate the characteristic asymmetry of powers in the dealer-OEM relation.

Reindl (2004), Siedenhans (2004) and Krogh (2012) in their papers and articles deal with concrete practical dimensions of exercise of power by OEM.

The design of dealers' contracts in a way which requires ex post decisions concerning contingencies and unforeseeable situations is identified by Arrunada, Garicano and Luis as the lever with the lasting effect on the alloca-

tion of powers in favor of the OEM-side. “[…] the manufacturer (has, the author) the right of enforcing the contracts, applying if necessary the ultimate punishment of terminating the relationship and destroying the quasi rents of one of them”, (Arrunada, Garicano, Luis, 2005). Their work is based on the dealer to manufacturer contracts of 23 car distribution networks in Spain, covering all of the important multinational firms. Those contracts present a large degree of homogeneity, both within brands and across brands with the common core of limiting the decision rights of dealers in the areas of conflicting economic goals in order to increase the quantity of cars sold and to ensure a minimum quality of services rendered. Both aims counteract the profit-making interest of the dealer. In exchange monetary incentives based on a multidimensional effort vector which is created by the OEM are granted. Such vectors even include polls among the individual dealer’s customers. Final discounts on contractual goods purchased by the dealer are settled after expiration of fiscal year conditional upon achievements of goals set forth by OEM. Enforcement of dealership-OEM contracts’ terms is supported by a system of comprehensive monitoring which includes financial data and financial statements.

The above mentioned practice of powers is indirectly seconded and complemented by the statements of Siedenhans (2004) and Reindl (2004) according to which OEM's tend to over-exercise their legal powers: Their efforts to hamper or stifle multi-branding accompany EU – legislator’s negotiations on MVBER issues since 1985. Even after expiration of the “so-called ‘location clauses’[…]as of 1st October 2005, […] (which, the author) allows dealers to compete more widely […]" (European Press Releases, 2005), the clearly stated aims of the MVBER wording, in practice are undermined by an abusive increase of qualitative standards set forth by OEMs.

Depending on the specific issue on the multidimensional effort vector car dealerhips’ management’s decisions are intervened with impacts on the dealerships’ expenses and costs in terms of character, structure and amounts. With respect to the data sourcing of the dissertation table 1 presents a listing of the most common of such interventions and the related positions on the face of the income statement under applicable German GAAP.

Table 1 Impact of OEMs' interventions on dealers' income statements

Intervention	Position on the income statement
Design, space and decor of showroom	Depreciation expense, if dealership has to account for acquisition cost due to ownership plus interest expense upon financing structure; alt.: other operative expense (rent or leasing expense in case of operating lease)
Space of repair shop	
Contents and levels of expenses for promotion and advertising	Other operative expenses
Number and structure of skills of staff together with related training programs	Personnel expense with separate presentation of gross wages and employer's share to social contributions and expense for pension scheme
Minimum volumes of demonstration cars on stock	Depreciation expense (if dealership follows the prevailing accounting method of allocation of demo's to fixed assets), interest expense upon financing structure; alternatively: other operative expense in case of operating lease
Minimum volumes of new cars and spare parts on stock	Cost of goods sold in case of the accounting for impairments due to excess inventories

Source:Arrunada, Garicano, Luis (2005), reworked by Author

The article of Krogh goes to the opposite direction of usage of powers by OEMS, reporting on subsidies granted by the VW group to her distribution organization in order to compensate expected losses from reselling lease returns which originally had been pushed into market during the economic crisis up to June 30, 2008. Such efforts however may be looked upon not as an evidence of a relationship between contractual parties based on equal footing but as a correction of unfair contracts to the detriment of the dealership industry, necessary inn order to avert substantial financial damages from the non-captive dealers.

Regulatory framework and dealer contract do not grant in exchange for resulting asymmetry of power exclusive rights for the distribution of the contractual goods to the contract dealers, at least not in Germany. On the German market OEMs are strong competitors to their dealers, coming to a total of 410 outlets, see table 9, chapter 4.2.1.1, 147 outlets for the brands under research in the dissertation.

3.2 Accelerated Vehicle Retirement Programs

3.2.1 Scrappage schemes

European Conference of Ministers of Transportation (Cleaner Cars, fleet renewal and scrappage schemes, 1999) reviews vehicle scrapping schemes introduced to date in Europe and the United States of America with the aim to make recommendations for improvement of effectiveness of such schemes in the sense of the best possible support to car industry's efforts for cleaner cars. The publication (OECD Publication Service) provides criteria for classification of scrappage schemes, which are adopted by Schiraldi, 2008 and in the dissertation. The main chapter is about environmental issues, but in two smaller chapters, one dealing with the usefulness of scrappage schemes in former socialist countries and one on "The effects of scrappage schemes on the car market and the national economy" aspects of supply and demand and prices are presented. Based on the description of the durable character of cars with related specific scope of customers' possible decisions (demand for "new" in the sense of first-time purchase or additional purchase, or replacement car; replacement now or later) the major determinants of the demand for cars are identified as a high income elasticity and the borrowing rate. Lower income groups buy on the second-hand market whereas high income groups buy on the first market (or second-hand market for their second and third cars). The main structure and mechanism in the car market are described by the fact that there is a first and second market, both interrelated with the price on the second-hand market as the fundamental link. Cash-for-replacement schemes designed to subsidize the purchase of new cars have a price effect by lowering the cost of replacement. Cash for replacement schemes will influence the market by changes in consumers habits which are inevitable in striving for the AVR's bounty: The lower income groups have to change from the submarket of used to that of new cars and there to small-sized, cheap models. They bargain hard in order to afford the subsidized (new) car. Since new and used cars are substitutes, all cars get cheaper independently from qualifying for the scrappage scheme. Under market conditions as given in the EU (no supply constraints, excess production capacity) the decline in price levels in all market segments will lead to a commercial war among manufacturers on market shares. Strong advertising campaigns by

manufactures during scrappage schemes were observed. Despite the obstacles to profitability (shift of demand to small cars, declining price level) a boost in profits in the car industry is supposed; in this point it is not clearly stated whether the OEM industry, the dealership industry or both are referred to with this statement, nor is explained the mechanism or concept leading to a boost in profits despite declining price level. Considerations on the impact of crisis-triggered decline in demand for premium class cars, as to be observed in the German market in 2009, are not made, since obviously AVRs are seen as instruments for environmental protection aims only which do not set forth a situation of weakness of national economy.

Hohlstein, Arnsmeyer et al. (2001) analyze the drivers of the demand for passenger cars in Italy as a commissioned work by Robert Bosch GmbH, Stuttgart, one of the biggest suppliers to the automotive manufacturing industry. The description of the economic and political environment and its historical development with regards to the frictions in its structure by the Italian scrappage program effective 1997 and the first half year of 1998 is the basis for the application of three regression models in order to find the drivers of the demand for cars. It is described that under the Italian AVR which was designed as a cash-for-replacement program 1.657 million cars have been replaced. An increase of new registrations compared to the period prior to effectiveness of the AVR of 38.9 percent could be observed while the market for used cars decreased.

Schiraldi (2009) elaborates a structural model of dynamic demand for automobiles in the first and second market under integration of transaction cost. This model, based on certain assumptions concerning the drivers for consumers decision to replace his car, is applied to market data for the regional submarket of the Province of Isernia in Italy covering the Italian scrappage scheme effective in 1997 in order “to investigate the impact of such policies on consumers’ demand for new and used vehicles”. According to Schiraldi presence of transaction cost have a heavy influence on keeping cars on stock by the consumer. Without reference to Hohlstein et al., 2001, a slow down of purchases of used cars during effectiveness of the AVR with a steep increase in the following years is observed.

3.2.2 Germany's cash-for-replacement scheme of 2009

Scrappage schemes may be classified into two types: programs under which incentives are granted conditional upon the replacement of the scrapped car (cash-for-replacement) and such without the requirement of replacement and thus leaving an "outside option" (Schiraldi, 2008) to the consumer (cash-for-scrappage) (European Conference of Ministers of Transportation, OECD Publications Service, 1999).

The German 2009 AVR is a cash-for-replacement type scheme due to its precondition of the replacement of the scrapped car in order to get the bounty, see table 2, net page. It was embedded in a bunch of subsidizing measures (the so called "Konjunkturprogramme 1 and 2"[3]) aimed to counter the downturn of the real economy from 2008 on in the aftermath of the financial crisis. Shortly after its initiation the German 2009 AVR was renamed from "Abwrackprämie" (scrappage incentive, translation by Author) into "Umweltprämie", a word creation which refers to environmental aspects, more precisely in a subliminal way to improvement, protection or similar. Böckers et al., 2012 points to the fact of lacking environmental requirements since "The demanded emission class Euro 4, that had to be fulfilled [by the replacement car, the author] was mandatory for new car purchases on the EU level from January 2006, anyways." (Böckers, Heimeshoff, Müller, 2012).

The official aim of the German 2009 AVR is expressed by the language "replacing old highly emitting cars with new and more effective ones and to stimulate demand for cars" (Bundesamt für Wirtschaft und Ausfuhrkontrolle[4], 2010)[5] and may give an idea in what way economic and environmental targets were intended to be persued.

[3] State funded stimulus programs 1 and 2
[4] Federal Office of Economic Affairs and Export Control (FEEC)
[5] Words in quotation marks translated by author

Table 2 Main points of German 2009 AVR

Timing	January 27, 2009 (start of application) until September 2, 2009 (budget exhausted)
Budget	5 billion euro
Incentive	2,500 euro per car
Old car precondition	1. Minimum age of nine years 2. Car had to be registered with the applicant for at least one year
New car precondition	1. Fulfill emission standard Euro 4 2. New car or vehicle registered with another person or company for not more than 14 months (Jahreswagen)
Other features	1. Private consumers only 2. Short notice of policy
Aim	1. Reducing the age of the car fleet 2. Economic stimulus

Source: Böckers et al., 2012

The relevance of the timing category in table 2 for the dissertation is explained in subsequent subchapter 3.2.2.1.

The term "Jahreswagen" used in the category "New car precondition" of table 2 deserves explanation and description: New cars sold directly from the Original Equipment Manufacturers (OEMs) to their employees at special discounts in exchange for the duty of a minimum term of personal use of one year commonly are called "Jahreswagen"; table 2 refers to this word in the broader definition given by the directive for the execution of the German 2009 AVR, which includes all cars not older than fouteen months and pre-owned by OEMs, associated entities and car rental as well as car leasing businesses, Bundesministerium für Wirtschaft und Technologie (26.06.2009)[6].

In the "Other features" – category of table 2 it is pointed in number 1 to the condition that the premium under German 2009 AVR is accessible for private consumers only. This is of high importance for the dissertation since it is influential to the sampling design outlined in subchapter 3.2.1 by leading to the exclusion of the Mercedes-Benz dealerships from the sample for reasons given there.

[6] Federal Ministry of Economics and Technology

The German 2009 AVR was designed under a first come first served concept with an initial maximum budget of 1.5 billion Euros, equaling 600,000 replacements. This together with the bounty coming to EUR 2,500 per replacement may be seen to imply that a competition between applicants for the scrappage premium will emerge which might push the bargaining for the highest possible discount in the background. The observation of scientists that “Car dealers and the media reported that people were queuing up in front of dealerships and dealers were busy writing up sales contracts rather than doing anything else” (Kaul, Pfeifer, Witte, 2012) is in line with the above mentioned early use up of the AVR’s total.

3.2.2.1. Implementation period

The time span from the beginning of the public debate to effectiveness is an important criterion for the success of the measure to be implemented, since it enables the parties concerned to adjust their decisions.

"For to be successfull, stimulus programs must cause quick and strong impacts." (Straubhaar, 2009).

Researches on this aspect unanimously come to the result that the German 2009 AVR was implemented very quickly, more precisely: in a period short enough to avoid Ashenfelters' dip problem; Google trends search volume index does not show a peak in searches for "Abwrackprämie" or "Umweltprämie" in November and December 2008. Böckers et al., 2012 and in line with them another work finds that “The idea for a scrappage program in Germany was picked up by the German vice-chancellor Steinmeier in an interview on December 27, 2008. Only two weeks later, the Government passed an economic stimulus package including a scrappage program.” (Kaul, Pfeifer, Witte, 2012).

On consumers’ side the duration of public debate about the introduction of an AVR gives room for the deferral of purchases which in the case of the German 2009 AVR is indicated by a decline in sales by 100,000 units, thereof 67,000 in the cheapest segments, in the 4th quarter of 2008 (Proff et al., 2009). This may be looked upon as a marginal effect compared to the total

market volume making an annual average of 3,3 million new registrations in the five-years pre-crisis period from 2003 to 2007, see appendix 1.

On the car industry's side the program obviously came surprisingly quickly, too, which is indicated by the second of the two steps of amendments subsequent to the German 2009 AVR's initiation: The first step increased the budget to 5 billion euro and the second extended the maximum age of cars qualifying for replacement to fourteen months; this was a support tailored to the distribution of cars pre-owned by OEMs (e.g. company cars), OEMs' distribution organizations (e.g. demonstration vehicles and short term rental cars), OEMs' employees, OEMs' car financing banks, car rental businesses and car leasing businesses. This second amendment had been made with respect to the needs of the automotive industry (FEEC, 2010). As commonly known, even under regular conditions it takes a time span of several weeks from specified order (colour, equipment details) to delivery of a new car. No explanation needed that a complex production process with numerous suppliers over several nations as given in the car industry will react with delay on sudden attempts to increase the outputs. Thus is it not surprising that researchers found that the "[…] car industry suffered from substantial delivery delays […] because of the high demand for small cars […]" (Böckers, Heimeshoff, Müller, 2012).

3.2.2.2. Increase in demand for new cars net of pull forward and deferral effects

The period of application for granting the premium under German 2009 AVR ended December 31, 2009 and the term for related registration of the replacement cars ended June 30, 2010; the replacement goal of the German 2009 AVR had been reached long before those expiration dates and earlier than indicated in table 1, since up to July 31, 2009 already 1,932,929 incentives (96,6 percent of the total of 2,000,000) had been paid to the applicants (FEEC, 2010), thereof 1,569,664 for purchases of new cars and 363,426 for purchases of used cars (the excess of 161 incentives of the added numbers over the total per Juli 31, 2009 is explained by the FEEC with a slight delay in the compilation of the new car - used car -statistic).

From the car dealerships' perspective already in December 2009 deliveries of new cars to subsidized customers had reached the character of a fade-out, with a concentration on related sales from Februar to October 2009 as to be found in researchers' sample (Kaul, Pfeifer, Witte, 2012).

Compared to 2008 the German total of new registrations increased in 2009 by 23.2 percent which includes a decrease of new registrations of premium class cars by 111.4 percent, see chapter 4.1.1, explanations to table 5.

For researchers replacements and new registrations are of interest in terms of quantification of the "real" effect of the measures introduced by the before mentioned State funded stimulus programs 1 and 2. Since the related research answer inevitably includes the counterfactual demand net of German 2009 AVR's impact this is highly relevant for the dissertation, too.

Proff, Fojcik, Koch (2009) and Böckers, Heimeshoff, Müller (2012) deal with the German 2009 AVR, both of them describing the scheme and providing analyses of its effect on demand on the car market in the year 2009, either as an estimate (Proff et al., 2009) or based on retrospective data (Böckers et al., 2012) whereby the (expected) demand for cars under the conditions of the German 2009 AVR is compared to a counterfactual situation net of AVR incentives.

Proff et al. (2009) focus on the pull forward and deferral effects of the German 2009 AVR taking into consideration that the AVR was just one – even if the largest – measure of the governmental stimulus packages I and II; four programs with direct impact on the demand for cars

- time limited exemption from motor vehicle tax for vehicles purchased in november 2008 and later
- motor vehicle tax reform for vehicles purchased subsequent to July 1, 2009
- inhanced tax exemptions for vehicles powered by diesel engines
- subsidies for R&D programs in the field of hybride and fuel cell powertrains

and eight indirect stimuli with the extension of the subsidy under the short-time working allowance from 12 to 18 months being the most relevant for the demand for cars are included in a forecasting model which specifically is designed for the car market. This model accounts for six parameters, “population”, “savings rate”, “interest rate”, “gross national product”, “inflation rate” and “number of unemployed persons”, and comes for 2009 to a forecast of 2.890 million units of the total of new cars sold in the sense of a counterfactual situation free of all crisis related subsidies and 3.025 million units free of German 2009 AVR influence.

Böckers et al. (2012) published a discussion paper on the pull forward effect included in the subsidized demand under the German 2009 AVR. This research takes into account the statistics of the FEEC on subsidized purchases and related scrappages, and is based on the monthly statistics of FMTA on new registrations in the car-size segments “small” and “upper small” for the time from March 2001 to October 2011; 84 percent of all car purchases subsidized by the German 2009 AVR are covered by these two segments. The other segments are not covered by the work. Multivariate and univariate autoregression models are applied to data of independent variables, e.g. unemployment rates, industry production, interest rates and gasoline price in order to construct a counterfactual demand expressed in numbers of new registrations for the period of effectiveness of German 2009 AVR and subsequent up to October 2011. The counterfactual numbers of new registrations of the small and upper small class of cars are depicted in a chart presenting a line without extraordinary fluctuations compared to prior year levels. The demand (counterfactual and real) for used cars distributed on the second market is not covered by Böckers approach.

It seems appropriate to conclude that Böckers et al. and Proff et al. come to very similar results concerning the counterfactual situation to the German 2009 AVR, although using different methods and referring to different market (sub-) segments.

None of the two works take into consideration the market for pre-owned cars and after sales. Whereas the paper of Proff et al. was elaborated before the amendments to German 2009 AVR extending this measure to pre-owned

cars, see above chapter 3.2.2.1 the consideration of this aspect could have made the findings of Böckers et al. more valuable, since 363,426, respectively 18.8 percent of the subsidized sales listed in FEEC's statistic (see chapter 4.1.1, table 4) come to the second market.

3.2.2.3. *Impact on price level of new vehicles*

Kaul et al. (2012) take the effective purchase price of a car as the result of a bargaining process on the discount on manufacturers' recommended retail price (MSRP). Their work aims to answer the question how much of the scrappage premium is skimmed off by the car dealers via reduction of discounts. An estimation strategy based on linear regression compares subsidized to non-subsidized purchases in a sample of 8,156 observations (purchases of new passenger cars or demonstration vehicles) made over the time span from 2007 to 2010. In the segment of cars with MSRP up to EUR 12.0 k subsidized buyers faced negative price discrimination by about 1.6 percentage points, equalling a skim-off by 7.7% of the scrappage bounty for a EUR 12.0 k car (EU class A = Mini Cars, mean MSRP price EUR 11.6 k). This detriment to the subsidized customer compared to the regular customer fades out at purchase price of EUR 18.0 k (EU class B = Small Cars, mean MSRP EUR 16.1k) and reverses into additional discounts for subsidized buyers of medium class cars (EU class C Medium Cars, mean MSRP EUR 23.8k); by this strategy dealers attracted untypical customers for pricey cars who expectedly would not interfere with the brand-loyal regular customer in order to reduce the increasing stock of such cars. The additional discount comes to 3.5 percentage points for a subsidized purchase of a EUR 32.0 k car equalling an addition of 44.8 percent to the scrappage premium. The total of subsidized purchases in the sample of Kaul et al. was discounted by 0.4 percentage points over the non subsidized purchases. The level of total discounts is found quite stable in the observation period. Compared to the level of 2007 the following decreases are found: -0.6 in 2008, -1.1 in 2009 and -0.4 in 2010, all percent of MSRP. The paper of Kaul et al. addresses microeconomic aspects which are of importance under the dissertation's questioning and gives answers, since discount levels on MSRP for new cars are substantial for gross profit. Like in the dissertation the year-to-year comparison is chosen and applied to the changes in discount levels. The results presented by Kaul

et al. do not however allow to conclude to impacts of the finding of increased total level of discounts to gross profits or even profitability, because no information are provided on the changes in turnover, influence of shift of demand to the smallest class of cars on dealers cost structure and further implications are not studied. The business with used cars, subsidized (Jahreswagen, see table 1, chapter 1.1 and table 4, chapter 3.1.1) or regular is exempt from the paper's research. Also excluded is the aspect of possible roll over mechanisms imposed by the OEMs concerning the decline in prices as a result of the competition for market shares (see below OECD study in chapter 4.5).

3.2.2.4. Impact on price level of pre-owned vehicles

Läufer (2009) evaluates the effects of the German 2009 AVR under the Haavelmo theorem (macroeconomic effects) and the theory of Hicks concerning price effects, composed of substitution effect and income effect (microeconomic effects). The secondary withdrawal effect caused by the tax financing of the German 2009 AVR is included in his evaluation. On the factual side the strong reaction of the demand for cars and the reduction of the value of the bounty by subtraction of the residual value of the scrapped car are taken into consideration. Concrete numbers in connection with the German 2009 AVR and the market of passenger cars are not introduced. Accordingly the result presented in the paper is of verbal character. The overall assessment attests that the German 2009 AVR is ineffective but not irrational, because it performed a macroeconomic stabilisation though on the expense of annihilation of residual values[7].

Straubhaar (2009) similar to Läufer (2009) provides a verbal evaluation of the German 2009 AVR in his paper. Based on the statement that governmental economic recovery programs are not effective if applied on a regular basis, measures with a strong and quick impact are qualified as the exception to this general rule. Overtime work and customers on waiting lists in the automotive branch are stated as positive aspects. Despite of this a scathing judgement on the overall macroeconomic effect is made due to doubts on positive ecological results, dead-weight effects, deferred purchases and –

[7] The word used by Läufer is „Restwertevernichtung", the literal translation of which is given in the text, a more interpretative translation would be „substantial impairment"

stated as most important – the priorization of the automotive sector compared to the non automotive sections. Other than Straubhaar (2009), Läufer (2009) is not convinced of such priorization with reference to the income and substitution effect of the scrappage premium which makes it necessary to know the price elasticity in order to be able to assess which sector finally benefits from the bounty, ad hoc and/or in subsequent years. Straubhaar (2009) recommends political measures in order to strengthen consumers' purchasing power as an effective long lasting and priorization avoiding plan. Interesting is a note in Straubhaar's paper according to which the market for used cars crashed. This crash could be interpreted as an confirmation of the negative impact of the scrappage premium on new used cars as explained by the arbitrage principle (Läufer, 2009).

3.3 Implications

Dudenhöffer (2009 forecasts short and succinct that the car dealers will be happy with the German scrappage scheme although he expects a crash of the price structure in the second market; it is assumed by the author that Dudenhöffer implicitly refers to the mechanism of economies of scale with respect to the one-off, time constraint character of the German 2009 AVR.

In summary of the previous the following expectation is derived:

The German non-captive dealerships compete with the captives in a single-step distribution system for the final customer of new vehicles and vehicles pre-owned by the OEMs' organisation.

Authorized car dealers are economically to a high degree directly dependent on the policies of their contractor counterpart, the respective OEM who has – based on the MVBER (EU) - means and powers to put through his own and specific interests. Economic success of car dealers as far as generated from the business under OEMs' authorization does not just depend on turnovers, cost of goods sold and other expenses as they result from regular markets tending to demand – supply equilibrium, but directly and substantially on bonus according to achievement of multidimensional effort vectors which recompense imposed fixed cost and other. Since accumulated gross profit margin in an outlet-to-manufacturer relation is available to the manu-

facturer in full, other than in an independent distributer-to-manufacturer relation, it is to be expected that OEMs with outlet grids will impose indirectly economic pressure on their contractor dealers by quantity-oriented selling actions as under AVR conditions observed related to more pricey car classes. In this context increasing advertising expenses may be inevitable or imposed to the non-captive dealer independently from usefulness to him.

No hint was found in literature indicating the existence of a kind of transparency principle concerning the allocation of scarce commodities, such as cars of the lowest price category under AVR-conditions, to the captive and non-captive distributers. Accordingly it may happen that the OEM with direct control over a captive distribution chain will steer supply in this direction.

Thus there is a certain probability of a multiple disadvantage to the authorized non-captive dealer in a situation of an economic crisis which is countered by an AVR.

The German 2009 AVR leads to a shift of demand to the class of the smallest and less pricey cars. According to the arbitrage principle losses from impairments of the group of "gebrauchte Neuwagen" (young pre-owned cars, translation by author) will occur. Car dealers in the sample enter the business year subject to effectiveness of German 2009 AVR with a total of stock (including spare parts, new cars, used cars, demonstration vehicles and vehicles for rent) coming to 1,674.3660 million euro, respectively 46,5 percent of balance sheet total, see Appendix 4. It is to assume that the portion of used cars included in stock together with the pending risks from repurchase obligations bear substantial economic risk in a situation of rapid change of demand: German car dealers provide as part of the leasing car business put options at fixed prices with the leasing banks (Wulf, Petzold, 2004); since regular lease terms are fixed at 36 to 60 months (Loitz, Leuchtenstern, Kroner, 2011), declining price levels go the expense of the dealer affecting financial position negatively. Post-AVR increase of the second market puts those risks into perspective. Declining business with used cars will lead to declining turnover ratio and make it difficult in a situation of falling prices to keep margins up. This should be a specific issue for dealers of premium class cars while for the business with other cars it depends on the (not addressed in literature) degree

of substitution of used car business by business with cars eligible for German 2009 AVR subsidy.

Demand shifts to new and small vehicle which result in an increase in stock of all other cars; as far as not netted by retained growth in profit, decline of the debt-equity ratio is to be expected.

Boosted demand as far as it is not skimmed off by the OEMs' outlet grid will be realized in turnover gains at increased margins for subsidized sales of cars at manufacturer's recommended retail price up to EUR 12,000 and at diminished margins for more pricey cars. Handling related expenses will negatively affect profitability since more units per turnover have to be processed by the dealer.

Aftersales business may be negatively affected by the scrappage of old cars susceptible to repairs. Alternatively repairs may go up by extension of original terms of use under customers' decision of postponed replacements which is indicated by the drop of new registrations of premium cars in 2009 compared to 2008.

Overall, for dealers specialized in premium class cars, such as BMW dealers in the sample of the dissertation, a significant impairment of the financial position expressed as ROI is to be expected in 2009 compared to 2008, based on lower turnovers at reduces margins leading to a drop in gross profit to a degree which cannot be netted by cost saving; together with increased or unchanged interest expense based on the financing of increased stock will adversely impact result from operations (numerator) and increase total volume of assets and liabilities (denominator).

Dealers benefiting from German 2009 AVR due to the car brand portfolio distributed by them, such as GM and Ford-Mazda in the sample, are expected to significantly and substantially improve their ROIs based upon increased results from operations due to economy of scales based on turnover growth at increased to stabile margins. Increased handling cost may be netted off by interest expense saving, caused by destocking of new cars and "automatic" avoidance of taking used cars on stock in accordance to mandatory

scrappage. With that both drivers of ROI are supposed to change to the advantage of the dealer.

For the group of the VW dealers in the sample a stabile to improved financial position is to expected since their brand portfolio covers premium class cars and other. The result is expected to depend on the scope of brands distributed, an eventual focus on one of the brands and other individual dispositions. Accordingly the result in this group could be not significant.

4 RESULTS

4.1 Materials

4.1.1 Market data

The aim of the dissertation (to come to results concerning the German car dealership industry) requires attention for relevance and representativeness[8]. Data on market shares of car brands give a general orientation to focus on substantial demand and are used for selection of sources of possible sample elements in the listings of dealerships eligible for sampling. Further the ranks in market shares together with the ranks of shares of absorbtion of German 2009 AVR volume will be used for stratification of the sample. Available data for market shares follow two alternative approaches, the new registration per year and the total of valid registrations. Due to the character of cars as durable goods with the related use over many years and the shifts in demand, the new registration per year approach is chosen for the assessment of market shares. A market share of less than 3.0 percent is considered to be immaterial under the relevance aspect.

Table 3 gives the market shares of brands for the years 2008 and 2009 in a top down selection ending with the brand that exceeds the 3.0 percent benchmark in both years. The brands are grouped in typical portfolios as found upon execution of the sampling process for the dissertation at non-captive dealers; with that the word “Group” in tables 3 to 5 do not reflect the complete brand portfolio of the name-identical OEM, e.g. none of the VW dealers in the sample distributes Bugatti, none of the BMW dealers distributes Rolls Royce, thus table 3 does not display these brands.

[8] Issues of representativeness on the level of the sample, see 5.2.1

Table 3 Average market share per manufacturer and brand measured in percentage of German of new registrations in 2008 | 2009

Group	Brand				
VW	VW	Skoda	SEAT	Audi	Porsche
34.0 | 34.6	19.9 | 21.2	3.9 | 5.0	1.6 | 1.8	8.1 | 6.2	0.5 | 0.4
Daimler	Mercedes Benz	Smart			
11.7 | 8.3	10.6 | 7.4	1.1 | 0.9			
Ford-Mazda	Ford	Mazda	Volvo		
9.7 | 9.9	7.0 | 7.6	1.8 | 1.6	0.9 | 0.7		
GM	Opel	Chevrolet	Saab	GM	
9.3 | 9.7	8.4 | 8.9	0.7 | 0.8	0.1 | 0.0	0.1 | 0.0	
BMW	BMW	MINI			
9.2 | 6.8	8.2 | 5.9	1.0 | 0.9			
Renault-Nissan	Renault	Dacia	Nissan		
6.3 | 7.8	4.0 | 3.8	0.8 | 2.2	1.5 | 1.8		
PSA	Peugeot	Citroen			
5.5 | 6.1	3.1 | 3.4	2.4 | 2.7			
Toyota	Toyota	Daihatsu	Lexus		
3.5 | 3.9	3.0 | 3.5	0.4 | 0.3	0.1 | 0.1		
FIAT	FIAT	Alfa Romeo	Lancia		
3.2 | 4.7	2.9 | 4.3	0.2 | 0.3	0.1 | 0.1		

Source: own, based on the statistics of FMTA

The accumulated market share of the so-called premium cars as far as represented in table 3 (Audi, Porsche, Mercedes-Benz, Volvo, Saab, BMW and Lexus) comes to surprising 28.5 percent in 2008 and 20.8 percent in 2009. In order to be sure that a pre-selection based on the findings presented in table 3 does not refer to a niche or submarket, especially the submarket of the high income customers, buying new cars and replacing them on a one to

four year basis with new ones, while the replaced cars tickle down to the low income customer (OECD Publications Service, 1999), a cross – reference is made to the statistics of the subsidized sales.

There is no official statistic available on the allocation of the complete budget of the German 2009 AVR to car brands except that one as of July 2009 which is included in FEEC's report and table 4, next page is based upon. Since this statistic covers 96.6 percent of the total volume of German 2009 AVR, it seems to be well acceptable for the purpose of cross referencing to market shares. Table 4 presents the numbers of subsidized sales up to July 31, 2009. It is assumed that the sales of new cars given in table 4 simultaneously are contained in the statistic for new registrations of 2009. As presented in the bottom line of table 4, 1,933,090 sales (= 1,569,664 new cars + 363,426 used cars) had been subsidized to that date, denoted as "German total". The digits displayed in regular type refer to new cars, the digits in italics to used cars.

.

Table 4 Subsidized sales from January to July 2009 in units of new | *pre-owned* vehicles

Group	Brand				
VW	VW	Skoda	SEAT	Audi	Porsche
601,361	401,286	131,998	36,415	31,619	43
103,873	*65,282*	*13,445*	*11,605*	*13,522*	*19*
Daimler	Mercedes Benz	Smart			
17,592	10,809	6,783			
25,857	*22,199*	*3,658*			
Ford-Mazda	Ford	Mazda	Volvo		
126,705	103,518	20,459	2,728		
45,471	*36,321*	*7,395*	*1,755*		
GM	Opel	Chevrolet	Saab	GM	
179,252	160,371	18,804	47	30	
57,703	*51,499*	*6,054*	*70*	*80*	
BMW	BMW	MINI			
23,282	17,288	5,994			
11,214	*9,465*	*1,749*			
Renault-Nissan	Renault	Dacia	Nissan		
177,311	62,626	73,647	41,038		
28,438	*17,721*	*1,530*	*9,187*		
PSA	Peugeot	Citroen			
102,037	60,997	41,040			
19,357	*11,927*	*7,430*			
FIAT	FIAT	Alfa Romeo	Lancia		
115,218	109,480	4,921	817		
19,683	*18,166*	*654*	*863*		
Toyota	Toyota	Daihatsu	Lexus		
74,921	68,806	6,085	30		
10,502	*9,076*	*1,426*	*0*		
German total					
1,569,664					
363,426					

Source: own, based on the statistics of FEEC

Table 5 gives the new registrations of passenger cars in the German market for the years 2008 and 2009 in subtotals according to accumulations of brands found at the particular dealers in the sample.

Table 5 New registrations in 2008 and 2009

		2008	2009	Δ
Group	Brand	units	units	
	Porsche	16,221	15,343	(0.054)
	Seat	49,331	69,437	0.408
	Skoda	121,277	190,717	0.573
	Audi	251,393	234,861	(0.066)
	VW	615,229	805,262	0.309
VW		1,053,451	1,315,620	0.249
	Mercedes-Benz	327,965	282,527	(0.139)
	smart	33,805	33,980	0.005
Daimler		361,770	316,507	(0.125)
	Volvo	27,977	26,057	(0.069)
	Mazda	56,277	60,032	0.067
	Ford	217,305	290,620	0.337
Ford-Mazda		301,559	376,709	0.249
	GM	3,037	1,378	(0.546)
	Saab	3,797	1,265	(0.667)
	Chevrolet	21,305	31,259	0.467
	Opel	258,274	338,603	0.311
GM		288,421	374,514	0.298
	BMW	256,967	224,545	(0.116)
	MINI	30,800	33,496	0.088
BMW		284,767	258,041	(0.094)
	Renault	122,265	143,304	0.172
	Dacia	24,902	82,661	2.319
	Nissan	45,476	66,463	0.453
Renault-Nissan		192,913	292,428	0.516
	Peugeot	94,676	130,207	0.375
	Citroen	73,337	101,370	0.382
PSA		168,013	231577	0.378
	FIAT	88,111	163,953	0.861
	Alfa Romeo	7,597	11,993	0.579
	Lancia	3,573	3,424	(0.042)
FIAT		99,281	179,370	0.807
	Toyota	93,036	136,301	0.465
	Daihatsu	13,726	10,594	(0.228)
	Lexus	3,745	2,197	(0.413)
Toyota		110,507	149,092	0.349
Total		2,860,682	3,493,858	0.221
German total		3,090,040	3,807,175	0.232

Source: FMTA statistics of new registrations, recalculated by Author

The Δ column gives the changes 2008 to 2009 by $\frac{units_{2009} - units_{2008}}{units_{2008}}$. Numbers with negative values are displayed in brackets.

The premium car brands contained in table 5 (Porsche, Audi, Mercedes-Benz, Volvo, Saab, BMW, Lexus), come to 885,065 new registrations in 2008 and 786,795 in 2009 which makes a Δ of (0,111). The FMTA statistic displays eleven further car brands[9] which commonly are counted to this premium class. Addition of the new registrations attributable to these eleven to the new registrations of the premium brands in table 5 results in 899,086 new registrations in 2008 and 796,867 new registrations in 2009 which makes a Δ of (0.114). The premium car brands contained in table 5 represent 98.4 percent of the 2008 total and 98.7 percent of the 2009 total of new registration of the total of the above mentioned sixteen premium brands. The total of subsidized new registrations of premium cars (the brands contained in tables 4 and 5) comes to 62,564, which makes a fraction of new registrations (786,795) of 0.080. With this, the German 2009 AVR is assessed to have not a substantial impact on the demand for premium cars.

The brands presented in tables 3 to 5 represent 92.6 percent of the German 2008 total of new registrations and 91.8 percent of the German 2009 total of new registrations; these brands absorb 90.0 percent of the German 2009 AVR volume attributable to new cars. The premium brands displayed in tables 3 to 5 make 20.8 percent of new registrations in 2009 and 4.0 percent of the German 2009 AVR volume attributable to new cars.

Financial data on passenger cars sold by German car dealership industry are not available. A direct conclusion from new registrations to quantities of new cars sold to final customers via the distribution channel represented by the object of research is inappropriate. The following considerations are about the interrelation between new registrations, quantities sold and turnovers generated in the car dealership industry as defined for the dissertation.

The numbers of new registrations do not directly match with the numbers of cars sold by the dealership industry, because those encompass the first

[9] Aston Martin, Bentley, Ferrari, Jaguar, Lamborghini, Land Rover, Lotus, Maserati, Morgan, Rolls Royce, Wiesmann

registrations of vehicles for use of the car dealerships' industry itself as well as the OEM's (e.g. company cars for their employees, demonstration vehicles, rental cars, one-day registrations for improvement of the ranking of the respective brand or type of car in the statistics). These cars will be reported with time lag in the statistics of transfer of title when getting sold as used cars to final customers. The transfer_of_title-statistic is not referred to in the dissertation, because it contains all title transfers including those C2C. Vehicles sold between market players on the same or on different levels of trade (but within one dealership organization, due to restrictions of MVBER) may lead to reportable turnovers twice, at the selling and with time lag the reselling entity, the latter tied to new registration by the final customer with both (turnover and new registration) to be accounted and reported for in the same period, if not special circumstances apply.

Figure 3 gives visualization without numbers, since such are not available.

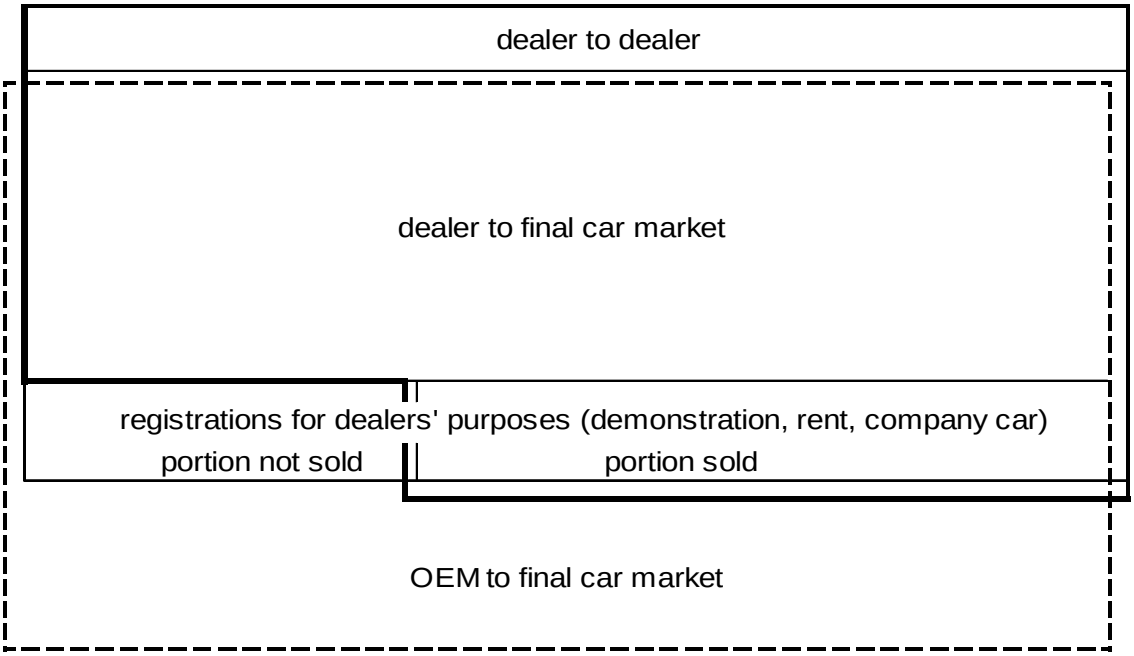

Figure 3 Sets of new registrations and new cars sold

The dotted line in figure 2 describes the set of new registrations, the thick line the set of units sold resulting in turnover in the car dealer industry as defined for the dissertation. The square "OEM to final car market" refers to OEM outlets and captive dealerships.

4.1.2 Dealership data

Financial statement information in general is subject to the accounting policy of the reporting entity. The asymmetry of powers in the dealer to manufacturer relation and the high dependency of the authorized dealer from business models, margins, incentives, provisions and other with direct or indirect influence on profitability together with the asymmetry in information level realized by monitoring dealers' financial statements by OEMs (Arrunada, Garicano, Luis, 2005) may make it desirable for the individual car dealer to exercise influence on the financial reporting in a way that is motivated from the results, e.g. equity or profit. Comparability of the information communicated to financial statements' readers thus might be intentionally biased.

Further the vast majority of the sample elements are family owned and conducted businesses (which may be concluded from identical names of the company and the General Manager(s) signing the financial statements, from verbal statement in management reports or website and the like)[10] with no access to equity markets or stock exchange markets; the reporting and valuation policy of such companies is supposed to be generally tax driven, at least to a certain extend. In a situation with booming demand postponing taxable income may be a motivation with influence on accounting decisions where such are given.

The sample size of 77 in the quantitative database, coming by subdivision into groups with a size of 9 in the smallest subgroup, makes it desirable to include data of each and every sample element on the highest possible level of comparability and relevance in the database. Since the database is unique and developed from the original financial statements of the sample elements, the possibilities of testing and, if applicable, alteration due to

- income smoothing, see below 4.1.2.1
- matching to reporting period, see below 4.1.2.2 and
- reclassification to extraordinary income 4.1.2.3

[10] Author's observation, not elaborated in a statistic

is exercised in order to come to improvements under the time-line comparison approach of the dissertation.

4.1.2.1. Alterations due to income smoothing

Artificial income smoothing as a concept of manipulation undertaken by management which results in shifts of expenses and/or revenues from one period to another without underlying economic events (Eckel, 1981) is a widespread accounting concept (Blasco, Pelegrin, 2006). Income smoothing was found in the financial statements of owner-controlled firms even if in a more moderate form than in management-controlled firms (Ma, 1988). Taxation and "capital markets (which, the author) reward smoother earnings patterns." (Blasco, Pelegrin, 2006). Due to the high balance sheet totals such motivation may have relevance for accounting considerations in the German car dealership industry: Means of the averages of total assets are 47.5221 million Euro in 2008 ((3,145.7600 + 513.4453) ÷ 77, see appendices 5 and 6) and 44.8082 million euro in 2009 with related funding by bank loans and overdrafts coming to 26.2183 million euro in 2008 and 23.7874 million Euro in 2009.

German car dealers realize a substantial share of their sales of new cars via leasing. The related business model works by selling the demanded car to a lessor combined with brokering a car lease contract between the car dealer's customer and the lessor. This model includes the conveyance of the lessor's risk of losses from impaired residual value of the car at the end of the fixed lease term to the car dealer via put option at a fixed repurchase price (Wulf, Petzold, 2004). A fixed repurchase price exceeding estimated future fair market value (Plambeck, Braun, 2012) of the lease car plus future selling expense, provisions to sales persons etc. require accrual in the annual financial statements of the car dealer (Wulf, Petzold, 2004). Operating leases of motor vehicles have fixed terms of 36 to 60 months (Loitz, Leuchtenstern, Kroner, 2011). Estimates reaching out such long times open factual valuation options, even if statutory options are absent. Such factual leeway in valuation is not accessible to restrictions of regulatory frameworks and thus impacts the financial statements even if applicable rules require "Neutralität[11] […] 'not

[11] Free of bias

slanted, weighted, emphasised, de-emphasised or otherwise manipulated to increase the probability that financial information will be received favourably or unfavourably by users'" (Küting, 2011) Thus the valuation of repurchase obligations meets all requirements for the perfect device for income smoothing (Copeland, 1968). The average ratio of total_of_repurchase_obligations to balance sheet_total per balance sheet date for the fiscal years ended 2009 comes to 0.843 for all those balances sheets out of the sample which provide the totals of repurchase obligations. This ratio indicates a high potential for income smoothing in this field of accounting.

41 firms in the sample present information on accrued reserves for future losses from repurchase obligations (reserve_for_future_losses). Smoothing style of accounting is examined by observation of directions and rates of delta of the reserve_for_future_losses and related EBT_before_delta_reserve_for_future_losses combined with the observation of related delta of risk assessment. Since none of the financial statements provides information on details of risk assessment and calculation of reserve_for_future_losses, risk assessment is defined as a ratio; correlation of the delta of this ratio $\left(= \frac{\text{reserve\_for\_future\_losses}_{i,t}}{\text{total\_of\_repurchase\_obligations}_{i,t}}\right)$ and/or delta of $\text{reserves\_for\_future\_losses}_{i,t}$ to delta of $\text{EBT\_before\_delta\_reserve\_for\_future\_loss}_{i,t}$ for t=2006, ...,2009 and i=1, ...,41 and with all deltas calculated as $\text{value}_t - \text{value}_{t-1}$ leads to 11 firms to be identified as income smoothers, respectively as such following a profit damping style of accounting, see table 6.

Ten dealers out of the total sample, thereof eight out of the above mentioned subset of 41, forecast in their 2009 financial statements improvements of the profitability of the business with used vehicles and lease car returns[12], partially explained with expected future decrease in the total number of cars available on the second market due to the scrappage of 2 million cars under the regime of the German 2009 AVR. Such expectation is in line with literature, see Schiraldi, chapter 3.2.1, but in case of firms No. 44 und 63 it is in-

[12] See: management reports 2009 by firms No. 3 (p.3), No. 10 (p.3), No.11 (p.10), No. 22 (p.1 and 3), No. 31 (p.5), No. 44 (p.2), No. 45 (p.15), No. 59 (p.4), No. 62 (p.2), No. 63 (p.2) and No. 66 (p.2) in sample, as enumerated in Appendix 1

consistent with their accounting for increased expected future losses from repurchase obligations which leads to increased risk assessment ratio, as defined above (by matching firm numbers in footnote 9 and in table 6). Additional four dealers out of the total sample, thereof none out of the above mentioned subset of 41, expect subsidies of the OEMs tailored to eliminate or reduce future losses from repurchase obligations[13] in their 2009 financial statements. The financial statements for the fiscal year ended in 2009 of firms No. 44 and 63 and those of firms enumerated in footnote 10 are signed by management between March 31, 2010 and July 9, 2010, which gives room for the suggestion that the above described forecasting statements have partially factual character.

From these statements it is concluded that there was no general compelling reason to increase reserves for future losses from an accountant's perspective by increasing the ratio (= $\frac{reserve\_for\_future\_losses_{i,t}}{total\_of\_repurchase\_obligations_{i,t}}$). Table 6 depicts the alterations made by the author to the data of income smoothers in order to make sure the data used for the thesis' statistics to be unbiased by the accountants' tax avoiding or profit damping policies.

[13] See: management reports 2009 by firms No. 6 (p.2), No. 9 (p.10), No. 58 (p.2) and No. 68 (p.2 and 3) in sample as enumerated in Appendix 1

Table 6 Alterations to reverse out income smoothing

		Year			
		2006	2007	2008	2009
firm	designation	EUR | %	EUR | %	EUR | %	EUR | %
7 VW	EBT after alteration	191,264	-1,147,808	-1,161,035	1,916,982
	Reserve f-l	*94,000*	*70,000*	*181,000*	*1,267,000*
	Risk estimate	*0.48*	*0.78*	*1.26*	*9.60* |1.37
	Alteration				+1,086,000
12 GM	EBT after alteration	5,093,414	5,577,527	1,959,549	8,444,247
	Reserve f-l	*0*	*0*	*432,550*	*2,390,950*
	Risk estimate	Total repurchase obligation not disclosed			
	Alteration				+1,958,400
13 GM	EBT after alteration	368,930	-180,733	-259,906	1,143,143
	Reserve f-l	*0*	*0*	*0*	*397,455*
	Risk estimate	Total repurchase obligation not reported			*12.79* | 0.0
	Alteration				+397,455
33 VW	EBT after alteration	-2,416,854	-2,574,303	-8,258,373	-4,850,983
	Reserve f-l	*1,050,000.00*	*893,000*	*3,350,000*	*7,199,000*
	Risk estimate	*1.21*	*0.91*	*2.79*	*6.32* | 2.92
	Alteration				+3,868,000
34 VW	EBT after alteration	367,652	-548,742	-1,256,576	695,243
	Reserve f-l	*407,000*	*335,000*	*1,262,000*	*2,824,000*
	Risk estimate	*1.30*	*1.02*	*3.21*	*7.14* | 3.19
	Alteration				+1,563,000
36 VW	EBT after alteration	2,743,813	591,407	-443,963	4,129,599
	Reserve f-l	*1,737,000*	*2,132,000*	*2,301,000*	*3,624,000*
	Risk estimate	*3.40*	*3.99*	*4.51*	*6.40* | 4.51
	Alteration				+1,068,000
44 BMW	EBT after alteration	235,898	38,139	-2,559,682	1,433,232
	Reserve f-l	*0*	*0*	*240,000*	*1,498,000*
	Risk estimate	Total repurchase obligation not reported			
	Alteration				+1,258,000
60 VW	EBT after alteration	3,343,418	1,114,673	175,490	7,056,862
	Reserve f-l	*0*	*0*	*1,700,000*	*6,000,000*
	Risk estimate	Total repurchase obligation not reported			
	Alteration				+4,300,000
63 VW	EBT after alteration	-225,843	-578,800	-62,616	113,427
	Reserve f-l	*56,000*	*0*	*250,000*	*329,783*
	Risk estimate	Total repurchase obligation not reported			
	Alteration		-56,000	+250,000	+79,783
71 VW	EBT after alteration	-1,032,749	-1,507,798	-1,469,543	1,496,284
	Reserve f-l	*Total repurchase obligation not reported*			*2,234,221*
	Risk estimate				*7.32* | 0.0
	Alteration				2,234,221
72 VW	EBT after alteration	490,170	258,031	163,223	672,374
	Reserve f-l	*No disclosure*			*314,737*
	Risk estimate	n.s.			*6.69* | 0.0
	Alteration				314,737

Source: Author

Presentations in *italics* in table 6 give the raw numbers, alterations are presented in regular letters or figures.

"EBT after alteration" gives in those firm years where no alteration due to profit damping applies the unaltered EBT.
"*Reserve f-l*" represents reserve_for_future_losses;
"Risk estimate" refers to risk assessment as described above as a ratio, displayed in the table as a percentage, not as a factor, for layout reasons;

Posting of the alterations to balances sheet and income statement items are made according the accounting policy of the concerned firm; if such is not identifiable, alterations are posted against other reserves and operative expense, since this is the most common accounting style identified in the sample.

Assessments and explanations to the smoothing and alterations pursuant to table 6:

The alteration to financial statements' numbers of firm 7 is to reverse-out of the increase of raw reserve_for_future_loss from 2008 to 2009. This measure results in a risk estimate ratio of 1.37, which appears in line with the history of related assessment made by management of the firm: 0.48 in 2006, 0.78 in 2007 and 1.26 in 2008. The original accounting leads to a risk estimate ratio of 9.60 compared to 1.37 after alteration in a year, where EBT after alteration jumps from (1.1610) million euro to 1.9170 million euro.

Management report of firm 12 for fiscal year 2009 forecasts increasing sales in the firm's second market activities, however without statements concerning possible impairments of related profitability. Financial statements and management reports for the years under research are silent on the totals of repurchase obligations. Firm 12 is not a first time adopter of reserve_for_future_losses in 2009, the firm started with accounting for risks from repurchase obligations in 2008, for which a decline in profit compared to prior year is reported. Subsequent to this starting point to risk accounting, in 2009 a substantial profit damping is made by in increasing the reserve_for_future_losses item. Equal accounting pattern is to be observed in the financial statements of firms 44 and 60. Accordingly in these cases alterations are made to limit reserve_for_future_losses to the prior year level. Firm

44 is one of those enumerated in footnote 6, expecting improved profitability of the business from used cars and leasing car returns. Firm 60 reports fixed future financial compensation of the OEM amounting 4.7 million euro for lease car repurchases which together with reserve_for_future_loss comes to risk prevention volume of 10.7 million euro which in total results in a risk estimate ratio of 10;

Firm 13 is a first time adopter for risk accounting in the year when EBT rockets from a minus in two subsequent years to over one million Euro. The accounting in place reveals a risk estimate ratio of 12.79. Alteration reverses out reserve_for_future_losses in full. The same accounting pattern applies to firms 71 and 72, accordingly alteration is made in analogy to firm 13. Firm 71 provides in her financial statements explanatory language according to which accrual for future losses is tax motivated.

Firms 33 and 34 must be looked upon together since they are commonly controlled; EBTs of both firms are negative except for a positive value in 2006 for firm 34, and declining from 2006 to 2008 with risk estimate ratios jumping from a level of 1.1 in 2006 and 2007 to 3.0 in 2008. Reserve_for_future_losses accounted for by these firms are composed of several risk types, alteration is restricted to increases in risks from lease car returns which results in risk estimate ratios being in line with those of 2008.

Risk estimate ratio of firm 36 is substantially increased with related increase of EBT; alteration was limited to the prior year level of risk estimate.

Firm 63 applies a smoothing policy in the sense that over time increasing and decreasing profits are cushioned by adjustment of risk assessment. Alterations accordingly are made for balancing out the smoothing effects.

From table 5 and underlying analysis the assessment can be derived that firms follow a combined profit damping, building up hidden reserves and income tax deferral policy of accounting.

Car dealership balance sheets contain further items meeting the requirements defined in literature for to be suitable as an income smoothing device. Two of them bear a smoothing and profit damping potential remarkable by size: Receivables trade and inventory including demonstration vehicles and cars for rent. Appendices 5 and 6 provide for ratios for these items to total assets from 0.1371 to 0.1536 (both values refer to the non-benefiting

group) for receivables trade and from 0.4446 (benefiting group in 2009) to 0.5154 (non-benefiting group in 2009) for inventory.

In literature valuation of bad debts was identified as an income smoothing device in place (Ma, 1988). It can be assumed that the specific economic environment of the financial and economic crisis requires the accountant to adjust risk assessments. Assessment whether these items are used as smoothing instruments by the reporting entities in the sample is not possible due to lacking disclosure of details.

The qualitative dataset provides that dealers of all subgroups of the sample unanimously report on impairments of used cars, see table 18, chapter 4.4.1, albeit without disclosure on implications of such impairment on ROI, gross and EBIT. German accounting rules require valuation of inventory under a lower of cost or market concept which requires anticipation of future selling cost (Ellrot, Ring, 2003). Thus forecasts and expectations concerning the second market come into play. With respect to contradictions found in the accounting for future losses from repurchase obligations (see above), assessment and, if applicable, alterations would be desirable in order to control income smoothing in this field of accounting also. Such cannot be performed however, since none of the financial statements or management reports in sample provide numerical information on valuation of inventory in sufficient detail.

4.1.2.2. Alterations due to matching to reporting period

Matching principle is a highly relevant accounting concept for the method of a two-year comparison as applied in the dissertation. German accounting and reporting rules are governed by the prudence principle, the realization principle and the imparity principle. Matching principle is not codified by German Commercial Code. Thus matching is a result of compliance with accounting principles (Hense, Geißler, 2003) and leads under German accounting rules to an anticipation of risks and impairments with a simultaneous non-recognition of chances and rewards up to date of realization. Accordingly financial statements in the sample need testing on possible adjustments under the matching to period concept. Two of the financial statements in the sample disclose accounting for items in periods other than those of accom-

plishment of underlying economic goals. Table 7 displays the adjustments made and the related facts.

Table 7 Alterations under the matching to period concept

		2008	2009
firm	designation	EUR	EUR
26	Bonuses	82,000	196,000
	Bonuses pre year	(512,000)	(82,000)
	Alteration	(430,000)	114,000
32	Bonuses	2,153,000	553,000
	Bonuses pre year	(1,812,000)	(2,153,000)
	Overstated warranty provision	710,000	0
	Overstated provision for severance payments		362,000
	Alteration	1,051,000	(1,238,000)

Source: Author

4.1.2.3. Reclassification to extraordinary income

EBIT as the numerator in the ROI fraction should be understood as a result from ordinary operations.

The concept of other comprehensive income which is reported „outside the income statement“ and attributed to change in equity directly in order to separate gains and losses from non-operative sources does not exist in German accounting rules. Instead the income statement is structured in sections, one of them displaying extraordinary income. Extraordinary income apparently is not reported comprehensive since it does not contain gains and losses from addition or disposition and discontinuaton of operations, sales points, from acquistions, from reorganizations and other. The respective accounting styles of the sample elements are not uniform.

Reclassifications made by author upon explanatory language found in the respective financial statements are documented in table 8.

Table 8 Reclassifications from operating result to extraordinary income

		2008	2009
firm	designation	EUR	EUR
2	Income from reversal of untaxed special reserve	26,393	26,393
5	Depreciation expense for tax purposes only		368,000
6	Expenses for a financial instrument	2,279,000	
21	Income from reorganization measures	200,000	
25	Income resulting from tax inspection Depreciation expense for tax purposes only		79,000 12,100
33	Income resulting from tax inspection	248,000	
45	Income from reorganization measures Expenses caused by tax inspection	600,000	117,000 370,000
48	Expenses for measures of restructuring		2,300,000
50	Addition to untaxed special reserve	26,436	154,553
58	Income related to other period or one-off character	40,000	
64	Income from reversal of untaxed special reserve	3,982,000	
66	Income from reversal of untaxed special reserve	218,000	
68	Addition to untaxed special reserve		170,000
69	Income related to other period or one-off character Income from reversal of untaxed special reserve	1,774,000 114,908	

Source: Author

Numbers given in table 8 indicates a reclassification from operating income to extraordinary income.

4.2 Sample

4.2.1 Sample selection

4.2.1.1. Statistics on the total

Three sources were found dealing with the total number of German car dealers. The German Federation for Motor Trades and Repairs (Zentralverband Deutsches Kraftfahrzeuggewerbe) estimates on its website on March 12, 2010 the total number to 38,000 entities, thereof 14,600 authorized. No further classification according to dealership contract-type (distribution of cars plus service or service only) and related subdivision of this number is provided. Two other sources, the statistics of "Das Autohaus", a professional trade magazine (Selzle, 2013) and of a business enterprise, the wer-zu-wem GmbH, Hamburg, provide information on the total number of car dealers in Germany. The numbers presented by these sources are based on inquiries and representations of OEMs and importers and are developed over years. The statistic of wer-zu-wem GmbH is accessible via internet[14] giving the current status at date of the download, here Oct. 12, 2013.

[14] http://www.autohändler-in-deutschland.de/statistik.html

Table 9 Number of German car dealers in 2012

Brand	OEM outlets		owners		Sales points	
	w-z-w	Selzle	w-z-w	Selzle	w-z-w	Selzle
VW	n.s.	46	1,030	**834**	1,543	1,161
Skoda		0	432	493	582	576
SEAT		4	375	275	448	299
Audi		15	363	n.s.	536	463
Porsche		6	51	51	85	79
Mercedes-Benz	n.s.	125	**309**	n.s.	740	403
smart		40	54	n.s.	142	108
Ford	n.s.	0	1,342	**535**	1,647	774
Mazda		0	380	86	451	128
Volvo		0	198	143	270	191
Opel	n.s.	0	980	**416**	1,430	895
Chevrolet		0	247	200	382	341
Saab		n.s.	5	n.s.	5	n.s.
GM		n.s.	n.s.	n.s.	n.s.	n.s.
BMW	n.s.	43	240	**203**	614	572
MINI		33	136	110	228	197
Renault	n.s.	11	**831**	n.s.	1,019	425
Dacia		n.s.	n.s.	n.s.	n.s.	n.s.
Nissan		0	281	n.s.	422	404
Peugeot	n.s.	45	588	161	741	291
Citroen		15	619	***219***	752	229
FIAT	n.s.	14	451	**193**	547	273
Alfa Romeo		13	131	119	157	149
Lancia		0	88	79	112	109
Toyota	n.s.	0	371	n.s.	561	301
Daihatsu		0	0	**264**	0	264
Lexus		0	25	*25*	33	31
TOTAL		410	9,527	4,406	13,447	8,663

Source: wer-zu-wem GmbH, 2012 & Selzle, 2013

Both sources provide the same categories of differentiations, brand and legal status of the dealers. Table 9 displays the results as published by Selzle (2013) and the wer-zu-wem GmbH, Hamburg (w-z-w).

The two numbers in italics in the owner-column, sub-column "Selze", display the representation of Selze (2013) for the year 2013, since he does not provide statements for 2012. The quantities of sales points for 2013 are reported by Selze (2013) with 231 for Citroen (compared to 2012 plus 2, respectively 0.9%) and 31(compared to 2012 ±0) for Lexus; the minor change in numbers of sales points and the related short time span of one year should justify to prefer to insert 2013-quantities of ownerships as those of 2012 compared to a blank, respectively n.s. in this two cases.

Numbers of sales points are presented in table 9 because this is one of the selection criteria for the scientific source for indices of names, see below chapter 4.2.1.2. The sampling of the dissertation refers to the number of ownerships, because it is assumed that this number correlates more to the reportable entities, the financial statements presentations of which the data for the dissertation is based upon. The raw numbers for totals provided by table 9 are 9,527 and 4,406 and differ by 5,121, thereof 2,214 attributable to cases where a numerical information in the w-z-w column is opposed to a "n.s." in the Selze-column. Totals provided by table 9 need consolidation because dealers quite often represent more than one brand, especially out of the brand-portfolio of one OEM, see explanations in chapter 4.1.1 concerning table 3. Appropriate criteria or measures for such consolidation are not available. Selzle (2013) comes to lower numbers than the wer-zu-wem GmbH (except Skoda dealers), which might be a commercially induced tendency to high numbers, since the business model of wer-zu-wem GmbH is to sell addresses. Apart from such speculative attempt at explanation table 9 allows an approach to calculate the minimum number by picking the highest number per brand out of the brand group and the lowest, respectively available number per owner-column (see numbers in table 9 in bold print). This results to a total of 3,804 dealerships and to a subtotal of 1,988 dealerships of the four brands in the final sample of the dissertation, see below chapter 4.2.2.

4.2.1.2. Indices of names

Search for financial statements data requires identification of the elements in the population. Besides the statistic referred to in table 9, the wer-zu-wem GmbH publishes a list of the biggest car dealers; independently from

this, a scientific source, the TOP 100 list (Diez, Grimberg, 2011) provides a listing of German car dealerships by size and brand on an annual basis. Both lists disclose the listed companies' names. A combination and consolidation of both sources results in a list of individualized dealerships providing the information necessary for search for their annual financial statements in the German Electronic Federal Gazette. The hits in the German Electronic Federal Gazette are selected under the criteria

- balances sheet date not earlier than August 30
- income statement presenting turnover and cost of goods sold
- audited and attested without qualification
- financial statements disclosed and available for three subsequent 12-months fiscal years (the latest of which ending at a balances sheet date not earlier than August 30).

German Commercial Code provides scaled down reporting and publication requirements for companies categorized lower than "big". The underlying definition of "big" refers to a combination of turnover (>32.12 million euro), balances sheet total (>16.06 million euro) and average number of employees (>250). The turnover and balance sheet total numbers get amended by legislator over years; those mentioned before refer to the period covered by the dissertation. These criteria do not directly match with the criteria applied by the before mentioned listings; those refer mainly to number of cars sold and number of sales points per dealership. The indirect inner relation between cars sold and turnover and via turnover rate further to balance sheet total is obvious. Thus a sufficient interrelation between the regulatory basis for the publication of data and the source of potential sample elements is assumed.

From the materials concerning new registrations and allocation of subsidies under the German 2009 AVR to car brands, see above in chapter 3.1.1, stratification of the sample seems a logical extension. The sample of dealerships will be subdivided into two groups of dealers, one distributing brands which are benefiting from the German 2009 AVR, the other which are non-benefiters. Further stratification of the benefiter group will be compiled upon the results of explorative sampling in order to get possible differenciations between benefiting brands.

4.2.2 Representativeness of sample

Combination and consolidation of the two indices of names, see chapter 4.2.1.2, results in a list of 233 firms (see Appendix 2) equalling 233 hits in the German Electronic Federal Gazette. Examination of these hits under the requirements of the criteria as explained in chapter 4.2.1.2 comes to 156 exclusions from this list and thus results in a sample of 77 firms under research. Table 10 refers to Appendix 2 and summarizes the exclusions from the total of hits by applied criteria.

Table 10 Statistic on exclusion criteria

criterion	no data	stratification	other
small or midsize	69		
group, split up	17		
lacking disclosure	20		
no segment reporting	7		
change of balances sheet date	4		
	117		
brand or commercial vehicles		22	
OEM outlets		2	
		24	
fiscal year ended prior to August			5
less than 50% business in Germany			2
restructuring			2
fresh start, bankruptcy			5
qualified audit opinion			1
			15

Source: Author

The majority of exclusions are accounted for the lacking or insufficient financial statement data, displayed in table 10 in the column denoted as “no data”, coming to 117 elements, with 89 for the two size-related criteria from the top. The criteria “small or midsize” and “group, split up” refer however to the financial statement-types “small” or “mid-size” and thus just indirectly to the size of the company (German accounting rules provide for a scale down concept of reliefs for reporting upon the size of the reporting entity, defined in three size classes, “big”, “mid-size” and “small”; this concept of reliefs allows to net the items on the face of the income statement “turnover”, “other

income" and "cost of goods and services sold" to the item "gross profit"[15]). Study of the financials leads to the observation of groups which are organized in structures of parallel held mid-size entities and this way avoid group reporting, see the criterion "group, split up" in table 10. No financial statements are available for 27 entities, 20 of them not disclosing their statements ("lacking disclosure" and 7 of them being integrated into groups with combined businesses of car dealing and other and with no reporting on the segment of car dealership "no segment reporting". Four entities did change their balance sheet date within the observation period which leads to one fiscal year with less than twelve month and thus a loss of comparability in the time line ("change of balance sheet date").

With 24 exclusions the stratification-type of criteria, displayed in the center column in table 10 is of much less importance than the no data-type of criteria. One of the excluded firms is a truck-only dealer and fifteen are Mercedes-Benz distributers, which do not belong to the object of the research by definition, see chapter 2.3.1, accordingly 8 exclusions go to the following considerations:

The exclusion of OEM outlets and dealers of miscellaneous brands is a result of the explorative character of the sampling method: Table 9 in chapter 4.2.1.1 discloses that the VW group and the BMW group are competitors to their appointed dealers by conducting OEM outlets. Financials of the manufacturers' outlets are not available as far as they are included in the group's consolidated annual financial statements. As an exception, two OEM outlets appear in the sample. Exclusion of these leads to a sample which does contain non-captive, independent companies only. The remaining six exclusions relate to dealerships distributing four different brands other than those enumerated in tables 3 to 5 under the groups denoted there with "VW", "Ford-Mazda", "GM" and "BMW". This exclusion avoids a fifth subgroup for miscellaneous brands.

The criteria "restructuring" and "fesh start, bankruptcy" also are created under the explorative approach upon seven entities found among the 233 hits from the list presented in Appendix 2. The respective entities work under

[15] Para 276 German Commercial Code

specific conditions, partly ruled by bankruptcy law, effective for a limited period of time. These exclusions are made to insure comparability of the sample elements.

The sample n=77 can be structured in benefiters and non-benefiters from the German 2009 AVR, measured by increases of new registrations in 2009 compared to 2008, see table 5 and the absorbtion in numbers of subsidized sales, see table 4, both tables presented in chapter 4.1.1. Figure 4 gives an overview on the stratification of the sample.

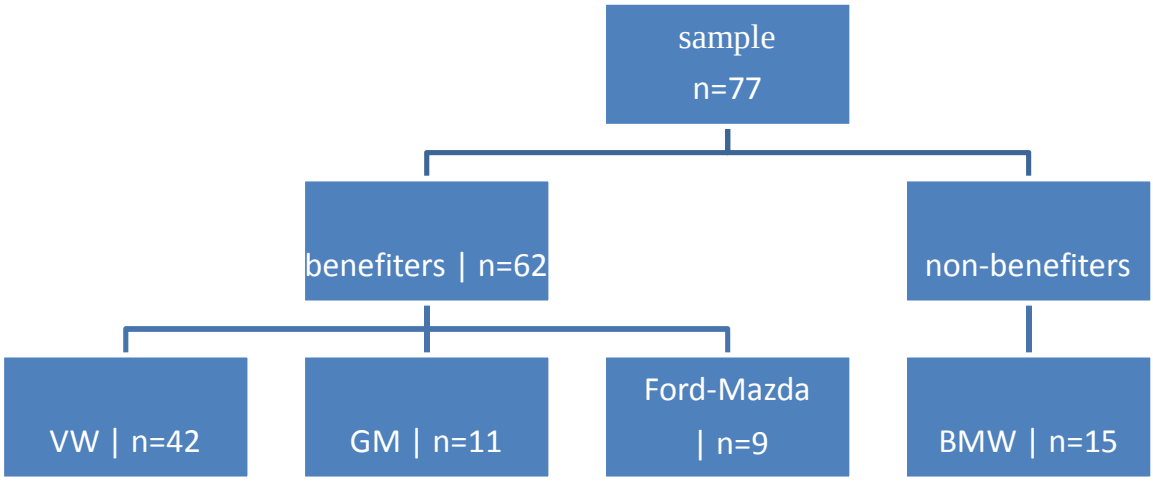

Figure 4 Sample by dealership types

Denotion of dealership types follows the system introduced with tables 3 to 5 in chapter 4.1.1.

Due to lacking availability of financial statements of the reporting entities attributable to the groups Renault-Nissan, PSA, Fiat and Toyota, meeting the selection criteria for the time span under research, the sample refers to a restricted population of 1,988, see interpretation of table 9, chapter 4.2.1.1. According to the numbers presented in table 4, chapter 4.1.1, about 59 percent of the German 2009 AVR is taken by cars of the brands attributed to the groups in the sample respectively in the subgroup of the 1,988-population.

The sampling method and the factual availability of data in the German Electronic Federal Gazette direct the result towards an overrepresentation of big companies according to the statutory criteria under German Commercial

Code, turnover, balance sheet total and employment in the sample. This deserves an analysis of the sample under the aspect of dealership size based on turnover numbers (see table 11); total or a constructed criterion combing turno and total is not taken into consideration, because the interrelation between turno and total is to a certain degree subject to the shareholders' decision to account for the land and buildings in the balance sheet of the entity or to hold land and building in a separate entity on a lease basis.

Table 11 depicts the descriptive statistic for the size of the sample elements measured in million euro turnover. The numbers refer to the presentation on the face of the income statements of the reporting entities in the sample.

Table 11 Descriptive statistics for turnover

dealership type	all		benefiters		Non-benefiters	
n	77		62		15	
year	2008	2009	2008	2009	2008	2009
mean	134.725	148.036	142.437	159.996	102.846	98.599
median	98.969	110.324	98,751	112.079	107.512	80.739
sd	117.537	136.005	126.751	146.231	60.348	63.183
skewness	2.474	2.624	2.413	2.288	1.856	2.092
kurtosis	7.517	8.182	6.145	6.642	3.823	4.695

Source: Author

Firms 11 and 61 (appendix 1) both of the VW subgroup with turnovers coming to 528 respectively 705 million euro in 2008 and 689 respectively 788 million euro in 2009 are indentified at a $p<0.05$ level as outliers with n*sigma values between 3.350 and 4.852 (software: Winstat); the turnover values are valid in the sense of being correctly reported and there is no obvious economic reasons for the outlier status of these firms: Both fit in the rest of the sample with respect to all non-size related criteria. Thus there is no reason to exclude these firms from the sample.

The histograms for turnovers 2008 and 2009 of the sample elements are presented as figure 5 and 6. The histograms are based on a class width of 30 million Euros with the data of the above mentioned outliers being carved out

in order to improve readability. Accordingly 75 sample elements are depicted in 14 columns.

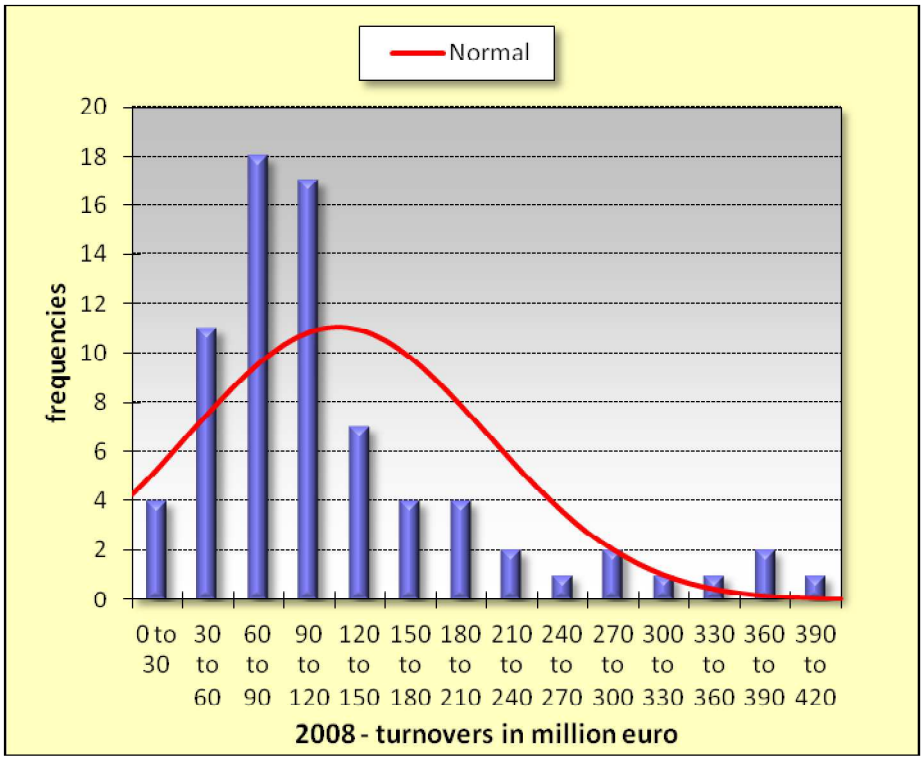

Figure 5 Histogram for turnovers in 2008

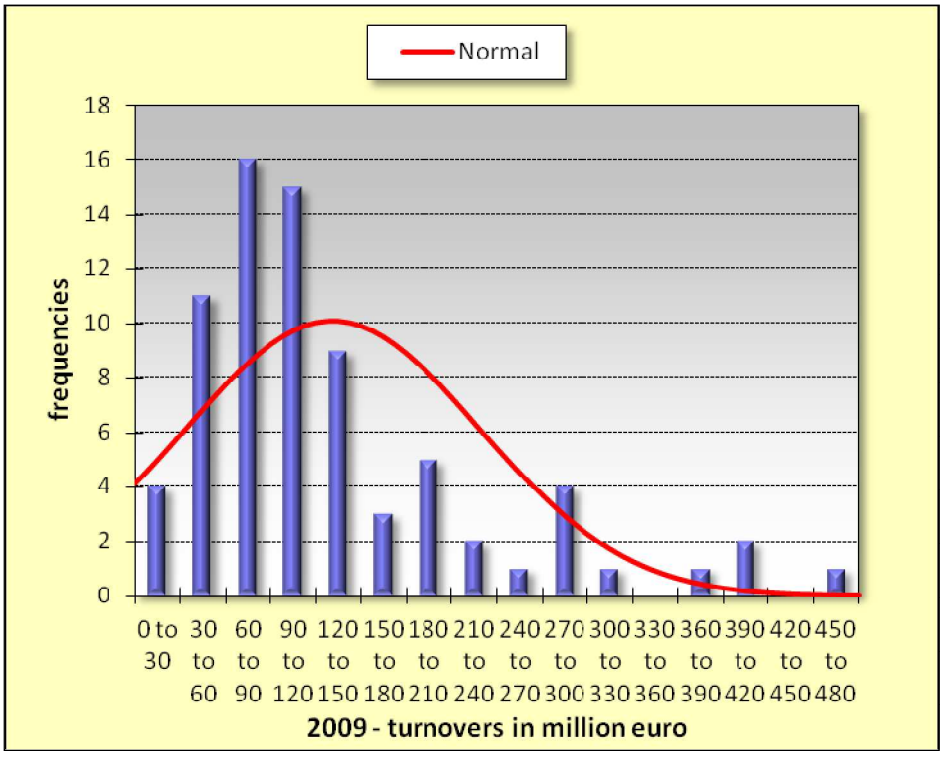

Figure 6 Histogram for turnovers in 2009

Figures 5 and 6 are interpreted as follows: The right tails (not showing the two outliers at the far end) give the factual border of the sample and with that, for non-captive firms. As financial statement numbers for captives are not available, no statement can be made on this dealership type. Selzle (2013) reports the absence of captives for Ford-Mazda and GM, see chapter 4.2.1.1. No need to explain that for an OEM of cars only a single parent captive could be a useful instrument for the distribution of cars. Accordingly it can be assumed that related to the sample two captives exist, one VW and one BMW. With respect to the numbers of captive salespoints given in table 9 it also can be assumed that those two captives exceed the turnover of the two outliers in the sample by multiple.

With respect to the minimum population of 1,988 elements the downswings of the histograms on the left appear as a consequence of the sampling method. It is to conclude that the vast majority of dealerships of the VW, Ford-Mazda, GM and BMW group-dealers are smaller than those contained in the sample and that the 77 entities selected represent a special upscale class of dealerships, the population of which not being normally distributed by size. Since the sample composition does not exclude the dealers representing the groups Renault-Nissan, PSA, Fiat and Toyota (see tables 3 to 5, chapter 4.1.1) by definition, but (mainly) by size-related lacking of data (see table 10, chapter 4.2.2) it may be assumed that most of the estimated minimum of German car dealerships of 3,804 (see chapter 4.2.1.1) belong to the classes of "turno < 30 million euro" and "30 million euro < turno < 60 million euro". Thus the population of this industry is not normally distributed but in a falling regressive or triangle curve.

Buzzavo's (2009) statements concerning impacts of MVBER (EU) on business conditions and Arrunada's findings according to which OEM enforce uniform contracts effectively in their dealership grids, Arrunada, Garicano and Luis (2005), indicate that dealers' size is not key for their individual economic success and financial position. On the other hand key differences might arise from big dealers' strategy of focusing on business other than new cars, Buzzavo (2008). Thus turnover composition is of interest.

Sixteen out of the 77 dealers in the sample provide disclosure of the composition of their turnovers according to the business areas sales and after-sales with further details in their management reports. Those details were composed by the author according the following pattern:

> "new cars" = turnover from provisions for the brokerage of new cars plus turnover from selling new cars
> "used cars" = turnover from selling used cars plus turnover from selling demonstration vehicles.

It is assumed that representativeness of the sample under research is impaired if the structure of the sample elements' turnover is a function of dealerships' size. Taking total_turnover as a measure of the size, it is tested in an explorative manner by graphics, see figures 7 and 8.

Those figures depict the composition of turnovers of sixteeen dealerships out of the sample for the years 2008 (figure 7) and 2009 (figure 8). Reporting dealers are sorted ascending after total_turnovers of the year 2008.

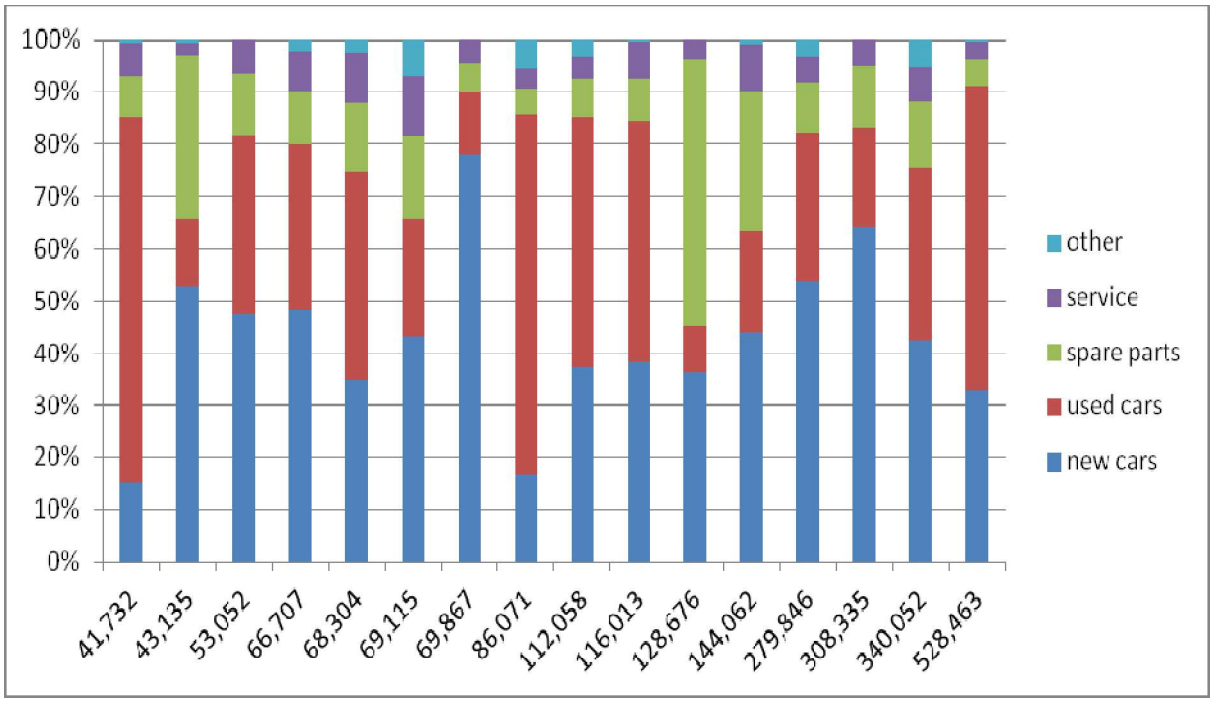

Figure 7 Composition of 2008 turnovers

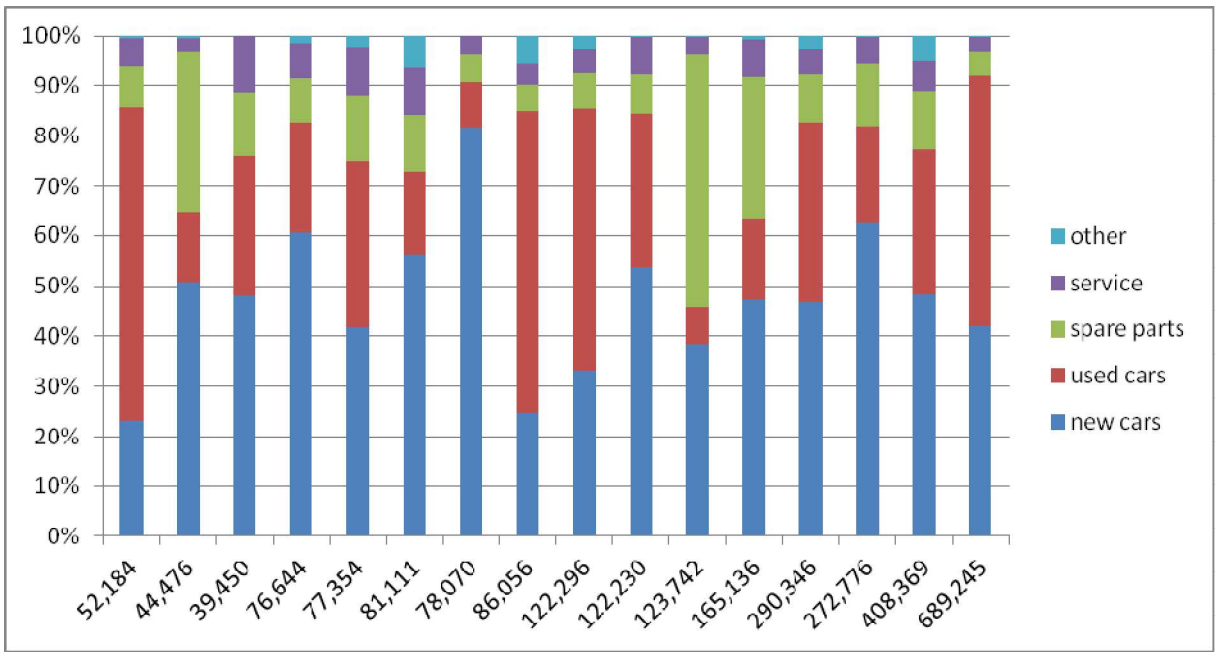

Figure 8 Composition of 2009 turnovers

The dealerships with 53.052, 112.058 and 279.846 million euro in 2008, respectively 39.450, 122.296 and 290.346 million Euros in 2009 are BMW dealers.

Figures 7 and 8 disclose that two business areas,

- the business with used cars and
- the business with spare parts

are taken as options for focusing by individual dealers, albeit separately. Sample elements 2, 26 and 19 make between 58.3 and 70.0 percent (2008), respectively between 50.0 and 62.6 percent (2009) of their total turnovers from used cars, compared to an average (without those three firms) of 26.9 percent in 2008 and 23.7 percent in 2009.

Vertical restriction concerning dealing with contractual goods in the sense of MVBER (EU) does not apply to spare parts under certain conditions (see chapter 3.1.1). This business area is not taken into consideration as an option for big dealerships by Buzzavo (2009), apparently not for factual reasons, but because he concentrates on options providing independence from MVBER-ruled business areas. For considerations on representativeness of the sample such deviations from the average are of importance. Sample elements 70, 5, 32 make between 26.9 and 50.9 percent (2008), respectively between 28.2 and 50.2 percent (2009) of their total turnovers from spare parts, compared to an average (without those three firms) of 9.4 percent in 2008 and 9.1 percent in 2009.

Scatterplots (figure 9 to 12) together with Spearman's rho (table 12) disclose that neither proportion of business with used cars nor proportion of business with spare parts is a function of the total_turnover of the dealership.

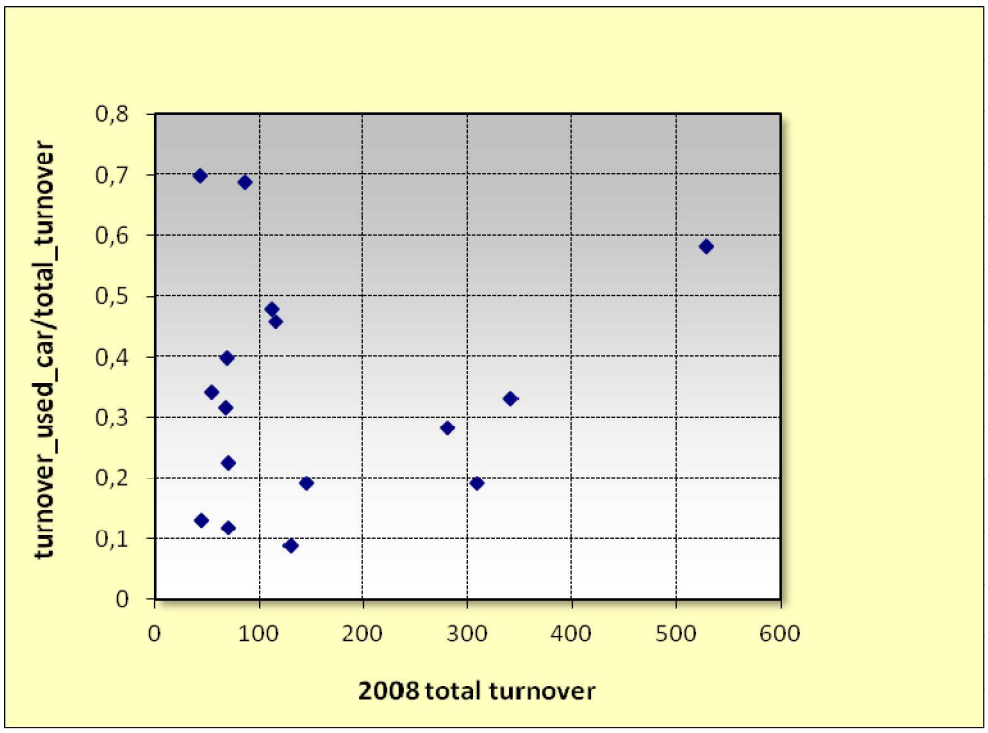

Figure 9 Scatterplot turnover_used_cars/total_turnover to total_turnover in 2008

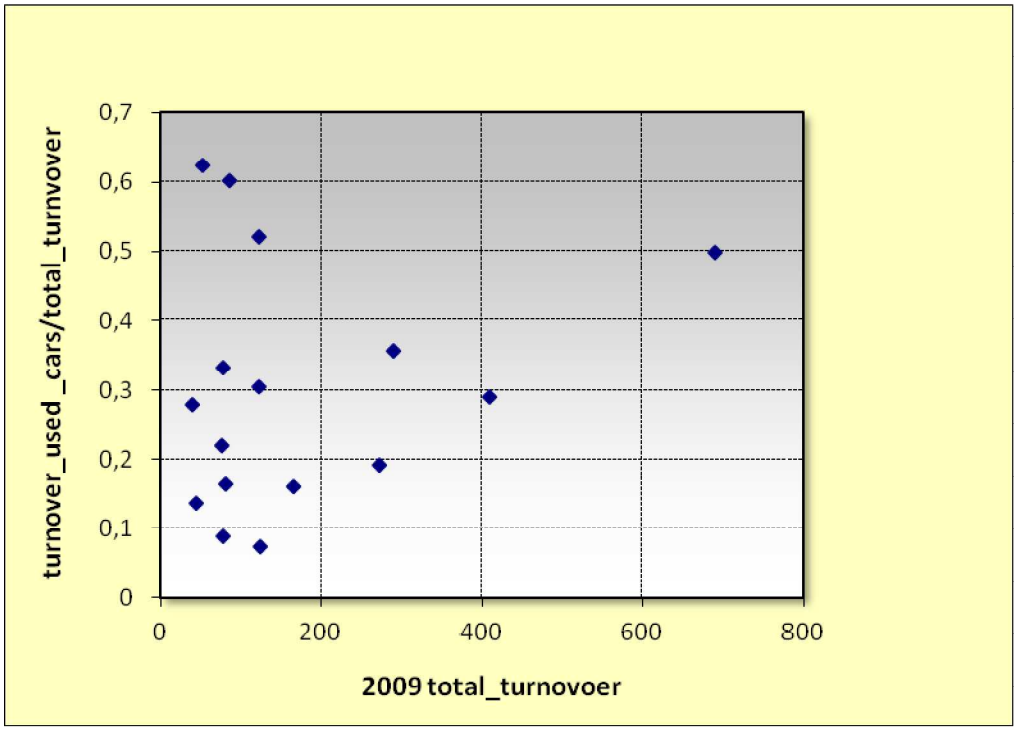

Figure 10 Scatterplot turnover_used_cars/total_turnover to total_turnover in 2009

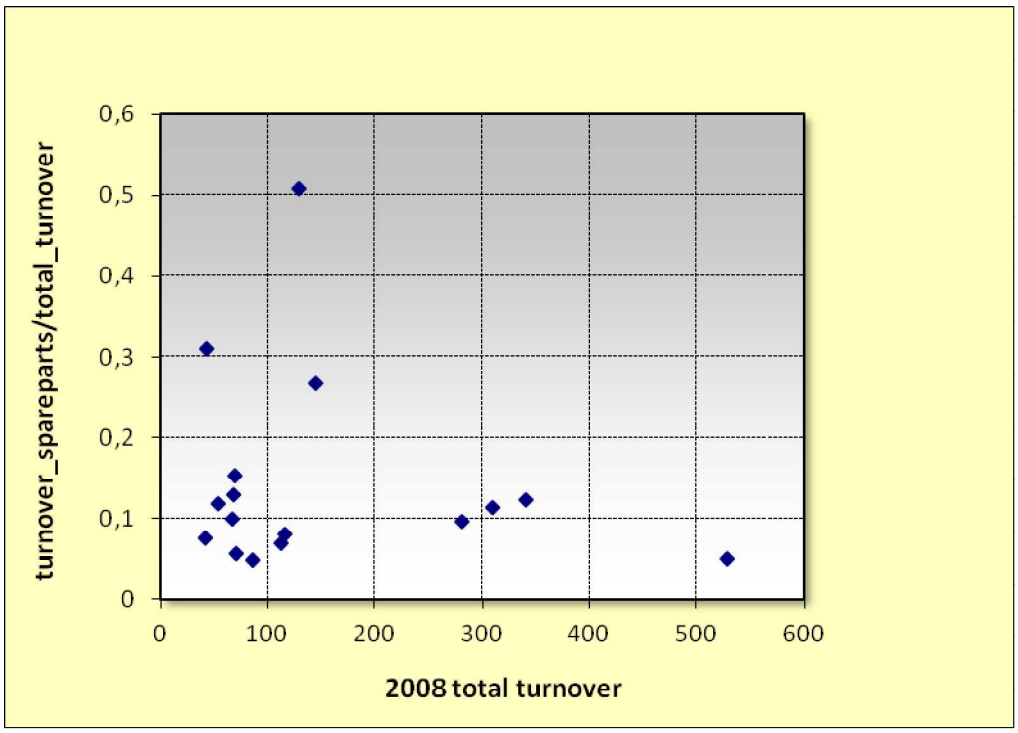

Figure 11 Scatterplot turnover_spareparts/total_turnover to total_turnover in 2008

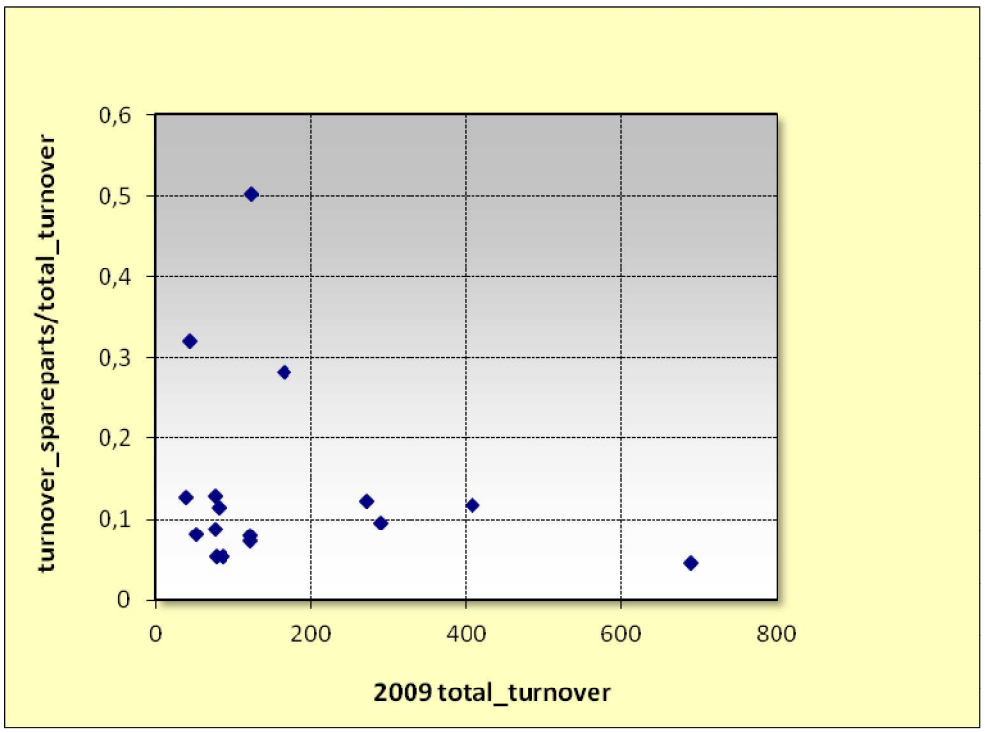

Figure 12 Scatterplot turnover_spareparts/total_turnover to total_turnover in 2009

Table 12 Correlation test for business areas to size

test statistic	Spearman's rho	
n	16	
year	2008	2009
turnover_used_cars/total_turnover to total_turnover	- 0.0942	0.1000
turnover_spareparts/total_turnover to total_turnover	- 0.1118	- 0.1647

Source: Author

In the group n=16 referred to above, in figures 7 to 12 and table 12, focussing on specific business areas does not depend on the size (measured by turnover) of the business. The sizes of the sample elements out of this group n=16 vary from 41.732 million euro to 528.463 million euro in 2008 and from 39.450 million euro to 689.245 million euro in 2009. Since there are no industry-specific size classes it is assumed that representativeness of the sample is not impaired by the concentration on big dealerships in the non industry specific sense of the German accounting and publication rules.

4.2.3 Distributions

Decision for application of appropriate test method requires analysis of the distributions of the data under research. Distinctions are to be made between raw data and ratios. Ratios are classified according to the relation of numerator and denominator a

- bounded or
- unbounded,

with profitability ratios such as

$$\frac{EBIT}{total\_assets} \text{ (= ROI, the Author)}$$

being unbounded and by character not far from lognormality. This is proved by testing the relationship between skewness and kurtosis of the sample elements (Trigueiros, 1995). Not only the mathematical character of the ratio

impacts its frequency and further statistical character, in a research on economic issues a undertaken in the dissertation institutional constraints have to be observed.

Buckmaster and Saniga (1990) explain that

$$\frac{operating\_income}{total\_assets} \text{ and } \frac{cash\_flow}{total\_assets}$$

are two of the four ratios consistently unbounded (according to Johnson's system of frequency curves) and tested by him, because they are not subject to the same institutional constraints by firms' financing and funding structure like consistently bounded ratios

$$\text{e.g. } \frac{working\_capital}{total\_assets}, \frac{long-term\_debt}{total\_assets}, \text{ or } \frac{preferred\_stock}{total\_assets} \text{ are.}$$

With respect to the specific conditions of the final car market in Europe, legally and factual (MVBER (EU), uniform dealer contracts, powershift to the OEMs, OEMs acting as competing dealers on the final market), the existence of constitutional constraints appear more likely than not. The business models designed by OEM and being compulsory for continuation of dealership contracts might result in a limitation of profitability, e.g. by preventing the dealerships from minimization of cost and expenses. Thus distributions of ROI and its component ratios are tested along with the raw data. Shapiro-Wilk and Anderson-Darling test together with related histograms (software: Winstat) are used.

Distributions are tested for the indicators ROI, total, EBIT, turno, gross and EBT in the subgroups of the benefiting dealership types (n=62), the non-benefiting group (n=15) and the individual dealership types (VW, n=42; GM, n=11; Ford-Mazda, n=9), see figure 4, separately. Assessment of normality of distributions is tested in a combined approach by interpretation of the histograms and test statistics as described below. Interpretation of histograms is made by the author, not derived from given algorithms. Indications are chosen as “0” for “deviation” and “1” for “no material deviation” from the normal distribution curve. Shapiro-Wilk and the Anderson-Darling test statistics are

used with the before mentioned indications on α – level of 0.05 using "0" for the rejection of normality of the tested distributions. Kolmogorov-Smirnov test does not, in contrast to Shapiro-Wilk or Anderson-Darling, lead to differentiated results for p-values of the tested distributions in the subgroups of dealership types Ford-Mazda, GM and BMW, which have relatively small sample sizes from n=9 to n=15. In the subgroup of VW dealers n=42 Kolmogorov-Smirnov test statistic finds six distributions normally distributed, five of this results are in contradiction to both, Shapiro-Wilk and Anderson-Darling findings and one contradicts to Shapiro-Wilk only. Accordingly the assessment whether the items under hypothesis testing are normally distributed is based on Shapiro-Wilk and Anderson-Darling test statistics and additional on author's assessment of the histograms.

Table 13 provides a formalized evaluation to the classification of the rejection of the normality of the distributions of indicators related to the subgroups of dealership types; the results "2" and "3" of the cumulation of the above described indications lead to the assumption that normal distribution of the indicator cannot be rejected under the more-likely-than-not consideration. Accordingly it is assumed that ROI, EBIT and gross profits are normally distributed in the n=9 subgroup and ROI and total in the n=15 subgroup as paired samples. As a result the vast majority of the items under research are not normally distributed (which was to be expected, see above) and Wilcoxon rank sum test is applied for testing significance.

Table 13 Results of testing on standard distribution of datasets

		histogram		Shapiro-Wilk		Anderson-Darling		cumulative	
		year							
sub-group	indicator	2008	2009	2008	2009	2008	2009	2008	2009
62	ROI	1	0	0	0	0	0	1	0
	total	0	0	0	0	0	0	0	0
	EBIT	0	0	0	0	0	0	0	0
	turno	0	0	0	0	0	0	0	0
	gross	0	0	0	0	0	0	0	0
	EBT	1	1	0	0	0	0	1	1
11	ROI	1	0	1	0	1	0	3	0
	total	0	0	0	0	0	0	0	0
	EBIT	1	1	0	0	0	0	1	1
	turno	0	0	0	0	0	0	0	0
	gross	0	0	0	0	0	0	0	0
	EBT	0	0	1	0	1	0	2	0
42	ROI	0	0	0	0	0	1	0	1
	total	1	1	0	0	0	0	1	1
	EBIT	1	1	0	0	0	0	1	1
	turno	0	0	0	0	0	0	0	0
	gross	0	0	0	0	0	0	0	0
	EBT	1	1	0	0	0	0	1	1
9	ROI	0	0	1	1	1	1	2	2
	total	0	0	0	0	0	0	0	0
	EBIT	0	0	1	1	1	1	2	2
	turno	0	0	0	1	0	1	0	2
	gross	1	1	1	1	1	1	3	3
	EBT	0	0	0	1	0	1	1	1
15	ROI	1	1	1	1	1	1	3	3
	total	1	1	1	0	1	1	3	2
	EBIT	1	1	1	0	0	0	2	1
	turno	1	0	0	0	0	0	1	0
	gross	1	0	0	0	0	1	1	1
	EBT	1	1	1	0	1	0	3	1

Source: Author

4.3 Quantitative Data

Descriptive statistics are presented in 4 tables, table 14 to table 17, for two sets of values; dataset_1 is to evaluate ROI and EBT, accordingly encompasses the items ROI, total, EBIT, gross, turno and EBT. Dataset_1 is presented on two levels of details. Level_1 provides an overview on the groups of benefiting dealerships (VW, GM, Ford-Mazda; n=62) and non-benefiting dealerships (BMW; n=15), see table 14. Level_2 breaks down the benefiting group of dealerships (VW, GM, Ford-Mazda; n=62) into its elements VW n=42, GM n=11 and Ford-Mazda n=9, see table 15.

Dataset_2 is to evaluate the influence of German 2009 AVR vs. the influence of the interest rate on interest expense, since interest expense makes an important (further explanation in chapter 4.2.4) difference between EBIT and EBT. Interest expense is composed of interest rate and loan. Accordingly dataset_2 encompasses inventory, loan and interest rate.

A test of correlation between inventory as the driver and balance sheet total as well as inventory and loan is presented in table 16 A statistic on the results of the calculation of the interest rates is displayed in table 17.

All Δ are calculated as $\frac{value\_2009 - value\_2008}{|value\_2008|}$.

The P-values refer to the Wilcoxon rank sign test; Hypothesis description, see above under 2.3.3.

Significance level $\alpha>0.05$ for rejection of H0 = no significance is chosen.

4.3.1 Descriptive statistics dataset_1, level_1

Descriptive statistics for dataset 1 on level_1 are presented in table 14:

Table 14 Descriptive statistics for dataset_1, level_1

	dealership-types					
	benefiters n=62			non-benefiters n=15		
indicators	mean	median	sd **p**	mean	median	sd **p**
ROI 2008	0.0299	0.0387	0.0366	0.0384	0.0337	0.0342
ROI 2009	0.0503	0.0503	0.0451	0.0454	0.0428	0.0376
ROI Δ	0.6815	0.2997	**p=0.001**	0.1840	0.2700	**p=0.213**
	M euro			*M euro*		
total 2008	50.7381	34.5292	46.4464	34.2297	30.2360	16.5366
total 2009	47.8217	33.3172	44.2081	32.3522	28.1104	16.9067
total Δ	-0.0575	-0.0351	**p=0.000**	-0.0549	-0.0703	**p=0.039**
EBIT 2008	1.5850	0.9636	2.8683	1.2330	0.8386	1.3855
EBIT 2009	2.3239	1.5304	2.7043	1.5508	0.9814	2.0691
EBIT Δ	0.4662	0.5882	**p=0.006**	0.2577	0.1703	**p=0.182**
gross 2008	23.8590	16.9983	23.0497	15.4176	13.4143	8.8039
gross 2009	25.1365	17.1221	23.8306	15.7359	13.5158	9.7059
gross Δ	0.0535	0.0073	**p=0.000**	0.0206	0.0076	**p=0.128**
turno 2008	142.4370	98.7507	126.7514	102.8463	107.5121	60.3477
turno 2009	159.9961	112.0787	146.2307	98.5987	80.7389	63.1832
turno Δ	0.1233	0.1350	**p=0.000**	-0.0413	-0.2490	**p=0.070**
EBT 2008	0.1067	0.1265	2.3021	0.1826	-0.0145	1.7324
EBT 2009	1.3491	1.0038	2.4278	1.0689	0.5765	2.1608
EBT Δ	11.6439	6.9352	**p=0.000**	4.8538	40.7586	**p=0.013**

Source: Author

$ROI\Delta_{n=62}$ is significant in contrast to $ROI\Delta_{n=15}$. $ROI\Delta_{n=62}$ is the 3.7 fold of $ROI\Delta_{n=15}$ and lifts $ROI_{n=62}$ in 2009 on a higher level than $ROI_{n=15}$ measured as mean. The increases of median values for ROIΔ are approximately the same in both subsets. Negative skew of $ROI_{n=62}$ in 2008 gets neutralized in 2009, whereas positive skewness of $ROI_{n=15}$ remains unchanged by $ROI\Delta_{n=15}$.

TotalΔ is significant in both subsets. Totals are positively skewed in both subgroups for both years.

$EBIT\Delta_{n=62}$ is significant in contrast to $EBIT\Delta_{n=15}$. Increase of $EBIT\Delta_{n=15}$ is the 1.9 fold of $EBIT\Delta_{n=62}$ measured as mean and the 3.5 fold measured as median. EBIT values are positively skewed for 2008 and 2009, although EBITΔ are negatively skewed.

GrossΔ is positive in both subgroups, for mean and median respectively with improvement of gross being significant in the subgroup of benefiters in contrast to the subgroup of non-benefiters. Improvement of gross in the subgroup of the benefiters is more than twice as much compared to the improvement in the subgroup of non-benefiters. In both subgroups gross is positively skewed in both years respectively.

$Turno\Delta_{n=62}$ and $gross\Delta_{n=62}$ are significant in contrast to $turno\Delta_{n=15}$ and $gross\Delta_{n=15}$. Increase of $turno\Delta_{n=62}$ is approximately equal for mean and median values; such does not apply to $gross\Delta_{n=62}$ which increases in mean value, whereas median stays approximately unchanged. The opposite disproportionality applies to the n=15 subset, the grossΔ of which is based on negative turnoΔ with 0.0413 for mean and 0.2490 for median.

EBTΔ is significant in both subsets. Degree of increase differs widely with median $EBT\Delta_{n=15}$ being 8.4 fold of related mean and mean $EBT\Delta_{n=62}$ being 1.7 fold of related median. Positive skewness of $EBT\Delta_{n=62}$ caused a switch in skewness of $EBT_{n=62}$ from negative in 2008 into positive in 2009. $EBT_{n=15}$ are positively skewed in both years with a negative median value in 2008, $EBT\Delta_{n=15}$ is negatively skewed.

4.3.2 Descriptive statistics dataset_1, level_2

Table 15 Descrptive statistics for dataset_1, level_2

Dealership	VW n=42		GM n=11		Ford-Mazda n=9	
Indicators	mean *median*	sd **p**	mean *median*	sd **p**	mean *median*	sd **p**
ROI 2008	0.0279 *0.0408*	0.0396	0.0385 *0.0307*	0.0317	0.0290 *0.0375*	0.0284
ROI 2009	0,0473 *0.0488*	0.0406	0.0763 *0.0691*	0.0639	0.0328 *0.0332*	0.0250
ROI Δ	0.6953 *0.1961*	**p=0.023**	0.9818 *1.2508*	**p=0.004**	0.1310 *-0.1147*	**p=0.187**
	M euro		*M euro*		*M euro*	
total 2008	54.2137 *38.2880*	48.7840	46.9812 *26.3000*	48.3856	39.1103 *22.7787*	32.9091
total 2009	51.5989 *36.7266*	46.6170	44.0245 *21.9097*	46.2246	34.8359 *24.3051*	24.0573
total Δ	-0.0482 *-0.0408*	**p=0.000**	-0.0629 *-0.1669*	**p=0.005**	-0.1093 *-0.0670*	**p=0.015**
EBIT 2008	1.7256 *1.1002*	3.2533	1.6178 *0.6930*	2.1602	0.8884 *0.9215*	1.4156
EBIT 2009	2.4183 *1.6348*	2.6789	3.0723 *1.7270*	3.5304	0.9689 *0.9208*	0.7206
EBIT Δ	0.4014 *0.4859*	**p=0.046**	0.8991 *1.4921*	**p=0.008**	0.0906 *-0.0008*	**p=0.430**
gross 2008	25.6848 *17.4156*	25.0670	23.0027 *12.4646*	21.9404	16.3855 *15.4507*	12.1528
gross 2009	27.2279 *18.5918*	25.7564	24.5987 *12.9461*	23.4696	16.0340 *15.7424*	11.1899
gross Δ	0.0601 *0.0675*	**p=0.000**	0.0694 *0.0386*	**p=0.008**	-0.0215 *0.0189*	**p=0.297**
turno 2008	151.8543 *109.3573*	136.0632	132.5032 *77.1477*	119.7753	110.6309 *85.5264*	89.1660
turno 2009	174.3862 *118.3888*	160.0671	146.1170 *109.2006*	130.6907	109.8056 *89.9035*	78.7556
turno Δ	0.1484 *0.0826*	**p=0.000**	0.1027 *0.4155*	**p=0.008**	-0.0075 *0.0512*	**p=0.476**
EBT 2008	0.0503 *0.1013*	2.6167	0.7178 *0.7633*	0.7528	-0.3774 *0.2144*	1.9531
EBT 2009	1.4034 *0.8502*	2.5863	1.9847 *1.2116*	2.4111	0.3188 *0.5827*	1.2764
EBT Δ	26.9006 *7.3929*	**p=0.000**	1.7650 *0.5873*	**p=0.010**	1.8447 *1.7178*	**p=0.019**

Source: Autho

$ROI\Delta_{n=42}$ and $ROI\Delta_{n=11}$ are significant in contrast to $ROI\Delta_{n=9}$. Except for median of $ROI\Delta_{n=9}$ the ROIΔ are positive with substantial differences. Mean values of $ROI\Delta_{n=11}$ and $ROI\Delta_{n=42}$ are substantially beyond $ROI\Delta_{n=9}$. $ROI\Delta_{n=42}$ and $ROI\Delta_{n=9}$ are positively skewed, $ROI\Delta_{n=11}$ is negatively skewed.

Negative totalΔ is significant for all 3 strata. $Total\Delta_{n=9}$ differs substantially for mean and median. Total is clearly positively skewed for all 3 strata in 2008 and 2009 respectively.

$EBIT\Delta_{n=42}$ and $EBIT\Delta_{n=11}$ are significant in contrast to $EBIT\Delta_{n=9}$. $EBIT\Delta_{n=11}$ by far is the highest in the sample, together with $EBIT\Delta_{n=42}$ being negatively skewed.

GrossΔ is positive and significant for the subgroups VW and GM only. All gross values are positively skewed, in the subgroup Ford-Mazda to a lower degree than in the two other subgroups.

TurnoΔ and grossΔ are significant for the dealership-type c and a strata in contrast to those of the dealership-type d subset. $Turno\Delta_{n=9}$ and $gross\Delta_{n=9}$ are negative; the relation turnoΔ to grossΔ is comparable for all 3 strata, mean and median, except for dealership-type a: median of $turno\Delta_{n=11}$ exceeds related mean value by far without related effect on $gross\Delta_{n=11}$.

EBTΔ is significant in all 3 strata. For assessment of mean value of $EBT\Delta_{n=42}$ the level close to zero of $EBT_{n=42}$ in the year 2008, making just euro 50k has to be taken into account. Mean of $EBT_{n=9}$ is negative for 2008; all EBT values for 2009 are positive.

4.3.3 Summarized results for dataset_1

Financial position expressed as ROI is improved in the subgroup of benefiters and non-benefiters, significantly in the subgroup of benefiters only, and to a much higher degree in this subgroup compared to the group of non-benefiters with the result that ROI-value of the benefiting group exceeds the one of the non-benefiting group.

Improvements of ROIs in both subgroups are equally based on the two main components total (denominator) and EBIT (numerator). In each and every subgroup total is reduced significantly in a range between 4.8 percent

and 10.9 percent for mean and 4.1 percent and 16.7 percent for median. The sample elements in the benefiters-subgroup which are of outstanding size by the criterion of "total" did improve their financial position above average according to the equalization of the originally given negative skewness in this group. EBITΔ is positive in both groups, significant and higher in the benefiting group compared to the non-benefiting group.

The results for ROI, total and EBIT in the benefiting group are driven by its subgroups VW and GM where total and EBIT significantly and materially improve (improvement as decrease of total and increase of EBIT), whereas in the Ford-Mazda subgroup ROIΔ and EBITΔ are comparatively low (positive for mean and negative for median) and not significant. Such result is unexpected under comparable increases of new registrations for the benefiting groups, see table 5, chapter 3.1.1 in a comparable economic and legal environment which is a general characteristic of the object of research, see chapter 1.2.2. The striking differences of the delta values of the before mentioned indicators leads to the conclusion that one (size of this subgroup is n=9) or more big firms in the Ford-Mazda subgroup did reduce turnovers, gross profit and total, in order to achieve improvement of EBT via saving of interest expense. If such is a result from intended omission of the business with subsidized cars, which concentrates on cars of the lowest price class (see chapter 4.1), or from other reasons, must remain unanswered in the quantitative data analysis.

The deltas of the sources of EBIT, turno and gross, brought into a descending order come to the following findings for the means: The order EBITΔ > turnoΔ > grossΔ applies to the benefiting group and its subgroups VW, GM and Ford-Mazda with the particularity that the values for turnoΔ and grossΔ are negative in the Ford-Mazda subgroup; in the non-benefiting group applies the descending order EBITΔ > grossΔ > turnoΔ. Accordingly in the benefiting group relative cost savings are decisive for improvement of EBIT, whereas in the non-benefiting group improvement of gross profit and gross profit rate (note: negative turnoΔ) is key for improved EBIT. In the VW subgroup 44.9 percent and in the GM subgroup 91.1 percent of grossΔ is contained in EBITΔ which means that the increase in business volume did not require proportionate consumption of resources of amortization (fix costs),

man power (fixed-step and variable cost) and other operative expenses (variable cost), a clear economy of scale effect. The lower gearing between turno and gross in the VW subgroup compared to the GM subgroup, combined with a lower level of economy of scale advantage may result from the substitution of the demand for highly equipped cars of the medium and upper price levels by such of the lowest prices levels within the scope of distributed brands, see tables 3 to 5, chapter 3.1.1, eventually combined with dealers' striving for market shares by granting special discounts to subsidized buyers for mid-sized cars, see chapter 4.4. The improvement of EBIT in the non-benefiting subgroup is based on gross and thus on qualitative improvement of a reduced business volume. A similar assessment applies to the Ford-Mazda subgroup in the sense that decline in turno is less than decline in gross which together with simultaneous cost savings results in an improvement of EBIT; a constellation which cannot be explained by supply demand considerations.

With respect to the observation from the 16 dealers (thereof 3 BMW) presenting their turnover composition in detail, see chapter 5.2.1 and figures 7 and 8, that the average portion of turnover with new cars is 42.9 percent in 2008 and 47.4 percent in 2009 (for the 3 BMW dealers 46.1 percent respectively 42.7 percent), the decrease of turnover by 4.1 percent in the non-benefiting group fits with the decrease of related new registrations of 9.4 percent (table 5, chapter 3.1.1) under a ceteris paribus assumption for the other business areas. TurnoΔ_{GM} is, compared to turnoΔ_{VW} clearly below expectation, taking into consideration the substitution of the decrease of new registrations of Audi cars by such of less pricey brands (see table 3, chapter 3.1.1); the premium class brand Saab is immaterial to the GM group.

EBTΔ is positive, material and significant in all groups and subgroups with EBTΔ exceeding EBITΔ by far (except the medians in GM subgroup). The above mentioned significant reductions of totals in all groups and subgroups contribute materially, but not necessarily solely to this finding: Strikingly high mean values of EBTΔ and ratios for $\frac{EBT\Delta}{EBIT\Delta}$ coming to 24.98 in the group of benefiters and to 18.84 in the non-benefiting group indicate further sources in place. Accounting for extraordinary gains and losses, income from investments and interest expense (in the sense of the net of interest income and interest expense) leads from EBIT from ordinary operations to EBT. Ex-

traordinary gains and losses identified in the financial statements do not by character refer to crisis, German 2009 AVR or similar economic issues, see table 7, chapter 3.1.2.2; no disclosure on character of investments and related income is provided in the respective financial statements. Thus chapter 5.3.4 below focuses on interest expense and its components. For closely held and owner managed businesses the leverage effect from borrowing and thus the interest rate as the price for funding is of importance for ordinary results.

4.3.4 Descriptive statistic dataset_2

Funding sources subject to interest expense found on the face of the balance sheets under research are bank loans and overdrafts, liabilities to shareholders, liabilities to subsidiaries and affiliates, with respect to the above given definition of interest expense netted against receivables from subsidiaries and affiliates, receivables from shareholders and securities and long term loans are defined as loan. Upon a given stability of the funding structure decline of loan is proportionate to decline of total. The suggested driver for the decline in totals is inventory (inv), see appendix 3, with cars on stock as its main component. Accordingly dataset_2 includes inv, total, loan and interest rate (int_rate) with

$$inv_t = \frac{inv_{t-1} + inv_t}{2}$$

$$total_t = \frac{total_{t-1} + total_t}{2}$$

$$loan_t = \frac{loan_{t-1} + loan_t}{2}$$

$$int\_rate_t = \frac{interest\_expense_t}{loan_t}$$

Table 16 gives the results of the correlation tests according to Spearman's rank correlation coefficient (r_s), the related level of one-sided significance (S) and the coefficient of determination linear (R^2), or logarithmic function (R^2_{ln}), whichever provides the higher value with inv as independent and total, respectively loan as dependent variable.

Table 16 Statistics on correlation between inv and total, respectively loan

dealership type	dependent variable	year	regression R^2	regression R^2_{ln}	Spearman r_s	Spearman S
benefiters	total	2008	0.9420		0.9357	0.0000
		2009	0.9407		0.9390	0.0000
	loan	2008	0.8464		0.8963	0.0000
		2009	0.8031		0.9147	0.0000
non-benefiters	total	2008	0.8506		0.8571	0.0000
		2009	0.8835		0.8429	0.0000
	loan	2008	0.2271		0.3964	0.0718
		2009		0.1966	0.4536	0.0447

Source: Author

Total correlates positively with inventory, the same applies for loan in the group of benefiters, not so in the group of non-benefiters. Whereas in the benefiting group the reduction of total corresponds to the decrease in bank loans and overdrafts, in the non-benefiting group there is a correspondence to payables trade, see appendices 3 and 4. Due to the character of the business the main portions of bank loans and payables trade refer to the captive banks respectively to the OEM directly. With respect to the qualitative information set on the non-benefiting group the conclusion may be justified that a shift from business with new cars to such with pre-owned cars caused a substitution of payables trade to bank loans in the funding structure. This circumstance is an explanation for the lower EBTΔ to EBITΔ as described above in chapter 5.3.3.

A statistic of int_rate is given in table 17.

Table 17 Statistics on interest rates

	dealership-type					
	benefiters			Non-benefiters		
	mean	median	sd	mean	median	sd
int_rate_{2008}	0.0590	0.0557	0.0260	0.0508	0.0500	0.0110
int_rate_{2009}	0.0463	0.0473	0.0190	0.0292	0.0356	0.0166
int_rate Δ	-0.2149	-0,1509	p=0.000	-0.4257	-0.2880	p=0.001

Source: Author

Interest rates are close together in the groups of benefiters and non-benefiters in 2008. Significance of declines cannot be rejected in both groups; declines differ substantially between the two groups coming to a clear difference between the two groups. A combined assessment of tables 14, 16 and 17 discloses for the group of benefiters a double advantage from German 2009 AVR induced reduction of cars-on-stock resulting in a drop in funding volume and a crisis related decline in interest rates, leading to a substantial saving in interest expense and a related increase in EBT. From the materials under research there is no apparent reason for a graduation of more than 1.5 percentage points in interest rates between benefiting and non-benefiting (=BMW) dealerships under regard of the positive knowledge that funding in the sense of loan as defined above is nearly exclusively performed by banks (see appendices 4 and 5) and assumed that refinancing rules and mechanisms on the capital market apply likewise to all banks, no matter if captive or not. Accordingly it may be assumed that subsidies of the BMW Group is involved.

4.4 Qualitative data

4.4.1 Numbers related presentations

Qualitative data appear in the majority of the sample elements' management reports with comparable contents in a relatively short and formulaic language. Such presentation style by the majority is focused on a pre-year comparative selection of details on current operations, those usually broken down to business with new and used cars and service, omitting coherent descriptions of results and impacts on financial position. Assets structures, valuation details, information on funding or other balance sheet issues usually are missing. Explanations on profitability issues more or less are restricted to gross profits, often not clearly stating whether it is about gross profit rate or absolute numbers; some presentations refer to profits, not providing the meaning of the word, whether it is about gross profit, profit of the department, calculated under a full cost accounting or variable cost accounting concept. From the overall contexts it is to conclude that statements of profitability refer to profit to turnover ratios, no matter what elements profit exactly may encompass. Overall management reports' reader has to remain content with the information on improvements or worsening of selected profitability items. On the other hand those information usually are accompanied by presentations of reasons for the changes the report is about.

Categorization and description of typical issues management reports deal with are presented in the left two columns of table 18.

Since not all firms in the sample provide complementary information on their financials, sample size is 58 out of the sample of n=77. For qualitative data analysis in contrast to the quantitative dataset there is no statements available to each and every of the issues typically addressed in management reports with the consequence of varying numbers of statements depending on the specific issue. Statements on turnover_from_new_cars-comparisons between 2008 and 2009 come to a number of 40 (maximum) out of the n=58 and statements on profits_from_the_business_with_new_cars-comparisons between 2008 and 2009 come to a number of 10 (minimum), for details see table 18. One entry per dealer and per reporting issue was made to the qualitative statistics in table 18. In case of statements addressing a business area form

more than one point of view, e.g. according to changes in sales of various car categories, the statement with the apparently highest relevance is selected: Two Ford-Mazda dealers report on intentionally decreased total sales of new cars due to change in their individual distribution policy by turning down low profitable dealings with car rentals and other commercial buyers, while business with private customers boomed due to the AVR. These two statements are posted to “increase of turnover from selling new cars” and to “thereof AVR”, although the related income statement number of turnover from selling new cars decreased in 2009 compared to 2008 since the expressively stated relation between the German 2009 AVR and the business with new cars is of greater relevance than the fact of decreasing total turnover which also can be seen from the face of the income statement. The strategic element in these presentations are not tabled but dealt with in chapter 5.4.2, strategic issue presentation. A BMW dealer with five sales points, one of them VW, reports on increased turnover and profit in this VW sales point due to German 2009 AVR impacts. Due to lacking explanation on further details this statement is not included in the qualitative dataset and table 18.

Table 18 gives the numbers of presentations related to business area and financial statement issue and in italics the fraction of positive or negative like-signs related to the individual number of statements, not the total number of 58.

Table 18 Statistics on number-related presentations

business area	financial state-ments issue	statement	dealership-type			
			benefiters			non-benefiter
			VW (n=34)	GM (n=7)	Ford-Mazda (n=7)	BMW (n=10)
new cars	turnover	(+)	22 | *1.00*	7 | *1.00*	7 | *0.86*	4 | *0.50*
	thereof	AVR	*0.86*	*0.71*	*0.71*	*0.25*
	profit	(+)	10 | *0.30*	4 | *0.50*		2 | *0.50*
	thereof	AVR	0.5*0*	*0.50*		
	profit	(±)	10 | *0.60*			
	thereof	AVR	1.00			
	profit	(-)	10 | *0.10*	4 | *0.50*		2 | *0.50*
	thereof	AVR	*0.00*	*0.00*		*1.00*
used cars	turnover	(+)	13 | *0.15*	3 | *0.33*	5 | *0.40*	4 | *0.50*
	thereof	AVR	*1.00*	*1.00*	*0.50*	*0.50*
	turnover	(-)	13 | *0.85*	3 | *0.67*	5 | *0.60*	4 | *0.50*
	thereof	AVR	*0.73*	*0.50*	*0.67*	
	thereof	crisis				*1.00*
	profit	(-)	13 | *0.92*	2 | *1.00*		4 | *0.75*
	thereof	crisis	*0.50*	*0.00*		*0.67*
used cars on stock	impairment		*16*	*1*	*2*	*3*
	thereof	AVR	*16*	*1*	*1*	*2*
after-sales	turnover	(+)	10 | *0.30*	3 | *0.75*		4 | *0.25*
	gross	(+)	10 | *0.60*	3 | *0.25*		4 | *0.25*
	service	(±)	10 | *0.10*		1 | *1.00*	4 / *0.50*

Source: Author

Increase in turnover from selling new cars is reported between 86 and 100 percent of those benefiters making statements on this issue, with 71 to 86 percent of them referring to the German 2009 AVR as reason for the increase. The statements of the non-benefiters suffer from a very small basis of just four. The one reporting BMW dealer who attributes increased turnovers from new cars to the German 2009 AVR wants to be understood the way, that his business with new cars was slack by 2.8 percent, which is the net of lost sales to commercial buyers and newly acquired private customers including such subsidized by German 2009 AVR; further this dealer reports that compared to 2008 the business with used cars was increased in 2009 by 30 percent to which the German 2009 AVR had contributed.

Compared to turnovers, a remarkable small portion of the management reports provide statements on profitability of the business with new cars. In contrast to the statements on turnovers only 5 of 14 benefiters report on increased profitability with 50 percent of them (as well as the non-benefiters) attributing this to the German 2009 AVR. At least 2 of the non-benefiters report on increased and as many on decreased profitability of the business with new cars, albeit both making German 2009 AVR responsible therefore, whereas none of the 3 benefiters who report on negative changes of profitability of this business area see impacts of German 2009 AVR in this point. All 6 benefiters, who report on unchanged profitability are out of the VW subgroup and unanimously confer this to the German 2009 AVR. With reference to the findings in chapter 5.3.3 according to which the grossΔ to turnoverΔ ratio is lower than those of GM dealers (to the Ford-Mazda subgroup apparently special circumstances apply) is it remarkable that German 2009 AVR exclusively is referred to by managements in connection with increased or stabile (stabilized?) profitability of the new car business.

Another clear contrast between benefiting and non-benefiting dealers concerns the business with used cars. Only 5 of 21 benefiters (13 VW, 3 GM, 5 Ford-Mazda) report on increased business, 4 of them attributing this to the German 2009 AVR, whereas 2 of 4 BMW dealers report on increased business from used cars, with one of them seeing German 2009 AVR impact. With respect to 103,873 subsidized sales of pre-owned cars in the VW group, 47,703 subsidized sales of pre-owned cars in the GM group and 45,471 subsidized sales of pre-owned cars in the Ford-Mazda group, see table 4, chapter 3.1.1 such clear negative result was not to be expected. 14 of 15 benefiters report on decreased profits from dealing with used cars, none of the addresses German 2009 AVR as the reason, but 19 benefiters report on impairments of used cars on stock, thereof 18 due to German 2009 AVR impact.

17 entities report on after-sales, all of those reports are about stability or increases, a finding which is in this degree of clarity not supported by the voluntary additional quantitative data reported on after-sales business by non congruent 16 dealers, see explanations in chapter 3.2.1, since there are 3 decreases, an increase of the mean value from M euro 27.9200 in 2008 to M

euro 29.4106, respectively 5.4 percent in 2009 and p-values exceeding 0.1 for t-test as well as Wilcoxon Rank-Sum test.

The only balance sheet item addressed by managements is the impairment of used cars on stock in 22 cases, 20 of them attributed to German 2009 AVR.

Overall the qualitative dataset evaluation in accordance with the quantitative dataset paints a picture of benefiters and non-benefiters of the German 2009 AVR, with the benefiters increasing their sales of new cars on stabile to slightly increased profitability ratios, whereas the business with used cars decreased in volume and profitability with clear negative impacts on the values of cars on stock. After sales was a reliable profitability factor. This clear statement does not allow to set aside the influence of the after sales business in considerations on German 2009 AVR impacts on results of the business under the ceteris paribus assumption.

4.4.2 Strategic issues presentations

Specific strategies may take influence on the financial position and its susceptibility to the impacts of the German 2009 AVR. 25 dealers out of the sample of n=77 report on having a total of 38 measures in place which meet the criteria described in chapter 3.2.5. Table 19 gives an overview on these dealers and measures for the year 2009.

Table 19 Statistics on strategic measures

Strategic measure	Dealership-type			
	n=25			
	VW	GM	Ford-Mazda	BMW
takeover of competitor	2 | *2*	2 | *2*		1 | *1*
more sales/- service points	1 | *2*	1 | *3*		
less sales/- service points	4 | *6*	1 | *2*	1 | *1*	1 | *1*
more brands	1 | *1*	1 | *1*	1 | *1*	
less brands	1 | *2*			
less low profitable sales		2	2	1
focus on used cars	2	1		
focus on spare parts		2	1	
outstanding size	2			

Source: Author

The numbers in normal font give the numbers of dealerships which report on strategic measures to be started, being in process or realized, the numbers in italics right of the vertical line present the numbers of measures identified from management reports. Due to the character of the strategies depicted below the dotted line (less low profitable sales to outstanding size) no multiple is possible thus a related indication is obsolete.

German accounting and reporting rules do not required to report results, or gains and losses from initiated or discontinued operations separately.

Thus the takeovers hamper the comparison to the prior year, especially for the item turno. A special case is the takeover of competitor by the BMW dealer (see right column in table 19). The competitor taken over reportedly has a total turnover of 60 million euros compared to 50 million euros of the transferee company. The transaction is financed by a 2 million bank loan, the fund passed to the subsidiary and posted to intangible fixed assets. Income statement numbers of the reporting entity remain unaffected since the acquired company is run as a subsidiary. Management reports that the acquisition helps strengthening the groups dominating market position in its region.

Two firms extend their presence in the market by a total 5 sales and/or service points whereas 7 firms concentrate or consolidate their presence in the market by closing a total of 10 sales and/or service points. From lines 1 to 3 in table 19 a tendency to a concentration process may be seen, accompanied by a tendency to more car brands per dealer, see lines 4 and 5 in table 19, showing that 3 dealers broaden their brand portfolio, while one concentrates it.

Two of the five dealers who's strategy change compared to prior years is the decision of relinquishing unprofitable sales to commercial buyers, specifically car leasing corporations, belong to the Ford-Mazda subgroup. This is suitable as an explanation for the unexpected turnoΔ, grossΔ and EBITΔ and the related absence of significance (due to sample size n=9).

In order to make an assessment of eventual advantages with respect to the financial position expressed as ROI of the respective entities the ranking of the 25 firms within the total sample is tested. As indicators ROI_{2008}, ROI_{2009} and ROIΔ are covered by the test.

Table 20 gives the statistic of the positions of the entities contained in table 19 in their ranking related to the total sample from 1 (best) to 77.

Table 20 Descriptive statistic on ranks of entities taking strategic measures in the total sample

	Criterion		
	ROI_{2008}	ROIΔ	ROI_{2009}
n	25	25	25
mean	38.2000	37.7200	39.9200
median	37.0000	40.0000	40.0000
sd	20.7425	22.2140	22.5444
min	1	2	1
max	70	73	72

Source: Author

Descriptive statistic does not indicate any advantage for the group of 25 dealers with strategic measures as a whole in terms of financial position. The

same applies to the distinctive types of strategies as described above and displayed in table 19; details see appendix 6.

4.4.3 Comprehensive narratives

Firm No. 5 (GM)[16]: Total turnover reduced, compared to prior year by 3.6 percent due to declined turnovers from wholesale of spare parts and used cars to associated entities; turnover from new cars to final market increased by 3.0 percent based on an increased portion of private buyers due to AVR, at overall increased gross profits from 354 euro to 907 euro per car due to waiving of transactions with low profitability; turnover with used cars to final market declined by 25.9 percent due to change of customers who typically would buy a pre-owned car to new cars and the mandatory scrappage of exchange cars, both impacts of the AVR. Service declined due to discontinuation of 2 service points. Improvement of business with new cars caused material improvement of total profit, together with lower interest rates, higher stock turnover rate and extended interest-free periods granted by the OEM. Bankruptcy of a sub-distributer and discontinuation of 2 service points caused losses and expenses coming to 0.418 million euro.

Firm No. 15 (VW): In pre-year comparison increase of sales of new VW cars by 91 percent and speedy reduction of cars on stock, with concentration on small cars, also increase of sales of new Audi cars by 14 percent due to an economic environment characterized by AVR and substantial subsidizing programs of the OEM, both to the advantage of the final car market, where the major intra-brand competitors pursue sales-oriented discount policies; discontinuation of operations of big employers with negative impacts on the employment in the local economy of the reporting company.

Firm No. 19 (VW): Continuation of decrease in margins due to the highly competitive automotive market, pressure on cost and expenses under requirements set forth by OEM which need to be met in order to achieve the highest possible bonuses and mark-ups; AVR input helpful for stabilization and extension of the company's leading position in the regional market. Besides these verbal presentations detailed numerical information on turnovers and related gross profits are provided for the business years 2006 to 2008 and

[16] Firm numbers refer to appendix 1

- with a substantially reduced the degree of details - for 2009. Average gross profit rates [$\frac{gross\_profit}{turnover}$] for 2006 to 2008 are 0.079 (cars), 0.301 (spare parts), 0.886 (lubricants) and 0.958 (service), for further details see appendix 2; taken these rates as valid in 2009 the constructed $gross\_profit\_rate_{2009}$ for the car business is 0.0766, compared to 0.0798 in 2008, 0.0805 in 2007 and 0.0845 in 2006. Gross profits increased from car business by 10.122 million euro (≙ 26.4 percent) and from after sales business by 2.186 million euro (≙ 7.0 percent), after deduction of expenses resulting in an increase of income from operations by 2.689 million euro (≙ 31.1 percent).

Firm No. 50 (VW): Despite the increase in turnover from cars to private buyers by 9.5 million euro (≙ 13.8 percent) total gross profit from car business decreases by 4 percent due to drop of price level on the second market; positive development of the after sales business.

Firms No. 54 and 62, both VW, with very similar statements: Booming demand for new cars is caused by a combination of AVR bounty and very high discounts offered by the OEM; dealer's discounts to consumers remain on a very high level; due to the dropping price level on the second market the used cars department contributed a loss; increased after sales business and profits are substantial for the result from operations.

Firm No. 61 (VW): AVR-caused total increase of demand by 3,561 to 42,846 with related 7,000 scrappages, accompanied by shift in demand for new cars towards mini-class (+96.9 percent), small-class (+65.7 percent) and compact-class (+31.1 percent) and towards private buyers, with reduced demand for middle-class (-15.9 percent), top-class (-17.8 percent) and sports cars (-26.0 percent); compared to pre-years reduced margins and drop in price level of used cars. After sales continues materially contributing to profitability. Cost reduction program for compensation of reduced gross profit rates and improvement of competitiveness. Managed shift in funding from sources subject to interest (banks) to such being interest free (suppliers) in order to reduce interest expense.

4.5 Summarized results

Measured by absorbtion of German 2009 AVR bounties benefiting and non-benefiting car brands can be distinguished, see table 4 and related explanation in chapter 3.1.1. The benefiting brands account for substantial increases in the new registration statistic in contrast to the decreases of the non-benefiting brands, see table 5 and related explanations in chapter 3.1.1. A sample of 77 dealerships qualifies for an evaluation of the possible impact of German 2009 AVR on their financial position based on their annual statutory financial statements available on the Federal Electronic Gazetta. This sample, composed of dealers with high turnovers is representative for the brand dealers of the car brands represented in the sample and is assessed to be representative for the object of research. The sample comprises three benefiting brands, VW, GM and Ford-Mazda and BMW as a non-benefiting brand.

Taken those as subgroups, both of them did improve their financial positions expressed as ROI as well as their EBTs in 2009 compared to 2008. Concerning ROI significance however is given in the benefiting group only which leads to the conclusion of a causal relation between German 2009 AVR and improvement of ROI and EBT in this group, based on a constructed counterfactual expectation of a demand for small and upper small class cars slightly below the 20008 level in 2009.

Going into more detail of ROI reveals that only EBIT (denominator) statistically behaves with respect to the subdivision of the sample in a benefiting and a non-benefiting subgroup like ROI, while average balance sheet total (numerator) in both groups significantly decreases due to decrease of cars on stock: Cars on stock is the main component of inventory which is the biggest individual asset in car dealers' balance sheets. Bringing down inventory seems to be a risk avoiding measure, because all firms reporting on unanimously state substantial impairments of pre-owned cars. With the exception of two of 22 cases, German 2009 AVR is seen as the reason of such impairment. Going into more detail on the side of the benefiting subgroup (by compilation of level_2 to dataset_1, see subsequent table 15, chapter 5.3.2) and the components of EBIT demonstrates that the group of GM dealers clearly profits from the economy of scales effect based on the one-off boosted demand for cars since the turnover-based increase in gross profit is in con-

trast to the VW group offset by other operative expenses by less than 10 percent. The comparable value comes to 55 percent in the VW group. In the income smoothing test 8 of the 11 alterations made concern VW dealers, see table 6, chapter 3.1.2.1; other operative expense as it relates to addition to reserve for risks from repurchase obligations which do not meet the income smoothing criteria are not reversed out by author in the realm of the income smoothing test; this indicates that increased risk provisioning is a material part of the increase of operating expense in the VW group and apparently higher than in the GM group.

Not expected are the decreases in turnover and gross profit in the Ford-Mazda subgroup, where the increase in EBIT is generated by cost-savings. Qualitative data analysis discloses that two big entities of the nine firms in this subgroup did intentionally waive their businesses with low profitable sales to commercial customers as a measure, denoted by them as change of strategy, to improve profitability. In an overall assessment it is to conclude that materiality and significance of ROI improvement is present in the subgroup of the Ford-Mazda dealerships also and the impact of German 2009 AVR on the financial position of this subgroup is in line with the VW and GM subgroups.

The non-benefiting BMW subgroup generates its improvement of EBIT from improved gross profits with a simultaneous decrease of turnover, based on approximately constant other operative expenses.

In both, the benefiting and non-benefiting subgroup EBT improvement is based on decreased funding volumes due to lower inventory and decrease interest rates leading to substantial saving in interest expense; hereby remarkable the difference between the BMW subgroup compared to the benefiting subgroup: The relative decrease in the latter is about twice compared to the one in the benefiting subgroup, which leads to a rate of 0.0292 compared to 0.0473 in the benefiting group.

Qualitative data are not sufficient in terms of precision, completeness and relevance in order to make an independent evaluation of possible impacts of German 2009 AVR on car dealers. Qualitative statements are found in a 2009 to 2008 comparative style; the dataset compiled from those presenta-

tions provides valuable information in the sense of complementary and interpretative information.

Twenty five dealerships out of the sample n=77 can be identified taking one or more of the strategic measures

- "taking over competitors"
- "changing the number of sales points or service points"
- "changing the number of brands represented"
- "focus on used car trade"
- "focus on spare parts trade"
- "outstanding growth".

Descriptive statistics of the ranks of the values for ROI_{2008}, ROI_{2009} and ROIΔ of this n=25 group do not provide indications to advantages or disadvantages of this n=25 group (see 5.4.2) compared to the total sample. Thus the quantitative dataset does not support one of the strategies found in the sample.

Descriptive statistic on quantitative data reveal that differences in financial position are more tied to brands than to one of the above enumerated strategies which makes a multi-branding strategy to appear as best recommendable for a car dealership.

5 DISCUSSION

The major portion of German 2009 AVR's budget went traceably to the purchases of new small and upper small class cars. In the same period a boost in demand compared to the prior year for non premium-type cars and a simultaneously decreased demand for premium-type cars can be observed, resulting in a shift of demand for new cars to the small and upper small classes (chapter 3.2.2.3). Direct measures, if any, of

- the impact of the shifted demand for new cars
- the impacts of reported impairment of used cars
- the increase of risks from repurchase obligations
- the contribution of those impacts to the financial position of the dealer

undertaken by dealerships' managements are not available.

An assessment of such impacts on the car dealership industry in total based on financial statements bears limitation and needs interpretation, on the theoretical and the concrete level.

On the theoretical level the ceteris paribus clause is supported only for one fraction of the market relevant for the object of research, which is distribution of new cars, by works on the counterfactual situation (chapter 3.2.2.2). This does not cover the two further fields of business, distribution of pre-owned cars and after sales. Facts give an indication (indication, because only 16 out of the 77 dealers in the sample provided data on turnover composition, see chapter 4.2.2) that the second market as far as covered by non-captive authorized dealers, increased from 2008 to 2009 by 0.5 percent (measured by turnover) in the benefiting group, 18.9 percent in the non-benefiting group which makes 3.4 percent in the total, and the after-sales market increased by 5.2 percent. No information is available on changes in gross profits related to those fields of business. Further there is no control over content, design and its eventual crisis- and / or German 2009 AVR-related manipulation of the

below mentioned multidimensional incentives created by OEMs relevant for the sample. Accordingly interpretation of the results needs to take into account that the ceteris paribus clause does not apply in pure form.

On the concrete level the individual character of materials, methods and indicators deserve discussion.

The accounting and publication rules narrow the number of financial statements eligible for analysis by providing scale down reporting for small and mid-size entities and lead to a sample of 77 firms out of a estimated minimum population of 3,804. Representativeness of the sample is - besides the negative result of the test in the dissertation on the existence of a correlation between enterprise's size and focusing on business areas independent from MVBER (EU) and dealer contract rules - supported by the standard economic environment of the car distribution industry under applicable rulings of MVBER (EU) and quite uniform dealer contracts. On the other hand this may lead to the restriction of representativeness to the brands under research (VW, GM, Ford-Mazda and BMW), because dealers' profitability depends besides the operating results from dealing with cars and rendering of services on their achievements related to multidimensional effort vectors designed by OEMs individually. The BMW and the GM subgroups are examples for quite likely subsidies in place during the situation of crisis, tailored to savings in interest expense. Further hints to crisis related measures are given by some of the VW dealers in the context of accounting and reporting for possible risks from repurchase obligations concerning leasing cars; these measures are not already in place in the two periods under research, but held out as a prospect by the OEM. No such subsidizing measures are reported by GM and Ford-Mazda dealers.

All businesses in the sample are closely held entities, in most cases apparently members of a family. Thus financial reporting and publication is not a mean of communication, e.g. in capital or funding markets, as attested by the tendency of the reporting entities in the sample to restrict reporting to the compliance level. This level does not provide for a depth of information necessary to reverse out reliably the results of profit damping accounting policy and further does not require to report on gains and losses from discontinua-

tion of operations, acquisitions, dispositions of investments, extensions or reductions of operations and thus impairs the "from current operations only"-quality of EBIT. The extend to which changes of EBIT are caused by such measures may not or not be recognized with sufficient reliability.

The improvement of the financial position of the German car dealers is partially caused by the decrease of balance sheet totals which is significant and in evenly level in the benefiting and non-benefiting group. With respect to the group of BMW dealers this phenomenon is against expectation derived from literature, see chapter 3.3. Since verbal statements on the business with used cars, if any, are almost unanimously negative (except for the Ford-Mazda and the BMW groups concerning turnover), see table 18 in chapter 4.4.1 and narratives in chapter 4.4.3, destocking may be explained as a risk avoiding measure due to the impairment of used cars under arbitrage principle which was triggered by German 2009 AVR. Taking into account that the financial crisis is the driver for the economic crises via credit crunch (Illig, 2013), it cannot be ruled out that the crisis, not the German 2009 AVR, is predominantly causative for this portion of improvement of ROI: German 2009 AVR's budget was exhausted by end of August 2009; thus a sufficient time until the end of the year, which in 63 of the 77 firms in sample equals balance sheet date, was remaining for an eventual fading out of the impairment of used cars caused by the arbitrage principle and for coming into being of positive effects on demand for used cars due to the scrappage of 2 million units of used cars. Accordingly increased stocking with used cars would have been the appropriate, but not realizable managements' measure due to general problems in the real economy with raising credit. This version however is quite unlikely, see next paragraph. It is supposed that behind an uniform appearance, see first sentence of this paragraph, there are different explanations: For the benefiting group the result concerning inventory and related balance sheet total complies with the expectation outlined in chapter 3.3. Concerning the non-benefiting group there are concrete signs for increased business with used cars, see above and the considerations below on improvement of EBIT, thus destocking seems to be rather more crisis-induced than AVR-influenced. It seems that consumers in the crisis situation prefer to stay with a car brand and change to a pre-owned vehicle instead of changing to

brand with a lower positioning. In line with expectation is the result in the VW group insofar as it's decrease in balance sheet total is the lowest compared to the other benefiting subgroups.

The significant and also unexpected decrease in interest rates however, together with the low level of absolute values of those interest rates as presented and explained in table 17, chapter 4.3.4 point to the probability that car dealers' funding is based on captive banks of the OEMs with the side effect that they benefit from their credit rating or that they have a good standing on the credit market anyhow. Both of these observations do not support, but cannot refuse the assumption of a crisis related credit crunch as reason for balance sheet total reduction, because the method applied in the dissertation in order to calculate interest rates is susceptible to wrongful factual proposition if interest-free periods come into play, see firm No. 5 presentation of indirect subsidies in order to save interest expense in chapter 4.4.3. Explanatory language referring to managed shift in funding from sources subject to interest to such free of interest, see firm No. 61 (VW) seems to be an individual case not significant for the sample since appendix 4 displays a shift from bank loans and overdrafts to equity as a result of increased EBT, not to payables trade, as reported.

The contribution of EBIT to the improvement of financial position of the dealerships seems to be clearly characterized by the impact of German 2009 AVR since there is significance for the raise of EBIT in the benefiting group only. In this context it must not be forgotten that the after sales business with an increase in turnover in the magnitude of 5 percent contributed positively and substantially to EBIT in the benefiting and non-benefiting group, because there is no reason for the assumption of impaired profitability of the after sales segment in 2009 compared to prior year. As commonly known extension of service intervals and reduction of susceptibility to repairs is characteristic for progress in car technology. Accordingly the increase willingness of consumers to expense money for maintenance may be attributed to the conditions of the economic crisis. Apart from this influence which cannot be numbered, the income statement items down to EBIT improvement are dominated by the impacts of the German 2009 AVR within the benefiting group (except for those firms which did intentionally waive their business

with low profitable key accounts); the comparison between the VW and GM subgroup meets the expectation under the light of the different brand and car model portfolios which contain premium cars with substantial market share and decreased new registrations on the VW side, but simultaneously to a certain extent contradicts to the findings in the BMW group where based on reduced turnover gross profit and EBIT are increased. Taken the fact meaningful that none of the BMW entities in the sample reports on substantial subsidies of the OEM aiming to increase gross profit, this can be interpreted in the way that brand loyalty of consumers in the overall financial effect is stronger than substitution mechanism underlying to the arbitrage principle. A decrease of average turnover in the BMW group by 4.1 percent is in line with a drop of new registrations of 9.4 percent. With respect to a slightly increased after sales business the observation made in those three dealers contained in the above mentioned group which reports on turnover composition is not corroborated according to which a nearly complete compensation of lost business with new cars by such with pre-owned cars takes place.

The negative result in testing whether strategic measures undertaken on the single dealership level could lead to outstanding place in the ranking of ROI's in the years 20008 and 2009, see chapter 4.4.2 leads with respect to the before mentioned finding of the strength of brand loyalty of consumers to the conclusion that multi-branding in the sense of striving for the distribution of car brands of more than one OEM seems to be the best recommendable strategy for a car dealer. Exactly this was hampered by means of MVBER (EU) since many years and is again an issue in MVBER's (EU) updated version (Hofbauer, 2014).

6 CONCLUSION

Two million car purchases under the regime of German 2009 AVR lead to an increase of 23 percent of new registrations in 2009 compared to 2008. The benefit from this government program went to the non-premium class cars whereas new registrations of premium class cars dropped by 11 percent. Apart from this all dealers in the dissertation's sample, whether distributing primarily non-premium car brands or not did improve their ROI in the 2009 to 2008 comparison. This improvement is significant in the benefiting group of the VW, GM and Ford-Mazda dealers, not so in the non-benefiting group of the BMW dealers. Both groups in the sample account for improvements of EBITs based on quantitative (German 2009 AVR-triggered increase in turnovers) in the benefiting and qualitative (gross profit to turnover-ratio) growth of gross profit in the non-benefiting group. In this context modestly increased after-sales business is beneficial to both of the before mentioned groups.

German 2009 AVR is significant and substantial for the improvement of the financial position of the benefiting group, as a one-off measure via economy of scale-effects. With a view to the non-benefiting group of the BMW dealers which apparently due to brand loyalty of customers was not, or only partially, affected by the negative impacts of the German 2009 AVR it appears that German 2009 AVR was not a measure necessary for the economic survival of the car dealership industry under the conditions of the economic crisis. In the benefiting group a clear tendency to a tax deferring and profit damping accounting style can be observed; since the vast majority of the dealers in the sample are family held and conducted enterprises, all of them subject to statutory publication requirement, there is a certain probability for concealing the complete degree of benefit from the German 2009 AVR from the eyes of the public as to be a partial motivation beside the tax payment postponing issue. Noteworthy is the absence of any expectation of negative kick-back effects from the artificially boosted demand for cars in management report of the sample; such effects probably go at the expense of the segment of non-authorized dealers in used cars. This dealer segment is not covered by the object of research.

Access to credit financing sources and participation in crisis related decreasing interest rates is more than the tax financed government program key for improvement of EBT, an item of high importance to the German car dealership industry with respect to the above mentioned shareholder structure. In the area of credit financing subsidies of the OEM are to be observed but not to be quantified.

None of the individual strategies in place result in above average advantageous financial position of the respective dealership in the sample. Provided the observation of the relative economic success of the group of the non-benefiting BMW dealers is substantially based on consumers' brand loyalty, this loyalty reflects an immaterial economic value. If such mirrors the value of the brand of the OEM is not to be discussed here, but leads to the conclusion that multi-branding is the most recommendable strategy for a authorized car dealership.

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8 APPENDICES

8.1 Appendix 1: New Registrations 2003 to 2007

year	new registrations of passenger cars in Germany
2003	3,236,938
2004	3,266,826
2005	3,342,122
2006	3,467,961
2007	3,148,163
average	3,292,402

Source: Statistics of FMTA

8.2 Appendix 2: Sample

Name	source[1]	e.c.[2]	No.[3]
AAG Automobil Aktiengesellschaft AG, Köln	2	A	
ACO AutoCenter Oberlausitz AG, Löbau	2		1
AHG Automobilhandelsgesellschaft mbH, Horb am Neckar	1	C	
AMB Automobile Borna GmbH	2	B	
AML Group GmbH, München	1	K	
Autohaus Anders GmbH Renault-Vertragshändler, Dresden	2	B	
ARG -Auto-Rheinland-Gesellschaft mit beschränkter Haftung, Bonn	2	B	
Autohaus Arnhölter GmbH, Berlin	2		2
ASAG Automobile "Südstadt" Aktiengesellschaft, Nürnberg	1	B	
ASAG GmbH, Lörrach	2	B	
Auer Gruppe GmbH, Stockach	2		3
Autohaus Augsburg GmbH, Augsburg	2		4
aurego GmbH; Wuppertal	1		5
Autoschmitt Frankfurt GmbH	2	D	
Autoschmitt Idstein GmbH	2	D	
AVAG AG, Augsburg	1	G	
Autohaus Aventi GmbH, Bamberg	2	B	
AVG Automobil Vertriebsgesellschaft mbH, Hannover	2	M	
AVP Automobilgruppe Beteiligungs GmbH, Deggendorf	1		6
Auto Bach GmbH, Limburg a.d.Lahn	1		7
Bald Automobilgesellschaft mbH, Siegen	1	E	
Albert Bauer GmbH, Flensburg	2	B	
BAG-BayWa Autohaus	2	C	
Auto Bebion Gruppe, Magstadt	1	D	
Autohaus Becker-Tiemann GmbH & Co. KG, Bünde	2	D	
Beresa GmbH & Co. KG, Münster	1	E	
Autohaus Bernds GmbH, Dinslaken	2	E	
Autohaus Berolina GmbH, Berlin	1		8
Auto Bierschneider GmbH, Mühlhausen	2		9
Unternehmensgruppe Bleker, Borken	1	F	
Block am Ring GmbH & Co. KG, Braunschweig	2		10
Borgmann GmbH, Dorsten	2	A	
Autohaus Büchner GmbH, Görlitz	1	D	
Wilhelm Burg GmbH (Beresa), Münster	1	E	
Burger Schloz Automobile GmbH & Co. KG, Uhingen	1	E	
Hans Brandenburg GmbH, Düsseldorf	2	B	
Automobil-Verkaufs-Gesellschaft Joseph Brass GmbH & Co. KG, Aschaffenburg	2		11
Georg Breitschwert GmbH & Co. KG, Ansbach	2	D	
Brinkmann Bleimann, Güstrow	2	E	
Hans Carstens GmbH, Husum	2	A	
CCC Car Center Colonia Vertriebs GmbH, Köln-Godorf	1	B	
Cloppenburg Automobil SE, Düsseldorf	1	G	
DAH Deutsche Automobilhandels Holding GmbH	1	C	
Autohaus Dechent GmbH, Saarbrücken	2	B	
Ernst Dello GmbH & Co. KG, Hamburg	1		12
Autohaus Dinnebier GmbH, Wittenberge	1	H	

Autohaus Dreher	2	B	
Auto-Holding Dresden OHG,Dresden	1	A	
Auto Dunker G.m.b.H., Friedberg /H.	2	B	
Ebbinghaus Automobile GmbH, Dortmund	2		13
Auto Eder GmbH, Tuntenhausen	2	C	
Auto Eggert	2	B	
Autohaus Eitel e.K., Weiden	1	A	
Ehrhardt AG, Hildburghausen	2		14
Elmer … die Autowelt, Warendorf, Münster, Emsdetten, Recke	2	D	
Autohaus Elmshorn GmbH, Kölln-Reisiek	2		15
Enslein & Schönberger GmbH, Mitterteich	2	B	
em-mobility GmbH & Co. KG (Autohaus Entenmann GmbH & Co. KG, Esslingen; Hermann Menton GmbH & Co. KG, Reutlingen)	2		16
Ernst Autohandelsgruppe GmbH, Mannheim	2	D	
Ernst & König GmbH; Freiburg	1		17
Eskildsen GmbH & Co. KG, Itzehoe	2	B	
Autohaus Euler GmbH, Frankfurt/Main	2		18
Wolfgang Fahr, Fulda	2	B	
Feser, Graf & Co. Automobil Holding GmbH, Nürnberg	1		19
Fett & Wirtz Automobile GmbH & Co. KG, Moers	2	B	
Auto – Fiegl GmbH, Schwabach	2		20
Fischer Automobile GmbH, Neumarkt i.d.Opf.	2		21
Autohaus Fischer Bochum GmbH, Bochum	2		22
Johann Franken GmbH & Co. KG, Kamp-Lintfort	2		23
Franz Beteiligungsgesellschaft mbH, Köln (Autohaus Jacob Fleischhauer GmbH & Co. KG, Köln)	1		24
Fräter, Kiel	2	B	
H. Freese GmbH & Co. Kommanditgesellschaft, Oldenburg	2	B	
Emil Frey Gruppe Deutschland	1	C	
Autohaus Fröhlich, Koblenz	1	B	
Autohaus Fröhlich, Nürnberg	1	B	
Autohaus Fröhlich, Rüsselsheim	1	B	
Autohaus Fröhlich, Tagewerben	1	B	
Auto Garant GmbH, Zittau	2		25
Autohaus Gehlert GmbH & Co. KG, Freiburg	1		26
Gelder & Sorg GmbH & Co. KG, Haßfurt	2		27
Autohaus Gerstenmaier Baden-Baden GmbH, Baden-Baden	2		28
Autohaus Gitter e.K., Linderbach	2	A	
Glinicke Management GmbH, Kassel	1	D	
Autodienst GNAU GmbH, Marburg	1	B	
Gottstein GmbH, Bad Säckingen	2		29
Richard Gramling GmbH & Co. KG, Karlsruhe (Hardenberg Group)	1		30
Autohaus Ebersberg GmbH & Co. KG, Ebersberg (Grill)	2	B	
Autohaus „Gute Fahrt“ GmbH, Riesa	2		31
Autohaus G.V.O., Frankfurt	2	K	
Häusler Automobil GmbH & Co. KG, München	2		32
Hahn Automobile GmbH + Co. KG, Fellbach	1		33
Hahn + Mayer Automobile GmbH & Co. KG, Fellbach	1		34
Automobile Hakvoort GmbH, Siegburg	2		35
HANKO Kraftfahrzeughandel GmbH, Koblenz	2	H	

Günther Graf von Hardenberg Stiftung, Karlsruhe	1		36
Havemann & Söhne, Automobilhandelsgesellschaft mbH, Lüneburg	2		37
Autohaus Heermann & Rhein GmbH, Heilbronn			38
Hermann GmbH, Northeim	2	B	
Hetzer, Berlin	2	B	
Heuchert G.m.b.H., Neumünster	2	B	
Hiro Automarkt GmbH, Leer	2	A	
Franz Hofbauer, Passau	2	A	
Autohaus Hofmann KG, Memmingen	2	A	
Alfred Hommert GmbH & Co. KG, Coburg	2	B	
Hoppmann, Siegen	1	B	
Autohaus Wolfsburg Hotz u. Heitmann GmbH & Co. KG, Wolfsburg	1		39
MKM Huber GmbH, Wasserburg	1	B	
Hülpert GmbH, Dortmund	1		40
Humborg, Bad Driburg	2	B	
I.C. Autohandel Beteiligungen GmbH, Düsseldorf	1	E	
Auto-Jacob GmbH, Rüsselsheim	2		41
Jllig Automobile e.K., Münsingen	2	A	
Autohaus Kaltenbach GmbH, Bergisch Gladbach	1	D	
Kamps Automobil Beteiligungsgesellschaft mbH & Co. KG, Bergkamen	1	E	
TTB Thilo und Tobias Kamps Beteiligungsgesellschaft mbH & Co. KG, Bergkamen	1	D	
Autohaus Kannenberg	2	K	
Autohaus Karl + Co. GmbH + Co. KG, Mainz	2		42
Kath GmbH & Co. KG, Rendsburg	1	B	
Edgar Kittner GmbH & Co. KG, Lübeck, “Travag” Trave – Automobil – Gesellschaft mit beschränkter Haftung, Lübeck	1	I	
Seat Autohaus am Bungsberg Arend Knoop e.K.	1	A	
Knubel GmbH, Münster	2		43
Koch Gruppe Automobile AG, Berlin	1	B	
Auto Köhler GmbH & Co. KG, Mainburg	2	F	
AWK Autowelt König GmbH, Wunsiedel	1	A	
Kohl Automobile Vertriebs GmbH; Aachen	1	B	
Kohl – Automobile GmbH, Aachen	1		44
Krah + Enders GmbH & Co. KG, Fulda	2	B	
Autohaus Krauth GmbH & Co. KG, Meckesheim	2	L	
Autohaus Hermann Kröger	2	B	
Krüll Motor Company GmbH & Co. KG, Hamburg	1		45
Autohaus Kummich GmbH, Bopfingen	1	B	
Robert Kunzmann GmbH & Co. KG, Aschaffenburg	1	E	
La Linea Franca AG, Köln	2	C	
Autohaus Lademann, Buchen	1	B	
Autohaus Langer GmbH & Co. KG, Wertingen	2	A	
Auto-Leebmann GmbH; Passau	2	B	
Autohaus Lenz Verwaltungs GmbH, Bielefeld	1	B	
Autohaus Liebe, Sangershausen	1	A	
Löhr & Becker Automobile GmbH, Koblenz	1		46
Autohuas Louis Dresen GmbH, Neuss	1		47
Fahrzeugwerke Lueg AG, Bochum	1	E	
MAHAG Münchener Automobilhandel Haberl GmbH & Co. KG,	2	I	

MAHAG Automobilhandel und Service GmbH & Co. KG, München			
Autohaus Marnet GmbH & Co. KG, Königstein im Taunus	2		48
Maschek Automobile GmbH & Co. KG, Wackersdorf	1	F	
May & Olde GmbH, Itzehoe	2	B	
Autohaus Mayrhörmann GmbH, Diedorf	1	B	
M. C. F. Motor Company Fahrzeugvertriebs mbH, Berlin	1	E	
Memmel, Kemnath	2	B	
MGS Autozentrum GmbH & Co. KG, Bayreuth	2	A	
Minrath Sportwagen GmbH & Co. KG, Moers	2		49
Autohaus Möbus GmbH, Berlin	2		50
Autohaus Möller	2	B	
Autohaus Adelbert Moll GmbH & Co. KG, Düsseldorf	1	D	
R. Müller GmbH, Losheim am See	1	B	
Autohaus Walter Mulfinger GmbH, Backnang	2		51
Autohaus Nix GmbH, Frankfurt	1	B	
Nolte, Iserlohn	2	B	
Motor-Nützel Vertriebs-GmbH, Marburg	1		52
Olympic Auto GmbH, Kronshagen	1	A	
Autohaus Ostermaier GmbH, Vilsbiburg	2	B	
Autohaus Peter GmbH, Nordhausen	1	E	
Petschallies	2	D	
Hugo Pfohe GmbH, Hamburg	1		53
Auto & Service PIA GmbH, München	2	M	
Ernst Piepenstock GmbH & Co. KG, Lüdenscheid	2	B	
Pillenstein Holding GmbH & Co. KG, Fürth	2	H	54
Preckel GmbH & Co. KG, Krefeld	1	B	
Procar Automobile AG, Wuppertal	1	K	
PS Union GmbH, Halle – Süd	1		55
Adolf Rahenbrock GmbH & Co. KG, Osnabrück	2	B	
Autohaus Rape GmbH, Vechta	2	A	
Autohaus Reisacher GmbH, Memmingen	1		56
Riller & Schnauck GmbH, Berlin	2		57
Rindt & Gaida, Hemmingen	1	B	
Autohandelsgesellschaft mbH Georg Rittersbacher, Kaiserslautern	2	B	
RKG Rheinische Kraftwagengesellschaft mbH & Co. KG	1	E	
Röll GmbH, Schwetzingen	2	D	
Erich Röhr GmbH & Co. KG, Passau	2		58
Autohaus Rösch Gmbh + Co. KG, Pforzheim	2	F	
Autohaus Rosier GmbH & Co. KG, Oldenburg	1	E	
R&S Mobile GmbH & Co. KG, Köln-Fühlingen	1		59
Rüschkamp, Lüdinghausen	2	B	
Ruhrdeich Holding GmbH, Duisburg	1	F	
Scherer Holding GmbH, Simmern	1	C	
Schmidt & Hoffmann	2	B	
Bremer Fahrzeughaus Schmidt + Koch AG, Bremen	1		60
Auto Scholz GmbH & Co. KG, Bamberg	1	E	
Schubert Motors GmbH, Oschersleben	2	H	
Gottfried Schultz GmbH & Co. KG, Ratingen	1		61
Schreiner & Wöllenstein GmbH & Co. KG, Ergolding	1	E	
Auto-Schubert Gießen GmbH, Gießen	1	B	

Autohaus Schwinn GmbH & Co. KG Kaiserslautern	1	B	
Walter Seitz GmbH+Co. KG, Kempten	2		62
Egon Senger GmbH, Rheine	1	E	
Autohaus Sessner GmbH, Kitzingen	1	K	
Autohaus Siebrecht, Uslar	2	B	
Autohaus E. Sorg GmbH, Fulda	1	B	
Spindler GmbH & Co. KG Audi Zentrum Würzburg	1		63
Auto Staiger Verwaltungsgesellschaft mbH, Stuttgart	2		64
H. Starke & Sohn GmbH & Co. KG, Osnabrück	1		65
Autohaus Stegelmann GmbH & Co. KG, Detmold	2	B	
Stegmaier Nutzfahrzeuge GmbH, Crailsheim	2	E	
Richard Stein GmbH & Co. KG, Engelskirchen	2		66
Autohaus Sticht GmbH & Co. KG, Wunsiedel	2	B	
Autohaus Franz Strobel KG, Augsburg	1	A	
Autohaus Südhannover GmbH, Göttingen	2	B	
AutoTag GmbH, Leipzig	1	B	
Thiel GmbH, Paderborn	2		67
Lars Thormann Team GmbH, Stendal	2	A	
Auto Thüllen	2	B	
Willi Tiedtke (GmbH & Co.) KG, Hamburg	1		68
Heinz Tiemeyer GmbH, Bochum	2	D	
Timmer GmbH, Nordhorn	2	D	
Tölke Holding GmbH & Co. KG, Krefeld			69
Autohaus Ulmen GmbH & Co. KG, Düsseldorf	1	B	
Autohaus am Verteiler AHG Gesellschaft mbH & Co., Vertriebs KG, Trier	2		70
Voets Autozentrum GmbH, Braunschweig	1		71
Voets Autozentrum GmbH Magdeburg-Süd, Magdeburg	1		72
Vogel Autohäuser, Harthausen	2	D	
Dr. Vogler GmbH & Co. KG, Bad Homburg	1	E	
ASW Wahl GmbH & Co. KG, Siegen	2	B	
Auto-Wagenblast GmbH + Co. KG, Schwäbisch Gmünd	2	A	
Waldhausen & Bürkel GmbH & Co. KGG, Mönchengladbach	2	B	
Walkenhorst Holding AG, Melle	1		73
Autohaus Weber GmbH & Co. KG, Lüdingshausen	1	E	
Autohaus Weiland GmbH, St. Ingbert (Neunkirchen)	1	E	
Wellergruppe GmbH & Co. KG, Osnabrück	1	H	
Autozentrum West, Mönchengladbach	2	B	
Auto Wichert GmbH, Hamburg	2		74
B. Widmann Beteiligungen GmbH & Co. KG, Aalen	1	E	
Autohaus J.Wiest & Söhne Gesellschaft mit beschränkter Haftung, Darmstadt	2		75
Wittmann & Hofmann AG, Ingolstadt	2		76
Woltmann Vermögensverwaltungs GmbH & Co. Kommanditgesellschaft, Bremen	2		77

1) 1= Diez, Grimberg, 2011; 2= wer-zu-wem GmbH, 2012

2) e.c., exclusion criteria:

A= No disclosure of financial statements, no disclosure of relevant data

B= Small or mid size in terms of German accounting rules

C= Part of non-automotive group without segment reporting

D= Part of group split up in small / mid-size entities, no consolidated statement reporting

E= Brand not under observation

F= Fiscal year ending prior to August

G= Less than 50% of turnover in Germany

H= Change of balance sheet date during observation period

I= Data not comparable due to restructuring during observation period

K= Fresh start or bankruptcy

L= Independent auditor's opinion qualified

M= OEM outlet

8.3 Appendix 3: Gross margins over four years from dealer No. 19 presentation

	Gross margins					
	2006	2007	2008	mean	sd	2009
new cars	0.0996	0,0980	0.0939	0.0971	0.0024	n.s
used cars, demonstration vehicles	0.0755	0.0713	0.0719	0.0729	0.0019	n.s
Total cars	0.0845	0.0805	0.0798	0.0816	0.0021	0.081
spare parts	0.2904	0.3031	0.3083	0.3009	0.0075	0.314*
lubricants	0.8838	0.8896	0.8853	0.8863	0.0025	n.s.
service and repair**	0.9588	0.9501	0.9644	0.9580	0.0059	0.8531
after-sales	0.6451	0.6434	0.6554	0.6482	0.0053	0.5567

Source: Management report of firm No. 19, recalculated by author

*= spare parts including lubricants

**= gross margins indicate that personnel expenditure related to service and repair performed are not deducted from turnover realized

8.4 Appendix 4: Assets and liabilities as of the fiscal year ended in 2008 of the sample n=77

year	2008	
	M euro	fraction of TOTAL
balance sheet item		
cash	77.1239	0.0214
receivables trade	516.3231	0.1435
inventory, demos, rentals	1,674.3660	0.4654
other current assets	208.8957	0.0581
receivables from subsidiaries and affiliates	70.6664	0.0196
receivables from shareholders	19.4856	0.0054
securities and long term investments	6.4355	0.0018
other fixed assets	283.1656	0.0787
land and buildings	665.3865	0.1849
subsidiaries, affiliates	43.9518	0.0122
good will	22.1766	0.0062
deficit in capital	10.0698	0.0028
TOTAL	3,598.0465	1
Bank loans and overdrafts	2,064.9560	0.5738
Payables trade	356.4147	0.0991
Other payables	338.5590	0.0941
Payables to subsidiaries and affiliates	26.5923	0.0074
Payables to shareholders	138.8383	0.0386
Pension plan, other long term items	74.8308	0.0208
Equity	597.8554	0.1662
TOTAL	3,598.0465	1

Source: balance sheets, reformatted by author

8.5 Appendix 5: Average assets and liabilities for the years 2008 and 2009 of the benefiting group n=62

year	2008		2009	
	M euro	fraction of TOTAL	M euro	fraction of TOTAL
balance sheet item				
cash	72.8025	0.0231	68.0327	0.0229
receivables trade	457.3923	0.1454	425.2470	0.1434
inventory, demos, rentals	1,439.3241	0.4576	1,317.8259	0.4446
other current assets	190.5359	0.0606	184.3485	0.0622
receivables from subsidiaries and affiliates	52.8941	0.0168	55.3734	0.0187
receivables from shareholders	12.1245	0.0039	16.4445	0.0055
securities and long term investments	10.6788	0.0034	8.9988	0.0030
other fixed assets	226.5075	0.0720	218.2604	0.0736
land and buildings	625.3449	0.1988	614.0752	0.2072
subsidiaries, affiliates	37.2405	0.0118	36.5740	0.0123
good will	10.4355	0.0033	10.8065	0.0036
deficit in capital	10.4794	0.0033	8.9595	0.0030
TOTAL	3,145.7600	1	2,964.9464	1
Bank loans and overdrafts	1,758.3222	0.5589	1,580.1158	0.5330
Payables trade	366.2493	0.1164	341.3063	0.1151
Other payables	293.1478	0.0932	309.3721	0.1043
Payables to subsidiaries and affiliates	25.1039	0.0080	25.0076	0.0084
Payables to shareholders	147.2263	0.0468	134.2426	0.0453
Pension plan, other long term items	67.8105	0.0216	64.6173	0.0218
Equity	487.9000	0.1551	510.2847	0.1721
TOTAL	3,145.7600	1	2,964.9464	1

Source: balance sheets, reformatted and calculated by author

$$average\_item_t = \frac{balance\_sheet\_item_{t-1} + balance\_sheet\_item_t}{2}$$

8.6 Appendix 6: Average assets and liabilities for the years 2008 and 2009 of the non-benefiting group n=15

year	2008		2009	
	M euro	fraction of TOTAL	M euro	fraction of TOTAL
balance sheet item				
cash	13.6306	0.0265	15.0790	0.0311
receivables trade	78.8617	0.1536	66.5594	0.1371
inventory, demos, rentals	264.5563	0.5154	248.1037	0.5112
other current assets	26.4100	0.0514	29.7848	0.0614
receivables from subsidiaries and affiliates	11.7270	0.0228	9.4991	0.0196
receivables from shareholders	2.5328	0.0049	3.7308	0.0077
securities and long term investments	0.2048	0.0004	1.3807	0.0028
other fixed assets	53.2700	0.1038	50.0217	0.1031
land and buildings	41.4439	0.0807	41.1330	0.0848
subsidiaries, affiliates	7.9061	0.0154	8.1558	0.0168
good will	12.9021	0.0251	11.6938	0.0241
deficit in capital	0.0000	0.0000	0.1409	0.0003
TOTAL	513.4453	1	485.2827	1
Bank loans and overdrafts	260.4906	0.5073	251.5137	0.5182
Payables trade	84.2593	0.1641	55.2178	0.1138
Other payables	44.2972	0.0863	52.1995	0.1076
Payables to subsidiaries and affiliates	3.7819	0.0074	5.0386	0.0104
Payables to shareholders	4.3628	0.0085	0.8708	0.0018
Pension plan, other long term items	9.3131	0.0181	11.0325	0.0227
Equity	106.9404	0.2083	109.4098	0.2255
TOTAL	513.4453	1	485.2827	1

Source: balance sheets, reformatted and calculated by author

$$average\_item_t = \frac{balance\_sheet\_item_{t-1} + balance\_sheet\_item_t}{2}$$

8.7 Appendix 7: Details on strategies ranking

rank ROI 2008	rank ROI A	rank ROI 2009	dealer No.	brand	number and direction						
53	15	15	5	GM	-2		s-point		low prof	spare parts	
32	27	14	12	GM	3		s-point		low prof		
46	73	72	3	BMW	-1		s-point				
30	48	41	24	VW	-1		s-point				
35	53	51	46	VW	2		s-point				
44	28	36	58	VW	-1		s-point				
41	68	63	67	VW	-1		s-point				
61	2	25	66	VW	-2		s-point				
37	56	52	53	Ford	-1		s-point				
31	37	28	1	GM	1	dealer					
10	40	11	32	GM	1	dealer				spare parts	
1	54	4	35	BMW	1	dealer					
50	44	53	52	VW	1	dealer					
9	52	31	74	VW	1	dealer					
2	24	1	2	GM	1			brand		used cars	
61	6	34	4	BMW					low prof		
66	4	40	21	VW	-2			brand			
22	66	59	68	VW	1			brand			
52	22	30	26	VW						used cars	
20	41	21	19	VW						used cars	big
18	65	54	61	VW							big
63	17	67	22	Ford	1			brand			
70	18	66	45	Ford					low prof		
36	69	62	77	Ford					low prof		
65	14	68	70	Ford						spare parts	

Source: own

Dealer= acquisition of competitor

s-point= addition (+) / disposition (-) of sales point or service point

brand= addition (+) / removal (-) of brand to / from dealer's portfolio

low prof= intended reduction or waiver of low profitable car selling to commercial customers

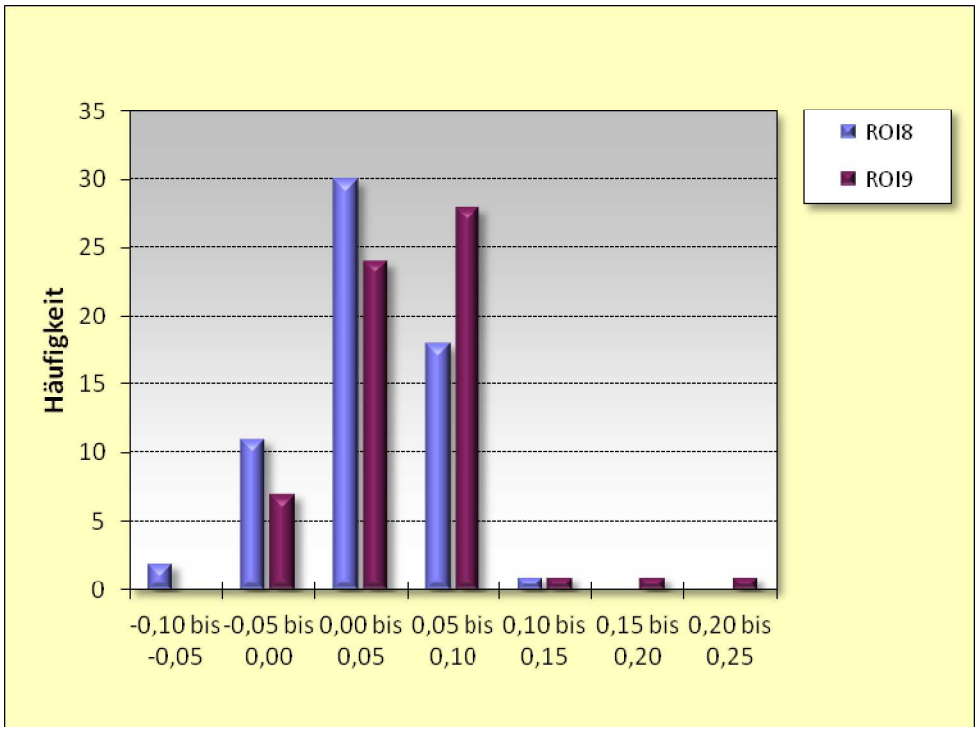
spare parts= focus on business with spare parts

used cars= focus on business with used cars

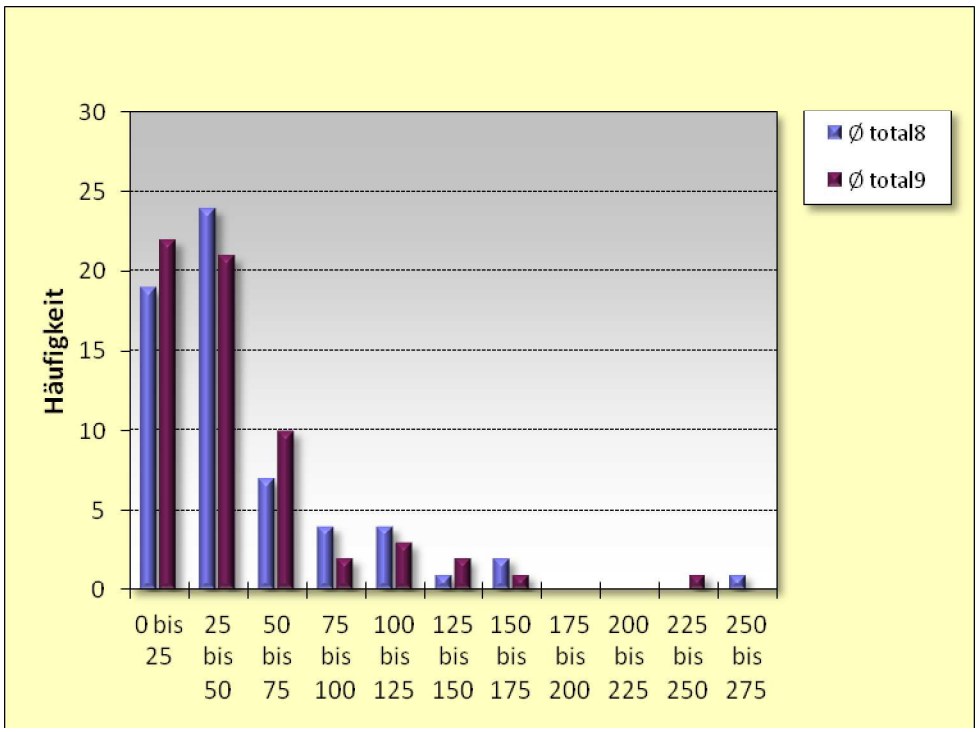
big= entity is of outstanding size, measured by turnover

8.8 Appendix 8: Histogram to Dataset_1, level_1

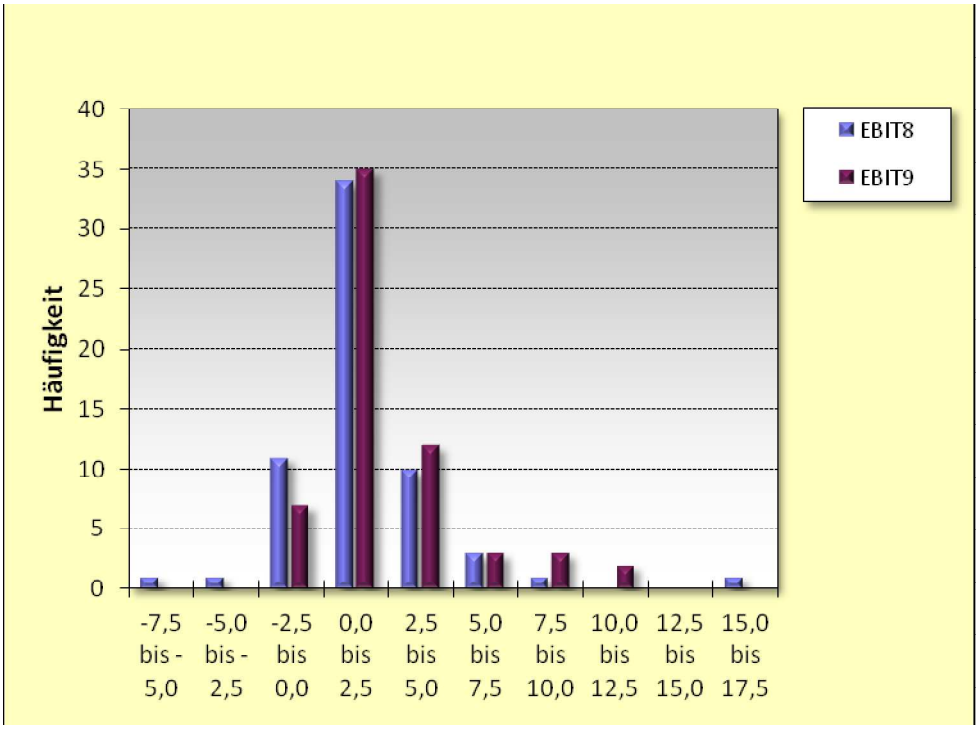
To all histograms applies: “Häufigkeit” means frequency, ROI8, ROI9, total8, total9 etc. means ROI 2008, ROI 2009, total 2008, total 2009 etc.



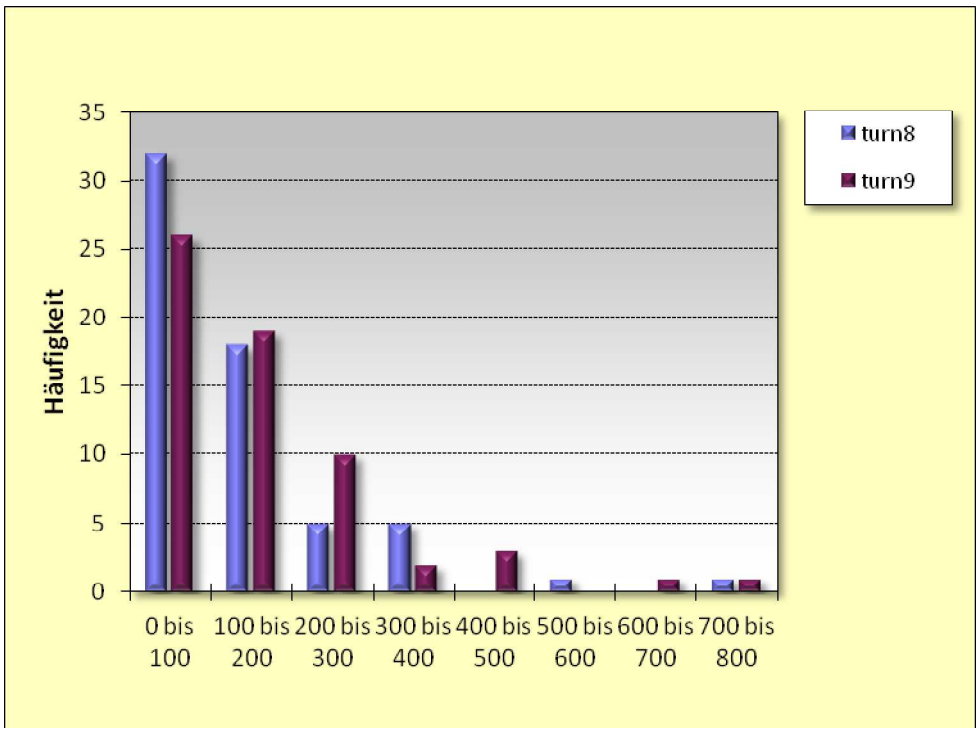
ROI in subgroup GM + VW + Ford-Mazda n=62



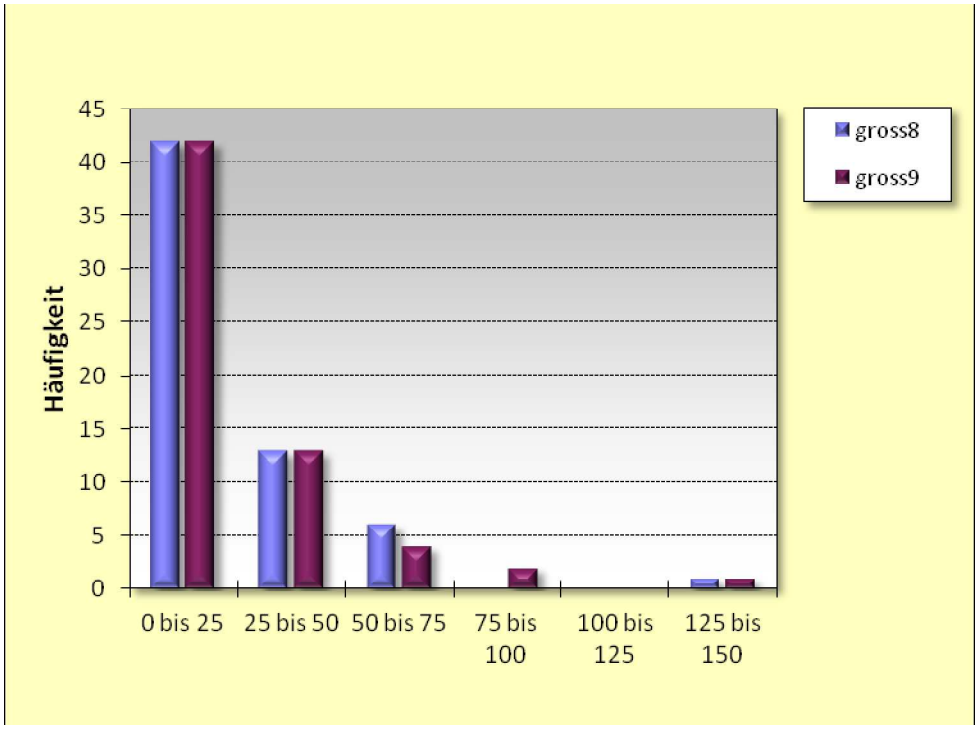
total in subgroup GM + VW + Ford-Mazda n=62



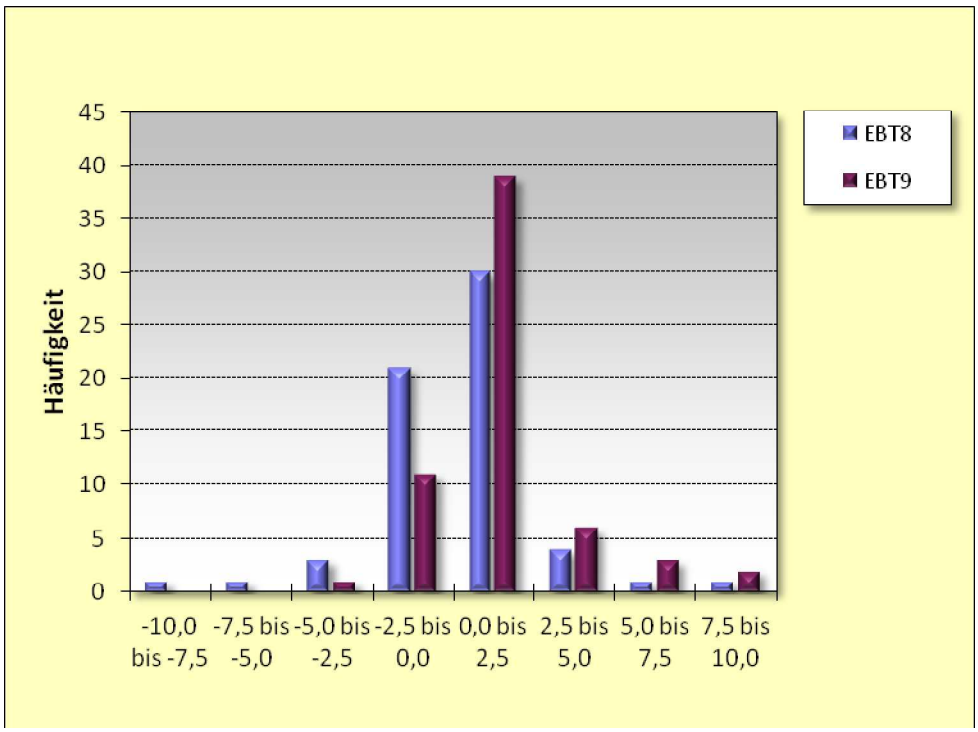
EBIT in subgroup GM + VW + Ford-Mazda n=62



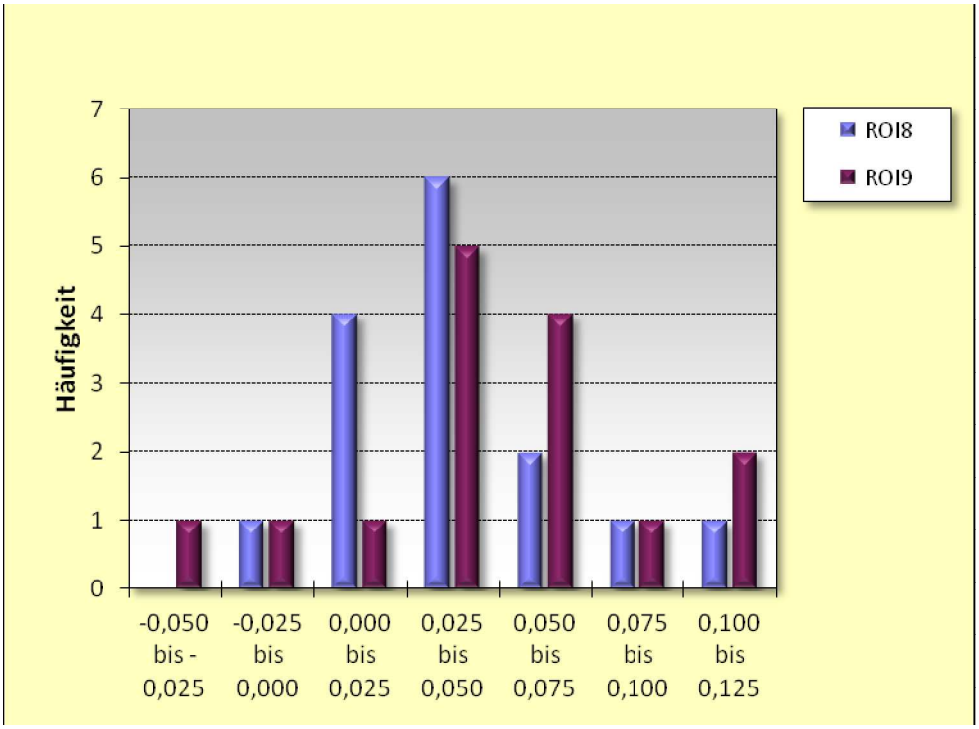
turno in subgroup GM + VW + Ford-Mazda n=62



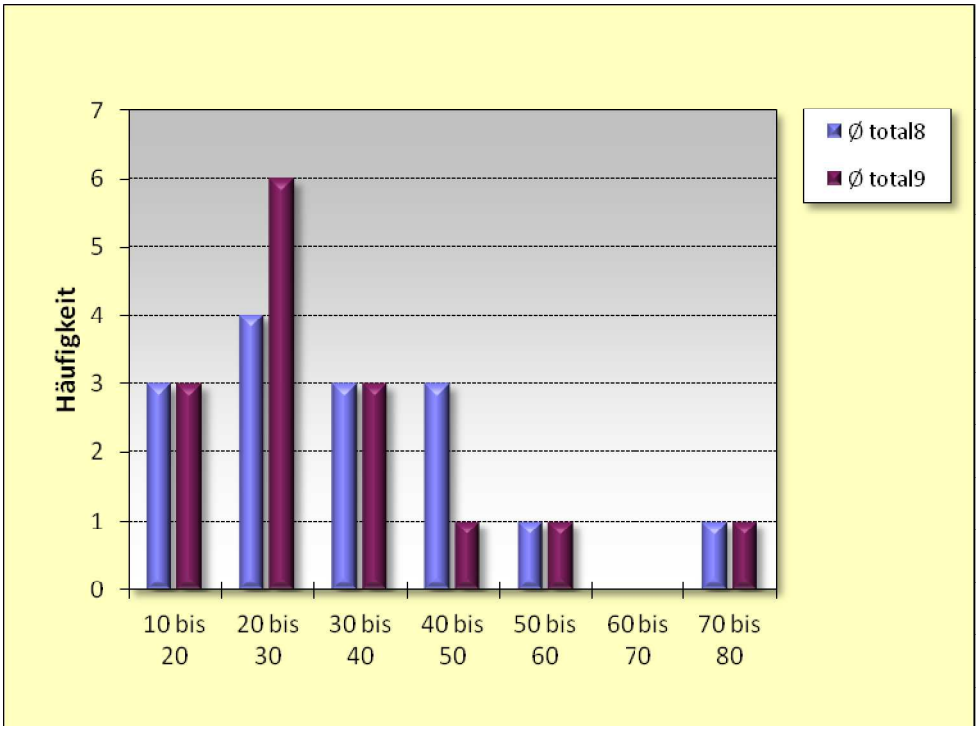
gross in subgroup GM + VW + Ford-Mazda n=62



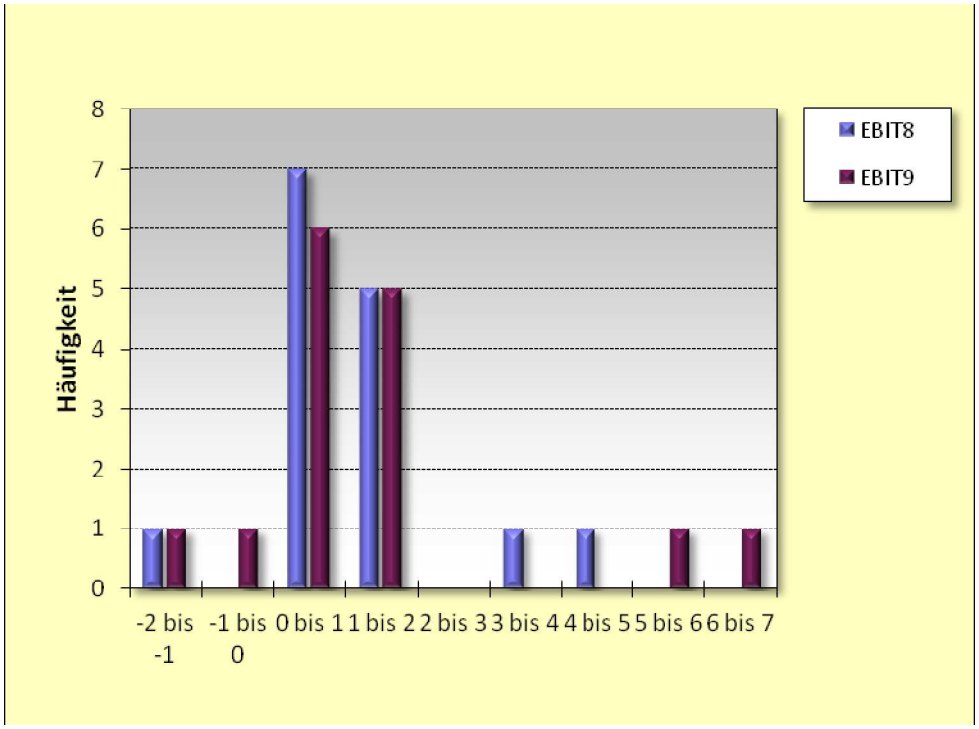
EBT in subgroup GM + VW + Ford-Mazda n=62



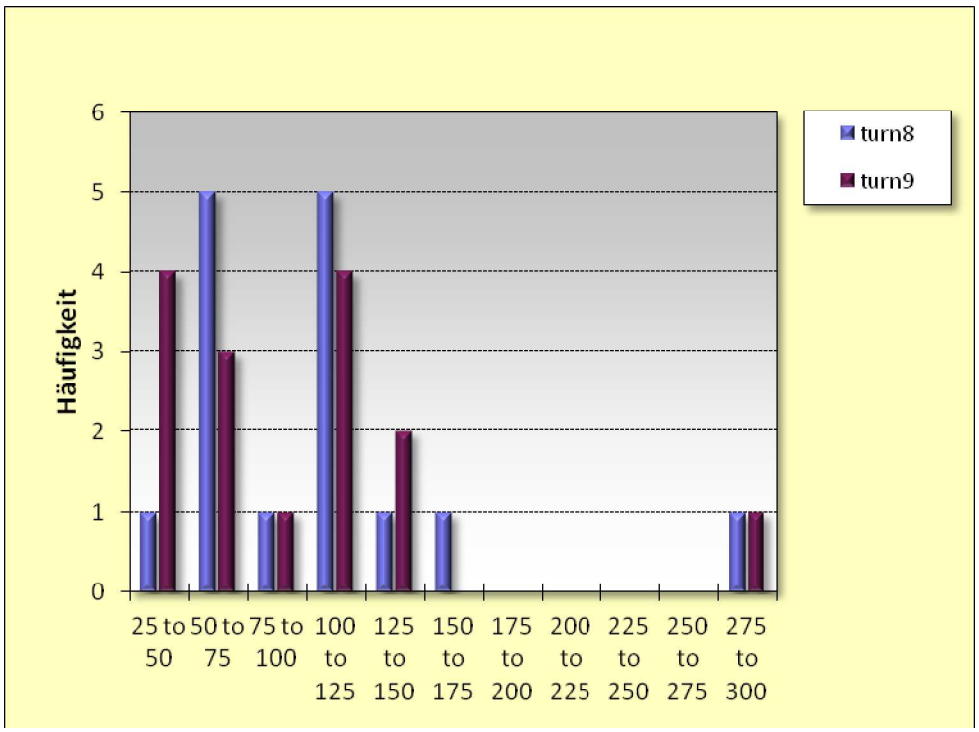
ROI in subgroup BMW n=15



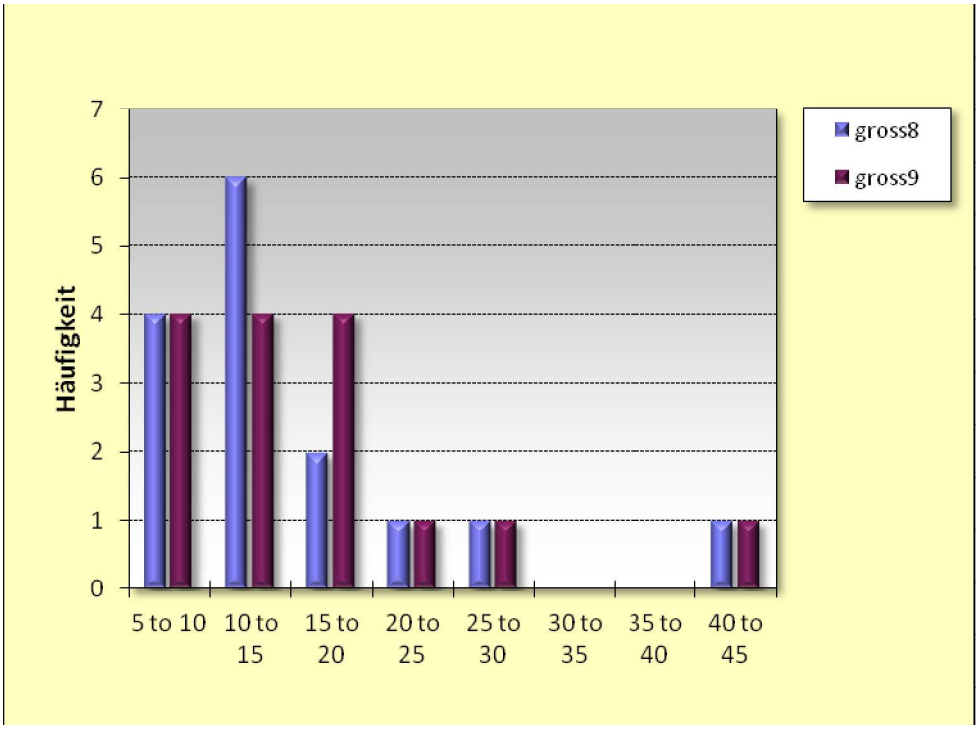
total in subgroup BMW n=15



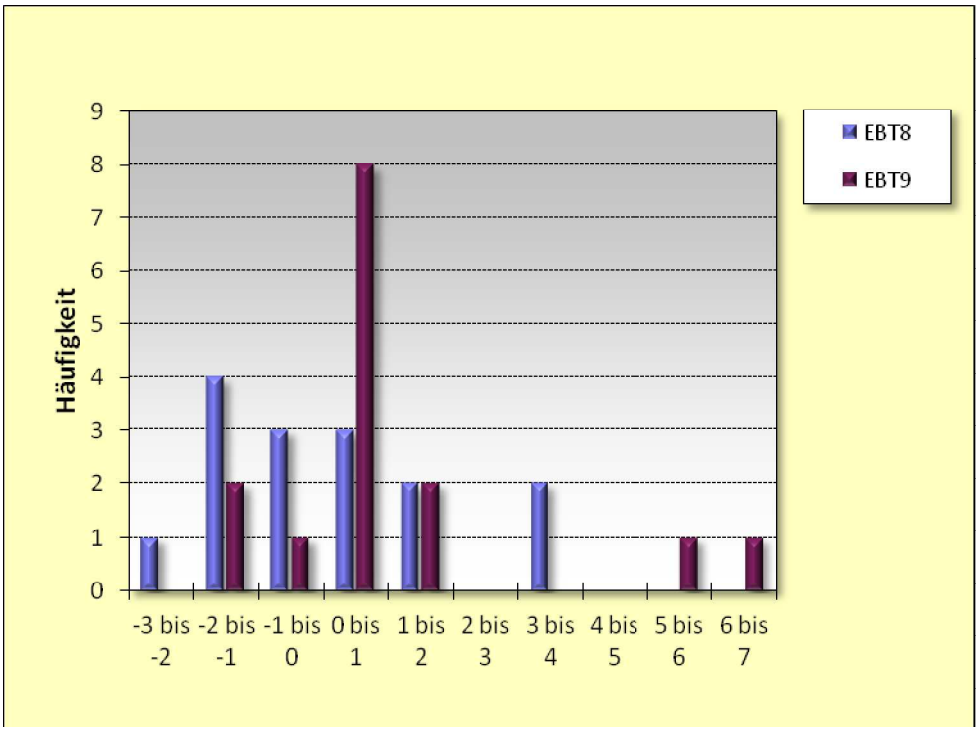
EBIT in subgroup BMW n=15



turno in subgroup BMW n=15



gross in subgroup BMW n=15



EBT in subgroup BMW n=15

8.9 Appendix 9: Histogram to Dataset_1, level_2

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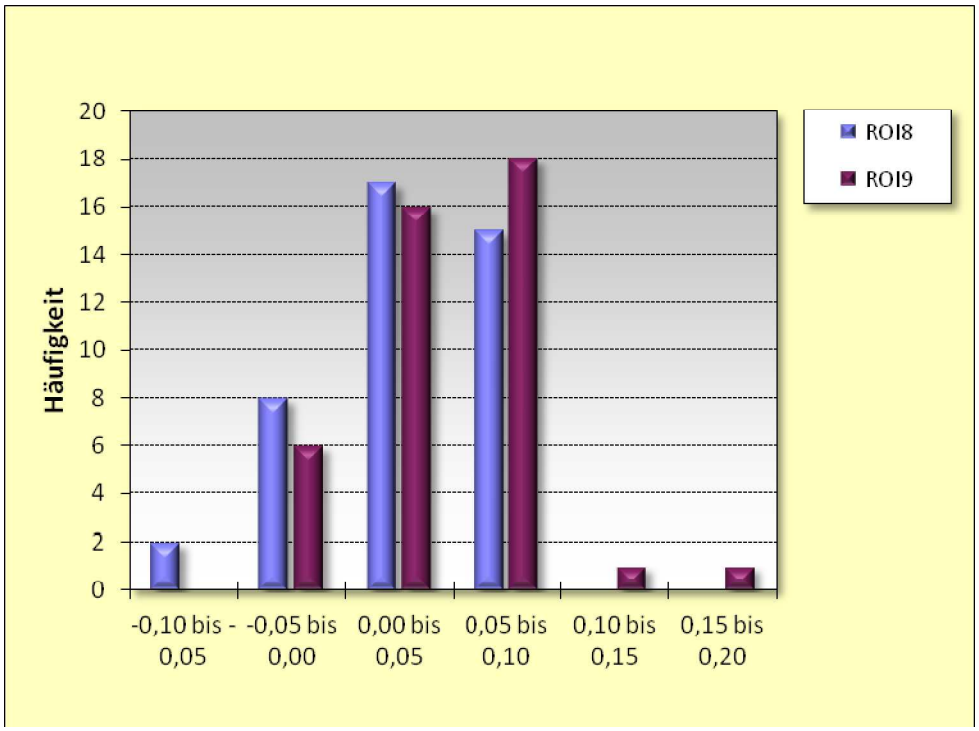
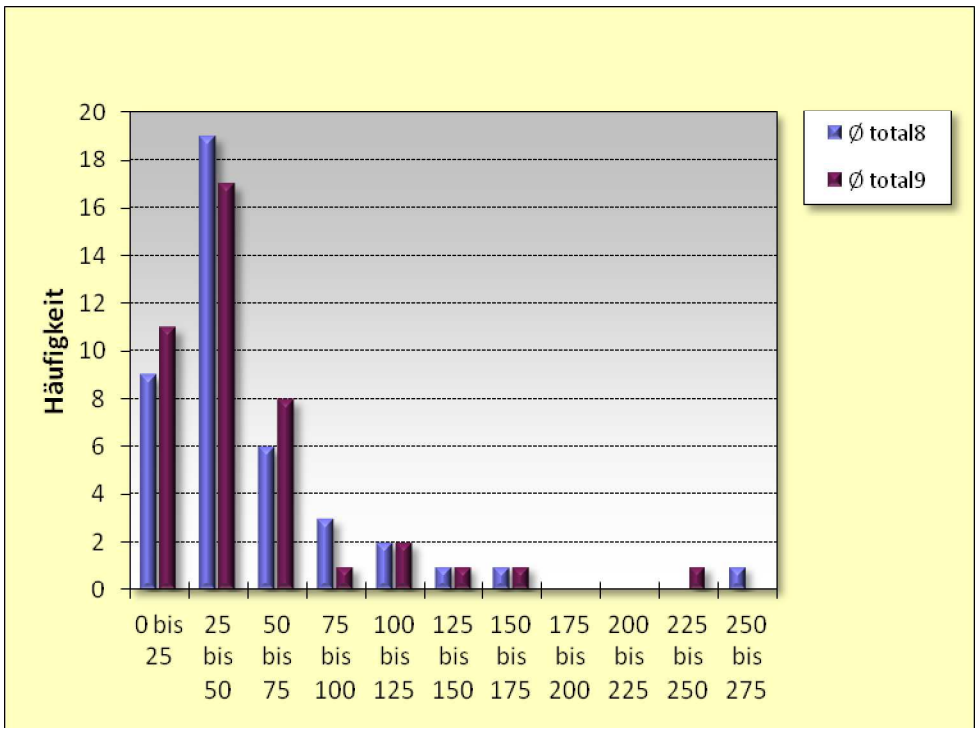
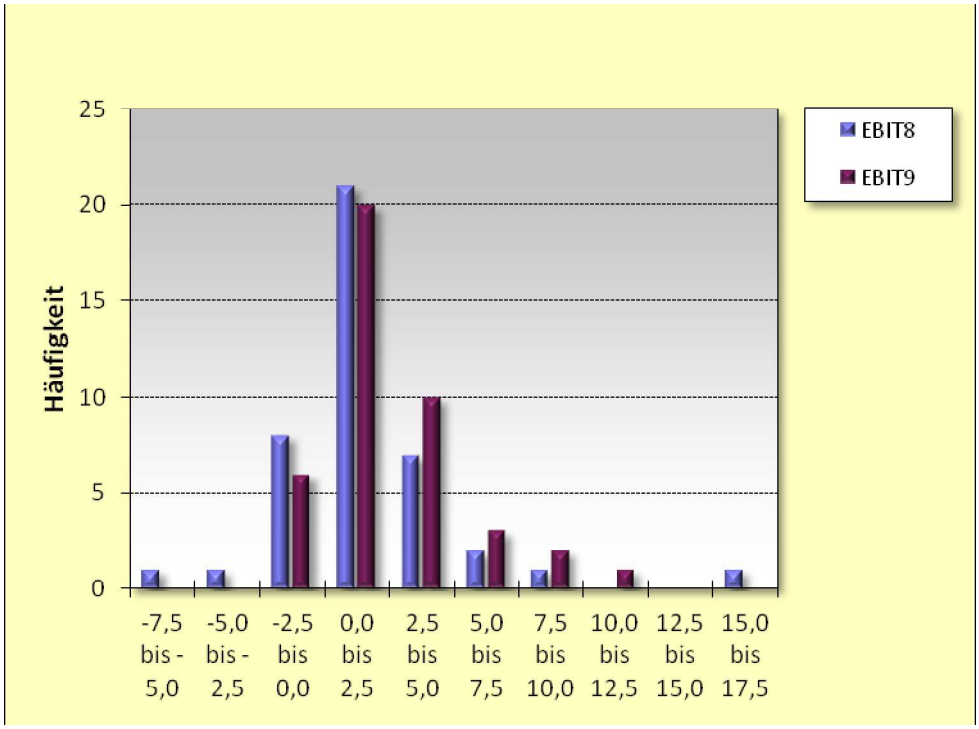


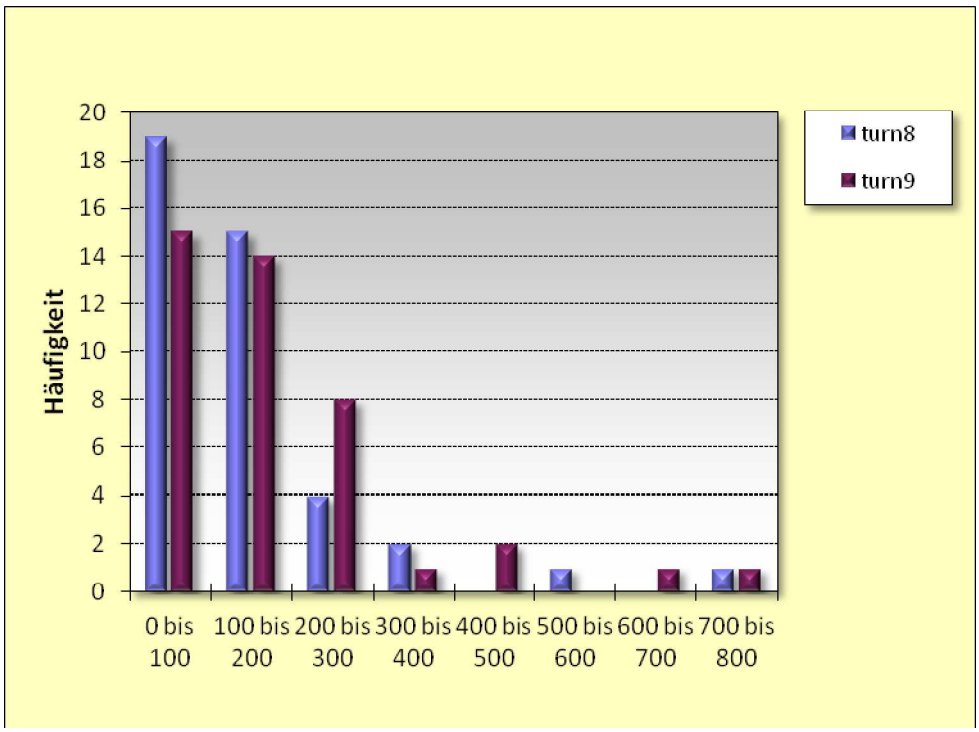
ROI in subgroup VW n=42



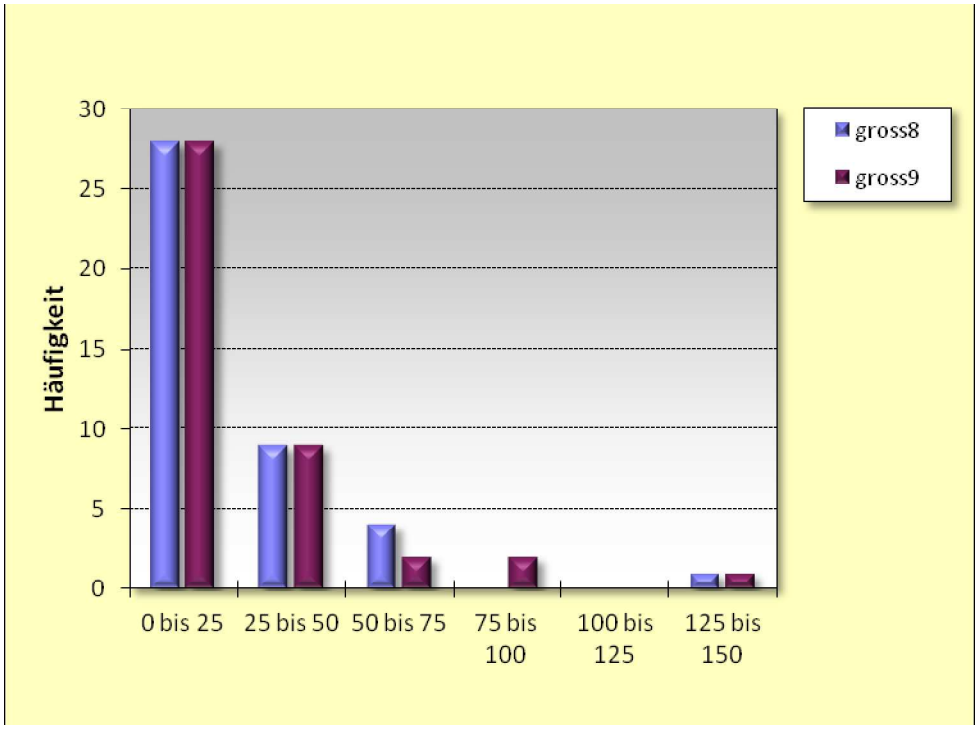
total in subgroup VW n=42



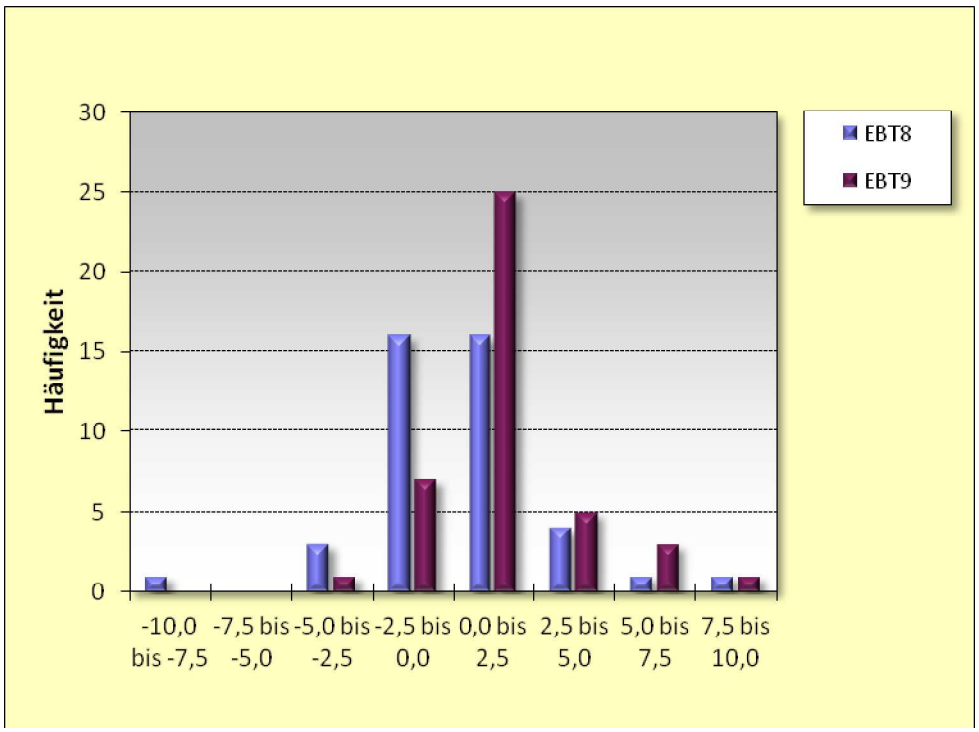
EBIT in subgroup VW n=42



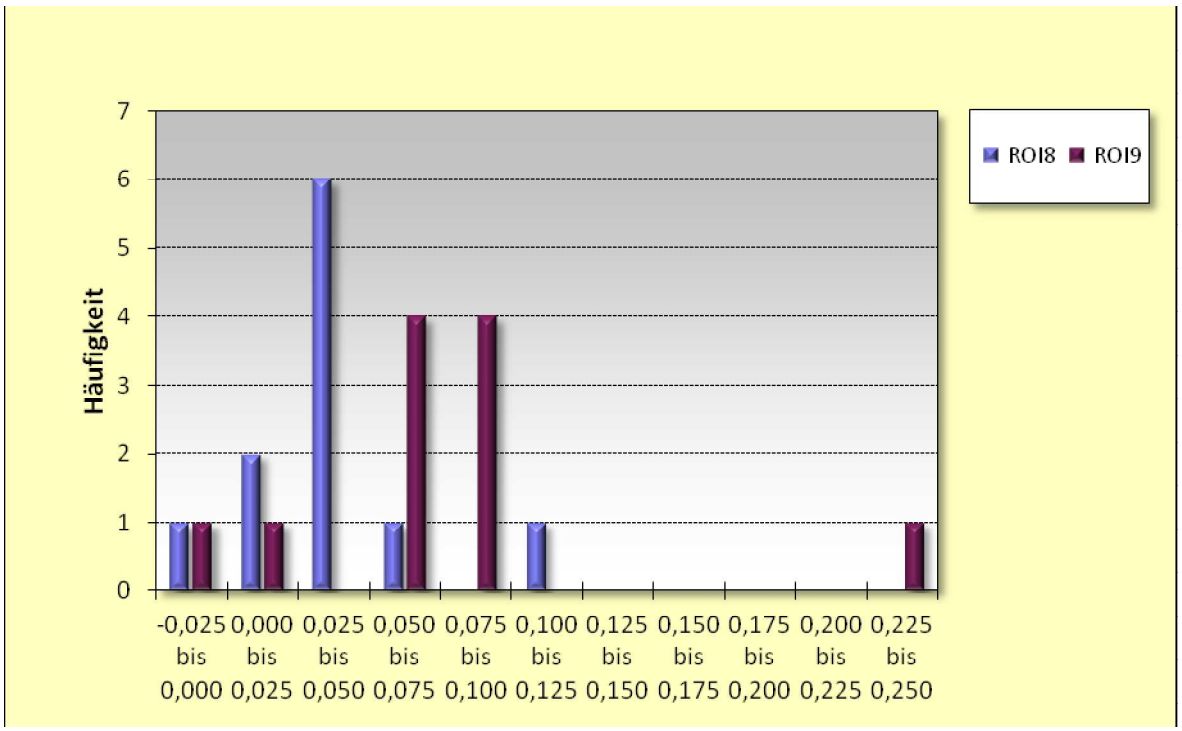
turno in subgroup VW n=42



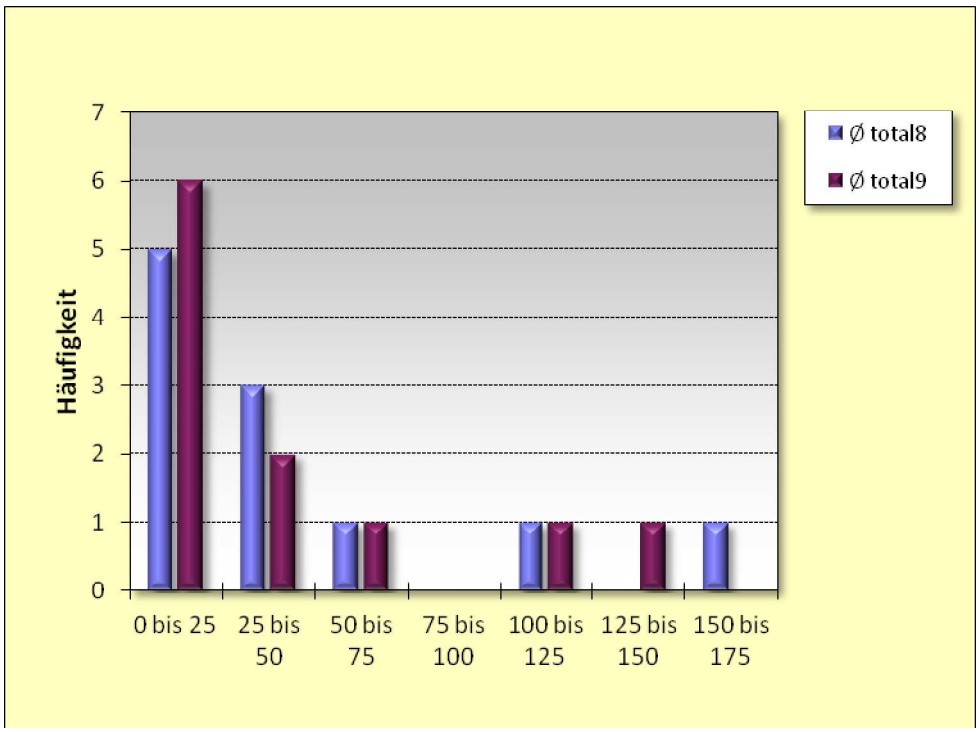
gross in subgroup VW n=42



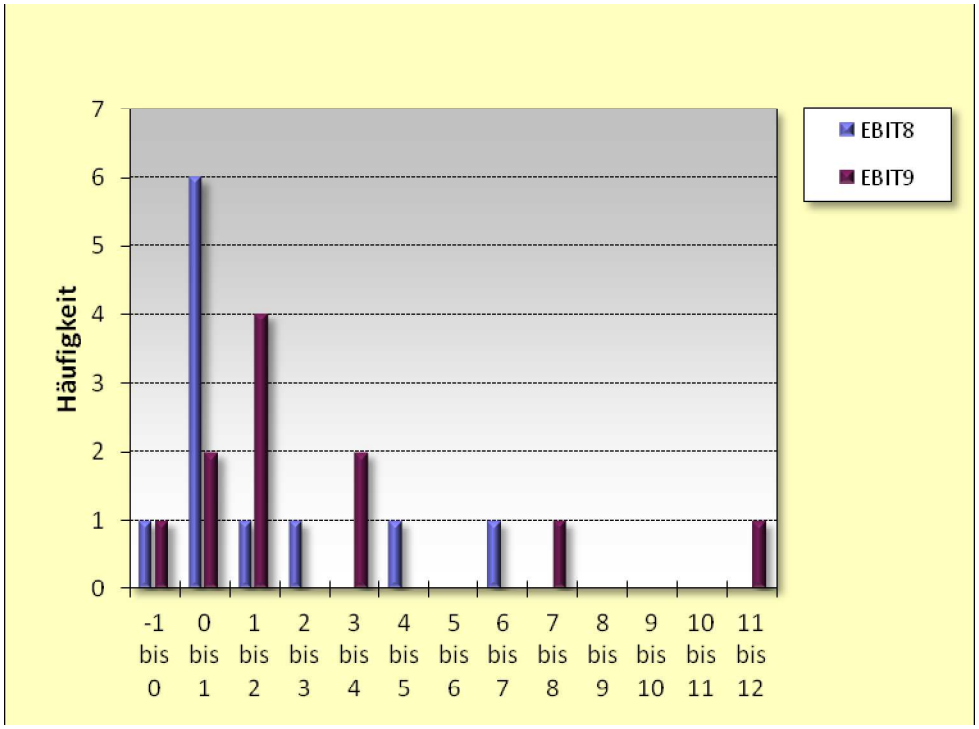
EBT in subgroup VW n=42



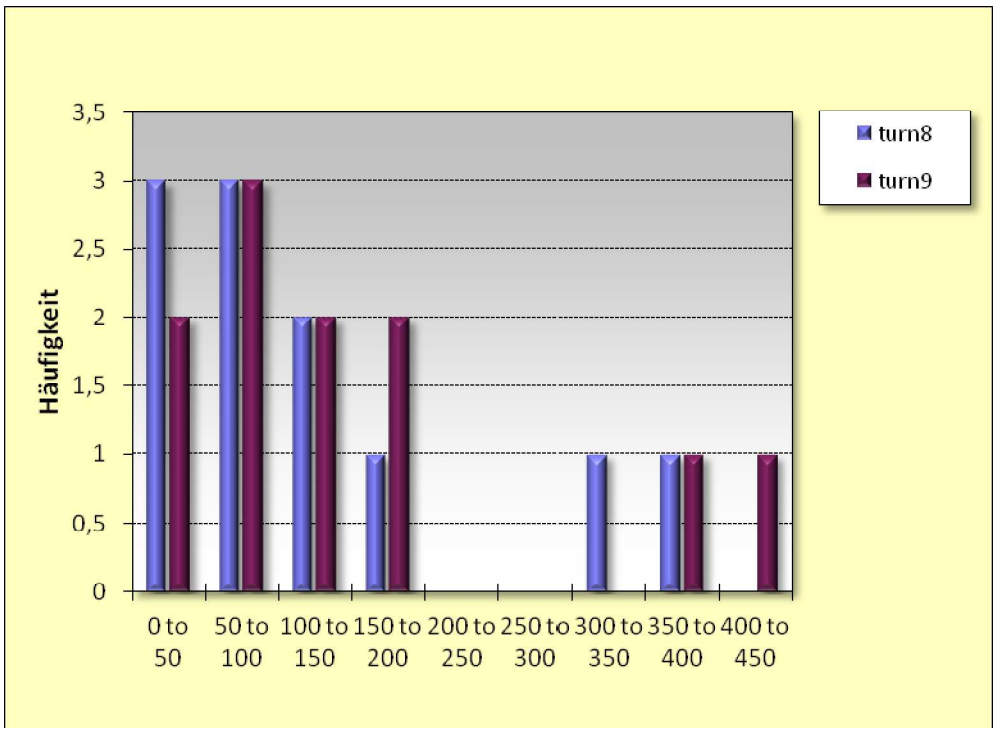
ROI in subgroup GM n=11



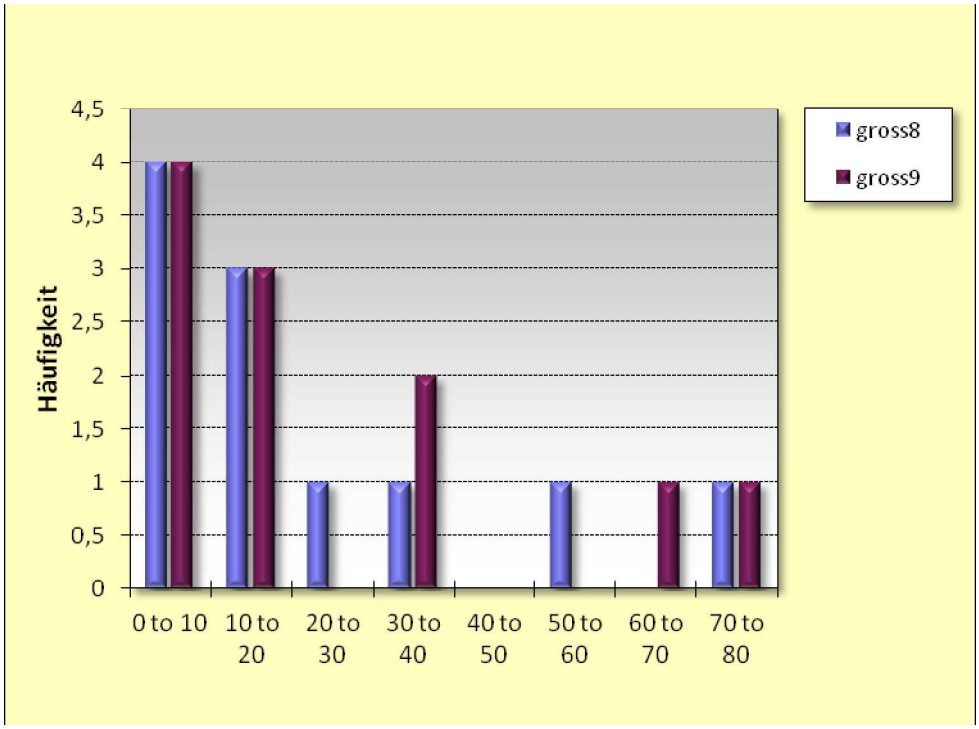
total in subgroup GM n=11



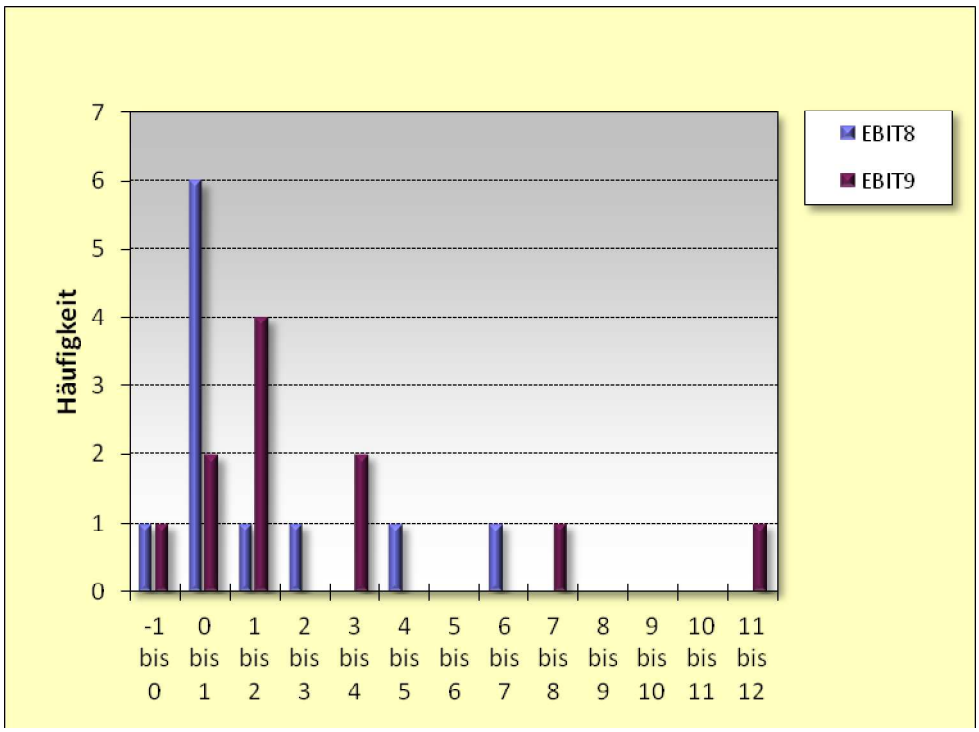
EBIT in subgroup GM n=11



turno in subgroup GM n=11



Gross in subgroup GM n=11



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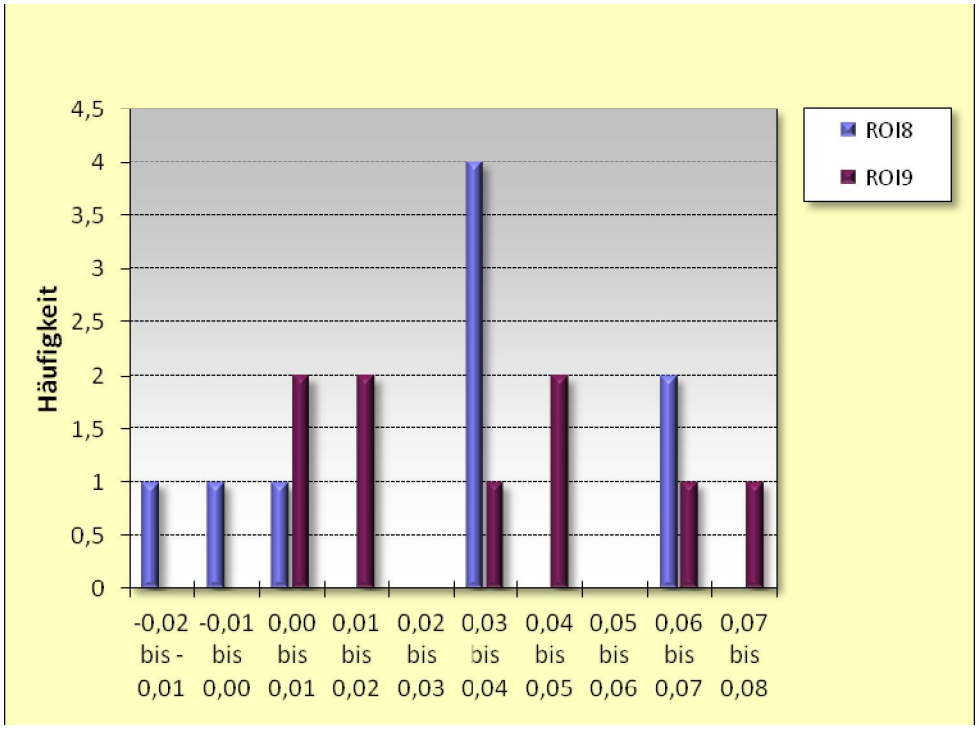
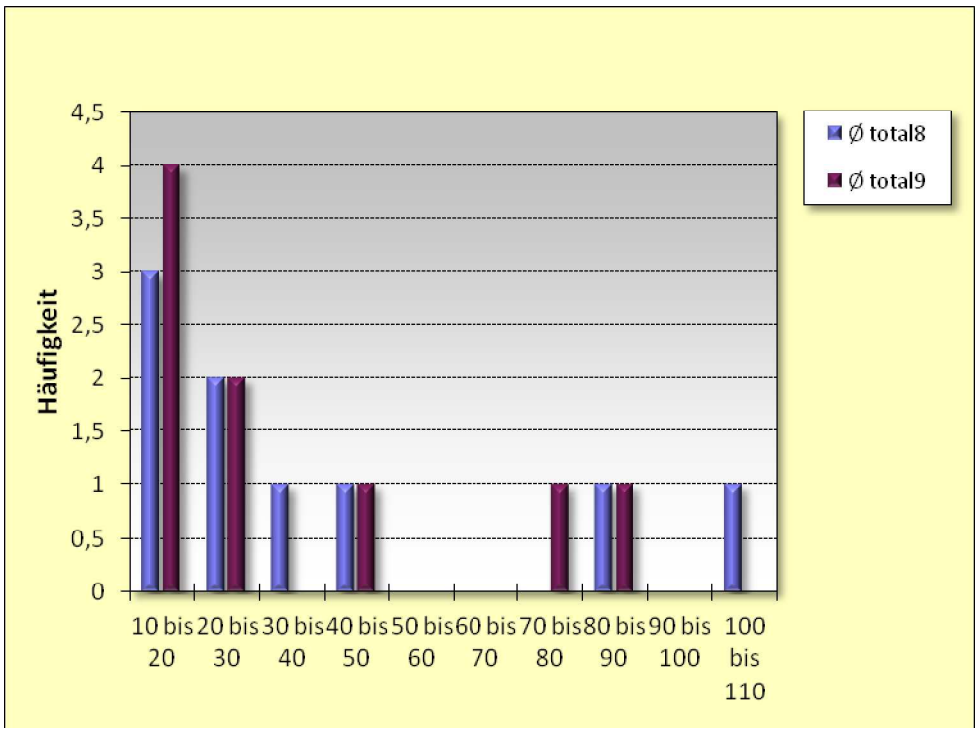
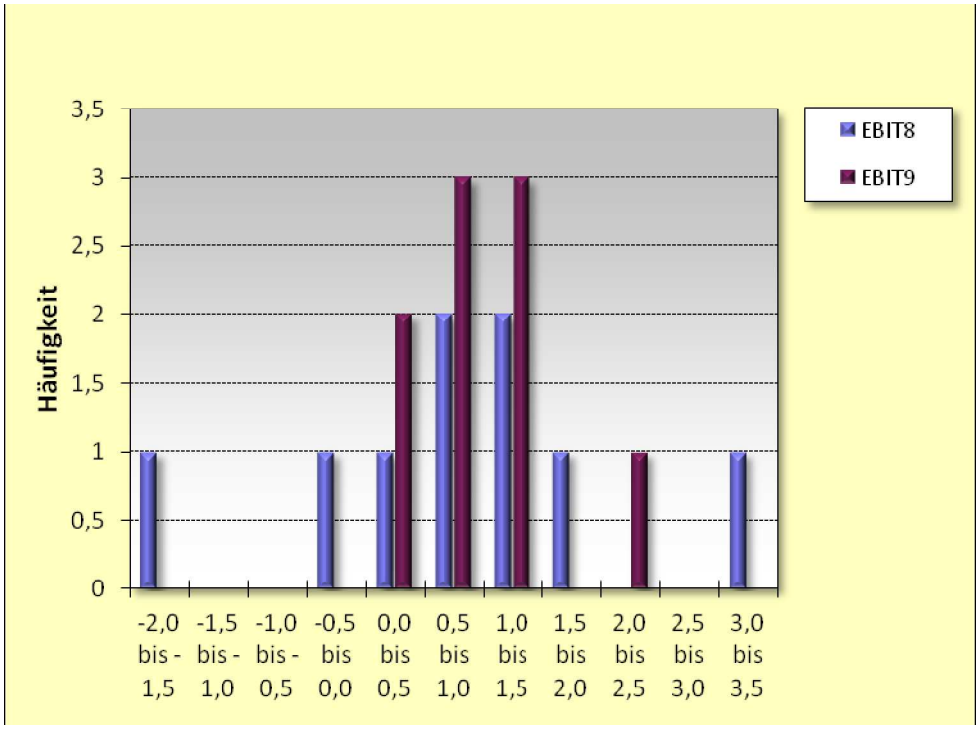


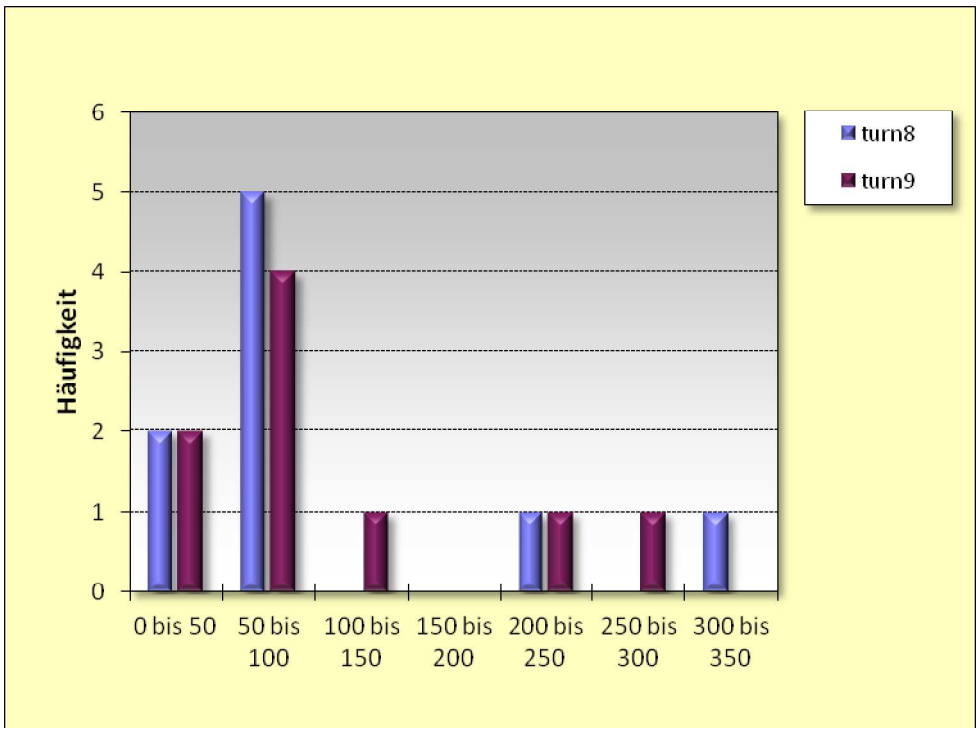
ROI in subgroup Ford-Mazda n=9



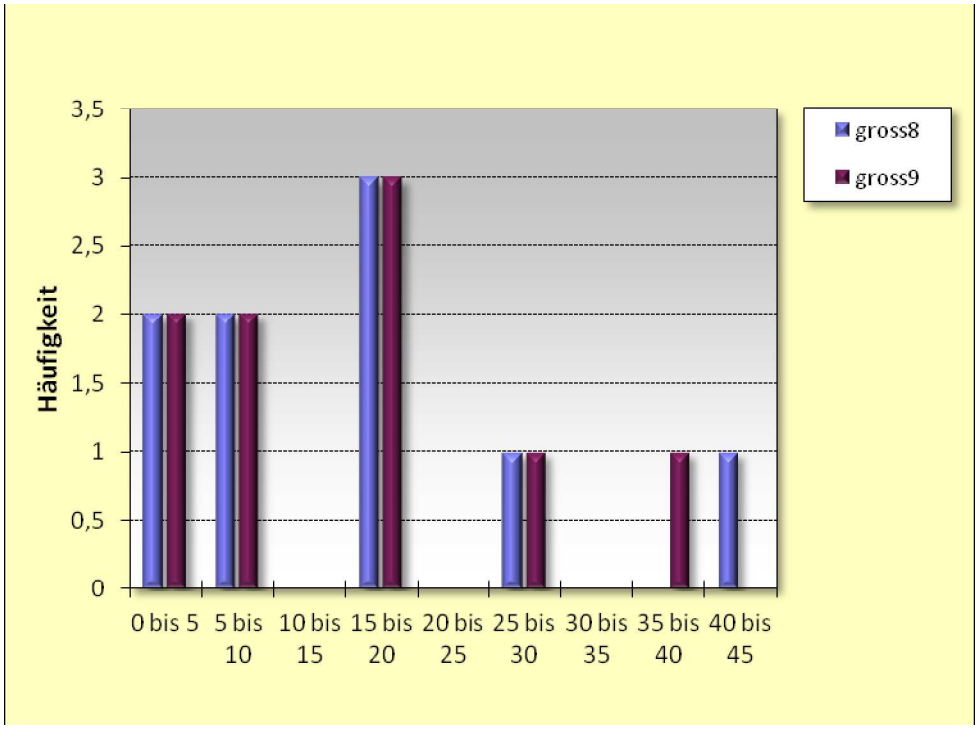
total in subgroup Ford-Mazda n=9



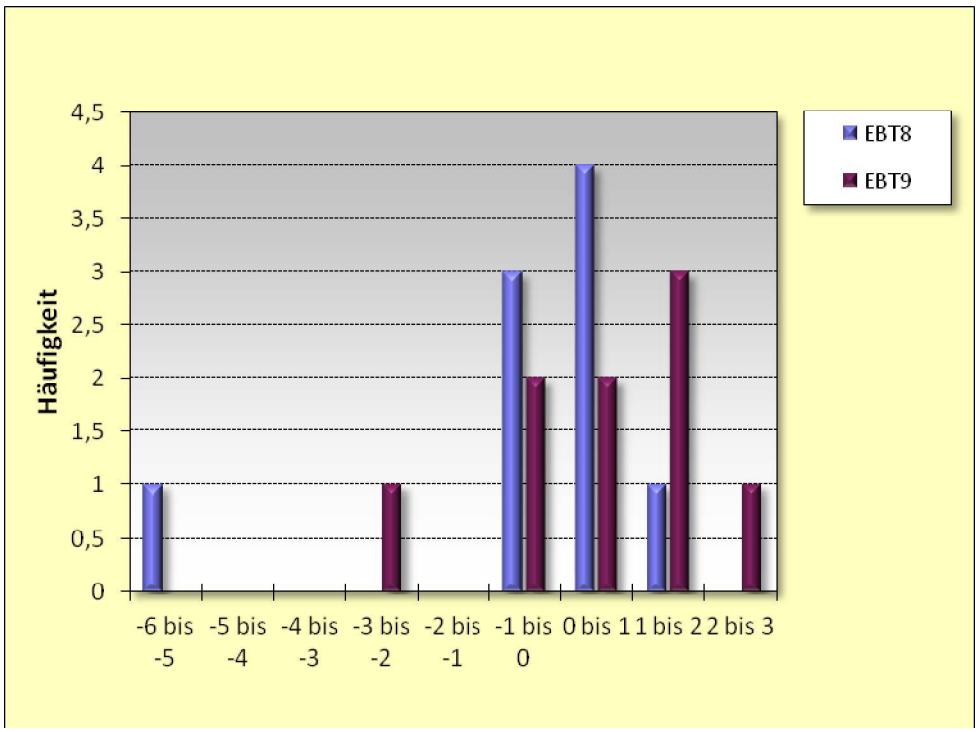
EBIT in subgroup Ford-Mazda n=9



turno in subgroup Ford-Mazda n=9



gross in subgroup Ford-Mazda n=9



EBT in subgroup Ford-Mazda n=9