UNIVERSIDADE FEDERAL DO RIO DE JANEIRO
INSTITUTO DE ECONOMIA
TRABALHO DE CONCLUSÃO DE CURSO
MBA EM FINANÇAS E GESTÃO DE RISCO

The impact of the financial crisis in Brazil and Germany:

A comparative analysis of distinct developments

Daniel Hoffmann

Matrícula nº.: 110234953

ORIENTADOR: Prof. Manuel Alcino Ribeiro da Fonseca

SETEMBRO 2011

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1. Introduction

Two years after the outbreak of the financial crisis of 2008/09, it still affects the lives of millions of people on all continents. Its impact is measureable across the whole world, through unemployment and inferior working conditions. It is comparable in dimension only with the Great Depression of 1929. Many industrial countries have been pushed to their limits to save the financial system. Why has this decline affected nearly all developed and developing countries and especially those with commodity-led economies? Most countries have not been directly involved in the international speculation that led to the crisis; nevertheless, its impact was significant. The opaque networks of the financial markets led the world into the worst economic crisis in decades. New logic is needed to understand this connectivity.

This dissertation presents the history and causes of the financial crisis and tries to throw some light on the factors that drove the world into the crisis. Further, the main channels of finance and trade are described, which explain how the decline spread trough out the world. In the text, the examples of Brazil, as an example of a BRIC state, and Germany, as a developed country, are used and the different impacts of the crisis are shown. The effect is analyzed through the financial and trade channels; and although both countries have eventually experienced strong economic rebounds, the contrast between Brazil and Germany is enormous. In the second chapter, the fundaments of the crisis are presented, followed by an analysis of the global connections that marked the crisis (chapter 3). Then, in chapter 4, a comparison between Brazil and Germany is presented, followed by some concluding remarks (chapter 5).

2. The financial crisis

In September 2008, a deep impact from New York froze the financial world and affected many parts of world society: companies went bankrupt, unemployment rose, and people experienced fear of losing their livelihoods. The failure of Lehmann Brothers—which, most likely, could have been saved by the American central bank—, was the beginning of the most dramatic period of the world financial crisis. Lehman was the fifth-largest investment bank with 26,000 employees (Fernando, May and Megginson, 2009), and its failure became the biggest corporate breakdown in the American history. This was not the first financial crisis in recent years but it became the worst since the depression of the 1930s (Bibby, 2008).

The collapse of Lehman Brothers was a long process, the beginning of which can be seen in the subprime crisis, in which many financial institutes, including Lehman, began to tumble, and which was finally the cause for the failure of the investment bank. The subprime crisis was a result of the collapse of mortgage-backed securities. The financial institutions themselves were responsible for the constructional defects. “To the surprise of many, the poisonous securities turned out to constitute a major portion of their ultimate asset base.” (Blackburn, 2008)

2.1. What were the causes of the financial crisis?

The origin of the financial crisis and its circumstances are hardly explainable. The examination of the development of the home loans market only indicates the starting point of the subprime crisis, which in turn jump-started the financial crisis. Over a number of years, the market for loans and the subprime market took on an important role in the social security of American families as a building block of the “American Dream.” An important element of home loan financing is the availability of a fixed loan rate for real estate buyers with a low income. Their opportunities for capital formation are limited and, therefore, the government supported them in various ways. (Baily, Litan and Johnson, 2008)

The market for home loans in the United States developed many variations and underwent changes after the Second World War, with the notably striking innovation in the 1980s being the practice of refinancing the loans through mortgage-backed securities. This is a pool of covered mortgage loans with securities. It is a specific variant of asset-backed securities (ABS). This form of financing and risk transfer enables the banks to pass the loan risk(s) on to other organizations on the capital markets. After the transmission, the lending bank eliminates the risk on their balance sheet. The loan risk can later on be spread worldwide to many risk carriers. In particular, institutional investors like pension funds and insurance companies had these investments in their portfolios in the form of structured bonds, but also foreign investors and, to a degree, even the initiating bank were potential holders of the risks—only now in the form of security paper. The spread and size of these transactions were not properly documented so that there was no exact understanding of the worldwide spread. The market for mortgage-backed securities in the United States had grown steadily since the 1980s in size and liquidity and in recent years became greater than the market for government bonds and third-party ABS, making it the largest segment of the U.S. bond market. (Surti, 2010)

In the critical trends and excesses that occurred in the American market for residential real estate, especially after the collapse of the most recent economy bubble in 2002, the specific rules must be considered problematic in various aspects. The preference for the coastal regions was one point that led to the high price increases. Furthermore, the high market liquidity in terms of low interest rates is one of the main critical factors. The low interest rates were implemented or supported after the collapse of the new economy by the American central bank, the Federal Reserve Bank. These circumstances ultimately resulted in a strong property price bubble (Erler and Križanac 2009).

This fact, according to the Taylor rule, was also a main cause of the crisis because after 2002 the U.S. government no longer followed the norm. The rule defines nominal interest rates in reaction to the movement of inflation: "When inflation rises more than one percentage point, the central bank should raise the nominal interest rates more than one percentage point." The Federal Reserve Bank followed this rule for the 20 previous years and it worked well—like a kind of policy during the historical experience of the great moderation that began in the early 1980s. The rate was too low, so the policy of the government was too easy. This was historically the same mistake made in the 1970s, when the economy also got into trouble. The credit excess finally caused the housing boom and the respective bust. The low rate that the policy decision makers chose was likely caused by fear of falling victim to deflation, as happened in Japan in the early 1990s (Taylor, 2008).

After the turn of the century, home loan financing took place in many cases with so-called jumbo loans. The otherwise usual requirement for an equity share of at least 20% of the value of the residential property was softened or dropped entirely. Finally, home loan credits were also available for people with a low income or even people without regular income and questionable reliability. The loans made by these borrowers, many of whom had other debts and payment obligations, were designated as subprime mortgages, the value of which was ultimately based on the anticipated price increases of residential real estate. Subprime mortgage is a collective term for loans for residential properties to borrowers with low reliability, high financial obligations, and/or mortgage loans (Rudolph, 2009).

House prices had risen in a stable manner, and therefore it seemed the appreciation of real estate was predictable, so neither jumbo nor subprime loans were considered particularly risky. From 2002 to 2005 the proportion of floating-rate mortgage loans rose from about 15% to 40% market share. Between 1999 and 2006, the short-term interest rate was lower than the long-term interest rate, so the borrowers mostly preferred variable interest rates (Aresti and Karakitsos, 2009)

It is typical in the financing of residential markets in the United States to share the credit-exposure-related failure risks across financial markets through bond issues. These bond issues are aimed at institutional investors. The establishment of a secondary market for credit risk was possible through the government-sponsored enterprises Fannie Mae and Freddie Mac. In addition to these quasi-governmental agencies, investment banks and mortgage bankers bought mortgage bundles, transferred them into special purpose vehicles, and then issued the debt securities (Rudolph, 2009).

2.2. From the subprime crisis to the international financial crisis

In the middle of 2006, the slowly rising interest rate first began to disquiet investors. This caused an increased failure rate level in the subprime segment of the housing funding. Additionally, house prices did not rise as they had in the past—in 2007, prices even decreased on average 10–15%. The growing problems arising from the development of the American market were well perceived, but not the real danger threatening the financial world and its actors. The first incident that clearly signaled the beginning of the crisis was the petition from the New Century Financial Corporation, the second-largest awarder of subprime mortgages in the United States, for protection from creditors under Chapter 11 of the American bankruptcy act (Antonopoulos, 2009).

The market became nervous and its participants focused their attention on banks that might be or already had been threatened by losses in the subprime segment. At the end of July

2007, the liquidity situation and solvency of many market participants were already uncertain, so the European Central Bank, like other central banks, began to provide a large quantity of liquidity to the interbank markets. On August 17, 2007, the Federal Reserve Bank announced a reduction of the discount rate and the preparations for the offer of new funds (Noyer, 2009).

2.3. The liquidity crisis of 2008

The beginning of 2008 was not impressive for the public until, in mid-March, the financial world was informed of, and surprised by, the takeover offer by J.P. Morgan Chase for the investment bank Bear Sterns. Bear Sterns had liquidity problems, and in March 2008 they weren't even able to refinance without recourse to the central bank. The takeover occurred at the end of May with support from the Federal Reserve. The liquidity on the market went down, and in May the Federal Reserve Bank announced further expansion of their liquidity support, a movement that was followed suit by the European Central Bank (ECB) and the Swiss National Bank (Brunnermaier, 2009).

The crisis reached a peak in September 2008, when Fannie Mae and Freddie Mac were taken under state supervision because of their high losses. The bonds of these government-sponsored enterprises invariably had an implied guarantee from the U.S. government (Spiegel, 2009). A particularly spectacular and dramatic development was the refusal of the Federal Reserve on September 15 to offer liquidity support to Lehman Brothers, which resulted in the inevitable collapse of the investment bank. This caused a trade collapse in the global interbank market because the banks no longer trusted each other. Even in the short term they did not lend money to other institutions without specific protection. The validity of the “too big to fail” thesis was confirmed through the dramatic consequences of its violation: The central banks had at times to offer new funding opportunities in the totally broken interbank market (New York Times, 2009). On September 21, the two last big investment banks, Goldman Sachs and Morgan Stanley, placed themselves under the protection of the Federal Reserve System (Financial Times, 2009).

To avoid further contamination of the financial system, on September 18, the American government and the Federal Reserve supported AIG, one of the largest insurance companies. The insurer was also on the market as an important guarantor for credit default swaps, with a credit line of US$85 billion (Federal Reserve, 2009). Finally, the U.S. senate decided on October 3 to offer a rescue package of US$700 billion. This reaction to the crisis was not limited to the U.S financial market. Instead, many governments and central banks started to respond to the crisis with aid packages (Rudolph, 2009).

2.4. Channels

How did countries feel the initial effects of the crisis? What were the channels through which the financial crisis drove the world to a thorough economic crisis? “The current economic and financial crisis was driven by the reversal of the three positive shocks that developing countries suffered during the boom period: exceptional financing, high commodity prices, large flow of remittances.” (Griffith-Jones and Ocampo, 2009) The main channels for the transmission of the crisis were capital flows and the trade channel (Rudolph, 2009).

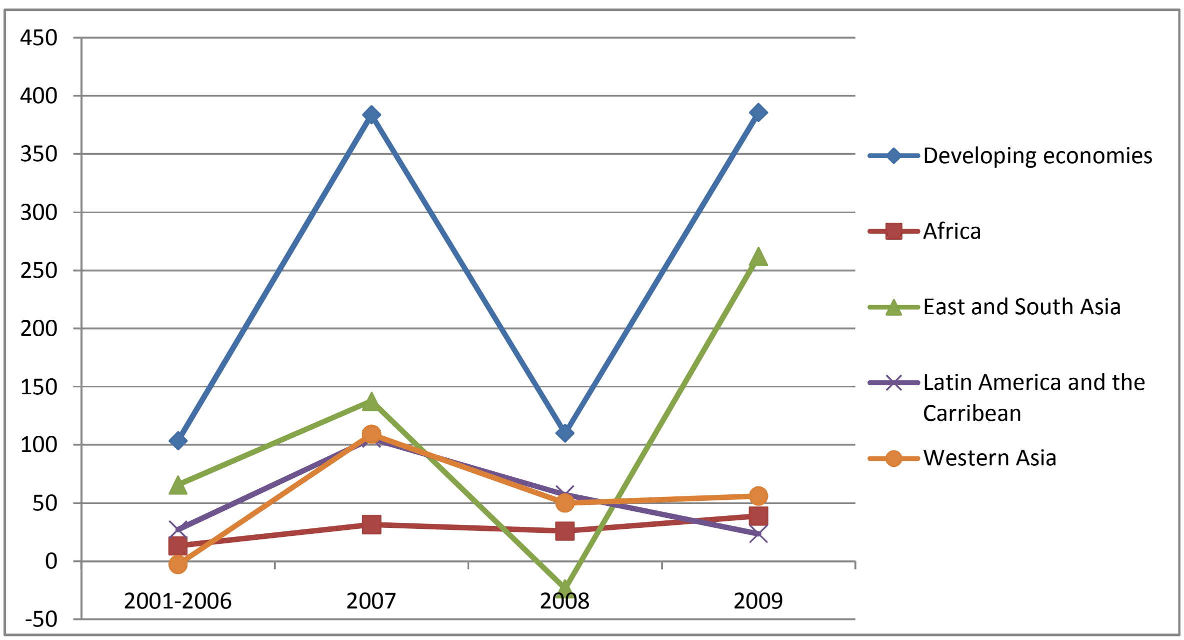
2.4.1 Capital flow

The decrease of capital flows was one major channel that brought the crisis from its initiators (developed countries) to the emerging markets. Varied types of flows can be differentiated: private capital flows, foreign direct investment, portfolio flows, international banks, and non-bank lending. The structure of the developing countries has become, especially over the past two decades, more compatible with the global financial world. Investment became more attractive through the improvement of emerging market economies. The continuous liberalizations of capital accounts, domestic stock markets, and large-scale privatization programs are therefore accountable as pull factors. Additionally, there have been push factors, including the increasing importance of institutional investors (mutual funds, hedge funds, etc.) as well as the spread of depositary receipts and negotiable receipts that represent a company’s publicly traded debt or equity. Because of the listed factors, foreign investors were more and more confident in the opportunities for growth (Cali, Massa and te Velde, 2008).

Large capital flows can increase economic growth rates, but the investments are highly volatile, especially in crises, when a decline is associated with such investments. Private capital flows were a key channel from developed to developing and emerging countries in the financial crisis. However, developing countries learned from former crises and diminished the effects with good policies. Nevertheless, the extreme market reaction got them as well. Many of these countries secured their economies with far higher levels of foreign exchange reserves and lower levels of external debt than in the past. This could help to relieve the effects, but the financial flows have become too important, a source of capital to developing countries. While countries strengthened their securities, the influence of foreign investors also grew, and along with it new sources of vulnerability. The peak of foreign investments was from mid-2006 to mid-2007, when the strong decline began. (Broner, Didier, Erce and Schmukler, 2010).

Monetary flows showed very high volatility at the starting of the crisis—after years of growth, the portfolio flows to developing countries felt sharply from $403 billion to $70.6 billion. While in Africa the diminution was moderate, which is no indication of the humanitarian impact, the reduction of investments in Southeast Asia was huge, with a decline from $137.6 billion to $23.6 billion from 2007 to 2008. The rebound, which was not expected (United Nations, World Bank, World Trade Organization, 2010) is impressive, and has reached nearly double the pre-crisis level at $267 billion. The area of Latin America and the Caribbean is the only region where the financial flows are still less than in 2009. In relation to the financial flow, this area has felt the longest effects of the financial crisis (United Nations, 2011).

Figure 1. Net financial flows to developing countries (billions of dollars)



Source: United Nations, Chapter III, p. 72

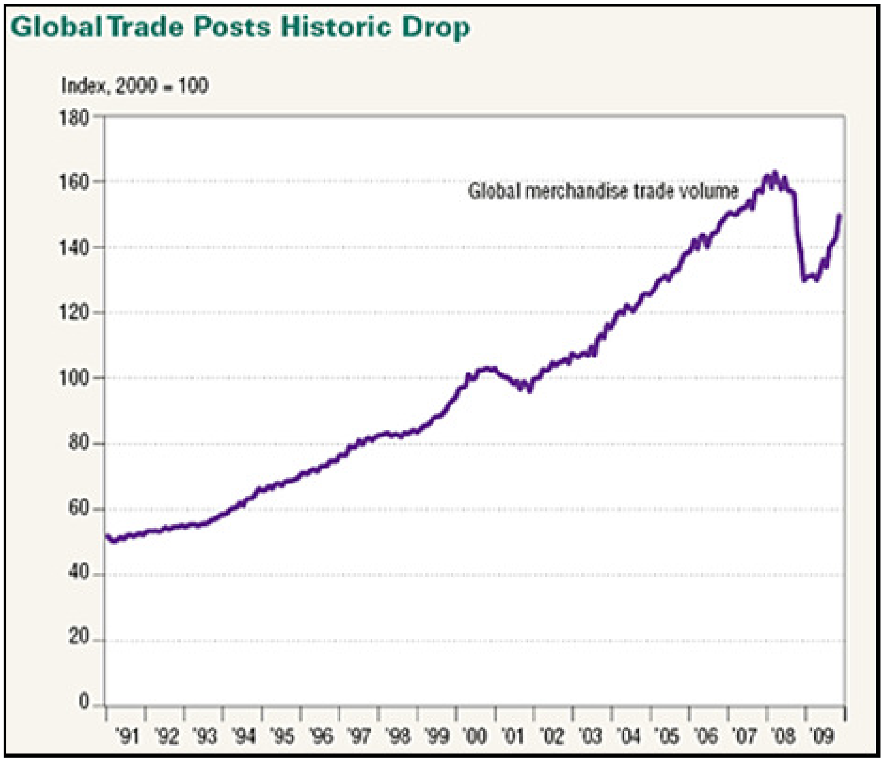
2.4.2 Trade channel

The financial crisis was extremely perceptible in each part of the world through fallen trade values and volumes. It primarily affected the trade volumes of the exporters of manufacturing and services, which consequently affected, mostly through this channel, the whole economies of various countries. Falling prices were also important, especially for exporters of goods (Griffith Jones and Ocampo, 2009). The trade decline began in the third quarter of 2008 and lasted until the second quarter of 2009. It was the deepest drop since the Great Depression of the 1930s. World trade declined steadily, with a precipitous decline of 20% through the early months of 2009. Even China, the most dynamic economy of the years 2007–2010, was hit with negative export-growth, which should be considered in the context of the extreme growth of the previous decade (Wyne, 2009).

China was the main factor in the highest price boom in five years, when minerals, oil, and energy products decreased significantly. The annual growth of worldwide trade averaged 9.3% from 2003–2006, while the growth of world output was only 3.8%. Consequently, the growth rates were much more elastic in comparison to the world output. The volatility of world trade was higher, which implies that it equally tends to multiply downswings (Coulibaly, Sapriza and Zlate 2011).

There is also the influence of trade protection measures, which deepen a trade crisis. The policy-makers seemed to have learned from the Great Depression, when protectionist trade policies aggravated the downturn. For example, the leaders of the Group of Twenty (G20) declared after their meeting in London in April 2009 that they should "not repeat the historic mistakes of protectionism of previous eras." However, the introduced import-restrictions measures covered 1.3% of G20 imports between October 2008 and October 2009. The figure decreased noticeable in the period from September 2009 to February 2010, when the G20 only covered 0.7% of their imports. Nevertheless, the policy took many measures to stimulate the economy, and with its recovery the volume of trade increased rapidly again (Wyne, 2009).

Figure 2. Global trade



Source: CPB Netherlands Bureau for Economic Analysis World Trade Database

The impact of the trade decline was measurable across the world (industrial economies, emerging economies, and developing countries), but the times of impact and rebound differ. The financial turmoil had more influence in middle-income countries, which are more commodity-dependent. The world crisis reached the developed countries first; these countries were also the initiators of the near financial meltdown. Japan was hit particularly hard, but its figures returned to near the pre-crisis level. In contrast, the European countries were not hit as hard, but the rebound, especially in Central and Eastern Europe was not as long and strong as the crash. In Latin America, the export value was hit very late but then fell steeply. In this area, the rebound was almost as fast as the crash, with export values rising nearly to the pre-crisis level. The export winner of the financial crisis, as the figures below show, was Asia, where the percentage change tops the pre-crisis level. China, with its fast-growing exports is responsible for this development (Coulibaly, Sapriza and Zlate 2011).

Table 1. Financial crisis takes widespread toll on world exports

			Peak to trough	**Trough to December 2009**
Advanced economies	April 2008	January 2009	-23.30%	-12.60%
- U.S.	July 2008	April 2009	-24.70%	20.20%
- Euro area	April 2008	February 2009	-23.10%	8.40%
- Japan	January 2008	March 2009	-41.40%	40.30%
Emerging economies	April 2008	January 2009	-21.50%	22.00%
- Asia	July 2008	January 2009	-24.70%	29.50%
- Latin America	January 2008	August 2009	-21.10%	20.90%
- Central and Eastern Europe	January 2008	May 2009	-30.80%	12.90%
- Africa and Middle East	April 2008	April 2009	-12.80%	8.50%

Source: CPB Netherlands Bureau for Economic Policy Analysis World Trade Monitor, December 2009

2.4.3 Remittances

Remittances are financial cross-border transfers from nationals to their home countries. Simplified, it is money sent from migrants to their relatives. The International Monetary Fund (IMF, 2008) defines remittances as: “a percentage of household income from foreign economies arising mainly from the temporary or permanent movement of people to those economies.” These volumes have risen rapidly in recent years. Remittances are often an important source of capital in developing countries. These transmissions also include non-cash transmissions. In recent years the quantity has grown absolutely and also in relation to other sources of external financing (Kapur D. 2003)—however, remittances can still not be considered a major channel of the crisis. Nevertheless, the resilience of remittances can deepen a crisis (Griffith-Jones and Ocampo 2009).

3. Global impacts of the financial crisis

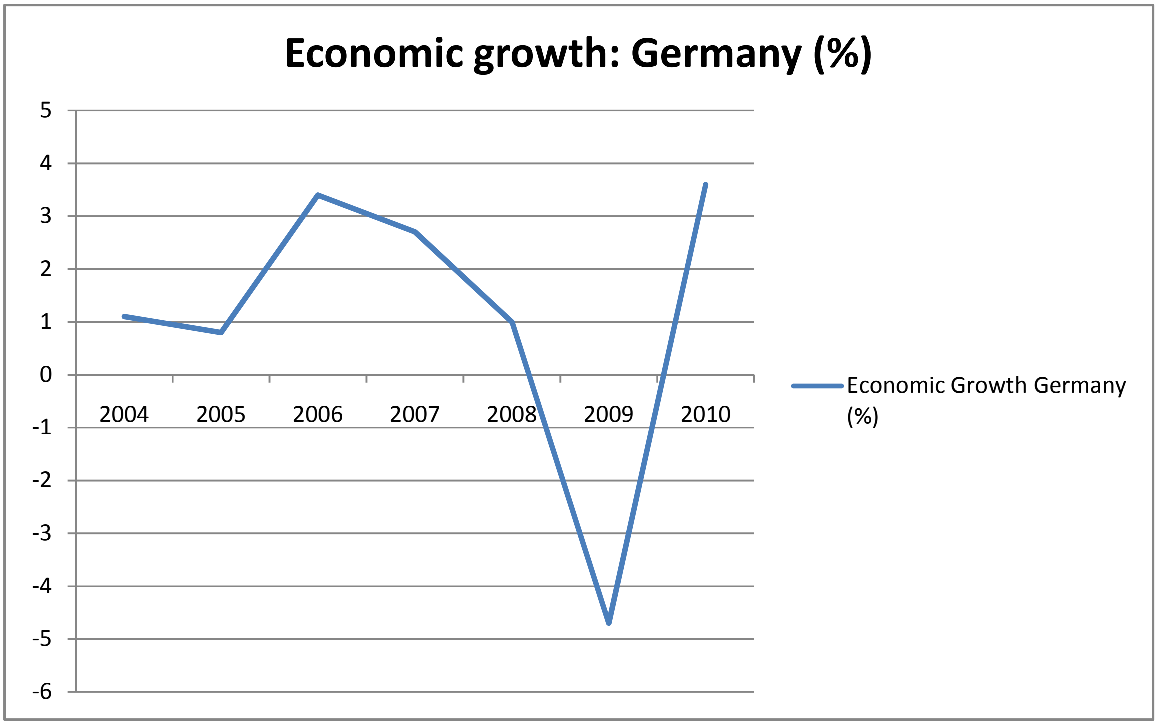
As a result of the crisis in global financial markets, all regions of the world suffered an abrupt and synchronized decline in economic activity during the winter months of 2008/2009. The record fall in world trade and industrial production surpassed even the corresponding data at the beginning of the Great Depression in 1929, although the comparability with the Great Depression is extremely limited due to the entirely different reactions of monetary and fiscal policy. The current crisis is particularly remarkable because of how quickly and in what an accentuated form it contributed to the totality of all economies. In addition, countries with overheated real estate markets, such as Spain and the United Kingdom, with its strong value-added share of financial services, have been drawn in. However, the economies most affected were those with a large manufacturing sector and integration into the international division of labor. For example, Germany and Japan were heavily hit by this downturn compared to other industrialized nations. The gross domestic product fell in these two countries far more than the OECD average in the first two quarters after the insolvency of Lehman Brothers (Meyer, 2010)

It was initially hoped that emerging economies like China, India, Brazil, Russia, and South Africa would remain largely unscathed by the financial crisis and would even help, through their demand for capital goods, to bring the industrial countries out of the crisis. They took little part in the international financial markets and therefore were hardly involved in the trading of structured financial products. However, they also were pulled into the undertow of the worldwide economic downturn.

3.1 Germany in the economic crisis

The economic system in Germany was deeply hit by the financial crisis. In 2008, the annual economic growth rate fell to 1% and in 2009 it even became negative, at -4.7%. The particularly strong impact on Germany in international comparison raises the question of a country-specific character for crisis transmission. Crisis transfer came through a variety of channels, though not all channels contributed equally to the transmission. For example, the development of consumption in Germany has been, despite the severe financial losses, surprisingly stable (Deutsche Bundesbank, 2010). Although the financial wealth of households in Germany decreased €140 billion between the fourth quarter of 2007 and the fourth quarter of 2008, this was mainly a result of the sharp fall in share prices. However, the correlation of consumption effects and economic changes was particularly low in Germany (Byrne and Davis, 2003).

Figure 3. Economic growth: Germany



Source: www.indexmundi.com

3.1.1 Foreign trade channel

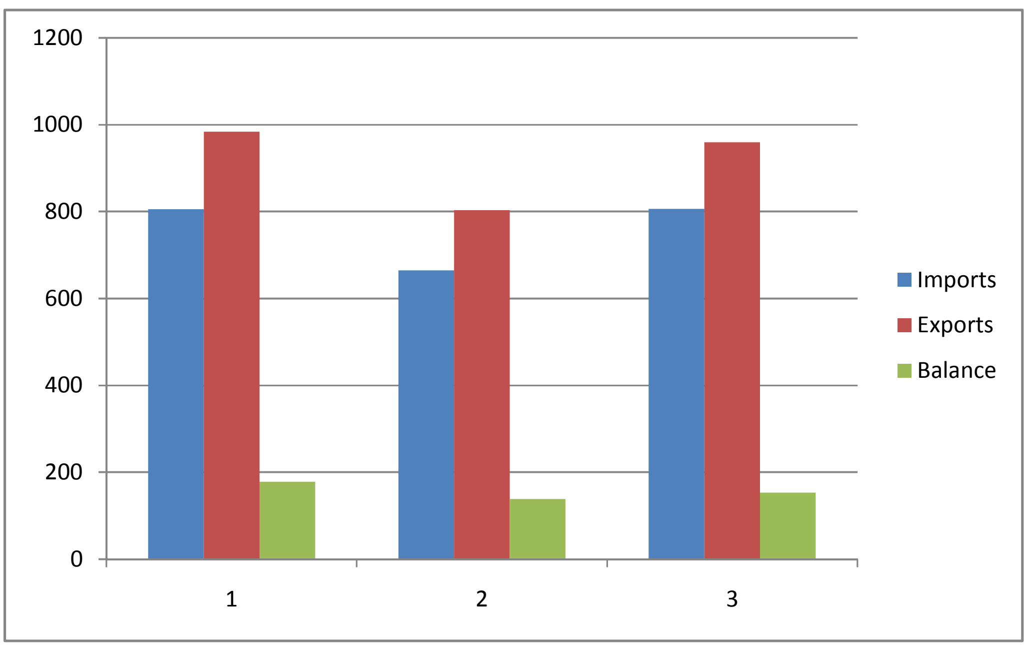
When considering the impact on the German economy through the foreign trade channel, it should be pointed out that the strong percentage decline in the German export figures is not a special case in the world economy. The decline in the second quarter of 2009 was particularly high—however, over the entire crisis period the German experience was not worse than in comparable economies. For example, the percentage of export decline in Japan was much higher than that of Germany in the period of the first term of 2008 and the first term of 2009. Some economies, like Italy, Portugal, and Spain, also had larger declines. This is further confirmed by general comparisons. The decline of German exports was, at 19.1%, only slightly greater than the average for all G7 countries, 18.4%, and of the OECD countries, 16.9%. The German trade balance was always positive despite the slump in exports of goods

(Bofiner, Franz, Schmidt, di Mauro and Wiegard, 2009). The reason for this is the decline in imports analogous to the reduction of exports. This development seems to be surprising because imported intermediate inputs and industrial goods make up a not inconsiderable part of exports. The highly negative development of foreign trade led to one of the largest falls in production in industrial countries. It also contributed significantly to the decline of the gross domestic product (Deutsche Bundesbank, 2009).

Table 2. Trade balance: Germany (in billions of Euros)

	Imports	Exports	Balance
2008	805.8	984.1	178.3
2009	664.6	803.3	138.7
2010	806.2	959.5	153.3

Figure 4. Trade balance: Germany



Source: http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113359.pdf

3.1.1.1 Structure of German foreign trade

The development of the regional structure of German foreign trade diversified steadily, although there is still specialization observed in some regions. In the period from 1991 to 2008, the regional distribution of Germany's imports and exports showed a clear trend toward more regional diversification. Regions such as the countries of the Euro area, which had a significant share of German foreign trade in the early 1990s, lost relative importance, while business with other regions, such as Central and Eastern European countries, grew (Boysen-Hogrefe, Dovern, Gern, van Roye and Scheide 2010).

However, the countries of the EU were, with 40% of the total trade, still the most important trading partner for Germany even though their importance declined after the early 1990s (Bofiner, Franz, Schmidt, di Mauro and Wiegard 2009). Through the significant expansion of German foreign trade, the total volume of trade with the Euro area nevertheless doubled. The proportion of goods traded with North America and Japan has decreased continuously since 2000. In contrast, the trade with Central and Eastern European countries increased in 2008, about 10%. It is noticeable that there was a relatively steady intensification of almost all countries of this region, especially the main trading partners: the Czech Republic, Poland, and Hungary. The increased trade relations with Central and Eastern Europe can be interpreted to mean that Germany also follows the global trend toward stronger vertical integration (bpb, 2010).

Foreign trade with emerging Southeast Asian markets increased strongly in recent yeaers. The driving force behind the increasing goods exchange with Southeast Asia was China. In 2008, its share of total trade with Southeast Asia was more than 50%. Other countries, such as Thailand, have lost relative importance (Bofiner, Franz, Schmidt, di Mauro and Wiegard 2009).

3.1.1.2 Sectors of German trade

The importance of individual sectors of foreign trade changed from 1970 to 2008. Vehicles and products of electrical engineering, mechanical engineering, and chemical industries were indeed always the most important German export products (bpb, 2010). However the importance of individual sectors has changed. The machine sector lost relative importance while the share of vehicle manufacturing rose by four percentage points. The proportion of iron and steel exports increased from the beginning of 1970 to the mid-1990s by about five percent. The manufacturing industry, with 84% of total German exports, is the absolutely dominant industry (Bofiner, Franz, Schmidt, di Mauro and Wiegard 2009).

In addition, German industry has higher volatility than the German gross product, just as the rates of worldwide production fluctuated much more than the global gross domestic product. This is an important indication that the economic stability of Germany is potentially more affected through its manufacturing industry (Boysen-Hogrefe, Dovern, Gern, van Roye and Scheide 2010).

3.1.1.3 Development of foreign trade

A look at the development of foreign trade shows the openness of the global economic integration in Germany. The exports and imports of goods/services in relation to the gross domestic product rose from 52% to nearly 92%. This is an extreme openness, and in the G7 countries, Germany has become the most internationally integrated economy. There is hardly any doubt that Germany is in significant danger of transmission of economic shocks in foreign countries via the trade channel. In addition to the openness of an economy, growth share and volatility are also important indicators for the potential impact of international economies (Bofiner, Franz, Schmidt, di Mauro and Wiegard 2009).

3.1.1.4 Conclusion

The investigation of the trading channel identified two factors that indicate an increased sensitivity to economic transfer to Germany from abroad. In addition to the overall very rapidly growing volume of exports and imports, the structure of volatile export goods is a further factor of higher peril. Additionally, German exports focus more on volatile sectors and product groups. The enhanced regional diversification and the lower domestic value-added share of exports could not compensate for the increased impact. In the last global crisis, the diversification could not offer protection because the slump in demand affected the whole world (Bofiner, Franz, Schmidt, di Mauro and Wiegard 2009).

The percentage-decline of exports, which is a relatively common fact in international comparison, can hardly explain the drop in the gross domestic product. The decisive point is Germany’s openness with its extreme export share in comparison to the gross product. The country is a net supplier on the world market, and therefore particularly affected by its nature of shocks. The nation was for many years the world's biggest exporter and was only passed in recent years by China. The world financial crisis was mainly characterized by a slump in world trade, especially in the automotive industry, capital goods, and chemical products. This explains the extreme impact on Germany (bpb, 2010).

3.1.2 German financial system in trouble

The banking sector in Germany was the first place where the financial crisis came up; other sectors were only affected later. Thus, the stock market primarily broke down in 2008 due to risk aversion, the economic slump, and a pessimistic benchmark in the finance sector. The financial crisis had burdened the German banking system and brought to light its weakness. (Deutsche Bundesbank, 2010)

Although, unlike the United States and Ireland, Germany had not had a property price bubble, most banks ran into difficulties. Public budgets and finally the German taxpayer had to shoulder the necessary stabilization cost of the financial system. The removal of problematic balance sheet items in particular caused a significant increase in the debt ratio of the German economy. However, the German economy nevertheless demonstrated its ability to function in crisis. The small public and cooperative banks that only operate nationally were stabilizing factors. Nevertheless, the crisis demonstrated clearly that the German system had to be strengthened (bpb, 2010).

3.1.2.1 Banking sector in Germany

The German banking sector is one of the largest in the world. The peculiarity in comparison to the American banking system lies in the low proportion of private and investment banks. The banking system in Germany, historically, is divided into three pillars: commercial banks, federal state banks, and cooperative banks (Lukas, 2010).

In addition to the special spreading in the banking market, there was a rough reduction in the number of institutions. From 2000 to 2008 the number of banks decreased 27%. This concentration also affected the average assets per bank, which rose 33%. However, the individual increments and restructurings did not bring the intended rise in profitability. Between 1994 and 2006, the return on equity fell, which was a contrary development in the international banking sector. The cost situation was not favorable, and the spread of the

German credit market was really low. This indicates why the institutions invested in risky foreign certificates (Petrovic and Tutschk, 2009).

This also leads to the reasons why the internationalization in the balance sheets changed rapidly. For example the Deutsche Bank extended their operations outside Western Europe from 25.80% of total business in 2000 to 44.70% in 2007. Surprisingly, the main cause of this trend was not the expected one—that is, further European integration. As a rule, the German banks invested outside Europe particularly in North America (Hardie and Howarth, 2009).

3.1.2.2 German banks in the crisis

The cooperative banks only operate nationally with private customers and were a stable factor for the German financial system during the crisis. In contrast, it was the private and especially the public banks that shocked the system. The group of private banks exist in Germany in the form of major banks and foreign banks. Before the crisis, the five largest German private commercial banks were the Deutsche Bank, Commerzbank, Hypo Vereinsbank, the Postbank, and the Dresdener Bank. This group mainly serves industry and wealthy private clients. They are all incorporated companies that operate internationally as well (Petrovic and Tutschk, 2009).

The financial crisis drove all large private banks into the red, because they had largely invested in risky foreign certificates. In autumn 2007 the institutions had to do the first write-downs. The subprime crisis spread to more and more types of assets. The Deutsche Bank suffered the highest write-down because of its size and internationalization, but the institution could pass through this critical situation without external help. The Commerzbank was most threatened to break down. However, the write-downs were not very significant; the decisive factor was the takeover of the Dresdener Bank (which also had high write-downs) at an unfavorable point in time. This weakened the institution so much that the German rescue fund had to stabilize it. Finally, the German state became a shareholder with 25% ownership (Lukas, 2010).

The federal state banks are part of the public bank system. The big institutions are the Landesbank Baden Würtenberg (LBBW), Bayern LB, Nord LB, HSH Nordbank, Landesbank Berlin (LBB), Helaba, Saar LB, and West LB. These are the largest public institutions with many international investments. The KFW banking group is a special instance of investment loans that fund small/medium companies and infrastructure developments (Schrooten, 2010). The big federal state banks were hit hard by the financial crisis with billions of losses. The Bayern LB, for example, abandoned its international business and cancelled thousands of jobs. The federal state banks had, in general, bigger liquidity problems than the private commercial banks. Their trouble began with the loss of their state guarantees due to EU competition watchdogs. In the past, they generated profits though transformation limits. In several decades it proved to be lucrative to buy long-term loans with high interest to finance short-term credits with a low interest rate. The IKB, for example, refinanced itself with billions of dollars on the U.S. real estate market and covered this with expensive equity capital. Due to the large losses, the IKB could not hold its line of credit. The crisis of the Sachsen LB, for example, was triggered when its depositors withdrew and the bank could not fulfill its obligations on the long-term loans any longer (Bergset, Gebauer and Timme, 2011).

This business promised large profits and the risks did not seem to be high. Finally, they were simply underestimated. The federal state banks were affected similarly to the big international business banks. After 1990 the banks quadrupled their balance sheets but not with their traditional customer and market business. The fourfold increase was a result of trading with structured products (Lukas, 2010). A further special case in the German banking sector is the Hypo Real Estate Bank, where the state took complete control to save the bank from collapse. It was previously a stock corporation that had incurred speculation losses with real estate (Petrovic and Tutschk 2009).

3.1.2.3 Effects on the German economy

Significant direct effects of the crisis resulted in financing conditions for German companies on the capital market. The spreads on corporate bonds increased in the course of 2007 and jumped significantly after the breakdown of Lehman brothers. The increases in premiums were much more severe for non-financial companies with low credit ratings than for companies with high credit ratings. The interest rate for BBB-rated bonds rose from 275 to about 480 basis points, while the impact of AAA bonds only increased from 90 to 150 basis points (European Central Bank, 2009).

The financing conditions also deteriorated markedly on the stock market. The course of the Deutsche Aktien Index (DAX) sank more than 40%. Much harder to identify are the direct effects of the financial crisis on the lending sector. A so-called credit crunch was expected. Because of their losses through the crisis, the German banks made significant write-downs. The development of credits to non-financial German companies did not confirm the fear of a crunch. The availability of credits for non-financial companies was stable in Germany (Bergset, Gebauer and Timme 2011).

3.1.2.4 Conclusion

The German banking system was hit severely, and the financial rescue fund had to support many institutions. The fund was created by government to prevent the bankruptcy of important institutions. The combination of increased trading and internationalization was the cause for the major impact. German banks had major investments in non-transparent international engagements that were done in the nature of banking to raise profitability. The risks of these investments were totally underestimated. This recklessness happened in the whole international banking sector; however, surprisingly, the traditionally conservative German banks had circa 25% of Europe's write-downs. The most severely affected banks were Hypo Real Estate, IKB, and LB Sachsen. The private banks—Deutsche Bank, with its big write-downs, and the Commerzbank, which needed help—had big loses, but the sector recovered itself. Even the Commerzbank has already paid almost all of the support back (Schrooten, 2010).

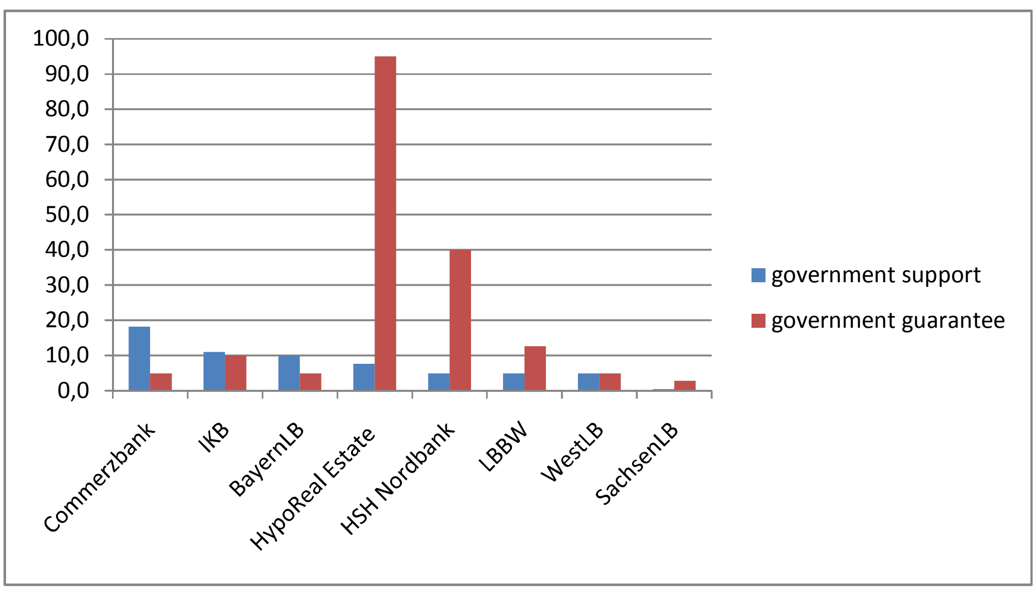
The financial crisis exposed the weakness of the federal state banks and even put their business model into question. All the big federal state banks needed help. Helaba was the only institute that managed the crisis without help from the Soffin. The credit excess was driven by the easy conditions of the federal state banks. Because of the guarantees against bankruptcy, the commercial banks could borrow money on cheaper conditions (Schrooten, 2010). "Additionally significant for the whole banking sector were the weaknesses of Basel II which were identified. The regulation allows limited capital against assets with high credit ratings. That has allowed many banks, particularly in Germany but also elsewhere in Europe, to become highly leveraged despite meeting international capital adequacy rules." (Bergset, Gebauer and Timme 2011). Table 3 provides an overview of the needed Soffin support during the crisis.

Table 3. Soffin support during the crisis (in billions of Euros)

Banks	Government support	Government guarantee
Commerzbank	18.2	5.0
IKB	11.0	10.0
Bayern LB	10.0	5.0
Hypo Real Estate	7.7	95.0
HSH Nordbank	5.0	40.0
LBBW	5.0	12.7
West LB	5.0	5.0
Sachsen LB	0.5	2.8

Source: Soffin Sonderfonds Finanzmarktstabilisierung

Figure 5. Soffin support during the crisis



Source: Soffin Sonderfonds Finanzmarktstabilisierung

3.2 Brazil: One of the global winners of the crisis

Brazil was one of the last big economies to get involved in the financial crisis and was also one of the first who could resolve it. The economy growth in 2010 was already strong and in the beginning of 2011 this trend continued. Nevertheless, the economic crisis did not pass without a deep impact, which had social and economic effects (Steinhilber, 2009). The financial crisis hit in Brazil with a slight delay. After the bankruptcy of Lehman Brothers, there was initially no direct impact on the Brazilian economy. Consumption remained stable, and for 2008 there was still growth of 5.1%. However, there were the first signs of the crisis in June 2008, through declining capital flows and falling commodity prices. Brazil was hit particularly hard by the foreign investors that withdrew their capital. This weakened the currency (exchange-rate devaluation) and the stock market index. Banks and companies suffered from a lack of capital, so that despite the interventions of the government to pump money into the economy, the credit crunch could not be avoided completely (Serrano and Summa 2011).

Brazil was hit especially hard in October 2008 when industrial production suffered heavy losses. This sector was also hit hardest by growing unemployment, which rose temporarily from 6.80% in December 2008 to 9.00% in March 2009 (Pochmann, 2009). As a consequence, the government lowered the equity capital shares for banks and the key money rate. In these areas, the country has a relatively wide margin. Furthermore, the country leaders introduced a program for the acceleration of growth (PAC), which had been extended from 455 billion real up to 1.14 trillion real (Serrano and Summa, 2011). All considered, Brazil still fared relatively well through the crisis, and from March 2009 the economy began to grow. Unemployment had already dropped back to 6.80% by December 2009.

Figure 6. Economic growth: Brazil

Source: Indexmundi.com

3.2.1 Brazilian trade

Although Brazilian foreign trade suffered severely in 2009 because of the global economic crisis, trade figures in 2010 exceeded the record levels of 2008. From 1999 to 2008, exports increased steadily, and since 2003 with double-digit growth figures. Brazilian export growth was even stronger than the high world average, and the economy consequently could increase their share of world trade. The downturn in 2009 was apparently only a temporary setback, as shown by the extreme increase in exports in 2010. However, the share of technology in Brazil's exports decreased steadily. The share of manufactured goods was around 39.40% of total exports in 2010 (2008: 46.80%/ 2001: 56.50%), while the export share of raw materials (iron ore, oil, agricultural goods) increased up to 44.60% (2008: 36.90%/2001: 26.%). The share of exported high-tech goods decreased also steadily until 2010, and had only a share of 7.30% after 8.60% in 2009 (Castilho, 2011).

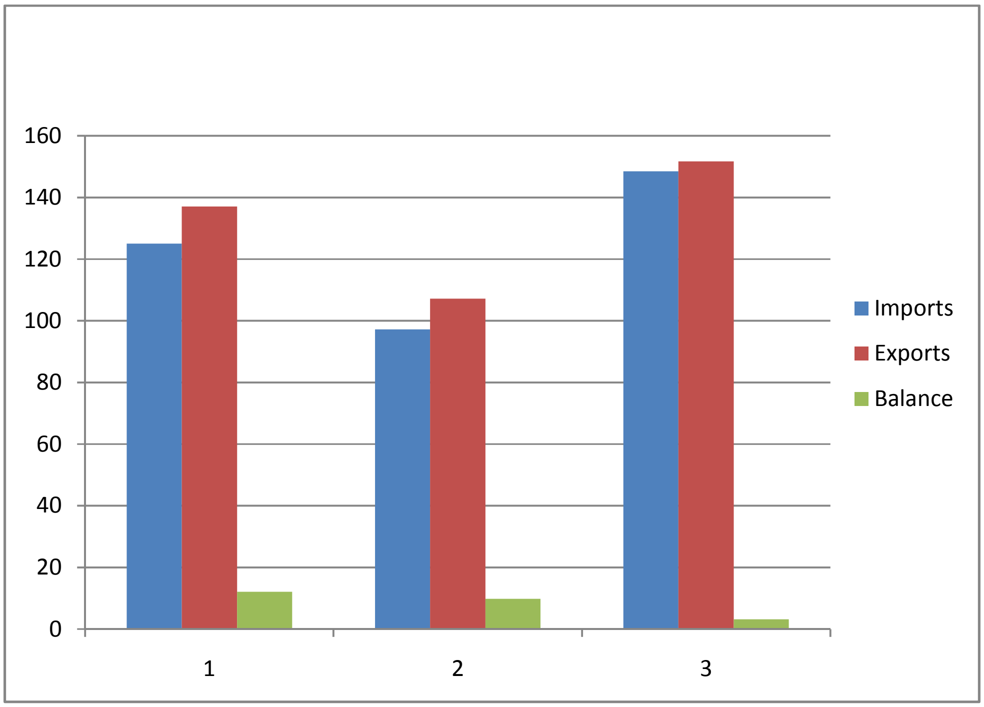
The most important market for Brazilian products since April 2009 has been China, which extended its export share in 2010, followed by the United States and Argentina. The high values of the Netherlands are explained mainly by the port of Rotterdam, which is an important transshipment location, especially for raw materials (Castilho, 2011).

Table 4. Trade balance: Brazil

Billions of euros	Imports	Exports	Balance
2008	125	137.1	12.1
2009	97.2	107.1	9.9
2010	148.5	151.7	3.2

Source: http://trade.ec.europa.eu

Figure 7. Trade balance: Brazil



Source: http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113359.pdf

3.2.1.1 Structure of Brazilian trade

One of the goals of Brazilian foreign policy is the further diversification of trade relations. A major focus is the intensification of trade with other developing countries, particularly with China, Russia, India, South Africa, and the Arab Gulf States. This ambition was strengthened through the financial crisis of 2008/2009, but even before the crisis Brazil was steadily increasing diversification. While the significance of Europe and the United States decreased, trade intensity with the Latin-American states and especially China increased. The eastern country with the highest population became the leading Brazilian export partner, passing the United States. China's share of Brazilian exports increased from 8.13% to 15.00%. China principally imports soya, iron ore, and petroleum (Castilho, 2011).

Brazil's decline due to the economic crisis was late but then very serious. Between October 2008 and February 2009 the decline in exports was 48%, and 54% for imports. This happened after a sharp increase in exports, which was a result of the rising worldwide raw material prices. The crisis put the prices and the quantities under pressure. However, the manufactured goods, for which the Latin American states and the United States are the main customers, were more volatile. The further diversification and extended business relationship with China helped to reduce this impact (Kucinski, 2009).

Additionally, and very significantly, the external sector has been of secondary importance in comparison to the domestic market. The Brazilian foreign trade share of the GDP is only 20% (Germany: Trade and Invest, 2011). Indeed, the economy has opened significantly in recent years, but it is still relatively closed. Nevertheless, through the crisis many of the large Brazilian exporters got into trouble. The devaluation of the real melted margins and the ACCs, which most of them used to hedge, did not work anymore. The big losses in this sector even hit the stable banking system (Castilho, 2011).

3.2.1.2 Conclusion

Like almost every country in the world, Brazil was affected through the trade channel, though not as deeply as many industrialized economies. Different factors are responsible. Further diversification, which was also driven by the policy, was one factor. Furthermore, the reduction of technology's share in Brazilian exports was a reason why the country was not so strongly affected. Brazil's industry focused more on agrarian products and commodity prices rose. Even if the commodity prices had declined, the manufactured goods would have been more affected. Nevertheless, the decreasing creation of value in Brazilian exports should be seen as critical. The main factor, however, was the relatively tight economy. Even if Brazil opened steadily in the recent years, the impact of exports in comparison to other industrial countries is relatively low.

3.2.2 Brazilian financial system

The Brazilian banks got through the crisis without significant problems. At the peak of the financial crisis all big banks still drove profits. The number of bad loans doubled but compared to the United States and Europe is hardly worthy of mention. No banks had to declare bankruptcy, and in the 12 months after the Lehman collapse, the credit volume increased even more (Handelsblatt, 2010). The market capitalization of the big Brazilian banks, Itau and Bradesco, surpassed many international institutes and even in 2008 they had an equity return of 24%. Nevertheless, the Brazilian financial system suffered from the financial crisis mainly through two channels (Busch, 2010):

- Capital flight from the stock market;
- Reduction in the domestic supply of credit.

The reduction of supply of credit was a factor under which the Brazilian investments and big banks immediately suffered. They could not supply credit to medium and small banks, which as a consequence were not able to fulfill the credit demand of the big exporters. The Brazilian government adopted counter-cyclical monetary and fiscal policies. The Brazilian system was deeply affected but not in danger, and the situation was not comparable to the financial breakdown in the industrial countries.

There are several reasons for the surprising stability of the Brazilian banks. Brazil's high interest rate until late 2008 prevented buying positions with risky foreign certificates. The banks were able to gain sufficient profits in their home market. Furthermore, the strict control and stable foundations of the Brazilian banking system were another points of the stability. After the crisis of the 1990s, the banking supervisors of Brazil tightened the financial rules for financial institutions. The cautious monetary policy gave Brazilian banks a good position when the crisis began (De Paula and Sobreira, 2010).

3.2.2.1 Brazilian banking system

The starting point of the today's Brazilian financial system was the real plan. The main target was to combat the country's chronic inflation problems, but it had great influence on the Brazilian banking system as well. Many Brazilian banks used to make profits through “floating” schemes, through which they were able to make profits with fast transactions. After the reform this they had to look for other profit sources (De Paula and Sobreira, 2010).

In 1995, through the Mexican crisis, many Brazilian banks got into trouble, and the government introduced different preventive measures to strengthen the system. One of the big programs was the Program of Incentives to the Restructuring and Strengthening of the National Financial System (PROER), which tried to maintain the solvency of the system through liquidation of the distressed banks and support of those remaining. In addition, PROER simplified mergers and acquisitions (M&As) through tax incentives and credit facilities, which as a consequence concentrated the Brazilian sector through many M&As. Furthermore, the privatization of public, state-owned banks was an important point in the development of big private Brazilian banks. The access to further foreign institutions made the banks more competitive. The relative market share from government-owned banks reduced between 1996 and 2006 from 50.90% (1996) to 12.50%; foreign banks rose from 12.50% to 21.70%; domestic private banks increased from 38.30% (1996) to 47.60%. The domestic private banks became the biggest factor in the Brazilian banking sector (Kucinski, 2009).

3.2.2.2 Effects of the world financial crisis on the Brazilian system

Brazil was not immediately affected at the beginning of the crisis, because the banks had not bought the toxic foreign certificates. Additionally from 2003 to 2008, Brazil had a very high Basel Ratio compared to other countries, and far above Brazil’s minimum capital requirements ratio of 11%. One of the reasons is that Brazilian banks’ portfolios were constituted partly by public bonds, which have zero risk. Brazil’s high interest rates with the attractive spread prevented companies from investing in risky foreign certificates. During the Brazilian credit boom of 2004–2008, the banking sector had record profits on the home market (De Paula and Sobreira 2010).

The Brazilian financial system was not affected through tumbling banks but through other channels. In particular, the capital flows related to portfolio investments and other investments declined sharply in the worldwide environment of risk aversion. There was still a high accretion until September 2008, when the shortfall in the fourth quarter of 2008 began. Nevertheless, foreign direct investment remained relatively high in the fourth quarter, with

US$14.20 billion, and only fell sharply in the first quarter of 2009, to US$5.40 billion. Further, the decline of the stock market was straight and demonstrated the importance of foreign investors in this market. The export companies were particularly suffering from the reduction in foreign credit (Kucinski, 2009).

Additionally, the financial crisis affected the performance of international companies' investments in Brazil. Since 2005, the Brazilian economy had had a growing internalization of manufacturing and even further global financial openness. Through the financial crisis there was a tendency to transfer rising profits to foreign headquarters to solve the losses on other markets. Another not immediate but contagious channel of the financial crisis was the domestic credit market, in which international banks decreased their international credit operations. The uncertain environment allowed the banks to reduce their cross-border credit, which caused mid-sized banks particular difficulties in borrowing foreign money to operate. The Brazilian banking system had a liquidity crisis that almost turned into a confidence crisis (De Paula and Sobreira, 2010).

The Brazilian currency also came under pressure. Through the decline in capital flows it devalued 42.60% from September 1 to December 31. The Banco Central do Brasil (BCB) reacted with their international reserves to alleviate the effects, but the effects were too strong, and "toxic derivatives" as well deepened the depreciation of the currency. Large exporters put their money into financial schemes beting the continuity of the increased value of the exchange rate. Aracruz and Perdigao were the most famous examples of such operations, which were estimated to be in the range of R$60.5 billion (Kucinski, 2009).

3.2.2.3 Conclusion

The Brazilian finance system was still in good condition, and the government had through its good policy in former years created good possibilities for stabilization with contra-cyclical measures: liquidity enhancing measures, interventions on the foreign exchange market, reducing the high interest rate, and publicly owned banks expanding their credit operation (Kucinski, 2009). Only the Brazilian exporters were immediately hit and had an impact on the financial market through losses in derivative markets. However, Brazil supported the exporters that could not get sufficient credit. The system was strengthened by the former crisis; the banks were not hit immediately as they were not involved in the risky foreign certificates. The Brazilian banks were and are able to generate sufficient gains on the local market (De Paula and Sobreira, 2010).

4. Comparison: Germany and Brazil

Both countries were severely affected, but the deepness and the grade differed significantly. Brazil, as an emerging market, had a late sudden breakdown and a steep rebound. The government had enough possibilities for fiscal stimulus and the public debt did not get into trouble. Germany, for an industrial country, recovered very well. The government reacted as well with economic measures and the worldwide recovery demand helped Germany to unexpected growth. The structure of an export-dependent economy also had its benefits.

4.1 Comparison: Trade

The decline in world trade affected all sectors and products; therefore, both economies felt its impact. Falling commodity prices and quantities reduced Brazilian trade figures in particular, even if the decline in technology products was more significant. The share of these kinds of products has declined steadily in recent years. On the contrary, Germany, an export nation without significant commodities, was totally focused on technology goods. The second-largest export nation in the world is focused on machine construction, automotive, chemicals, etc. The group of investment goods had the biggest decline of all groups in world trade.

However, much more significant was the economic openness for the extent of the effect. Germany's exports were reduced by about $180.80 billion, with a relatively similar reduction of imports. This was a big shock for the German economy, and the government had to introduce a short-shift working program to prevent a high rate of unemployment. Brazil's absolute reduction was only about $30 billion. The reduction was one-sixth of Germany's, while the gross domestic product was bout half. The economic openness was the decisive factor explaining why German suffered much more through the trade channel. Nevertheless, the trade rebound was immense in both countries and they returned to higher than the pre-crisis level, which was consequently more favorable and important for Germany.

4.2. Financial channel

The impact through the financial channel was much more differentiated. While Germany's banks invested directly in risky foreign certificates (especially in North America) and began to tumble, Brazil's financial system was only hit through the global financial trouble. In

Germany, the banks invested to optimize their profits in foreign certificates. The domestic market did not have highly profitable expectations of benefits, so foreign investments, especially in North America, seemed to be attractive. However, the risks were totally underestimated, and with the beginning of the crisis the commercial government-owned banks directly faced illiquidity. The government reacted immediately with the foundation of the Soffin (a governmental institution to prevent banks from collapse). The institution injected €62.40 billion directly as bank support and gave €175.50 billion in guarantees to prevent the financial system from facing a breakdown. The money was finally spent by the taxpayers and burdened the debt budget strongly. The Deutsche Bank was even indicted as a hoarder of the excess on the U.S. model like the claims in the United States of the unscrupulous practices in the granting of mortgage loans (Süddeutsche Zeitung).

The Brazilian banks were not involved in foreign certificates. The system had sufficient regulations and was strengthened from a former crisis. However the most important points were the excellent market conditions and the local banking market. The banks could gain high profits through the large credit spread, and they saw no need to invest in unknown foreign certificates. Nevertheless, Brazil was hard hit through the foreign capital flows, which crashed from a stable rising in the years before the crisis. The Brazilian central bank had to intervene with several measures to support the financial system, stimulating the availability of credit, supporting exporters, and bolstering the currency. In contrast to Germany, the Brazilian banking system had sufficient options to react, while in Germany the debt budget was burdened critically. The complete impact of the financial crisis on the German system is still not defined; in particular, the commercial banks are still tumbling. This shows the extreme differences between the two countries.

5. Conclusions and perspectives

Emerging countries, with their high consumer potential, could be the main factor for worldwide economic growth in the coming years. They have growing demand for goods and additionally invest heavily in their infrastructure. As early as 2002– 2010, the BRIC countries contributed 12–21% of global growth in imported goods and apart from the years 2004 and 2005 even surpassed the United States. Brazil is one of these economically high potential countries, with its dynamic markets and stable public debt. Additionally, Latin America, with its recent development, is a favorable region for economic growth (Kinkartz, 2011). It will be even more so when the Latin American countries find a way to contain the transmission channel of capital flows, as they tried to do with their recently invented stabilizing fund for global shocks (Dilger, 2011).

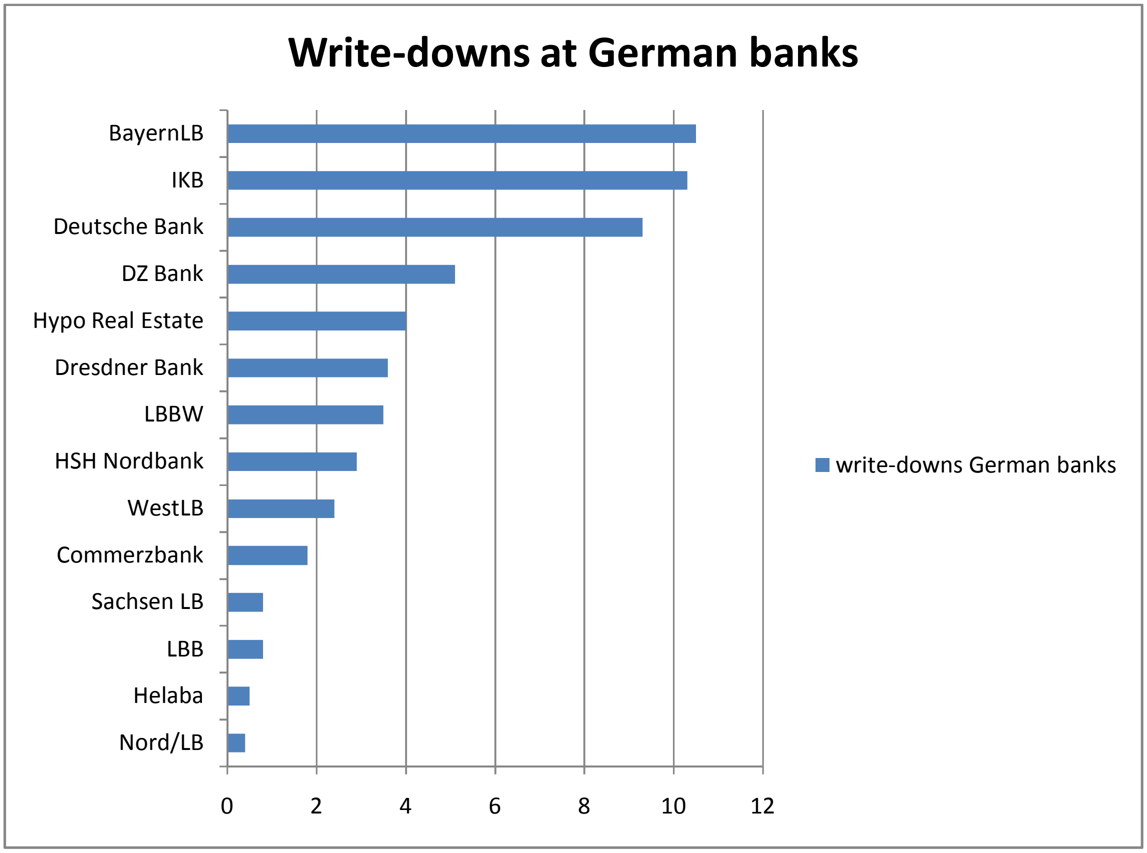
The environment in the European Union, with the critical budget deficits, seems to be the defense for Germany's economy. The country is too cross-linked and dependent on its European neighbors. However, Germany could be one of the largest beneficiaries of the BRIC growth. In recent years, the importance of emerging partners has grown rapidly. While German goods exports increased overall by 21% from 2005 to 2010, the deliveries to Brazil, Russia, India, and China rose by 107%. German export companies export sophisticated products, like engines, vehicles, electrical products, and chemical products (Kinkartz, 2011). The crisis strengthened the German economy because of growing exports but worsened its national deficit. In particular, it left Germany's partners that have not experienced economic rebound in a critical situation. The financial crisis pushed many industrial countries into a state of emergency, while it showed the potential of the BRIC and especially Brazil. It demonstrated the importance of prudential regulations and a solid national fiscal policy with responsible deficits.

Appendix

Appendix I: Internalization of German banks

Commerzbank: 25.3 % of international exposure outside Europe in 2004.
Deutsche Bank: Exposure outside Western Europe increased from 25.8% of total in 2000 to 44.7% in 2007.
Dresdner: 18 % loan portfolio outside Europe in 2004 available.
Bayerische LB: International exposure 50.4% of total in 2007 (exposure outside Europe 34.9% of international).
Helaba: International exposure 52.2 % of total in 2007.
HSH Nordbank: Country exposure outside Western Europe from 32.7% in 2002 to 41.0% in 2007.
LBBW: Exposure outside Europe 29.9% of total in 2006, before falling significantly.
LB Berlin: Credit risk outside Germany 41.2% of total in 2006, up from 31.7% in 2002.
LB Sachsen: 2004–07 on balance sheet credit exposure to its “home” land of Saxony never exceeded 16.9 % of total exposure.
NordLB: Exposure outside Western Europe 15.0% of total in 2007 (8.7% in 2003).
WestLB: In 2007 71.3% of exposure outside Germany, 20.3% to “industrialized America.”
DZ Bank: In 2007 exposure outside Germany 40.2% of total.
Hypo Real Estate: In 2007, country risk outside Germany 76.9% of total. In 2003, 38% of loan portfolio outside Germany.
IKB: In 2005 exposure outside Germany 67% of total.

Appendix II: Write-downs at German banks



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