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BACHELOR THESIS

THE HELP OF CREDIT COOPERATIVES TOWARD THE STABILITY OF SMALL AND MEDIUM ENTERPRISES IN GERMANY AND AUSTRIA DURING THE ECONOMIC TENSE SITUATION FROM 2007 TO 2010.

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Abstract

Seven years after the beginning of a series of world-wide crises, the media stopped announcing new stages of escalation. It is time for a review. Especially during the period from 2007 to 2010 there were bad news followed by worse news. Unemployment rose in Europe while the industrial production decreased. This paper deals with the situation of small and medium enterprises; backbone of the European economy. By analyzing in how far the provision of credits by credit cooperatives supported a relatively stable economic development in two European countries (Germany and Austria), the findings illustrate correlations between credit cooperatives and small and medium enterprises in Germany but not in its neighboring country Austria. Credit cooperatives can be seen as a supportive element during tense economic situations. This insight might be useful for other European nations in order to rebuild their economy.

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Index of Abbreviations

AT	Austria
b.	below
BVR	Federal Association Volksbanken Raiffeisenbanken
CB	Commercial Bank
CC	Credit Cooperative
cf.	confer
Com	Number of Companies
ECB	European Central Bank
Empl	Employment
f.r.	further reading
GER	Germany
GDP	Gross Domestic Product
H	Hypothesis
ICA	International Cooperative Association
IfM	Institute for middle-class research
ifo-institute	Leibniz-Institute for economic research
ifo(SME/LB)BCI	ifo Business Climate Index for SMEs or LBs
ifo(SME/LB)BEI	ifo Business Expectation Index for SMEs or LBs
ifo(SME/LB)BSI	ifo Business Situation Index for SMEs or LBs
ifoSME/LB	Combined ifo-index for SME/LB
Inv	Investments
KfW	Development Loan Corporation
LB	Large-sized Business
OEGV	Austrian Cooperative Union
PAC	Provided Amount of Credits
Q	Quarter
RB	Relationship Banking
RL	Relationship Lending
SDA	Secondary Data Analysis
SH	Sub-hypothesis
SME	Small and Medium-sized Enterprise
TB	Transaction Banking
WKO	Economic Chamber Austria
WKOBC	WKO-Barometer Business Climate
WKOE	WKO-Barometer Expectation
WKOS	WKO-Barometer Situation

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1. Introduction

Many economic crises afflicted the world. Frequently people faced financial challenges threatened their welfare or even their existence. There are various striking examples in world´s history. Back in 17th century the breakdown of the Dutch stock exchange ruined merchants and citizens (f.r. Goldar 2008). During the last 150 years beside a rapid technological development, there appeared several economic crises as the one at the end of the 19th century (f.r. Rosenberg 1943), the Great Depression after World War Two. (f.r. Eichengreen/James 1996) or the crisis in South-East Asia in 1997/98 (f.r. Berger/Wagner 2000; Dieter 1999)

The last far-reaching financial and economic collapse spreading over the world, took place in 2007. Even today one can see the consequences from what started seven years ago. It began as a housing crisis in the USA, transformed into a global banking crisis and formed the origin of the European dept crisis. It is therefore necessary to investigate in mechanism that prevent a 'worst case scenario' and minimize economic, social and political adversity.

This work will deal with the situation of '*small and medium enterprises*' (b. SMEs) and '*credit cooperatives*' (b. CCs) during times of crisis. Both, SMEs and CCs, are extraordinarily important for the economy and welfare of the European nations. Out of 20 million enterprises in Europe (2008) there were 99.8% SMEs. Those enterprises provided 67.1% of the European employment and 57.6% of the value added (ECB 2014: 88)). With a plus of 4.3% in employment, 8.1% in productivity and even 11.6% in value added, Schmiemann called SMEs the “driver of economic growth between 2004 and 2006“ (Schmiemann 2009: 1–7). Furthermore the Annual Report on SMEs of the European Commission stated that SMEs performed well between 2008 and 2012 (Gagliardi *et al.* 2013: 6–22).

A similar situation exists for CCs. About 50% of all European banks are CCs. Although the quantity of institutions decreased in favor of larger CCs, the number of members increased as well as the gained assets (Hofmann 2013: 97;Ayadi *et al.* 2010: 30). A survey identified a higher level of trust toward CCs while other commercial banks were assessed as less trustable institutions (Habberfield and McCarroll 2012: 18–20). In a matter of fact it is a issue of an European dimension.

Historically SMEs and CCs have a close relationship. From the beginning CCs provided credits for those who did not get credit from a commercial bank. Main sectors of CCs, are financing SMEs and retail. Moreover, there is a tendency to support start-ups and investments of the

'*Mittelstand*' (formed by SMEs). The financial basis of CCs is generated in large parts by bank deposits of members or customers (cf. Wyman 2014: 14; Habberfield and McCarroll 2012: 10; Prantl *et al.* 2008: 12; Ayadi *et al.* 2010: 15; Schartz 2014: 2; Hofmann 2013: 109).

Cooperatives in Europe

At the beginning of the 19th century the upcoming industrialization and various crises let people suffer. Especially small businesses have had problems to survive. As a result there appeared the idea of a new economic form that differs from state owned companies and the ruling Manchester Capitalism in Great Britain and France. The idea of cooperatives was let by Owen, King and Rochdale´s Society of Equitable Pioneers in Great Britain and the French theoreticians Saint-Simons, Fourier, Buchez and Blancs. While there was a movement in Great Britain, there was a lack of implementation in France. In Europe one does not find a common legal form for cooperatives. In countries like Italy, Belgium, France and Greece cooperatives are linked to the law of joint stock companies but not always bonded to a single form of organization. In Great Britain there is a cooperative law but no specific legal form. Only Credit Unions have to be registered in the Industrial and Provident Society. (cf. and f.r. Faust, 1977; Hagen-Eck, 1995)

Germany

In Germany the movement of the modern cooperative started with Schulze-Delitzsch and Raiffeisen. With the goal of solving the lack of available capital for small and agricultural businesses these two men founded cooperatives independently. Schulze-Delitzsch focused on the urban areas in the eastern parts of Germany. So called '*Vorschußkassen*' were the former '*Volksbanken*' (people´s banks). Raiffeisen founded '*Darlehnskassen*' in order to support rural businesses in Southwestern Germany. These are today´s '*Raiffeisenbanken*' (local rural credit cooperatives). Schulze-Delitzsch and Raiffeisen refused governmental support. Schulze-Delitzsch worked on a cooperative law to give them a legal status. As a result there was developed a cooperative law, first in Prussia (1867) and later adapted to the German Empire (1889). 1881 the state implemented the obligation of revision for all cooperative by externals. The auditing for cooperative was established. (cf. Aschhoff and Henningsen, 1995; Deumer, 1926; Faust, 1977; Higl, 2006; Paulick, 1956; Scheffel, 2008 and f.r. Fehl and Zörcher, 1995)

These developments during the 19th and first half of the 20th century formed today´s institutions like cooperative unions (i.e. BVR). As an 'eG' (registered cooperative) German cooperatives have their own legal base. Although modern cooperatives are extremely influenced by incorporate enterprises, the role, especially of CCs, is very important for SMEs as was the original idea to support such businesses. (cf. Apel, 1978: 144)

Austria

The development of cooperatives in Austria started in the middle of the 19th century; later then in Germany. High dept of SMEs at the end of the century fostered the situation of many businesses as they did not get credits with acceptable interest rates. In 1869 the cooperative sector grew slowly according to the Schulze-Delitzsch ideal. From 1900-1914 there was a general boom and many cooperatives were founded. After World War Two the sector has had problems to re-establish. Today one can identify a strong movement, divided in two parts: Volksbanken & Raiffeisenbanken. In contrast to Germany where Volks- and Raiffeisenbanken belong together. The latter is more important in Austria. Nevertheless, both articulate their connection to the middle class and SMEs. With regard to the legal situation there is an own legal form for cooperatives as in Germany, too. Summing up, the two countries went through similar developments and are comparable to each other. (cf. Faust, 1977; Ruppe, 1970)

Interest of the Thesis

The interest of this work lays on the economic performance of SMEs during the crisis starting in 2007. The importance of the CC-sector´s and SMEs´ development during the crisis starting in 2007, necessitates it to ask for the reasons of their performance. Therefore, the focus is on the correlation between the relationship of CCs & SMEs and the performance of SMEs during the given period. In order to gain meaningful results the work relates the development of SMEs to the of '*large businesses*' (b. LBs). While the original research question laid its focus on the 'how did the crisis foster a credit crunch with regard CCs and SMEs', it changed after intensive research toward:

> "*In how far did relationship banking between Credit Cooperatives and SMEs ensure a stable development of SMEs during the period from 2007 to 2010 in comparison to LBs possessing other financial conceptions, in Germany and*

This work tries to answer the question with satisfaction by using the theoretical framework of '*Relationship Banking*'. Relationship banking is especially suitable because it shows a principle of operation that is typical for CCs and distinguish them from most other commercial banks. This can be a solution for the following dilemma. Small enterprises tend to have greater problems with asymmetric information (Degryse and van Cayseele 2000: 3). In consequence SMEs need close relations to financial institutions which provide them credits.

Furthermore, there is lot of literature on relationship banking focusing on the effects for

banks or studies about SMEs with regard to various factors (i.e. Lussier and Peifer, 2001; Lussier and Corman, 1995;Vaessen and Keeble, 1995; Yusuf, 1995; Roure & Keeley, 1990; Stuart and Abetti, 1990; Sanberg and Hofer, 1988 and f.r.) but very little dealing with the value of relationship banking for SMEs in times of an economic tense situation when access to finance becomes problematically. The European Central Bank (b. ECB) deals in its '*Survey on Access to Finance of SMEs in the Euro Area*' with the access to finance for SME, too (ECB 2014). Although it includes factors that might have an effect on the access to finance, there is no survey looking at the role of different types of banks. But this is important as SME are normally dependent on bank loans (German Bundesbank 2014: 41).

In this context asymmetric information are especially problematic for SMEs during crises when interest rates do fluctuate a lot and access to bank credits become more restrictive (ECB 2014).

The present work wants to close this gap. It differs in so far from other studies as it concentrates on a comparison between CCs & SMEs and 'c*ommercial banks*' (b. CBs) and LBs in the environment of a bank-based financial system in continental Europe during the recent financial crisis. It shall help to identify advantages of this model of operation for SMEs by using macro data of the ECB, the German Bundesbank, the Austrian National Bank and further national institutions. This research starts from a different point of view, investigating in the role of CCs concerning stable development of SMEs during economic tense situations. This perspective is new from existing work and provides information about this relationship in a particular period; the most extensive financial, economic and budget crisis of the proximal past.

The work is compounded as follows. After some remarks concerning the composition of this work there will be a section explaining the '*Theoretical Framework*'. All important aspects of the research question as well as the current state of research are included. The presentation of hypothesis closes Chapter 2. It is followed by a description of the used method, research design and the data analysis in Chapter 3 ('*Research*'). The discussions and the final comparison of Germany and Austria provide answers to the hypothesis and the research question. Chapter 4 closes the work with a '*Perspective*' and presents ideas for further research.

Remarks

The formalities of the work require a very limited scope. But there are lots of important aspects that deserve a closer look with regard to the role of CCs and SMEs in Europe. In order to provide the reader the opportunity of broad information, there will be recommendations on further reading which can be found in Chapter 5 ('*References*').

Besides there appeared a difficulty with the data on credit lending from CCs towards SMEs. Neither

the European Central Bank (b. ECB) nor the National Central Banks have statistics that illustrate detailed information about this specific credit lending. One only finds data on the amount of credits from CCs to domestic companies. Nevertheless, one can work with that data. As it was demonstrated above 99.8% of European enterprises are SMEs. The percentages for Germany and Austria are comparable (Ger 99,5%, At 99,6%; cf. Statistik Austria, 2014). Furthermore, CCs are focused on the business with SMEs and large enterprises prefer commercial banks and other occasions for their external financing. Using that data from the ECB, the Central Banks of Germany and Austria, will on the one hand neither picture it to 100% nor on the other hand adulterate the findings significantly. (cf. Wyman 2014: 14; Habberfield and McCarroll 2012: 10; Prantl *et al.* 2008: 12; Ayadi *et al.* 2010: 15; Schartz 2014: 2; Hofmann 2013: 109)

2. Theoretical Framework

At first there will be definitions on the main terms used in the research question. This shall help to clarify what the thesis is about. The theoretical base is delivered mainly by two groups of researchers. This thesis will focus on the work of Boot (2000) and Boot/Thakor (2000) about '*Relationship Banking*' (b. RB) and its role within the market. Then there are Rajan (1992), Petersen/Rajan (1994) and Petersen (1999) who wrote about '*Relationship Lending*' (b. RL) between banks and firm (SMEs, too). While RL is a part of RB, both foster the same core issue and are used as synonyms.

2.1 Definitions and Explanation of relevant Terms

The research question consists of some terms that need to be explained. Five different aspects will be defined and explained: CCs, SMEs, Togetherness of CCs and SMEs, Stability, Countries of interest (GER and AT) and the period from 2007-2010. It starts with the definition of CCs.

CCs

The International Cooperative Alliance uses the following definition for CCs:

> *"A co-operative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise."* (ICA 2014)

Furthermore, CCs in Europe follow six key values that guide their business activity: Trust between bank and customer, members control their bank, solid adapting to changing circumstances, closest to customers, supporting ans operating nearby and emphasizing the common good of society. Additionally the following four principles apply to cooperatives: Self-help, self-administration,

direct responsibility and the principle of a democratic organization. (cf. and f.r. on cooperatives: EACB 2014; Aschhoff and Henningsen, 1995; Bauer, 2009; Deumer, 1926; Draheim, 1955; Hagen-Eck, 1995; Higl, 2006; Paulick, 1956; Ruppe, 1970; Scheffel, 2008)

SMEs

The second term is clearly defined by the European Commission. SMEs do have to fulfill two of the three aspects: *1. Headcount of less than 250 and 2.1 an annual turnover of ≤ 50 million € or 2.2. an annual balance sheet of ≤ 43 million €* (cf. European Commission 2005: 14; KfW Bankengruppe 2012: 1). All those which exceed these criteria are large-sized businesses (b. LB).

Togetherness of CCs and SMEs

Both, CCs and SMEs, are inextricably connected. Reminding the foundation´s ideal, CCs only exist in order to support SMEs. All types of cooperatives (consumer, credit, marketing or producers´ cooperative …) have had the goal to improve the competitiveness and survival of lower classes´ business. (cf. Aschhoff and Henningsen, 1995; Deumer, 1926; Faust, 1977; Higl, 2006; Paulick, 1956; Scheffel, 2008 and f.r. Fehl and Zörcher, 1995; Apel, 1978)

Today more than 100 years after the first foundations, CCs are still let by their original idea. Yet in 1980 Viehoff stressed the promotion of SMEs through CCs on all levels (1980: 55). All the central organizations of CCs in Germany and Austria confirm the special role of SMEs within their economic profile. This group (SME) is the only one mentioned separately. The German BVR (Federal Association of the Volksbanken and Raiffeisenbanken), the Austrian Raiffeisen bank group and OEGV (Austrian Cooperative Association) emphasize their need for aid (BVR 2014; Raiffeisen Bankengruppe 2014; Österreichische Genossenschaftsverband 2013: 15). In this regard the associations´ statements prove the togetherness of CCs and SMEs.

Stability

Economic stability is normally defined as macroeconomic stability. It deals with the absence of significant or excessive fluctuations of gross domestic product (b. GDP), unemployment rate, inflation, investment, international trade, international finance etc. (cf. Inside Business, 2014). Additionally, one talks about economic stability when an economy "minimized vulnerability to external shocks, which in turn increases its prospects for sustained growth" (Reut Institute, 2014).

When talking about economic stability of enterprises those aspects apply in a similar manner. In this regard the most important aspects is fluctuation. It need to be minimized in any moment if one wants to call a situation (or a economic sector) stable. Therefore, little fluctuation in employment, investments, numbers of firms or provision of credits indicate a stable economic development. By comparing two groups of companies (SME & LB) there finally can be concluded

which group shows a more stable development.

Countries of interest

In Germany the access to finance for SMEs was not as serious as it was in southern European countries (German Bundesbank 2014: 42). Therefore, it is interesting in how far CCs were involved. Moreover, Germany and Austria share a similar history concerning the development of their cooperative sector (more in Chapter 3). It is well developed and very important for their national economies. Both are set in the center of the 27 European countries (2008) relating to percentage of employed people and values added. While the Austrian CCs have a market share of about 34% ('Raiffeisenbanken' and 'Volksbanken'), the percentage reaches in Germany about 18-20%. For SMEs from both countries CCs are important credit lenders. In addition, there is special legal form for cooperatives in Germany and Austria (Schmiemann 2008; Ayadi *et al.* 2010: 44–52). This similarities are sufficient for further analysis.

Period

The definition of a suitable period for the analysis includes three aspects: 1. Assessment of the beginning of the crisis, 2. Data on GDP growth in Europe and 3. Data on the amount of granted credits in Europe.

Hofmann (2013) determines three starting point of consecutive crisis from 2007 on. It began with the housing bust in the USA in August 2007. With the crash of Lehman-Brothers in September 2008 it turned into a banking crisis. About one year later (November 2009) circumstances changed again so that he speaks of the European Dept Crisis. With regard to the annual reports of the ECB all started summer 2007. Analyzing the data on GDP growth there is decrease of the growth rate from 2007 on that became negative in 2009 and increased in 2010 again. This development is equal for Germany and Austria whereupon the fluctuation was bigger in Germany. While supply and demand of credits were not visibly affected in 2007, the external financing with credits was tightened in 2008 and again became looser in 2009. The decline of the amount of granted credits has its turning-point in 2010 when the annual growth rate of granted credits for non-financial enterprises increased although it was negative again (-2.2% in 2009; -0.2 in 2010). The time dimension will therefore comprise the period from August 2007 until December 2010. (cf. European Central Bank 2008; European Central Bank 2009; European Central Bank 2010; European Central Bank European Central Bank 2011; Bundesamt 2014; Oesterreichische Nationalbank 2009; Statista 2014b; Statista 2014a; Statista 2014c)

2.2 Relationship Banking: Boot and Thakor

Boot and Thakor worked on the topic of RB. As there was no definition in literature that could combine all important aspects, Boot came up with his own definition of RB that separates it from '*Transaction-Oriented Banking*' (b. TB):

> *"We define relationship banking as the provision of financial services by a financial intermediary that: I. Invests in obtaining customer-specific information, often proprietary in nature; and II. Evaluates the profitability of these investments through multiple interactions with the same customer over time and/or across products. […] In contrast, transaction-oriented banking focuses on a single transaction with a customer, or multiple identical transaction with various customers"* (Boot 2000: 10).

Three aspects are of importance with regard to RB. First there is the interest in acquire unique information about the customer (Boot and Thakor 2000: 680). The financial institution invests in order to gain a pool of information that distinguishes the bank from others and provides an advantage. Second, the relationship is in contrast to TB constructed as a long term relationship instead of single business. A last characteristic is defined by multiple interactions. These shall bind the customer to the bank and ensure that the firm comes back to the bank´s products. Why is this necessary and which other advantages has RB?

A common problem of all markets are asymmetric information. Although many economic models work under the assumption of a perfect market. There always are those who know more than others (i.e. Jensen and Meckling (1970): Principal-Agent Problem or Akerlof (1976): Adverse Selection; f.r.). Especially SMEs do have less information about acceptable interest rates. Moreover, public information (statistics) on SMEs are missing, too. On the one hand SMEs have disadvantages because they do not know which interest rates is adequate for there business situation. On the other hand banks face the dilemma of a lack of knowledge of the economic and financial situation of those enterprises. There is i.e. the risk of payment default.

Boot (2000) names several advantages of RB. Exchanging information shall be Pareto-improving. This means that information exchange increases the welfare of both partners. After the transaction bank and firm are in a better situation than before. Furthermore, a long term orientation helps new borrowers (novo borrowers) and start-ups to receive financial support for an ambiguous future. Effects of Moral Hazard and Adverse Selection can be minimized by such a cooperation. If the customer of the bank does not guarantee profits in the first place, a surplus for the financial institution is suspected later on. Various factors provide the bank control over the enterprise´s actions. The communication between the partners enables the bank to monitor the firm, to have a

better control over conflicts and operate with flexibility with regard to i.e. products, collateral requirements or general conditions (cf. Boot 2000: 12–20). As a result of these advantages, Boot and Thakor argue in favor of decreasing loan rates over time (Degryse and van Cayseele 2000).

They also provided some assumptions on the two types of lending/banking (RB and TB) within four different competition scenarios. If there is low interbank competition, there will be advantages for TB and disadvantages for RB. Whereas, a high interbank competition leads to the opposite. The third and fourth scenario refer to capital market competition. Higher capital market competition decreases both TB and RB but the borrower will gain a higher value added of each relationship loan. An increase in any of the two markets will result in higher welfare for the borrower in general but not for all (Boot and Thakor 2000: 706–708).

2.3 Relationship Lending: Petersen and Rajan

Petersen and Rajan (1994) defined RL more openly. RL exists if there are close ties between borrower and lender (company and bank). They also stressed the problem of information asymmetries and added agency costs. Believing them, enterprises with a close relationship to a financial institution have lower costs. As it was said above, interaction through several products between the partners forms a bank-costumer relationship. They argue that a long term relationship does not have any effect on the availability of credit but small effect on rates. In contrast, an intensive interaction and laying claim to many products and services improves the availability of loans (Petersen and Rajan 1994). Rajan (1992: 1367) noted the existing diversity of financing options which fosters the competition in other sectors. This leaves those companies that are not able to open up new sources and potentially have a more precarious financial background.

Petersen (1999) defined four main benefits and effects of RL. Again there is better access to credits for young and SMEs. Secondly, the accessibility generally should improve if there is any relationship between bank and customer. RL functions in a concentrated market whereas a competitive market provides far worse conditions for RL. At last he stated that length and breadth of a relationship do not always lower interest rates.

Compared to Boot and Thakor, Greenbaum as well as Kanatas/Venezia and Sharpe stressed the idea that interest rates increase over time (Degryse and van Cayseele 2000). Rajan added that a (developing or existing) informational monopoly of the bank over the firm, results in higher rents for the bank (Petersen and Rajan 1994).

2.4 Hypothesis

With regard to the findings of Boot/Thakor and Petersen/Rajan and the evaluation of data on the objects of investigation, this work has just one main hypothesis, supplemented by further sub-hypothesis. The main hypothesis is based on the assumption that CCs and SMEs are strongly connected (cf. Chapter 2.1). It does not suspend the existence of other clients with regard to CCs or different financial resources of SMEs.

It will be presumed that their togetherness displays an effect on the SMEs´ economic performance. Assuming that RB affects the measurable factors '*number of companies*', '*employment and investments*', '*provision of credits*' and '*business indicators*', one can conclude by taking the theoretical background into account, that RB affects the economic development by strengthening stable development and allaying fluctuations. This is the case for SMEs which rely on bank loans and are in great majority closely connected to CCs (RB).

On the other hand there are LBs that mainly have other financial resources and are less dependent on bank credits. This has its effect on the economic performance of LBs, too. Therefore, it will be hypothesized:

***H**: The economic development of SMEs during the period from 2007 to 2010 was more stable than the one of LBs.*

In order to provide sufficient evidence structurally, there are sub-hypothesis (b. SH). Those display the different stages of analysis. So it can be guaranteed that the answer of the main hypothesis is high quality and differentiated. Those SH base on the same assumption like above´s H. RB displays an advantage which stresses the presumption that SMEs show less fluctuation and a more stable economic development. The work focuses on the following aspects:

***S-H1**: The quantitative development of SMEs (number of companies) was less fluctuant than that of LBs.*

***S-H2**: SMEs act more constantly than LBs in terms of quantitative employment and investments.*

***S-H3**: The provision of credit to SMEs indicates a smaller decline in comparison to LBs.*

***S-H4**: The qualitative measures on firm´s business situation, their future expectations and business climate (indices) for SMEs show higher values than those of LBs.*

The four sub-hypothesis elaborate different aspects. In their sum they form a broad picture of the SMEs´ and LBs´ economic performance from 2007 to 2010. Additionally, they can provide an answer to the question of the role of CCs within the context of economic performance. S-H1 and S-H2 stress quantitative measures metering the existence and survival of enterprises (S-H1) and economic decisions on employment and investments (S-H2).

Both are closely linked to S-H3 focusing on the provision of credit. The two latter hypothesis base on the assumption that there must be an adequate financial foundation through credits for the survival of SMEs (credit as most important financial resource;Schwartz 2014: 2; WGZ Bank, BVR, DZ Bank 2013: 15) as well as for decision on staff and investments (often financed by credits). S-H3 implicates a difference between SMEs and LBs. It will be assumed that the amount of granted credits declined in consequence of lower demand and stricter conditions. It also displays a connection to CCs (RB) and CBs (TB).

The last sub-hypothesis deals with qualitative measures. Therefore, various indices will be used. Several institutions (i.e. KfW) provide surveys on firms´ self-assessment. All four combined can be found in H. By differentiating S-H1-4 will provide detailed results for answering H.

3. Research

3.1 Method and Research Design

The hypothesis refer to a quadrinomial sample. First there are the two countries of interest. In this case they are Austria and Germany. Within each country the study looks at companies. Again the term companies consists out of two sections. There are SMEs and LBs in both countries. In a matter of fact, this study focuses on SMEs in Austria and Germany as well as on LBs in both countries. The definition of SMEs was given in Chapter 2.1 after the parameters of the European Commission. As a consequence it will be talked about LBs if the criteria of SMEs are not fulfilled. LBs are all those which do not fulfill the requirements. In total SMEs and LBs in both countries combined, count about 4 million. This is the basic population. The quantitative measurements bases on the main unit (4 million). The qualitative data was aggregated by smaller random samples. It will be marked in this sub-chapter which data bases on which measurement (basic population or random sample).

The analyzed data was not aggregated by the author. Various institutions collected the data. As an exploratory study, the work operates with '*Secondary Data Analysis*' (b. SDA). This type of research method utilizes old data in order to answer new questions (Glass 1976: 4;Castle 2003). It is especially useful for sample that are extremely big. If the researcher cannot collect the data

himself, it is necessary to use existing data. The sets can be surveys on satisfaction or estimations on different aspects life, economy or politics. Also databases with high data volume are potential sources (Castle 2003). SDA will be used especially in educational (i.e. McMillan and Schumacher, 2014; Thomas and Heck, 2001) and health research (i.e. Hauner et al., 2003; George and Landerman, 1984).

In order to test the hypothesis, this work uses linear regression analysis. SPSS will help in examining the data. It is necessary to control if there exists a real correlation between the dependent and independent variable or if it is just an apparent relationship. The analysis tests the level of significance which needs to be at least 90% ($P \leq .100$) although the common level of significance is 95%. On the other hand, various researcher of different fields of investigation (Economics, labor market, mechanical engineering etc.) use the 90% only for a weakly statistically significance level (cf. Hirte and Heinze, 2009; Fertig et al., 2006; Koehn, 2004; Dörr, 2000). As it is a SDA with few variables and there is no risk for human in this work like in medical research, one can argue for a lower level. Nonetheless, a higher level is desirable. Moreover, the work looks at R and R-squared to get information about the model´s performance. Finally the gradient '*B*' will be included. It shall provide information about the direction and the intensity of the direction. This helps to compare SMEs´ and LBs´ results.

Data

Different sources will be used for Austria and Germany. Both have own institutions which collect their own data. The quantitative measurements (number of firms and employees) give evidence about the total amount (basic population) as well as the data on investments does. For Austria '*Statistik Austria'* provides the information while the '*IfM-Bonn*' (number of forms and employees) and '*KfW Group'* (investments) are the sources for Germany.

In a second stage the provided amount of credits (b. PAC) divides out in credits from CCs and those from CBs. As it was explained in an earlier chapter, SMEs are linked to CCs and LBs receive their credits from CBs. The data base on information of the German Bundesbank (2014b) and the Austrian Nationalbank (2014). All CCs and CBs are represented by those statistics. In consequence, the data pictures the complete PAC (quarterly) for these two types of banks.

The qualitative measurements base on random sample data. In the case of Germany the ifo-institute frequently aggregates data on SMEs and LBs. This data is analyzed by KfW. It results a number of indices separated by size of the firms. Every ascertainment contains answers of about 7000 companies of which about 5600 are SMEs. They ask for three aspects. First, there is '*Business Climate*' (b. ifoBCI) which displays a holistic description of the companies´ estimation on their

economic position. '*Business Situation*' (b. ifoBSI) and '*Business Expectation*' (b. ifoBEI) illustrate two parts of the ifoBCI. The ifoBSI explains in how far firms assess their actual situation as bad or good. Therefore, 0 marks the zero-point, where good and bad are weighted equally. ifoBEI illustrates in how far enterprises expect the upcoming six month as becoming worse or better in comparison to their actual situation. Results for SMEs and LBs are illustrated separately.

The Austrian indices are called WKO-indices. Provided by the *'Wirtschaftskammer Oesterreich'* (b. WKO) they measure similar aspects than the German indices. There are three indicators: WKOS, WKOE and WKOBC. The first displays information about the current situation of the company while WKOE focuses on the expectations. The third one, WKOBC, combines both and illustrates the Business Climate including the current situations and expectations for the upcoming month. In contrast to the German indices, these do not divide into measurements for SMEs and LBs but combine them directly.

3.2 Analysis

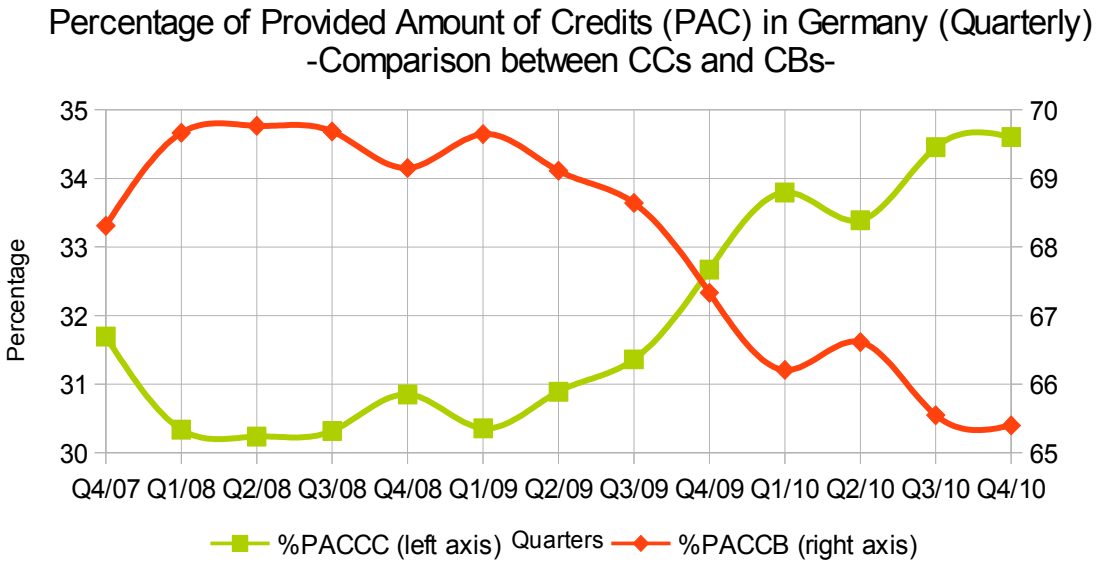
This section starts with a presentation of German data. The analysis of the quantitative data of firms, employees, investments and credits (for each year) and the indices of Germany (for each quarter) comes next. After that the same will be done with the Austrian data. In order to do this clearly arranged, Germany and Austria will be analyzed separately. The findings´ discussion (Chapter 3.3) of the results of both countries brings both together.

3.2.1 Data Germany

The quantitative data illustrate four aspects: number of firms, number of employees, amount of investments and '*Provided Amount of Credits*' (b. PAC). As it was stated in Chapter 1 the SMEs represent more than 99% of all firms in Europe. As one can see in Table 1, in Germany there were 3.574.302 SMEs in 2007 and just 16.963 LBs. About 99,5% of all German enterprises were SMEs. With regard to employees, the percentage only lays between 54% and 55% for SMEs. 45% to 46% of employees work for LBs (cf. Table 1). It also illustrates the balance in investments. In contrast to the number of companies and employment, there is a percentage increase of SMEs´ investments from 2007 to 2009. While the investments of SMEs grew from 51% to 57%, the LBs´ investments equivalently declined by 6%. In 2010 both approached their values from 2008.

Year	Number of Companies SMEs	Number of Companies LBs	Employment SMEs	Employment LBs	Investments SMEs in bil.	Investments LBs in bil.
2007	3.574.302 **(99,53%)**	16.963 **(0,47%)**	13.641.649 **(54,81%)**	11.247.254 **(45,19%)**	147 **(51,76%)**	137 **(48,24%)**
2008	3.619.016 **(99,52%)**	17.479 **(0,48%)**	13.808.481 **(54,47%)**	11.542.077 **(45,53%)**	165 **(55,93%)**	130 **(44,07%)**
2009	3.580.510 **(99,53)**	16.738 **(0,47)**	13.853.765 **(55,05)**	11.311.521 **(44,95)**	139 **(57,20)**	104 **(42,80)**
2010	3.602.967 **(99,51%)**	17.609 **(0,49%)**	14.070.398 **(54,68%)**	11.663.954 **(45,32%)**	143 **(54,79%)**	118 **(45,21%)**

Table 1: Data on Numbers of Companies, Employees and Investments, Germany
Source: IfM Bonn and KfW



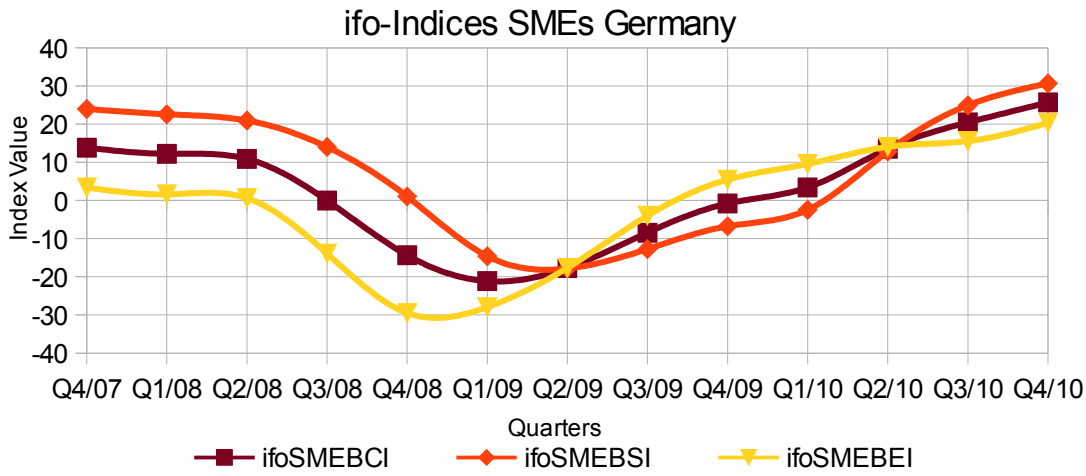
Graph 1: Source: German Bundesbank (own graph)

PAC and GDP

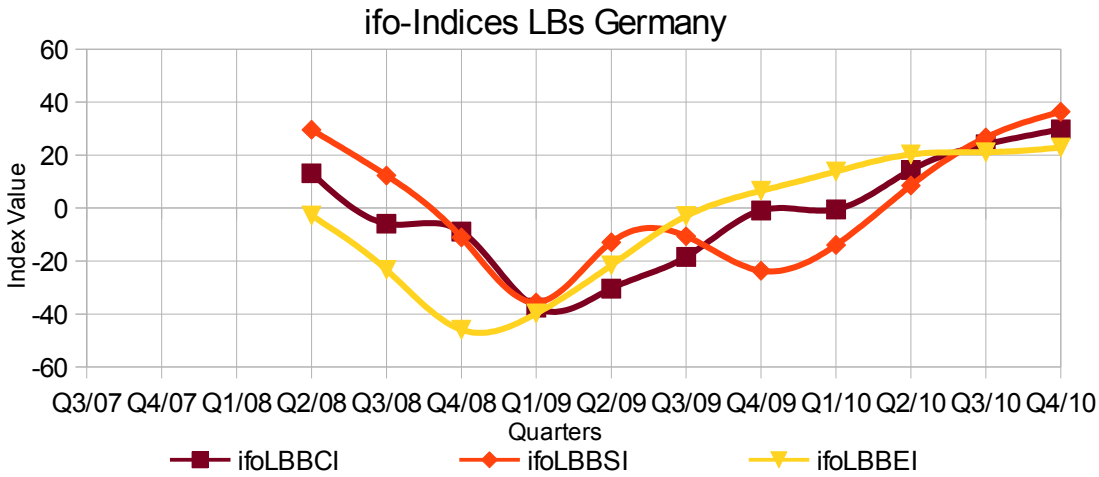
Graph 1 pictures the development of PAC by CCs and CBs. It illustrates the proportions between the two types of banks. The PAC by CCs has its minimum turning point in Q2/08. At that time, 30,23% of credits were provided by CCs in comparison to CBs (69,77%). From Q1/09 on there was a constant percentage increase concerning CCs. At the end of 2010 CCs have had a 4,4% larger market share on PAC than 30 months earlier. In a matter of fact, CBs lost the same market share CCs received during Q2/08 and Q3/10 (ca. 4,4%). The PAC for CCs has not only increased in terms of market share, but also in absolute values. The absolute amount of CBs decreased from Q1/09 on.

ifoSME and ifoLB

In the case of Germany there are three qualitative measures. The indices (cf. Chapter 3.1) are ifoBCI, ifoBSI and ifoBEI. Graph 2 demonstrates the development of the values for SMEs (additional specification -SME-). Beginning in the last quarter of 2007 (Oct. to Dec.) there is at least a four month decline of values until Q4/08. IfoSMEBCI reaches the minimal turning point in Q1/09 (-21) and ifoSMEBSI (-18) one quarter later. From then on one finds a constant increase of the indices´ values. The difference of ifoSMEBEI between its minimal turning-point (-30) and highest value (20) during the given period counts 50 index point on a scale from -100 to 100.



Graph 2: Source: KfW (own graph)



Graph 3: Source: KfW (own graph)

There is a similar development of values for LBs (additional specification -LB-). The graphs just start in 2008 (Q2/08). There was no earlier data available. Nonetheless, the declines and minimal turning points are still visible (cf. Graph 3). With regard to LBs, the ifoLBBEI shows the most

constant development. It decreases until Q4/08 (-46) and ascends its highest value in Q4/10 (23). It is followed by ifoLBBCI which indicates two periods of stagnation during Q3/08 (-6) and Q4/08 (-9) as well as between Q4/09 (-1) and Q1/10 (-1). The other index displays various local minimal and maximal turning points. The remaining ifoLBBSI has local minimum in Q1/09 and there is a second in Q4/09 as well as one for ifoLBBCI a quarter later. Especially the ifoBSI of LBs is affected by ups and downs. There is a positive value of 30 in Q2/08 whereas three quarters later it turns into a -36. Then it increases to -11 (Q3/09) just to decline again one quarter later (-24). From then on there is a constant and strong increase of 60 point (36 in Q4/10).

Regression Analysis Germany: GDP and PAC as independent variables

The results of the SPSS regression analysis can be seen in Table 2. All are at least weakly statistically significant except the regression between GDP and Inv_{LB} (P = 0.196). For the valid (significant) cases at least 74,3% (Inv_{SME}) of the total variance is explained by the model. Com_{LB} shows the highest value with 0.989. This displays nearly a perfect linear correlation (1.000 = perfect correlation). Increasing GDP is followed by an incline in both, Com_{SME} and Com_{LB}. Corresponding to the analysis the increase for SME is larger. In the case of Empl it is the other way round. There the value of $Empl_{LB}$ is slightly larger than the one of $Empl_{SME}$ (cf. Table 2).

With PAC as independent variable the results are similar. The values of Com and Empl are statistically significant while the regressions for investments (this time in both cases) are insignificant. 48% of the total variance of Com_{SME} will be explained by the model (lowest value) while the value counts 88,4% in case of $Empl_{SME}$. Looking at the unstandardized coefficient B, the results for SMEs are larger than these of for LBs (cf. Table 2).

There will be a regression analysis of the qualitative data in order to identify correlations between the dependent and independent variables. When looking at different variables it is necessary to do several regressions. It starts by testing if there is a correlation between PAC and GDP in order to control if there is any basis for further investigation. It will be assumed that there is a positive correlation between GDP and PAC of CCs and CBs. PAC is the independent and GDP the dependent variable.

In a second step a correlation between GDP and the ifo-indices will be tested. In order to work with only one dependent variable the indices for SMEs and LBs need to be combined. Each index will be measured equally. The values of the combined indices for SMEs´ and LBs´ ifoSME and ifoLB are composed of 1/3 ifoBCI, 1/3 ifoBSI and 1/3 ifoBEI. In a matter of fact, there is one dependent variable for each group of companies (cf. Graph 4). The combined indices measure important factors influenced by availability of capital. Good business situation and expectation for

Independent variable	Dependent variable	R	R-square	Statistical significance (P)	Unstandardized coefficient B
GDP	Com_{SME}	.943	.889	.000***	5,124 E^{-7}
GDP	Com_{LB}	.995	.989	.000***	8,399 E^{-9}
GDP	$Empl_{SME}$	.926	.858	.001**	2,463 E^{-6}
GDP	$Empl_{LB}$	.986	.972	.000***	3,513 E^{-6}
GDP	Inv_{SME}	.862	.743	.006**	.080
GDP	Inv_{LB}	.510	.260	.196	.040
PAC_{CC}	Com_{SME}	.693	.480	.057*	1,147 E^{-6}
PAC_{CB}	Com_{LB}	.727	.529	.041**	1,103 E^{-8}
PAC_{CC}	$Empl_{SME}$	.940	.884	.001**	7,622 E^{-6}
PAC_{CB}	$Empl_{LB}$	.719	.516	.045**	4,599 E^{-6}
PAC_{CC}	Inv_{SME}	.514	.264	.192	.146
PAC_{CB}	Inv_{LB}	.067	.004	.875	.010

Table 2: Linear Regression Analysis Germany (yearly data, own calculations)
* weakly statistically significant; ** statistically significant; *** highly statistically significant

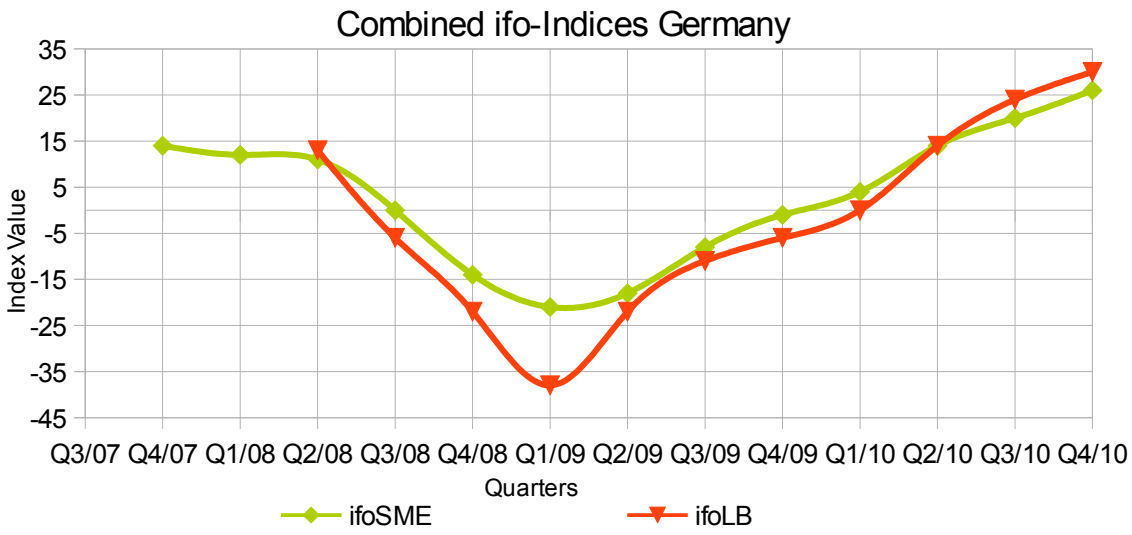
instant result in higher investments than bad values. The same applies for employment. If a company is in a comfortable position, it will employ more people than in tense situations. In each case, firms need a solid financial basis. The independent variables will be the GDP (seasonally adjusted and adjusted for price) of Germany which displays the period. The GDP variable illustrates economic tense situations and booms. Thus tense situations are characterized by smaller increase in GDP or even a decline and boom periods show a constant and relatively high GDP growth. The variable GDP includes main data picturing economic development. This even enables it to give information about different phases of economic development. All in all the decision for the independent and dependent variables include and measure three aspects: the crisis will be put into account by GDP, the indices provide a differentiated view and the division in SMEs and LBs enables one to compare the results.

Third the analysis of the particular measurements (Com, Empl and Inv) of SMEs and LBs will be analyzed. First GDP will be the independent variable while PAC_{CC} for SMEs and PAC_{CB} for LBs will replace GDP in the second part.

PAC and GDP

In order to test if there are correlations between the German GDP and the PAC for CCs and CBs, the first regression analysis controlled the assumed correlation. For the analysis the paper works with SPSS regression analysis. The analysis proved that there are significant correlations between

GDP and PAC of CCs and CBs. The results are very statically significant for a confidence interval of 95%. The quality grade shows high values for the explained variance. R-square values 0.718. As a consequence about 72% are explained by the regression model. The correlation is positive (cf. Table 3). If there is growth in PAC, one will observe a growing GDP. The high quality grade of the regression model will be seen as an affirmation that the GDP represents the PAC-variable well. Therefore, the following regression analysis test the correlations between GDP and ifo-indices.



Graph 4: Source: KfW (own graph)

ifoSME and ifoLB

The independent variable GDP and the dependent one ifoSME have a R of 0.908. It results a R-squared of 0.824. Thus the model explains 82,4% of the variance. It is statistical highly significant within a confidence interval of 99.9% (0.000). The linear regression shows an incline of $8{,}998E^{-10}$ per unit GDP (cf. Table 3). With regard to ifoLB R values 0.896. 80,3% of the variance is explained by the model (R-squared: 0.803). Moreover, it is statistical highly significant within a confidence interval of 99.9% (P = 0 .000). For every additional unit GDP the value of ifoLB increases by $1{,}173E^{-9}$. It is measured by the unstandardized coefficient B.

Independent variable	Dependent variable	R	R-square	Statistical significance (P)	Unstandardized coefficient B
PAC_{CC} & PAC_{CB}	GDP (yearly)	.847	.718	.042**	positive
GDP (quarterly)	ifoSME	.908	.824	.000***	$8{,}998E^{-10}$
GDP (quarterly)	ifoLB	.896	.803	.000***	$1{,}173E^{-9}$

Table 3: Linear Regression Analysis Germany: PAC, GDP and ifoSME/ifoLB (own calculations)
** weakly statistically significant; ** statistically significant; *** highly statistically significant*

3.2.2 Data Austria

After the analysis of the German data, the same will be done for the Austrian data. The quantitative measurements are the same that were used before. In this regard Table 4 shows the values for Austria. The period goes from Q3/07 to Q4/10. The data is divided in number of companies, employment, investments and provided amount of credit. Table 4 illustrates the first three components. The share of SMEs on the total amount of firms values 99,63% to 99,65%. According to the percentage, it is higher than in Germany. In 2008 SMEs lost a 0,01% share although there were about 6.600 more SMEs than in 2007. During the next two years the percentage increased to 99,65% in 2010. Correspondent the share of LBs attuned. The employment variable displays a more or less 2/3 to 1/3 SME/LB proportion. With a minimum of 65,82% after a decline (percentaged) in 2008, SMEs´ employment reached its largest percentage in 2010 (66,95%). The amount of employees working in LBs decreased in total numbers from 2008 on. In 2010 there were about 43.000 less people employed in LBs than in 2008. Looking at the investments of both groups of firms, the SME-group invested more than LBs. Nevertheless, SMEs reduced their investments from 2007 to 2009 by 4,8 bil. €. Accordingly, their share became smaller (-2,70%). As recently as 2010 they raised their spending again. With regard to LBs, one can see an up and down, whereas the total amount declined by 1,4 bil. € from 2007 to 2010.

PAC and GDP

The PAC of CCs and CBs is different from the German situation. When comparing the two sections of CCs and CBs in Austria, the CCs have a larger market share than CBs. Graph 5 shows the quarterly development of the PAC for both types of banks. While the proportion is stable until Q1/09 it changed afterward. CCs shortly enlarge their PAC just to loose 2% market share in one quarter (Q4/09). On the other hand, CBs profited by the reduction of PAC_{CC} (in absolute numbers, too) and their own expansion of PAC in Q4/09 to Q2/10. From Q1/10 the proportion between CCs and CBs normalized. Both groups returned to their former market share of about 49% for CBs and 51% for CCs.

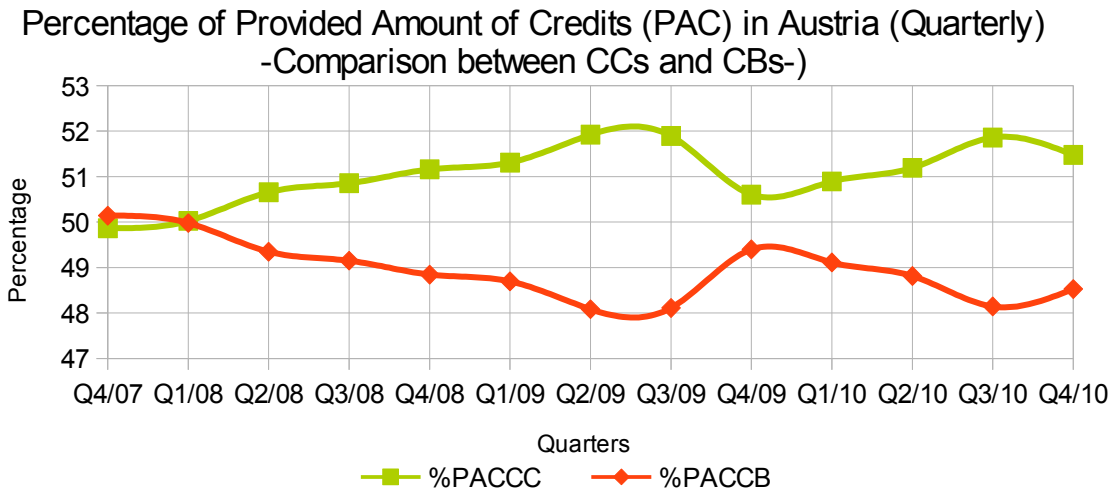
Year	Number of Companies SMEs	Number of Companies LBs	Employment SMEs	Employment LBs	Investments SMEs in bil.	Investments LBs in bil.
2007	293.029 **(99,64%)**	1.070 **(0,36%)**	1.722.446 **(65,96%)**	888.847 **(34,04%)**	24,8 **(61,42%)**	15,6 **(38,58%)**
2008	299.626 **(99,63%)**	1.119 **(0,37%)**	1.790.871 **(65,82%)**	929.922 **(34,18%)**	24,3 **(59,57%)**	16,5 **(40,43%)**
2009	296.413 **(99,64%)**	1.071 **(0,36%)**	1.774.183 **(66,63%)**	888.670 **(33,37%)**	20,0 **(58,72%)**	14,0 **(41,28%)**
2010	307.667 **(99,65%)**	1.068 **(0,35%)**	1.795.561 **(66,95%)**	886.515 **(33,05%)**	21,7 **(60,39%)**	14,2 **(39,61%)**

Table 4: Data on Numbers of Companies, Employees and Investments, Austria
Source: Statistik Austria

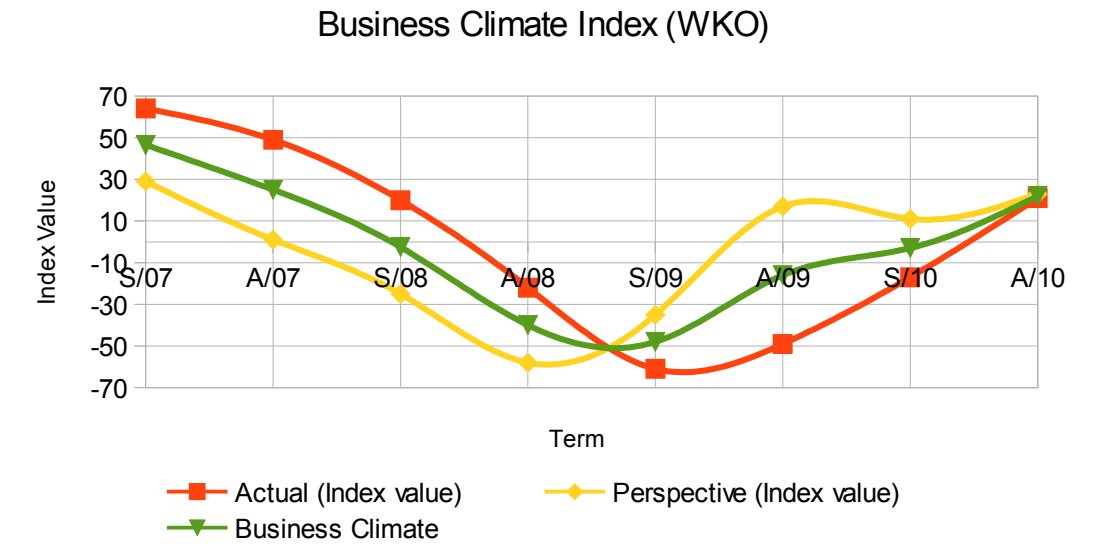
WKO-Business Climate

The corresponding index to the German ifoSME/LB is the Austrian WKO-index. It is a similar instrument to measure economic development. From 2007 on there were hold studies on companies ´ opinion on several indicators (i.e. investments, employment, business climate) each half-year. Therefore, the WKO questioned about 2.300 firms (every half-year). The sample consists of 98% SMEs and 2% LBs. The answers are weighted by number of employees which results in an overall proportion of 2/3 SMEs and 1/3 LBs instead of 98/100 and 2/100. Separate data for both groups of enterprises were not available by any Austrian organization. In a consequence the focus does not lay on the comparison of the stability between SMEs and LBs (which group indicates better values) but concentrates on the stability of the Austrian economy itself. Therefor, Business Climate is the interesting variable. There are two specifications: actual situation (b. WKOS) and perspective/expectation (b. WKOE). A third one was generated by the author. It is a combined variable of situation and expectation weighted 1/1 (b. WKOBC). The scale comprehends values from -100 to +100.

When looking at the development of all three indices there is a constant decline until 2009. It displays the minimal turning point of the period. WKOS values -61 in spring 2009 and WKOBC -48 while the value of WKOE increased between A/08 and S/09 from -58 to -35. WKOS shows a delay of one term in comparison to WKOE. From S/09 on the indices incline again. The ascent is as constant as the decline before. Nevertheless, the values of the end of the period (A/10) do not reach the ones from the beginning 2007.



Graph 5: Source: Austrian National Bank (own graph)



Graph 6: Source: WKO (own graph)

Regression Analysis Austria: GDP and PAC as independent variables

The analysis starts with the correlation model of quantitative measurements. It is followed by the one on $PAC_{CC/CB}$ and the Austrian GDP. Table 5 shows results of the Austrian SPSS regression analysis on quantitative measurements. As before, the regressions on Investments and the one for PAC_{CB} and $Empl_{LB}$ are insignificant. The remaining models display positive correlations between independent and dependent variable. Only PAC_{CB} & $Empl_{LB}$ display a low R-squared of 43%. The others have at least 81% of the total variance are explained by the regression model (GDP & $Empl_{LB}$). The highest R-square value has the model PAC_{CC} and Com_{SME} (1.000). Looking at the unstandardized coefficient B, in significant cases SME-models have larger values than LB-models (cf. Table 5).

Independent variable	Dependent variable	R	R-square	Statistical significance (P)	Unstandardized coefficient B
GDP	Com_{SME}	.983	.966	.000***	6,284 E^{-7}
GDP	Com_{LB}	.922	.851	.001**	2,105 E^{-9}
GDP	$Empl_{SME}$	.976	.952	.000***	3,323 E^{-6}
GDP	$Empl_{LB}$	.899	.809	.002**	1,325 E^{-6}
GDP	Inv_{SME}	.320	.102	.440	.026
GDP	Inv_{LB}	.595	.354	.120	.032
PAC_{CC}	Com_{SME}	.980	.961	.000***	1,098 E^{-6}
PAC_{CB}	Com_{LB}	1.000	1.000	.000***	2,440 E^{-8}
PAC_{CC}	$Empl_{SME}$	.991	.981	.000***	5,911 E^{-6}
PAC_{CB}	$Empl_{LB}$	.654	.428	.079*	5,961 E^{-6}
PAC_{CC}	Inv_{SME}	.169	.029	.688	.024
PAC_{CB}	Inv_{LB}	.166	.027	.695	.056

Table 5: Linear Regression Analysis Austria (yearly data, own calculations)
* weakly statistically significant; ** statistically significant; *** highly statistically significant

PAC and GDP

Second, the work tests if there are correlations between the Austrian GDP and the PAC for CCs and CBs. Again, the first regression analysis controls the assumed correlation. It proved that there is significant correlations between GDP and PAC of CCs and CBs. The results are highly statistical significant for a confidence interval of 99,9%. The quality grade shows high values for the explained variance. R-squared values 0.968. The regression model explains about 97% of the variance. The correlations are positive (cf. Table 6). If PAC increases, one will observe a growing GDP. The high quality grade of the regression model is an affirmation that the GDP represents the PAC-variable well. Therefore, the following regression analysis tests correlations between GDP and WKO-indices.

Independent variable	Dependent variable	R	R-square	Statistical significance (P)	Unstandardized coefficient B
PAC_{CC} & PAC_{CB}	GDP (yearly)	.984	.968	.000***	positive
GDP (yearly)	WKOS	.055	.003	.898	---
GDP (yearly)	WKOE	.030	.001	.944	---
GDP (yearly)	WKOBC	.052	.003	.902	---

Table 6: Linear Regression Analysis Austria: PAC/GDP/WKOS/WKOE/WKOBC (own calculations)
** weakly statistically significant; ** statistically significant; *** highly statistically significant*

WKO-indices

The results of the analysis can be found in Table 6. The regression model indicates not statistical significance for any index. WKOS, WKOE and WKOBC do not fulfill the norms of any level of significance. With value from 0.898 to 0.944 they are far below the requested values of $P \leq 0.1$ (for the minimum 90%-level of significance). In a matter of fact, there is no prove for any correlations between Austrian GDP development (measurement for the crisis) and WKO-barometer.

3.3 Discussion

The discussion has a ternary structure. Starting with the discussion of the German results, it continues with the Austrian data in order to compare the findings in a third section. The discussion bases on the results of the regression analysis´ as well as on the empirical data of the Austrian and German institutions. The research question and H with its SHs will be answered on the findings´ basis. It starts with answering the sub-hypothesis. This enables to give a reply to H. After the findings of both countries were discussed, the research question will be answered.

3.3.1 Discussion: Germany

Structured in four sub-hypothesis (SH-1 to SH-4), SH-1 assumed that "t*he quantitative development of SMEs (number of companies) was less fluctuant than that of LBs."* The results tell that the correlations between GDP/PAC and Com_{SME} are larger than the one for Com_{LB}. Thus fluctuations in GDP have a higher impact on the amount of SMEs than on LBs. The same applies for PAC. The latter does not surprise as the paper shows the larger dependency of SMEs on credits than it is the case for LBs. In both cases the only decrease of numbers of companies took place in 2009. In percentage the decline of LBs was larger (-4,24%) than the one of SMEs (-1,06%). One year later (2009 to 2010) the incline was accordingly higher for LBs (5,20%) than the one for SMEs (0,63%). This indicates a lower fluctuation.

How can this be? By only looking at the unstandardized coefficient B, the value for SMEs is larger because in this case (Com) there are far more SMEs than LBs (cf. Table 1). If the inclines are put into proportion ($Com_{SME/LB}$), an increase of one unit GDP will incline the number of SMEs 61 times less than its does to Com_{LB} (cf. Table 2). As a comparison: For a proportional increase, one unit Com_{LB} values more than 209 units Com_{SME} (cf. different percentages in Table 1, too). As a consequence, the unstandardized coefficient B for Com_{LB} needs to be 209 times smaller than the one for SMEs (instead of 61 times) if there shall be an equal proportion. This problem was solved by the modified B which ensures a percentage equal increase between SME and LB data for an incline of one unit GDP or PAC ('*neutral B*'). If the unstandardized coefficient B for LBs is higher than the

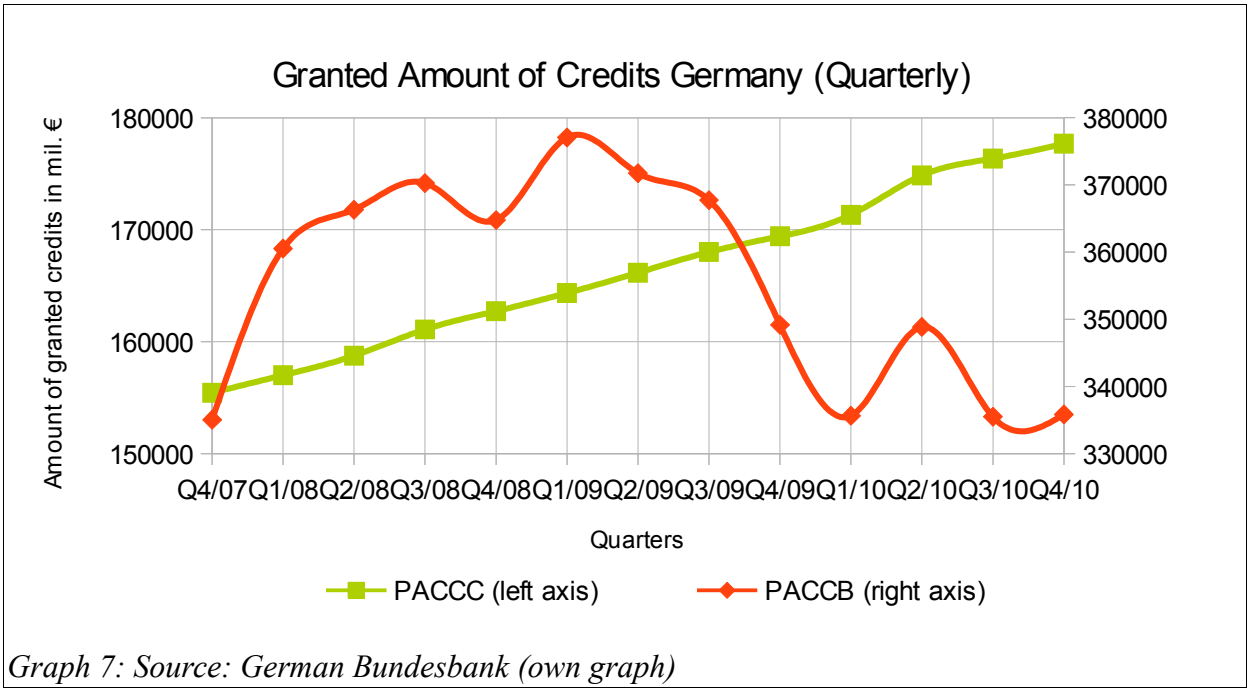
modified B, an increase of the independent variable shows a larger incline of LBs than of SMEs (more fluctuant). B (for Com_{LB}) must be at least 2,452 E^{-9} instead of 8,399 E^{-9} (cf. Table 7) for a equal proportion. In this case B is larger than B-modified which means that Com_{LB} is more fluctuant than Com_{SME}. The same applies for the the regression with the independent variable PAC. With a proportion of 209 instead of the actual 61, B needs to be 5,488 E^{-9} and not 1,103 E^{-8}. As a results for SH-1 can be accepted. Proportionately the increase and decrease of SMEs was less intense (less fluctuant) than in the case of LBs.

The second sub-hypothesis presumed that "*SMEs act more constantly than LBs in terms of quantitative employment and investments."* Right at the beginning, one can assert that the regression for $Inv_{SME/LB}$ is insignificant. It will be skipped. For this reason the first observations concentrate on employment. Like every identified correlation, this one is positive, too. With regard to GDP as independent variable, the regression model illustrates a stronger change in EmplLB (3,513 E^{-6}) than in $Empl_{SME}$ (2,463 E^{-6}). The LB-factor is 1,4 times larger than the one of SMEs. If the modified coefficient is included the difference even increases. An equal effect of the incline of one unit GDP would affect both variables proportionately if B_{LB} has been 2,035 E^{-6}. One conclude, in economic tense situations the labor market of SMEs is more stable than it is for LBs. As a consequence, the GDP development influences employment in LBs more than it does to SMEs. Testing the same for PAC and Employment the situation changes. On a first view the B coefficient $Empl_{LB}$ is far smaller than $Empl_{SME}$. With 4,599 E^{-6} it is more than 40% smaller ($Empl_{SME}$: 7,622 E^{-6}). The provision has a stronger correlation between PAC_{CC} and SMEs than between PAC_{CB} and LBs. Accordingly, the latter ones are more stable concerning tense situations. On a second view, the PAC for SMEs is far more important than the one for LBs and affects SMEs more. As the absolute PAC constantly increased from 2007 to 2010, this supports the thesis that RB ensures a stable development of SMEs in terms of employment. Taking both into account there is a higher dependency of SMEs on PAC_{CC} but the solid development of CCs and their PAC allowed a stable economic performance of SMEs.

By looking at the development of investments there is no correlation either between GDP and Investment nor PAC and Investment. Conclusions on the impact of PAC cannot be made. With regard to the amount of investments made by SMEs and LBs the development of Inv_{SME} is more stable than that of LBs. SMEs nearly compensated the loss in investments (2007: 147 bil. €; 2010: 143 bil. €), whereas LBs display a net total of -19 bil € for the period from 2007 to 2010. In 2008 and 2009 the investments of LBs declined. This is an indicator for the SMEs´ stability during the crisis although it cannot be explained by PAC_{CC} in this case.

Independent variable	Dependent variable	R	R-square	Statistical significance (P)	Unstandardized coefficient B	Modified unstandardized coefficient B****
GDP	Com_{SME}	.943	.889	.000***	5,124 E^{-7}	---
GDP	Com_{LB}	.995	.989	.000***	**8,399 E^{-9}**	2,452 E^{-9}
GDP	$Empl_{SME}$	.926	.858	.001***	2,463 E^{-6}	---
GDP	$Empl_{LB}$	.986	.972	.000***	**3,513 E^{-6}**	2,035 E^{-6}
GDP	Inv_{SME}	.862	.743	.006**	.080	---
GDP	Inv_{LB}	.510	.260	.196	.040	---
PAC_{CC}	Com_{SME}	.693	.480	.057*	1,147 E^{-6}	---
PAC_{CB}	Com_{LB}	.727	.529	.041**	**1,103 E^{-8}**	5,488 E^{-9}
PAC_{CC}	$Empl_{SME}$	.940	.884	.001***	**7,622 E^{-6}**	---
PAC_{CB}	$Empl_{LB}$	.719	.516	.045**	4,599 E^{-6}	6,234 E^{-6}
PAC_{CC}	Inv_{SME}	.514	.264	.192	.146	---
PAC_{CB}	Inv_{LB}	.067	.004	.875	.010	---

Table 7: Linear Regression Analysis including modified B(yearly data, own calculations)
** weakly statistically significant; ** statistically significant; *** highly statistically significant; **** B values of LB-dependent variables for a weighted proportion between SME- and LB-coefficient B*

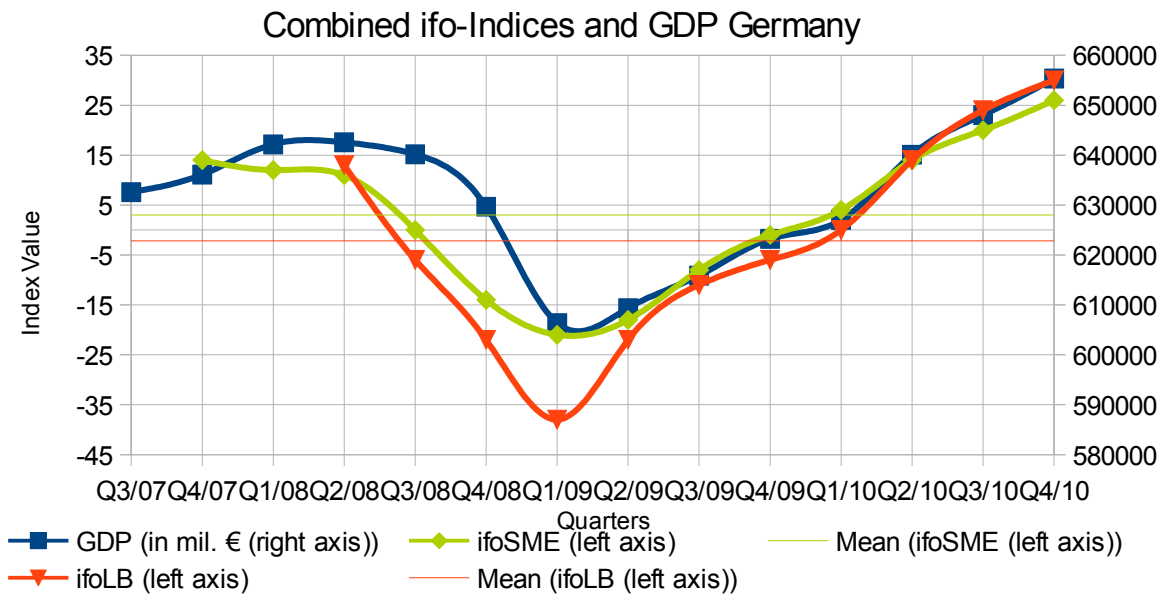


Graph 7: Source: German Bundesbank (own graph)

A fortiori important is the PAC for SH-3. The work looks at the absolute PAC. The SH focuses on the stability of the adequate financial supply of firms: "*The provision of credit to SMEs indicates a smaller decline in comparison to LBs.*" Graph 7 proves the constant incline of credits of CCs. From

2007 on the growth did not stop. The increase counts about 14% (150 bil € in Q4/07; 177 bil. € in Q4/10). The development of CCs credits to companies is not just stable, it shows respectable growth rates. There is no visible decline as it was expected. The important financial supply of SMEs continued disregarding the economic situation. Intensive relationships between CCs and SMEs ensured a stable, even a growing credit market in their field. The long-term orientation of RB and its short-term impacts did not concentrated on the current crisis but on the existing partners and their needs. This acting saved the continuation of production and consumption and prevented a credit crunch. On the other hand the total PAC_{CB} did decline from Q1/09 on. At the end of 2010 CBs granted 40 bil. € less than they did in Q1/09. Transaction Banking, focusing on short-term targets, was strongly affected by the crisis. Enterprises net sales and profit decreased which adulterated their economic position. As a consequence, CBs required more securities and tightened credit terms. During economic tense situations this leads to a lower amount of provided credits caused by TB. A decline in PAC can be seen after Q1/09 for CBs but CCs continued to grant credits as before. SH-3 needs to be neglected in so far as the PAC_{CC} increased and did not decline. Therefore, the result for the stability of SMEs during the crisis supported by CCs (RB) values even higher.

"*The qualitative measures on firm´s business situation, their future expectations and business climate (indices) for SMEs show higher values than those of LBs."* Right at the beginning SH-4 can be answered in the affirmative. Graph 8 illustrates this clearly. But what does it mean? First of all it is a powerful confirmation of the stability of SMEs. Although the three main graphs display a similar development, it is obvious that the fluctuation of ifoSME is far smaller than it is the case for ifoLB. With an unstandardized coefficient B of $8{,}998E^{-10}$ for SMEs and $1{,}173E^{-9}$ for LBs there is statistical prove. LBs are about 2 times more affected by economic changes (measured in GDP) than SMEs. Second, the "Mean"-values (cf. Graph) indicate a positive net total for SMEs and a negative net total for LBs. Over all, the position of SMEs was positive during the crisis. There is no doubt that SMEs notice the aftermath of tense situations but a solid financial foundation provides a higher degree of tolerance. Especially if it is about a company´s survival, employment or investments. This are factors that can be influenced by the firm itself. Demand and prizes are more autonomous. Again SMEs succeed over LBs and confirm SH-4.



Graph 8: Source: Destatis; KfW

The discussions of SH-1 to SH-4 provided detailed information. In a matter of fact the answer to H is clear. "*The economic development of SMEs during the period from 2007 to 2010 was more stable than the one of LBs."* After the analysis, in case of Germany this can be answered with yes. The data and regression models presented a panic-proved "*Mittelstand*". All indicators showed better results for SMEs than for LBs. SMEs showed less fluctuation in change in numbers of firms and employment. Their investments were more stable as well as their ifo-values. During the monitored period the mean-value was positive which indicates that most SMEs returned safe from the crisis.

3.3.2 Discussion: Austria

Focusing on Austria, the situation is different. In this regard Table 8 helps to get a better understanding of the development. Including the data of Table 4 in the discussion, SH-1 and SH-2 can be answered. *"The quantitative development of SMEs (number of companies) was less fluctuant than that of LBs"* was the assumed hypothesis (SH-1). The analysis´ results tell something different. The unstandardized coefficient B of Com_{SME} is in both cases (independent variable GDP and PAC) larger than the one for Com_{LB}. It exceeds the Com_{LB}-value 300-1200 times. Including the proportion between Com_{SME} and Com_{LB}, the value of a neutral B is 2,272 E^{-9} (GDP) or 2,000 E^{-9} (PAC). Even with this changes the B-value of Com_{LB} is still lower. Moreover, there was detected a correlation between PAC_{CB} and Com_{LB}. Corresponding the presented data, there do not exist no measurable relation. For Austria it can be concluded that the existence and survival of LBs do not primarily depend on PAC. Austrian LBs seem to have other concepts of financing.

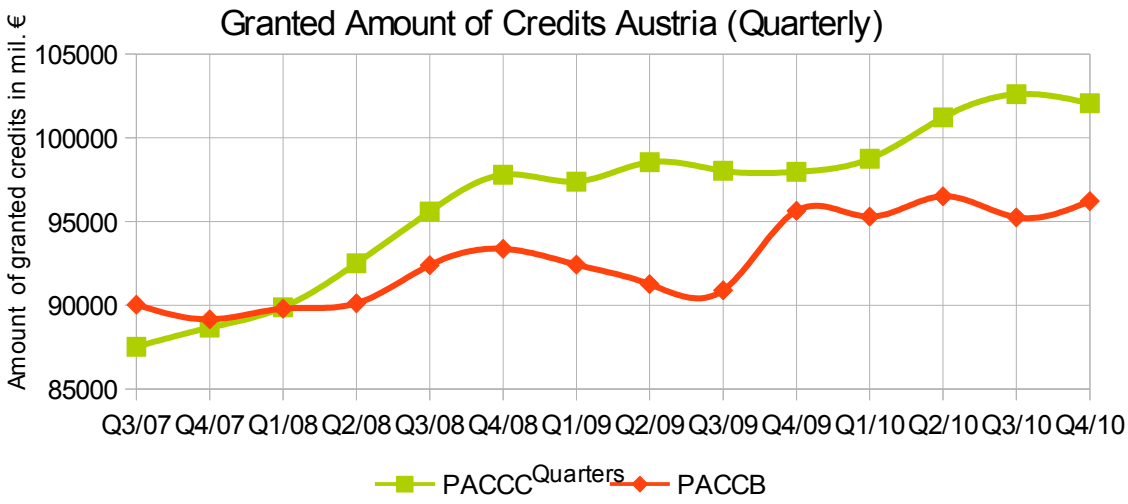
Nevertheless, the GDP-model indicates higher correlation between change in GDP and change in numbers of SMEs than Com_{LB}. For Austria obtains: SMEs were more affected by a GDP decline during the crisis as well as by an increase of GDP before and afterward. Furthermore, PAC correlates more with Com_{LB}. Comparing the findings with the absolute numbers of firms of both groups, there is a decline of about 3200 SMEs in 2009 whereas the number of SME from 2007 to 2010 increased by more than 14.000. In comparison, there was a two years decline of LBs (2009 & 2010). Additionally, the quantity of LBs declined by 2 between 2007 and 2010. Even if it is a small decrease it faces an increase of more than 14.000 SMEs. By putting both results into account, SMEs prove a general higher dependence on economic development but also that the negative consequences of the crisis were nonserious. Nonetheless, the sub-hypotheses cannot be confirmed. In the case of SMEs, the fluctuation is higher.

The results of the Empl-regressions are similar. All Inv-regressions are not significant. Thus, SH-2 is questionable, too. It asks for the constancy of SMEs with regard to employment and investments: *"SMEs act more constantly than LBs in terms of quantitative employment and investments."* Comparing the employment B-value of LBs and the neutral B-value, the latter ones is larger. Accordingly, the correlation between GDP and the development of employment in Austrian SMEs is stronger than the of LBs (cf. Table 8). Again, a growth in GDP increases the number of employees in LBs less strong than it does to SMEs´ employees. With regard to PAC, LBs are higher correlated to employment than SMEs. While the neutral B is 4.000 E^{-9}, $B_{PACCBLB}$ values 2,440 E^{-8}. When comparing the findings of the regression models to the absolute numbers of $Empl_{SME/LB}$ one can identify a similar development than before ($Com_{SME/LB}$). While there was a decline of EmplSME in 2009 (-16.000) and an increase of employment one year later (+21.000), LBs reduced their workforce during the same period by 43.000 people (cf. Table 4). The PAC plays an important role with regard to employment in SMEs. The highly significant correlation proves that. Theoretically each unit PAC helps to create 2,967 E^{-6} (SME) and 2,440 E^{-8} (LB) jobs. It is obvious that there are limits but credits are a necessary variable to ensure employment in the economy. The answer to SH-2 is divided. On the one hand deviations in GDP correlate higher with $Empl_{SME}$ than with $Empl_{LB}$ which is opposed to SH-2 as well as the higher correlation between PAC_{CB} and LBs. On the other hand the development of employment in general supports SH-2 in so far that the fluctuation in employment was smaller when looking at SMEs instead at LBs.

Independent variable	Dependent variable	R	R-square	Statistical significance (P)	Unstandardized coefficient B	Modified unstandardized coefficient B
GDP	Com_{SME}	.983	.966	.000***	**6,284 E^{-7}**	---
GDP	Com_{LB}	.922	.851	.001**	2,105 E^{-9}	2,272 E^{-9}
GDP	$Empl_{SME}$	.976	.952	.000***	**3,323 E^{-6}**	---
GDP	$Empl_{LB}$	.899	.809	.002**	1,325 E^{-6}	1,686 E^{-6}
GDP	Inv_{SME}	.320	.102	.440	.026	---
GDP	Inv_{LB}	.595	.354	.120	.032	0,017
PAC_{CC}	Com_{SME}	.980	.961	.000***	1,098 E^{-6}	---
PAC_{CB}	Com_{LB}	1.000	1.000	.000***	**2,440 E^{-8}**	4,000 E^{-9}
PAC_{CC}	$Empl_{SME}$	.991	.981	.000***	5,911 E^{-6}	---
PAC_{CB}	$Empl_{LB}$	.654	.428	.079*	**5,961 E^{-6}**	3,039 E^{-6}
PAC_{CC}	Inv_{SME}	.169	.029	.688	.024	---
PAC_{CB}	Inv_{LB}	.166	.027	.695	.056	0,007

Table 8: Linear Regression Analysis Austria including modified B (yearly data, own calculations)
* weakly statistically significant; ** statistically significant; *** highly statistically significant

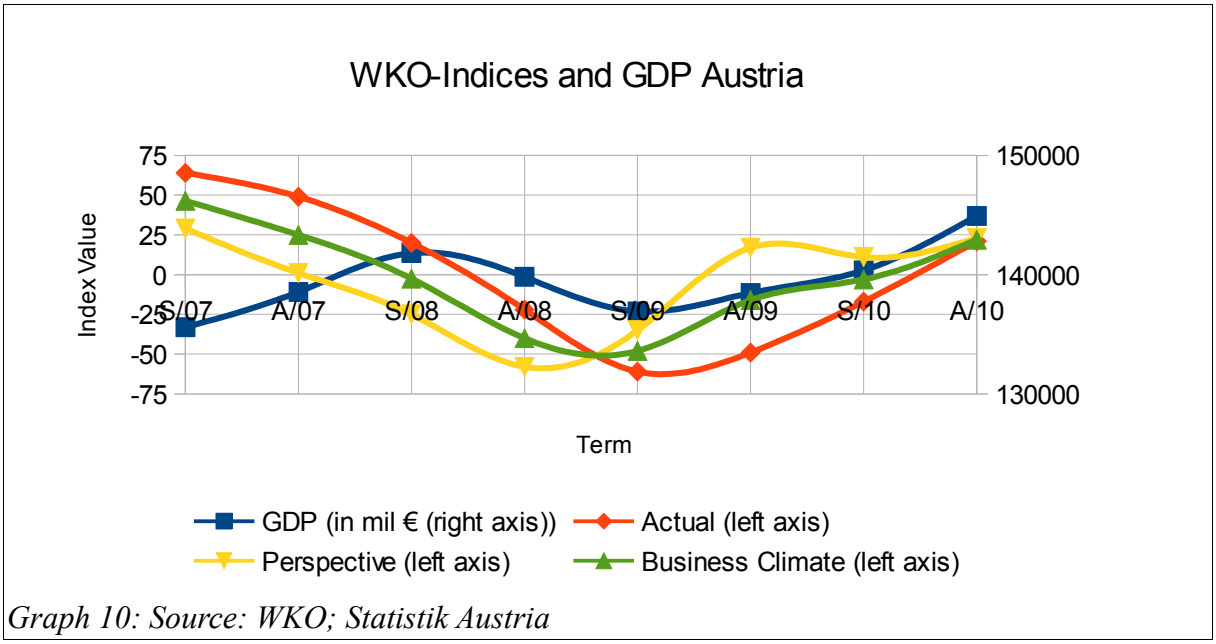
It will be evaluated next if *"the provision of credit to SMEs indicates a smaller decline in comparison to LBs"*. First, there was not any nameable decline – especially not during the most important phase (Q1/09 to Q3/09). When most indicators decreased, there was a solid development without neither an incline nor a decline with regard to CCs. The credit supply did not crash. On the other hand the PAC of CBs decreased from Q1/09 to Q3/09 by about 3 bil. €. In Q4/09 it jumped up, just to normalize afterward (cf. Graph 9). As a consequence the PAC of CCs was more stable than the one of CBs. RB would have presumed so. Even the total increase during that period was higher for CCs (15 bil. €) than for CBs (5 bil. €). Moreover, these findings provide additional conclusions for SH-1 and SH-2. By assuming a stronger correlations between GDP and Com_{SME}/$Empl_{SME}$ than between those for LBs with simultaneous lower correlations PAC_{CC} and Com_{SME}/$Empl_{SME}$ than between those for LBs, the impacts might balance themselves. On the one hand a decrease in GDP affects SMEs more than LBs but less with regard to PAC. CCs performed better than CBs concerning PAC. The higher amount of granted credits by CCs might substitute the effects of a declining GDP for SMEs. As a result, SH-3 can be confirmed. There was no nameable decline but an increase over the whole period. Looking back at SH-1 and SH-2 the discussion of this paragraph showed that there is a balanced proportion between the impacts of the different variables on SMEs and LBs.



Graph 9: Source: Austrian National Bank (own graph)

By looking at the results for the qualitative measurements, there is no correlation. It was presumed that "*the qualitative measures on firm´s business situation, their future expectations and business climate (indices) for SMEs show higher values than those of LBs.*" The present analysis could not identify any relation. The available data set resulted in insignificant models. In addition, the missing division of indices for SMEs and LBs would have made a comparative analysis difficult. According to Graph 10 the WKO-indices do not fit to the Austrian GDP development. This might have various reasons. First, there could be a time shift between WKO-indices and GDP. In this case the indices show economic development (measured by GDP) in advance. This might explain the decrease between 2007 and 2008. While the decreasing values were still positive the GDP grew slower until it declined at the end of 2008. Another reasons might be a insufficient composition of the WKO-questionnaire. If the questions were improper to measure the required indicators, there could not be found any correlation with regard to the economic development. In a matter of fact, the gained results cannot provide an acceptable answer of SH-4.

After the detailed discussion of SH-1 to SH-4 the main hypothesis needs to be answered. Summing up the findings of the former paragraphs the picture looks diverse. While the last SH was not able to provide any information, SH-1 to SH-3 found out different things. SH-1 opposes H. Although the number of SMEs grew during the crisis, the dependence (fluctuation) on economic development (GDP) was higher than it was the case for LBs. Simultaneously the correlation between PAC and SMEs was smaller. The findings for SH-2 are similar but less in favor of opposing H. The correlations indicate analogical values while the general development in employment supports SH-2 and H. The third SH relativizes the former ones. The provision of credits by the two different groups of banks affirms the validity of the hypothesis. As a result there is no clear answer – "*The economic development of SMEs during the period from 2007 to 2010 was more stable than the one of LBs*" – neither yes nor no. The situation of Austria seems to be special and hardly explainable with the present data.



Graph 10: Source: WKO; Statistik Austria

3.4 Comparison: Germany and Austria

By putting the conclusions of both countries into account there is a huge difference. According to Germany, the assumed higher stability of SMEs during the period from 2007 to 2010 could be confirmed in most parts. On the other hand, the findings of the Austrian case refused a distinct answer. Although the tradition of the German and Austrian CCs is close and SMEs are well integrated in both economic systems, the results differ.

In Germany CCs do not play such an important role within the banking sector as they did in Austria. With regard to the research question and the results they seem to do so. In both cases the general performance of CCs during the crisis was good. There was no so-called credit crunch but the granting of credits continued. Nevertheless, the connection between stability on

the one hand and CCs and SMEs on the other hand could only be identified in Germany. With respect to RB/TB and CC/CB the German case supported the presumption that PAC during crisis is more stable by CCs (RB) than by CBs (TB). Graphs 7 and 9 illustrate this. For the Austrian banking sector the presumption do not seem to apply.

All in all one can find two countries with common traditions and similar structures within the addressed sectors. The initial points were not equal but very analog. Nonetheless, the results and gained conclusions displayed huge differences. The German case is in favor of the hypothesis while the Austrian one negates it.

4. Perspective

As a consequence, one cannot be totally satisfied with the outcome. There are many possibilities for further investigations. This work shall serve as an initial point for more research on the relationship between CCs and SMEs. When talking about a decreasing middle class it is essential to provide reliable information on possibilities for a better performance of SMEs in financing, economic ability to compete and general stability. This might prepare SMEs for coming crises. In this context the work will provide some ideas for further research.

First, there are many other indicators that need to be analyzed toward their correlation to CCs (RB). One can think of innovative capacity or the provision of apprenticeship training positions. Moreover, the expansion of firms might be an interesting aspect. How important is the role of CCs for SMEs in such business areas?

Second, not only CCs obligated themselves to support SMEs. For instance in Germany there are local and regional '*Saving Banks*' that follow this maxim. Their role for the SME-development might be as important as the CCs are. One could analyze their position in the same way as one did for CCs.

A third possibility are case studies. Intensive and qualitative surveys on the relationship between either CCs and SMEs or saving banks and SMEs could provide more detailed information than quantitative studies do. The SME-development is an European topic, therefore investigations in more countries are necessary. Even this work about to similar countries with their commonalities displayed different results. Concluding, one has to say that it is an important topic for the social and economic development of Europe. Ideas are given and more research needs to be done.

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Statement of Authorship

I hereby certify that this Bachelor Thesis has been composed by myself and describes my own work, unless otherwise acknowledged in the text. All references and verbatim extracts have been quoted and all sources of information have been specifically acknowledged. It has not been accepted in any previous application for a degree.

Münster, October 8th, 2014

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