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Bachelor's thesis

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"The Big Short – A systematic literature review on the causes of the subprime crisis as cited in popular literature"

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Abstract

The subprime crisis which eventually evolved into a global financial crisis, took place more than 12 years ago and still marks the most significant economic turndown since the great depression of the 1930s. Two years after the crisis, former investment banker and current book author Michael M. Lewis published the successful, non-fictional book named “The Big Short: Inside the Doomsday Machine”, in which he explains his perception of the occurrences and the causes of the crisis, while narrating the story of a group of people that had anticipated its development. As Lewis’ assertions can be questioned in regard to their truthfulness due to several reasons, a systematic literature review is applied to compare his statements to scientific research. By validating five individual hypotheses based on Lewis’ statements, this thesis finds that his display of the crisis can principally be confirmed. However, as one-sided, incomplete, and exaggerated statements on a detailed level can be repeatedly identified throughout Lewis’ deliberations, elements of simplification, bias or a conscious use of embellishment are detected.

Keywords: subprime crisis, financial crisis, michael lewis, the big short, mortgage market, rating agencies, financial regulation, securitization, systematic literature review

JEL classification: G10, G21, G23, G24, G28, G33, H12

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Adjustable rate mortgage	ARM
American International Group	AIG
Collateralized debt obligation	CDO
Credit default swap	CDS
Debt-to-income	DTI
Fair Isaac Corporation	FICO
Federal Deposit Insurance Corporation	FDIC
Federal Home Loan Mortgage Corporation	Freddie Mac
Federal Housing Finance Agency	FHFA
Federal National Mortgage Association	Fannie Mae
Federal Reserve System	Fed
Gross domestic product	GDP
House price index	HPI
Loan-to-value	LTV
London Inter-bank Offered Rate	LIBOR
Mortgage backed security	MBS
Nationally Recognized Statistical Rating Organization	NRSRO
Primary Dealer Credit Facility	PDCF
Security and Exchange Commission	SEC
Standard & Poor's	S&P
Systematic literature review	SLR
Term Securities Lending Facility	TSLF
The Big Short: Inside the Doomsday Machine	The Big Short
Troubled Asset Relief Program	TARP
Value at Risk	VaR

1 Introduction

1.1 Research problem

The subprime crisis, also known as the subprime mortgage crisis, became evident in the year of 2007 in the United States of America. It later developed into an international banking crisis, known as the 2008 financial crisis, and fundamentally disrupted the global economy. 10 million U.S. citizens are estimated to have lost their homes, while USD 6 trillion in total home value and USD 17 trillion in household wealth have vanished by the impact of the subprime crisis. A multitude of intertwined elements, that emerged over a number of years, eventually led to its outburst.

To publish a description of the crisis' driving forces for the broad society to understand, has been attempted by a variety of different authors. One of them, financial journalist, author, and former investment banker Michael M. Lewis, released his reception of the crisis in "The Big Short: Inside the Doomsday Machine" (The Big Short), in March 2010. The book was sold about a million times, spent 28 weeks on The New York Times Best Seller list and received several awards. In The Big Short, Lewis narrates the story of a small group of characters that anticipate the crisis in its infancy stage, while illustrating its several causes. In Lewis' depicted perception, the subprime crisis was predominantly caused by I. Poor mortgage loans granted to unqualified borrowers; II. Insufficient and manipulable rating practices executed by credit rating agencies; III. An unregulated bond market; IV. Transferability of credit risk enabled by securitization; and V. The synthetic replication of mortgage bonds.

Due to the general complexity regarding the underlying circumstances of the subprime crisis, it is unclear whether Lewis' portrayal to the public might deviate from the true state of affairs. Furthermore, since prior to writing The Big Short, Lewis had worked for Salomon Brothers, a former U.S. investment bank substantially involved in the incurrence of the crisis, it is questionable whether his argumentation is completely objective. While Lewis' interpretation enjoys eminent popularity, an extensive amount of scientific research has been conducted in order to assess the specific reasons for the crisis. Accordingly, numerous descriptions and interpretations dedicated to the topic can be derived from a broad variety of sources. Due to the multitude of sources and their differing levels of sophistication, a standardized and systematic approach of analyses should be considered, in order to cover all possible findings within a defined frame as well as to avoid potential bias.

Consequently, the aim of this bachelor's thesis is to analyze to what extent the causes of the subprime crisis cited in Michael Lewis' The Big Short are confirmed by scientific research.

1.2 Course of investigation

Based upon the research question formulated in chapter 1.1, a delineation of the subprime crisis will be presented in chapter 2. Accordingly, a general overview, a chronological timeline of events as well a brief description of the aftermath will be given.

Subsequently, the display of the causes of the subprime crisis in Michael Lewis' The Big Short will be stated in chapter 3. At first, an overview of the author and the book will be provided after which the incentives for an investigation regarding the truthfulness of his display will be elucidated. In the following, five hypotheses in regard to causes of the crisis derived from the book, will be presented.

Eventually, scientific research based upon the predefined hypotheses will be conducted. To do so, the method of a systematic literature review (SLR) will be applied in chapter 4. A SLR attempts to gather all the evidence that fits pre-specified eligibility criteria in order to answer a specific research question. It uses explicit, systematic, accessible, and reproducible methods that are selected in order to minimize bias and thereby to provide more reliable findings from which conclusions can be drawn (Higgins & Green, 2017, p. 6). SLRs typically require a number of predetermined steps to be gone through in order to generate insightful results. After the method has been thoroughly presented, the indicated steps will be carried out.

In chapter 5., the sources that have been selected in the SLR will be used to validate the priorly formulated hypotheses based on the reception in Lewis' The Big Short. At first, the single hypotheses will be examined individually in order for conclusions to be drawn. Secondly, resulting statements will summarize the findings.

The last chapter will comprise a summary of the main findings from the thesis. Additionally, a critical acclaim will indicate potential restrictions of the discoveries. Lastly, an outlook will be provided.

2 Subprime crisis

2.1 Overview

The subprime crisis, also known as the subprime mortgage crisis, became apparent in 2007 and was characterized by a large amount of subprime mortgages originated in 2006 and 2007 becoming delinquent and subject to foreclosure shortly after (Demyanyk & Van Hemert, 2009, p. 1). The emergence of the crisis was first signaled by the burst of an economic bubble formed in the U.S. housing market (Baily, Litan, & Johnson, 2008, p. 6).

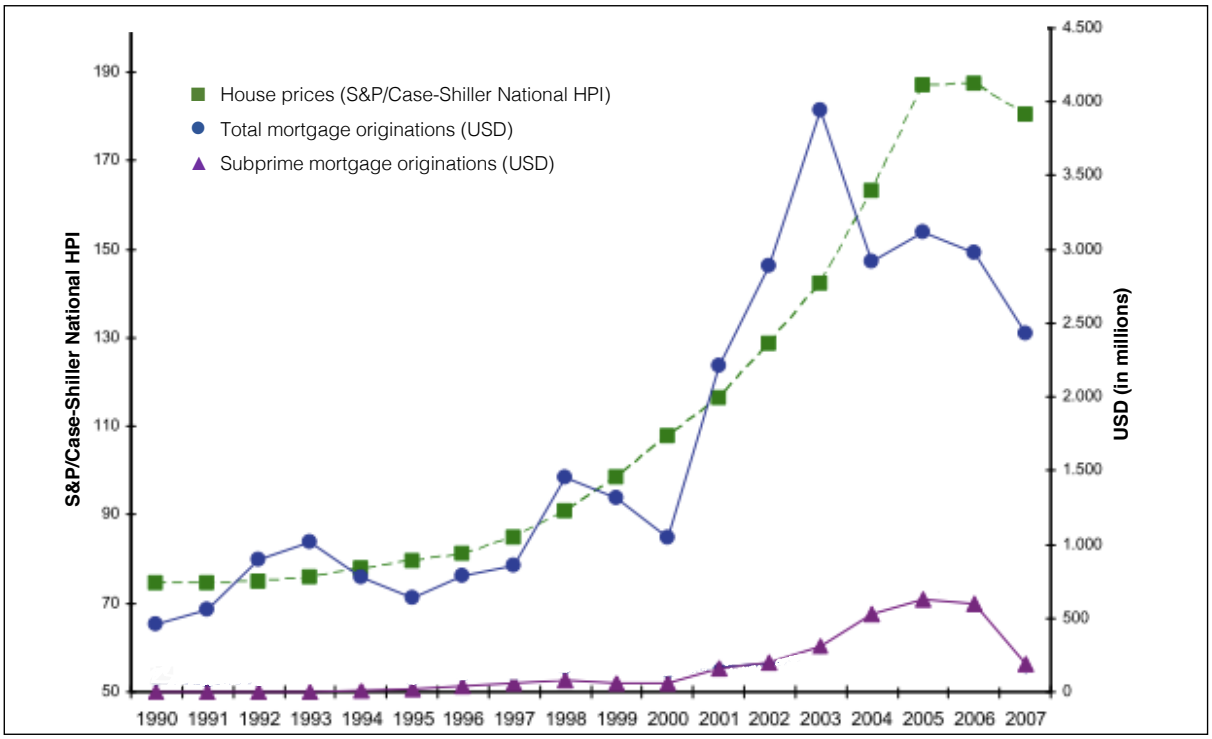
When the Federal Reserve System (Fed) decreased the federal funds rate early in the twenty-first century, mortgage rates fell and home refinancing increased from USD 460 billion in 2000 to USD 2.8 trillion in 2003, allowing people to withdraw equity built up over previous decades and to consume more, despite stagnant wages (Financial Crisis Inquiry Commission, 2011, p. 5). The total mortgage origination volume rose rapidly from USD 800 billion in 1996 to USD 3.9 trillion in 2003 (Sanders, 2008, p. 254). Consequently, home sales activity started to increase, and the S&P/Case-Shiller index indicated a nationwide rise in house prices by 127% from 1996 to its peak in July 2006 (Financial Crisis Inquiry Commission, 2011, p. 5; FRED Economic Data, n. d., gg.; Sanders, 2008, p. 254). In 2004, U.S. homeownership reached a record of 69%, while more than one out of ten home sales that occurred in the first half of 2005 was to an investor, speculator, or someone buying a second home (Financial Crisis Inquiry Commission, 2011, p. 5).

Before the year of 2000, subprime lending was virtually non-existent, but thereafter its use increased exponentially (Baily et al., 2008, p. 7). While the origination volume of subprime mortgages amounted to USD 35 billion (5% of total loan originations) in 1996, it increased to USD 600 billion (20% of total loan originations) in 2006 (Le Vine & Magaldi, 2008, n. pag). The process of securitization, which was first introduced by the investment bank Salomon Brothers in 1977, enabled the private financial sector to create mortgage backed securities (MBSs), backed by pools of subprime loans (Baily et al., 2008, p. 7; Nikolova, Rodionov, & Bahauovna, 2016, p. 247). These securities were sold to investors, in order to transfer risks and to generate additional cashflows to originate more mortgage loans (ibid.). The activity of originating mortgages for the immediate sale to other entities is referred to as the originate-to-distribute model (Financial Crisis Inquiry Commission, 2011, p. 89). Furthermore, MBSs were pooled and sliced into different risk tranches and thereby transformed into another layer of claims referred to as collateralized debt obligations (CDOs) (Peicuti, 2013, p. 448). By channeling funds of institutional investors to support the origination of subprime mortgages, multiple households that were previously unable

to qualify for mortgage credit suddenly became eligible for loans (Baily et al., 2008, p. 7). Thereby, housing demand continued to grow which in turn helped to further inflate home prices (ibid.).

Figure 1 illustrates developments regarding the mortgage origination volume as well as the house prices in the U.S.:

Figure 1: U.S. House prices and mortgage originations



Source: Author's own rendering based on (Sanders, 2008, p. 255)

The pricing boom in the U.S. housing market came to an abrupt end in the second quarter of 2006, in which the house price index (HPI) began to steeply decline (Liebowitz, 2008, p. 3). At the same time, the number of mortgage delinquencies and foreclosures spiked sharply upward, especially in relation to subprime mortgages (Emmons, 2008, p. 10; Liebowitz, 2008, p. 3). While in 2005, 10.8% of conventional subprime loans were delinquent 30 days or longer, the proportion increased to 12.3% in 2006, to 15.6% in 2007, and to 19.9% in 2008 (U.S. Census Bureau, 2012, p. 743). Respectively, the share of subprime loans in foreclosure processes at year end amounted to 3.3% in 2005, to 4.5% in 2006, and to 13.7% in 2008 (ibid.).

In the year of 2007, the financial system, which had invested heavily in securitized mortgages, began to express signs of a collapse (Liebowitz, 2008, p. 3). Rating agencies changed their opinions and started to downgrade mortgage backed financial products, previously referred to as low-risk (Financial Crisis Inquiry Commission, 2011, p. 213). This led investors to start selling and asset prices to

decrease (ibid.). A multitude of banks and other private financial companies with exposure to mortgage backed financial products reported losses, and some began to file for bankruptcy (Pop, 2009, p. 56). Consequently, the U.S. stock market decreased in value, the U.S. gross domestic product (GDP) growth stagnated, and politicians began to announce proposals to fix the problem (Liebowitz, 2008, p. 3).

On September 15, 2008, all three major stock indices in the U.S. (the Dow Jones Industrial Average, NASDAQ, and the S&P 500) dropped by their highest amounts since the 2001 terrorist attacks (Le Vine & Magaldi, 2008, n. pag.). That day, investment bank Lehman Brothers declared bankruptcy and investment bank Merrill Lynch was joined with Bank of America in a forced merger worth USD 50 billion (ibid.). One day later, insurance corporation American International Group (AIG) was granted a loan of USD 85 billion by the Fed in order to be able to meet its immediate obligations (Financial Crisis Inquiry Commission, 2011, p. 350).

The subprime crisis, which eventually evolved into an international banking crisis, significantly impacted the global and predominately the U.S. economy: USD 17 trillion in household wealth evaporated within 21 months, whereas the U.S. unemployment rate increased by 120% between 2007 and 2009 (Bureau of Labor Statistics, 2019, n. pag.; Financial Crisis Inquiry Commission, 2011, p. 391). Further, U.S. GDP declined by 2.5% in 2009, indicating an economic recession while decreasing by the largest amount since the year of 1946 (BEA, 2019, n. pag.; Financial Crisis Inquiry Commission, 2011, p. 391).

2.2 Timeline of events

Table 1 provides a chronological overview of events that marked the subprime crisis and its development into the global financial crisis of 2008:

Table 1: Timeline of occurrences marking the subprime crisis

Date	Event	Reference
Q1 2006	AIG completely stops selling credit default swaps (CDSs) on CDOs in order to insure them.	(Financial Crisis Inquiry Commission, 2011, p. 204)
April 2006	The S&P/Case-Shiller Index indicates that U.S. house prices have reached its peak.	(FRED Economic Data, n. d., n. pag.)
September 7, 2006	Nouriel Roubini, professor of economics at New York University, warns the International Monetary Fund about a U.S. housing bust, an oil shock and ultimately, a deep recession.	(Mihm, 2008, n. pag.)

April 2, 2007	Leading subprime mortgage lender New Century Financial Corporation files for bankruptcy protection.	(Pop, 2009, p. 56)
September 14, 2007	British bank Northern Rock experiences the first bank run in the U.K. since 1878. The run was contained by the government's announcement that it would guarantee all deposits in Northern Rock.	(Goldsmith-Pinkham & Yorulmazer, 2010, p. 84)
March 11, 2008	The Fed announces an expansion of its securities lending program. Under the new Term Securities Lending Facility (TSLF), the Fed will lend up to USD 200 billion of treasury securities to primary dealers secured for a term of 28 days.	(Board of Governors of the Federal Reserve System, 2008b, n. pag.)
March 16, 2008	Investment bank JPMorgan Chase announces to acquire its competitor Bear Stearns in a stock-for-stock transaction supported by the Fed.	(JPMorgan Chase & Co., 2008, n. pag.)
March 16, 2008	The Fed announces the establishment of a Primary Dealer Credit Facility (PDCF). The facility will provide overnight funding to primary dealers in exchange for a specific range of collateral.	(Federal Reserve Bank of New York, 2008, n. pag.)
July 15, 2008	The Security and Exchange Commission (SEC) issues an emergency order to enhance investor protections against naked short selling in securities of multiple mortgage lenders and investment banks.	(U.S. Securities and Exchange Commission, 2008, n. pag.)
September 7, 2008	The Federal Housing Finance Agency (FHFA) places the two largest U.S. mortgage lenders, Federal National Mortgage Association (Fannie Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac) into government conservatorship.	(Financial Crisis Inquiry Commission, 2011, p. 309)
September 15, 2008	Bank of America announces to acquire competing investment bank Merrill Lynch in a USD 50 billion all-stock transaction.	(Bank of America, 2008, n. pag.)
September 15, 2008	Investment bank Lehman Brothers announces its intention to file for bankruptcy protection.	(Lehman Brothers Holdings Inc., 2008, n. pag.)

September 16, 2008	The Federal Reserve Board authorizes the Fed to lend up to USD 85 billion to AIG. The Board further determined that, in current circumstances, a disorderly failure of AIG could add to already significant levels of financial market fragility.	(Board of Governors of the Federal Reserve System, 2008, n. pag.)
October 3, 2008	President George W. Bush signs the Troubled Asset Relief Program (TARP) in order to give U.S. Treasury the authority to spend USD 700 billion to purchase toxic mortgage-related assets from financial institutions.	(Financial Crisis Inquiry Commission, 2011, p. 372)
October 13, 2008	The 15 members of the Euro-zone unveil plans to provide their banks with capital funding.	(Pop, 2009, p. 61)
December 3, 2008	The SEC approves a series of measures to increase transparency and accountability of credit rating agencies, and ensure that firms provide more meaningful ratings and greater disclosure to investors	(U.S. Securities and Exchange Commission, 2008a, n. pag.)

Source: Author's own rendering based on references given in third column

2.3 The aftermath

In the aftermath of the crisis, credit was severely tightened and companies needed to trim costs and lay off employees in order to stay profitable (Financial Crisis Inquiry Commission, 2011, p. 389). Accordingly, the U.S. economy shed 3.6 million jobs in 2008 and reported unemployment hit 10.1% at its peak in October 2009 (Bureau of Labor Statistics, 2019, n. pag.; Financial Crisis Inquiry Commission, 2011, pp. 389 ff.). As a consequence, uncertainty led businesses and consumers to decrease discretionary spending, which resulted in a sharp fall in global industrial production towards the end of 2008 (Čerović, Pepić, Petrović, & Čerović, 2014, p. 16; Edey, 2009, p. 188). While world production grew by 3.5% in 2007 and by 1.5% in 2008, it decreased by 2.5% in 2009 and deteriorated to -3.5% in 2010 (World Trade Organization, 2019, n. pag.). Accordingly, world export, which had still increased by 6.5% in 2007 and 2.0% in 2008, decreased by 12.0% in 2009 and 13.0% in 2010 (ibid.).

The U.S. financial system applied conventional as well as unconventional monetary policies in order to mitigate the economic impacts of the crisis (Mishkin, 2011, p. 58). In addition to keeping the effective federal funds rate close to zero from December

2008 to December 2015 (FRED Economic Data, n. d.-a, n. pag.) and setting up lending programs such as TSLF and PDFC (see chapter 2.2), the Fed began to purchase long-term Treasury bonds, referred to as 'quantitative easing', in March 2009 (Mishkin, 2011, pp. 60 ff.). This was supposed to further stimulate public spending by lowering the interest rates for households and businesses (ibid.). Additionally, the Fed purchased USD 1.25 trillion of MBSs between November 2008 and March 2010, in an attempt to lower residential mortgage rates and thereby to stimulate the demand for housing (ibid., p. 61). This policy was specifically referred to as 'credit easing' (Joyce, Miles, Scott, & Vayanos, 2012, p. 272). Beginning at the end of 2008, the Fed greatly expanded its holding of longer-term securities through open market purchases until October 2014, when it concluded its actions (Board of Governors of the Federal Reserve System, 2019, n. pag.).

Other central banks such the European Central Bank, Bank of England, and Bank of Japan similarly responded to the crisis with a series of policies that included emergency liquidity programs, a reduction of their base rates to near zero, as well as the process of quantitative easing (Fawley & Neely, 2013, p. 81). Specifically, the quantitative easing programs, initially attempted to reduce financial market distress caused by the crisis, were soon used for a variety of other purposes, including hitting inflation targets, stimulating the real economy, and containing the European sovereign debt crisis (ibid.).

3 The Big Short by Michael Lewis

3.1 About

3.1.1 The author

Michael Monroe Lewis was born October 15, 1960 in New Orleans, Louisiana (BookBrowse, n. d., n. pag.). After earning his bachelor's degree in art and archaeology at Princeton University, Lewis enrolled at the London School of Economics where he received a master's degree in 1985 (Quinones, 2011, n. pag.). Subsequently, Lewis was hired into the training program of Wall Street based investment bank Salomon Brothers, which he completed before relocating to Salomon Brothers' London office to work as a bond salesman for several years (BookBrowse, n. d., n. pag.).

His time as an investment banker eventually inspired him to write and publish his first book in 1989, called "Liar's Poker: Rising through the Wreckage on Wall Street", offering an insider's view on the 'dark art' of investment banking (Hojnicki, 2012, n. pag.; Quinones, 2011, n. pag; Wachman, 2011, n. pag).

Lewis has published multiple New York Times bestselling books on various subjects since then (W.W. Norton & Company, n. d., n. pag.). References are “Moneyball: The Art of Winning an Unfair Game”, which is based on the successful baseball manager Billy Bean; “The Blind Side”, a story of a wealthy family adopting the homeless football prodigy Michael Oher; and “The Big Short: Inside the Doomsday Machine”, which breaks down the subprime crisis while illustrating its several causes (Hojnicki, 2012, n. pag.). Moreover, four of Lewis’ books have been turned into movies and were subsequently nominated for a total of eight academy awards (IMDb, n. d., n. pag.).
Currently, Lewis works as a columnist for Bloomberg Opinion (W.W. Norton & Company, n. d., n. pag.). His articles have also been published in Vanity Fair, The New York Times Magazine, The New Yorker, Gourmet, Slate, Sports Illustrated, Foreign Affairs, and Poetry Magazine (ibid.).

3.1.2 The book

The Big Short, published March 15, 2010, is a non-fiction book that describes the occurrence and the causes of the subprime crisis. (Lewis, 2010, p. vi; W.W. Norton & Company, n. d.-b, n. pag.). The book is further based on the individual stories of a group of characters, that anticipated the crisis in its infancy stage and bet against it by short-selling stocks and investing into CDSs on mortgage backed financial products (Lewis, 2010).
According to Forbes, 916,000 copies of The Big Short had been sold by Fall 2016 (Robehmed, 2016, n. pag.). Further, it was shortlisted for the 2010 Financial Times and McKinsey (former Goldman Sachs) Business Book of the Year Award and won the Los Angeles Times Book Prize (Christensen, 2011, n. pag.; Financial Times & McKinsey, 2010, n. pag.). Additionally, The Big Short spent 28 weeks on The New York Times Best Seller List (The New York Times, 2010, n. pag.).
Paramount Pictures acquired the rights to The Big Short in 2013 and hired producer Adam McKay to direct a financial drama based on Michael Lewis’ book (McNary, 2014, n. pag.). The movie, carrying the same name as the book, was released on December 11, 2015 (IMDb, n. d.-b, n. pag.). The movie stars, among others, Ryan Gosling, Christian Bale, Brad Pitt, and Steve Carell, and was awarded The Academy Award for Best Adapted Screenplay (ibid.). The Big Short was considered a commercial success and grossed USD 70.3 million in the U.S. and Canada and USD 63.2 million in remaining countries (Box Office Mojo, n. d., n. pag.).

3.2 Incentives for investigation

Considering Lewis' literary style, the amount of attention his publications have drawn in the past, the prices they have earned, and the movies that have been based on them (see chapter 3.1.2), one may conclude that his publications which comprise entertaining as well as educating, non-fictional books about various topics, are generally dedicated to the broad society instead of an expert audience. Multiple scientific researchers, that also investigated the causes of the subprime crisis, have made remarks regarding significant complexity within certain areas of the topic (i.a. Baily et al. (2008, p. 40); Lang & Jagtiani (2010, p. 311); or Pop (2009, p. 70)). Thus, considering Lewis' typical target group as well as the complexity regarding the underlying circumstances of the crisis, it is questionable whether Lewis' portrayal has been simplified in order for his audience to understand. Additionally, it may be possible that his portrayal has been embellished in order to offer a thrilling and entertaining read.

Moreover, prior to writing The Big Short, Lewis had worked several years for the investment bank Salomon Brothers which eventually inspired him to publish his first book Liar's Poker, where he negatively reflected his perception of Wall Street's 'dark' practices (see chapter 3.1.1). His experiences at Wall Street, as well as the significant involvement of his former employer in the course of the subprime crisis (see chapter 2.1) possibly biased Lewis' description of the causes that led to it. Based upon the aforementioned, incentives for the investigation about whether Lewis' arguments in The Big Short are completely objective or possibly deviate from the true state of affairs, are given.

3.3 Hypotheses in regard to causes of the subprime crisis

In The Big Short, Michael Lewis states multiple causes in separate contexts in regard to the outbreak of the subprime crisis. Single statements made throughout the book have been extracted and clustered within five individual hypotheses (see appendix, chapter 1). In order to allow for a comprehensive area of discussion, the hypotheses have been selected with the aim to cover each contextual subject, related to potential causes of the crisis as stated by Lewis. The subjects include: I. The underlying mortgage market; II. Credit rating agencies; III. Financial regulation; IV. Securitization; and V. Synthetic securitization. Correspondingly, the derived hypotheses are presented in table 2.

Table 2: Hypotheses

Number	Hypothesis
I	The artificially low 'teaser' rates for the first years of a subprime mortgage loan led many potential borrowers, that could actually not afford such a loan, to take it and caused a wave of defaults when the rates eventually increased.
II	The rating agencies' rating practices were inadequate, defective, corrupt, and manipulable. Investment banks took advantage in order to obtain 'riskless ratings' on high risk products.
III	Regulating government institutions neither thoroughly investigated, nor sufficiently counteracted the negative development of the subprime mortgage market.
IV	The originate-to-distribute model led mortgage originators to degrade their own lending standards which increased the likelihood of default.
V	Because synthetic CDOs were used to replicate bonds backed by actual home loans, the losses in the financial system were much greater than just the losses in subprime loans.

Source: Author's own rendering based on appendix, chapter 1

In the following chapter, a SLR will be applied to gather scientific research in order to validate the hypotheses derived from Lewis' statements in The Big Short.

4 Systematic literature review

4.1 Method

4.1.1 Development and characteristics

According to Higgins & Green (2017, p. 6), a SLR attempts to collate all scientific evidence that fits pre-specified eligibility criteria in order to answer a specific research question. With the aim to minimize bias and thereby provide reliable findings, SLRs use explicit, systematic, accessible, and reproducible methods (ibid.).

One of the first academic fields in which SLRs were introduced was the field of medicine (Durach et al., 2017, p. 67). Due to unmanageable amounts of evidence from healthcare research as well as lack of time, skills, and resources to find, appraise, and interpret this evidence, researchers and policy makers sought for an accessible format to respond to this challenge (Higgins & Green, 2017, p. 6). Today, SLRs are increasingly used for knowledge advancement in other sciences as well, with the main objective to not be influenced by idiosyncrasies of individual topics

when retrieving, selecting, and synthesizing relevant literature (Durach et al., 2017, p. 67).

SLRs typically require the following steps: I. Determining required characteristics of sources and defining matching research eligibility criteria; II. Formulating an explicit, reproducible research strategy; III. Systematically retrieving all potentially relevant literature that meet the eligibility criteria; IV. Selecting the relevant literature; V. Evaluating the methodical quality of the sources; VI. Synthesizing the literature; VII. Reporting the results (Durach et al., 2017, p. 70; Higgins & Green, 2017, p. 6).

4.1.2 Reason for application

A research run with the keywords “subprime”; “crisis”; “causes” generates 1,062 results on Emerald Insight (January 27, 2020), 3,128 results on EBSCOhost’s Business Source Premier (January 27, 2020), and 74,000 results on Google Scholar (January 27, 2020)(EBSCOhost, n.d.; Emerald Insight, n.d.; Google Scholar, n.d.). Accordingly, a multitude of scientific research in differing forms, by various researchers has been undertaken and published in order to analyze and identify the exact causes of the crisis, until today. Michael Lewis published his interpretation of the reasons for the crisis with The Big Short in March 2010 (see chapter 3.1.2). To draw conclusions about whether Lewis’ portrayal of the crisis has been consciously modified as illustrated in chapter 3.2, his statements need to be evaluated by scientific literature published before or at the same time The Big Short was published, in order to preclude possible scientific recognitions that came to light after Lewis had finished his investigation. Consequently, in order to unbiasedly select relevant scientific literature out of a wide variety for validating Lewis’ hypotheses based on the existing data and information by the time The Big Short was published, a SLR, due to its characteristics illustrated above, appears to be a suitable method to provide reliable findings.

4.2 Application

4.2.1 Research eligibility criteria

Research eligibility criteria required the sources included in the review to comply to the following characteristics:

I. The type of source to be either a journal article or a book extract; II. The source to be peer-reviewed; III. The publishing date to be between 2007 and 2010; IV. The language to be English; V. The full source to be available online; VI. The full source to be available for free.

4.2.2 Research strategy

An individual run of search engine research with specific keywords was conducted for each of the five hypotheses formulated above (see chapter 3.3). The two search engines EBSCOhost: Business Source Premier and Emerald Insight were employed for the research. The searches for published studies were conducted systematically, following the order of the databases listed above. In each search engine run, independent from the respective hypothesis, the keywords “subprime”; “crisis”; “causes” were used. However, these keywords were, for each run, individually extended by the additional keywords illustrated in table 3:

Table 3: Keyword extensions

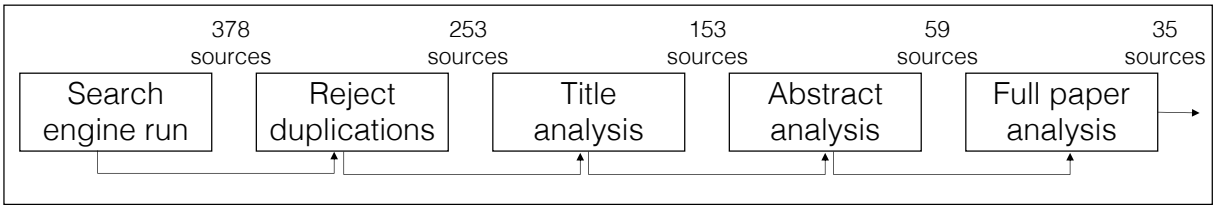
Hypothesis	Keywords
I	“teaser”; “rates”
II	"rating agencies”
III	“market regulation”
IV	“originate-to-distribute”
V	“synthetic”

Source: Author’s own rendering

The individual search engine runs generated 378 results in total. Search runs dedicated to hypothesis I generated 58 results (January 6, 2020) while search runs dedicated to hypothesis II generated 187 results (January 7, 2020); search runs dedicated to hypothesis III generated 38 results (January 9, 2020); search runs dedicated to hypothesis IV generated 49 results (January 9, 2020); and search runs dedicated to hypothesis V generated 46 results (January 10, 2020).
After deleting duplicated results, the total number of sources was reduced to 253.
In the following, the title of each potential source was read, focusing on whether it could be relevant for evaluating the individual hypothesis it was dedicated to. In case no potential relevance could be identified, the source was rejected. By applying this procedure, the total number of sources was reduced to 153.
In the second step, the abstract of each potential source was read, focusing on whether it could provide any insight to evaluating the individual hypothesis it was dedicated to. If the potential source did not include an abstract, the introduction was read. In case the source neither included an abstract nor an introduction or if no

potential insights could be identified, it was rejected. After this step was applied, the total number of sources was reduced to 59.
Lastly, each remaining source was fully read and selected in case it could provide insights for evaluating the individual hypothesis it was dedicated to. After this final screening, a total of 35 sources remained. Figure 2 illustrates the applied research strategy.

Figure 2: Research process



Source: Author's own rendering based on (Gimenez & Tachizawa, 2012, p. 533)

The step-by-step selection process, including all sources that initially matched the eligibility criteria but were rejected within the systematic course of literature analysis, has been documented (see appendix, chapter 2). The following subchapter presents and analyzes the sources that have eventually been selected, in detail.

4.3 Research results

4.3.1 Evaluation of methodical quality

In order to evaluate the methods used to examine causes of the subprime crisis by each source, a three-point scale based on the critical appraisal of quantitative and qualitative studies by Parris & Peachey (2012, p. 382), Okoli & Schabram (2010, pp. 25 ff.), and Hart, (1998, pp. 17 ff.) was used.
The three-point scale differentiates between high (I); medium (II); and low (III) quality, whereas medium is used if studies neither meet the criteria for high (I) nor low (III) quality (Parris & Peachey, 2012, p. 381). Table 4 illustrates the classification for high to low quality studies.

Table 4: Classification for quality assessment

	I (high)	II (medium)	III (low)
Quantitative (QNT)	- Clear focus - Adequate number of participants/amount of data - Data analysis with adequate statistical methods - Clearly stated findings	Used if neither I nor III applies	- Not focused - Inadequate number of participants/amount of data - Data analysis with inadequate statistical methods - Unclear findings
Qualitative (QLT)	- Purpose clearly stated - Clarity and logic in the structuring of an argument - Proper use of language - Comprehensive and well described results	Used if neither I nor III applies	- Vaguely formulated purpose - No argumentative structure evident - Poor use of language - Incomprehensive and poorly described results

Source: Author's own rendering based on (Hart, 1998, pp. 17 ff.; Parris & Peachey, 2012, p. 382)

4.3.2 Presentation of filtered results

By filtering sources according to the above defined research eligibility criteria (see chapter 4.2.1) and by applying the research strategy as documented in chapter 4.2.2, the sources presented in table 5 were selected to be included into the synthesis. The author(s), the year of publication, the assessment result of the methodical quality according to the classification introduced in the previous subchapter, the database it was retrieved from, and the hypothesis/hypotheses it is used for are listed below.

Table 5: Overview and quality assessment of selected studies

#	Author(s)	Year	Methodical quality	Database	Hypothesis
1	Aalbers	2008	QLT II	EBSCOhost	I
2	Akinbami	2010	QLT I	Emerald Insight	I, V
3	Baklanova	2009	QLT/QNT I	Emerald Insight	III
4	Begg	2009	QLT II	EBSCOhost	III
5	Bhalla	2009	QLT II	EBSCOhost	IV
6	Bosworth, Flaaen	2009	QLT II	EBSCOhost	II
7	Brunnermeier	2009	QLT I	EBSCOhost	IV
8	Campbell	2010	QLT I	Emerald Insight	III
9	Carruthers	2010	QLT I	Emerald Insight	II
10	Chen	2009	QLT/QNT I	EBSCOhost	V
11	Eisenbeis	2009	QLT I	EBSCOhost	II
12	Feldstein	2010	QLT I	EBSCOhost	I

13	Foote, Gerardi, Goette, Willen	2008	QNT II	EBSCOhost	I
14	Gorton	2009	QLT/QNT I	EBSCOhost	IV, V
15	Guillén, Suárez	2010	QLT I	Emerald Insight	III
16	Guynn	2010	QLT II	EBSCOhost	II
17	Hindmoor	2010	QLT II	EBSCOhost	II
18	Jacobs	2009	QLT II	EBSCOhost	II, V
19	Kirkpatrick	2009	QLT I	EBSCOhost	II
20	Kling	2010	QLT I	EBSCOhost	II
21	Levine	2010	QLT I	Emerald Insight	II, III
22	Linn	2009	QLT I	Emerald Insight	IV
23	Macey, Miller, O'Hara, Rosenberg	2009	QLT II	EBSCOhost	I
24	Mazumder, Ahmad	2010	QLT I	Emerald Insight	III
25	O'Connell	2010	QLT I	Emerald Insight	I
26	Pagano, Volpin	2010	QLT I	EBSCOhost	II
27	Purnanandam	2010	QLT/QNT I	EBSCOhost	IV
28	Rona-Tas, Hiss	2010	QLT I	Emerald Insight	II
29	Schmudde	2009	QLT I	EBSCOhost	I, II
30	Sholarin	2010	QLT II	Emerald Insight	I, II
31	Stacey, Morris	2009	QLT	EBSCOhost	V
32	Strier	2010	QLT I	EBSCOhost	II
33	Sun, Bellamy	2010	QLT I	Emerald Insight	IV
34	Tarr	2010	QLT I	Emerald Insight	IV
35	Thomas	2010	QLT I	EBSCOhost	IV

Source: Author's own rendering

5 Analysis and discussion

5.1 Synthesis – The Big Short vs. Scientific research

5.1.1 Hypothesis I

Lewis (2010, pp. 30 ff.) argues that most of the subprime mortgage loans originated in early 2005 were, due to their underlying loan quality with respect to the creditworthiness of the borrowers, almost certain to go bad. However, this would not happen until the year of 2007 as their initial, fixed interest rates (referred to as 'teaser' rates) were set artificially low and did not reset to higher, floating interest rates for two years (ibid.). Consequently, a mortgage loan originated in the beginning of 2005 would have carried a fixed interest rate of 6 percent that, in 2007 would increase to 11 percent (ibid.). Accordingly, millions of American citizens would eventually not be able to repay their mortgages, unless their houses rose dramatically in value, which enabled them to refinance (ibid., p. 65). By offering 'teaser' rates, the subprime market

made such mortgage loans available to a segment of the American public that did not actually fulfil the typical credit standards: the share between the fifth and the twenty-ninth percentile in their credit ratings (ibid., p. 96). Thus, lending companies made loans to people who were less creditworthy than 71 percent of the U.S. population (ibid.). Consequently, the following hypothesis will be evaluated by scientific research: “The artificially low ‘teaser’ rates for the first years of a subprime mortgage loan led many potential borrowers, that could actually not afford such a loan, to take it and caused a wave of defaults when the rates eventually increased” (see chapter 3.3).

Aalbers (2008, p. 160) confirms that ‘teaser’ rates have been used to sell subprime loans and refers to ‘2/28 mortgages’ which consisted of a two-year period of low ‘teaser’ rate interest and a following 28-year period of high interest. He further states that the rapidly increasing interest rates were purposely used by lenders to incentivize refinancing activity, but more importantly, to increase the likeliness of default which then allowed lenders to repossess homes and to acquire equity (ibid.). Thereby, instead of enabling homeownership, lenders effectively stripped home equity from borrowers (ibid.).

Furthermore, Albers adds that the crisis was caused, to a significant extent, by the sale of exploitative loans to exploitable borrowers, which he refers to as ‘predatory lending’ (ibid., p. 159). This is supported by Feldstein (2010, p. 144), who claims that some mortgage lenders took advantage of consumers who did not understand the implications of the loan obligations that incurred, particularly through the effect of ‘teaser’ rates to be followed by steep future increases. Moreover, Macey, Miller, O’Hara, & Rosenberg (2009, pp. 809 ff.) report that borrowers specifically entered into adjustable rate mortgages (ARMs) with low, fixed two-year ‘teaser’ rates before they reset to high, floating rates, after subprime mortgage brokers promised that they would be able to refinance before the end of the fixed ‘teaser’ period. Sholarin (2010, p. 18) mentions that commercial banks as well as private mortgage providers were offering ‘teaser’ rates to specifically incentivize people with an unstable stream of earnings to take on mortgages. Aalbers infers that most predatory loans were sold to borrowers who could have applied for cheaper loans, which emphasizes that the exploitative character of these loans was of higher importance than the increased default risk of the borrowers (Aalbers, 2008, p. 159). Borrowers were either offered loans that were more expensive than the borrower’s risk profile would suggest, or they were offered overpriced mortgage insurance which they often did not need (ibid.). Consequently, this procedure frequently ended in mortgage foreclosure and housing abandonment (ibid.).

Schmudde (2009, pp. 720 ff.) states that since subprime borrowers were generally happy to be offered any mortgage loan, they were willing to accept very onerous terms, which was used by lenders in order to grant subprime loans to borrowers who could barely, if at all, afford to pay even the initial 'teaser' rate on mortgages.
He further puts Lewis' opinion into perspective by mentioning that many people have blamed ARMs as a significant driver of the subprime crisis and confirms that they were part of the problem but argues that they were not responsible for it as much as many people believe (ibid., p. 722). In Schmudde's opinion, as long as the borrower fully understands the terms of the mortgage and plans accordingly, an ARM can generally be useful to the borrower (ibid.). However, he acknowledges two potential traps which have impacted borrowers and defines them as the following: I. Since after the two-year 'teaser' period, the rate adjustment was based on an index such as the London Inter-bank Offered Rate (LIBOR) plus an additional margin above the rate of the index, the monthly payment became absolutely dependent on market interest rates, which were out of the borrower's control and therefore made it difficult to plan accordingly; II. Since the low 'teaser' rate was used to qualify the borrower for the loan, it was possible for borrowers to obtain mortgages with monthly payments they could no longer afford after the two-year 'teaser' period terminated (ibid., p. 723). However, he concludes that although some ARMs were going into default, the rate of their default was not catastrophic and emphasizes that the evaluation of the borrowers' income was more important to the determination of risk involved with subprime mortgages than the fact that initial low 'teaser' rates reset to higher, floating rates after two years (ibid pp. 723 ff.).
This perception is challenged by Feldstein (2010, p. 142) who alleges that restrictions on the use of temporarily low 'teaser' rates would have prevented a large number of mortgage defaults and thereby implies that a large number of mortgage defaults resulted from temporarily low 'teaser' rates. Akinbami (2010, p. 170) further supports this by stating that the asset bubble burst coupled with increases in monthly mortgage payments due to initial low 'teaser' rates coming to an end, led the number of defaults on subprime mortgages to soar. By referring to a 'payment shock' that commonly accompanied the switch from low, fixed 'teaser' rates to the high, floating rates, Macey et al. (2009, p. 794) agree that this procedure has served as a major contributor to the subprime crisis and support their position by arguing that subprime loans were sold to borrowers at 'teaser' rates with the smooth pitch that there would be no need to worry about the reset because good things such as a better job, a better loan, or winning the lottery might happen. Macey et al. conclude that the mortgage loans originated in the subprime sector, especially the 2/28 mortgages, almost seemed designed to deceive (ibid.).

Foote, Gerardi, Goette, & Willen (2008, p. 6) disagree with Lewis' reasoning, based on a quantitative study covering mortgage loan data recorded in the state of Massachusetts from January 1987 through March 2008, with the statement that interest rate resets were not the main problem in the subprime market:

While it is confirmed that initial 'teaser' interest rates on subprime ARMs were generally lower than their reset rates, these 'teaser' rates were still significantly higher than the interest rates offered on prime mortgages (ibid., p. 8). As the subprime loans' fixed 'teaser' rates for the first two years ranged from 7.3 percent in 2004 to 8.6 percent in 2007, these allegedly low 'teaser' rates were three full percentage points higher compared to their nearest prime equivalent, a one-year ARM (ibid.). Thus, according to Foote et al., the initial fixed 'teaser' rates were exceptionally high by any reasonable standard, which would negate the assumption regarding low 'teaser' rates on subprime mortgages (ibid., pp. 8 ff.).

This argument is challenged by O'Connell (2010, p. 152) who approves of the fact that mortgage rates were two to three percent higher for subprime borrowers than for prime borrowers, however, implies that this holds true for the reset rates and points out that the initial 'teaser' rates had been lower.

Foote et al. continue that in 2004 and 2005, the high, floating interest rates which were due after the two-year 'teaser' period was terminated, were about three to four percent higher than the 'teaser' rates, which led 70 percent of subprime borrowers in Connecticut, Massachusetts to refinance (Foote et al., 2008, p. 9). However, in early 2007, short-term interest rates upon which the floating post-reset rates were based, began to decrease by five percent to be priced at three percent in May 2008, resulting in reset rates for subprime mortgages originated in 2006 and 2007 to be located at a similar level than the initial period's 'teaser' rates (ibid.). Foote et al. conclude that the main problem in the subprime market was the borrower's general inability to afford the monthly mortgage payment, not the interest rate tied to the loan (ibid.).

5.1.2 Hypothesis II

According to Lewis' shared perception, a crucial part of the misconduct that was happening between mortgage borrowers and lenders which eventually led to the crisis, followed from the defects of the models used to evaluate subprime mortgage bonds by the two major rating agencies, Moody's and Standard & Poor's (S&P) (Lewis, 2010, p. 98). He specifically accuses rating agencies of having failed to evaluate the individual home loans, upon which mortgage bonds were created and of having regardlessly issued ratings on these bonds, purely based on the general characteristics of the loan pools (ibid., p. 99). Correspondingly, Moody's and S&P asked the loan packagers not for a list of the individual Fair Isaac Corporation (FICO)

scores[1] of all the borrowers, but for the average FICO score of the pool (ibid.). To meet the rating agencies' standards in order to receive AAA ratings for the mortgage bonds, the average FICO score of the borrowers in the loan pool needed to be located at 615, which was achievable by balancing out lower FICO scores with higher FICO scores (ibid.). Apparently, the models used by the rating agencies offered additional opportunities for manipulation such as by not distinguishing between a short and a long credit history in regard to the individual borrower, which are referred to as 'thin-file' and 'thick-file' FICO scores (ibid., p. 100). Further, they did not consider the interest rate level of the individual loans when evaluating whether borrowers would be able to make their repayments or not (ibid., p. 169). Lastly, as the securities in forms of CDOs or synthetic CDOs became more complex, the rating agencies simply did not understand the products anymore and asked the investment banks to send over their own model in order to provide a rating (ibid., p. 155, ibid., p. 76). Consequently, Wall Street investment banks specifically employed people to do nothing but elude the rating agencies' models (ibid., p. 101).

Lewis additionally claims that all the rating agencies worried about was maximizing the number of deals they could issue ratings for, as they collected fees for every single one (ibid., p. 157). Accordingly, they feared that investment banks would have their products rated by a competing rating agency, if they demanded too much information in order to issue the ratings (ibid., p. 171). Based upon the aforementioned, the following hypothesis will be evaluated by scientific research: "The rating agencies' rating practices were inadequate, defective, corrupt, and manipulable. Investment banks took advantage in order to obtain 'riskless ratings' on high risk products" (see chapter 3.3).

Guynn (2010, p. 472) confirms that the conduct of rating agencies belongs to the many weaknesses that contributed to the subprime crisis, referring to their inadequate and inaccurate identification of credit risk within their securities ratings. Bosworth & Flaaen (2009, p. 149) emphasize on the fact that rating agencies received payment for their ratings directly from the issuers of the financial product being rated, which created a conflict of interest for the agencies as well as the tendency for issuers to 'shop around' for the agency willing to give them the highest rating. According to Kirkpatrick (2009, p. 83), the possibility for conflicts of interests was especially apparent since the originator was paying not only for the ratings but also for a specified rating. Because issuers would never buy a bad rating, rating agencies were incentivized to overstate the quality of any given issuance (Pagano & Volpin, 2010, p.

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[1] The FICO score helps lenders make accurate, reliable, and fast credit risk decisions (FICO®, n. d., n. pag.). It ranks consumers based on how likely they are to pay their credit obligations and is used by 90% of the largest US lending institutions for their risk assessment needs (ibid.). The generic FICO score ranges between 300 and 850 while the median U.S. FICO credit score in 2006 was 723 (ibid.).

414). Based on a collection of documents released by the U.S. Senate, Levine (2010, p. 201) states that rating agencies consciously adjusted their rating standards to gain clients and boost revenues. The fact that the rating agencies were conflicted, which led their ratings to be of suspect nature, is also supported by Eisenbeis (2009, p. 460), who constitutes that rating agencies I. Were directly paid by the issuers of securities to provide ratings; II. Actively participated in consulting issuers on how to structure their instruments in order to achieve the desired ratings; III. Employed inadequate statistical models for evaluating the risks to cash flows; and IV. Lacked accountability for their ratings by relying upon first amendment protections of their opinions. Hindmoor (2010, p. 450) adds that since the U.S. government had given some rating agencies a quasi-official status as Nationally Recognized Statistical Rating Organization (NRSRO), they could increasingly afford to work negligent, corrupt, and inaccurate because no competitor was able to take advantage of their mistakes. Schmudde (2009, p. 743) concludes that rating agencies behaved not as protectors of investors, but instead as enablers of the parties who were issuing the securities. Nevertheless, investors relied upon their ratings when deciding which products or tranches of securities to buy (Eisenbeis, 2009, p. 460).

Furthermore, it is approved that mortgage loans within mortgage bonds were not evaluated individually, as rating agencies took the position that the bundled mortgage bonds were a statistical problem, not requiring an analysis of the underlying instrument (Schmudde, 2009, p. 747). They instead rated these bonds upon historical default performance, which created the additional problem that this period did not include an episode in which the U.S. house prices systematically decreased, since subprime loans were a relatively recent innovation and corresponding quantitative data only went back in time for about ten years (Carruthers, 2010, p. 165). Moreover, by using the same uniform measure of credit quality, which is used across all types of debt instruments, agencies led investors to believe that an AAA rated corporate bond should exhibit the same degree of credit quality as an AAA rated securitized issue (Pagano et al., 2010, p. 407; Schmudde, 2009, p. 746). The disproportionate nature becomes visible as in 2007, 60 percent of all global structured products were AAA rated, in comparison to less than 1 percent of the corporate issues (Hindmoor, 2010, p. 447; Pagano et al., 2010, p. 407). Further, the average default rate on corporate bonds receiving Moody's lowest investment-grade rating (Baa) between 1983 and 2005 was 2.2 percent, whereas the average default rate on CDO tranches receiving the same rating during the same period was 24 percent (Strier, 2010, p. 539).

Moreover, Rona-Tas & Hiss (2010, p. 142) confirm Lewis' statement that agencies did not consider the interest rate level of individual mortgages, as the loans' various

conditions, including the interest rate and the actual value of the item purchased are missing from the credit history and were therefore not included into the FICO score. However, they partly disagree with the statement that rating agencies did not distinguish between long and short credit histories, as FICO itself estimates the potentially missing elements of a borrower's credit history and therefore reflects this in the FICO score, which again was used by the agencies (ibid., p. 149).

Jacobs (2009, p. 6) disagrees with Lewis, as he reports that when rating agencies rated MBSs, they did screen the individual mortgages underlying an MBS, including the loan's principal amount, its geographic location, the borrower's credit history, the loan to value (LTV) ratio, and the type of loan. To the contrary, by quoting S&P's former Head of Residential Mortgage Backed Securities, Frank Raiter, Kling (2010, p. 511) assures that since Raiter did not believe loan level data was necessary in order to effectively determine risk faced by MBSs, all requests to build in-house data bases were rejected. Conversely, Jacobs concedes that although the agencies looked at data on individual loans, they were not required to verify any of the information given to them by the issuers (Jacobs, 2009, p. 9). Additionally, for CDOs, the agencies routinely analyzed the underlying MBS tranches, but not the original, individual mortgages (ibid., p. 6). Lastly, none of the rating agencies had specific written procedures for rating subprime instruments (ibid.).

Based on a report issued by Moody's in 2007, which states that Moody's was now about to request detailed loan level data from issuers for the first time since 2002, such as the individual borrower's debt-to-income (DTI) level, the appraisal type, and the identity of the lender that originated the loan, Pagano et al. (2010, p. 416) clarify that before then, ratings on MBSs have been made entirely of summary statistics: the proportions of fixed/floating rate loans; the proportions of first-/second-lien loans; the proportions of single-/multi-family homes; the proportions based on regional allocation of loan origination by state; the proportions of FICO scores below 600, between 600 and 660, and above 660; the average LTV ratios; and the average DTI level (ibid., pp. 411 ff.).

Rona-Tas et al. (2010, p. 132) further comment on Lewis' allegation that rating agencies simply did not understand the financial products that were being created as their complexity increased in forms of CDOs and synthetic CDOs: due to the increasing volume of such products to be rated, time pressure was so intense that many of the judgmental elements which initially belonged to the agencies' rating processes faded, although they never disappeared (ibid.). In the end, ratings were still decided by committee vote (ibid).

Lastly, while Rona-Tas et al. confirm that rating agencies' models were gamed by arranging investment banks adjusting their products the necessary way in order to

obtain high ratings (ibid, pp. 131 ff.), they emphasize that especially the FICO score, which served agencies as a primary indicator for creditworthiness, was by no means a perfect one and itself highly manipulated by lenders and borrowers (ibid., p. 135). This argument is justified by the fact that the average FICO scores of borrowers that defaulted on their mortgage loans between 2003 and 2006 did not deteriorate, but instead showed a steady increase (ibid., p. 133).
However, rating agencies still played an active role in supporting originators and arrangers to use credit enhancement means to acquire investment grade ratings for toxic assets, by offering assistance in selecting and engineering products preferred by their own models' (Sholarin, 2010, p. 25). This was misleading to investors as it created a disconnection between the true risk involved with the products and the risks disclosed to the investors (Schmudde, 2009, p. 747). When this was eventually realized, investors lost confidence in ratings and in securitized products in general (Kirkpatrick, 2009, p. 83).

5.1.3 Hypothesis III

Lewis claims that the enforcement division of the SEC neither completely understood the circumstances, nor showed any interest in possible consequences of misvalued financial products and a potential housing bubble (Lewis, 2010, p. 166). He further alleges that Fed's former chairman, Alan Greenspan, knew about the critical development within the subprime sector, but ignored it (ibid., p. 229). Accordingly, the following hypothesis will be evaluated by scientific research: "Regulating government institutions neither thoroughly investigated, nor sufficiently counteracted the negative development of the subprime mortgage market" (see chapter 3.3).
Based on the description of the crisis, that large capital inflows to the U.S. lowered interest rates, fueled mortgage lending, a reduction in loan standards, and financial innovations that produced an unsustainable amount of credit, made by Alan Greenspan in 2010, Levine (2010, p. 196) evaluates his position as characterizing the crisis as intertwined accidents. He further comments that this view is incomplete and corrects Greenspan's description by stating that while large capital flows into the USA fueled speculative investments in real estate, and while financial shenanigans supported a destabilization of the global financial system, a different perspective holds that official agencies such as the Fed, the SEC, and Congress are co-responsible for the crisis by implementing policies that supported excessive risk taking and the eventual failure of the financial system (ibid., p. 197).
The thesis that government institutions did not thoroughly investigate the developing drivers of the crisis, specifically regarding the Fed, is supported by Begg (2009, p. 1108), who generalizes that all central banks have responsibility for financial stability

in their mandates, while the subprime crisis revealed a lack of attention to such stability. Additionally, he declares the relationships between regulatory and supervisory bodies and the Fed to have proven inadequate (ibid.). Guillén & Suárez (2010, p. 269) support this opinion as they argue that the rapidly changing regulatory landscape, by the trend of removing obstacles to the free unfolding of market forces under the assumption that markets could self-regulate, contributed to the subprime crisis by encouraging the system to become tightly coupled and to increase in its complexity. They justifiy this encouragement by the existence of a fragmented regulatory structure, which did not have a sufficient overview of the system in order to identify problems and was missing authority necessary to deal with problems that could threaten it (ibid., p. 266).

Levine further confirms Lewis' allegation in regard to his position on Alan Greenspan, that the regulatory agencies were aware of the consequences their policies would entail and yet chose not to modify those policies (Levine, 2010, p. 197). Contrarily to the opinion of Guillén et al., he explains his argument by stating that policy decisions neither reflected a lack of information, nor an absence of regulatory power (ibid.). He elaborates that the key authorities, associated with evaluating, reforming, and implementing financial policies, knew that these policies were distorting the allocation of capital, but still did not reform them (ibid.). He specifically mentions I. The occurrence of the Fed realizing that it had failed to sufficiently monitor Citibank's financial condition in 2005 and still not correcting this shortcoming until after Citibank's condition deteriorated in 2008; and II. The fact that the General Inspector of the Fed and Federal Deposit Insurance Corporation (FDIC) had provided detailed evidence that regulators failed to implement their own rules to control the increasingly risky behavior of banks (ibid.).

Mazumder & Ahmad (2010, p. 115) also support the position that regulatory policies encouraged speculation and excessive risk taking behavior, which in turn helped to inflate the house price bubble. They argue that in 2004, the implementation of Basel II, which had proposed international standards for bank capital management in order to mitigate concentration risk, credit risk, financial risk, legal risk, liquidity risk, market risk, operational risk, pension risk, reputation risk, strategic risk, systematic risk, and arbitrage opportunities by the implementation of a minimum capital adequacy ratio, a supervisory review process for regulators, and enhanced disclosures for greater market discipline and stability, could have prevented the crisis at least partially (ibid., p. 116). However, it was not successfully implemented in the U.S. as in many other markets (ibid.).

Campbell (2010) agrees that, to a significant extent, regulating institutions were responsible for the crisis by enumerating various reasons. He further argues that

these institutions failed to counteract the negative developments by expressing incomprehension: “Why [asset backed securities] were not regulated requires some explanation because the unbridled operation of the derivatives markets was another root cause of the financial meltdown” (ibid., p. 79). He further stresses his opinion by illustrating that the shift toward riskier and more highly leveraged investments led to problems regarding the evaluation of risk involved in the new and more complicated financial instruments, that the government regulators left almost entirely to the private sector (ibid., p. 81). After the SEC eventually began to worry about the amount of risk these derivatives entailed, it mandated that financial firms had to disclose the risk to investors (ibid., p. 82). However, the SEC left it up to the private sector on how to disclose it, which led the majority to use J.P. Morgan’s Value at Risk (VaR) model, which posed various problems in reflecting the true risk and also contributed to under-capitalization (ibid., pp. 81 ff.). Lastly, Campbell concludes that if it had not been for lackadaisical and highly misleading risk assessment tolerated by the SEC, investors would have been less eager to purchase the products offered in the derivatives markets by the shadow banking system (ibid., p. 81).
Moreover, due to the fact that regulating institutions had incorporated the use of credit ratings issued by NRSROs for the purpose of measuring credit quality, Baklanova (2009, p. 74) claims that thereby, the incentive for regulating entities to conduct their own thorough credit analyses was weakened. She further elaborates that after the recognition of possible negative consequences of the regulatory use of ratings, the SEC called into question the appropriateness of using NRSRO ratings as part of the regulatory process, and proposed amendments to its rules on July 1, 2008 (ibid., p. 75).

5.1.4 Hypothesis IV

By outlining the drastic loosening of lending standards from 1996 until 2006 and by referring to the origination pioneers of subprime lending who, to a large extent, defaulted due to bad loans which they had kept on their balance sheets, Lewis argues that instead of having learned the lesson not to grant loans to borrowers who are not creditworthy, lenders had continued to issue such loans with the modification of securitizing them to investment banks and thereby to eliminate the risk (Lewis, 2010, pp. 23 ff.). By not keeping the loans on their own balance sheet and distributing them instead, subprime lenders were incentivized to further degrade their lending standards in order to satisfy the vast demand of uncreditworthy borrowers (ibid., p. 28). After the two-year ‘teaser’ period was over, the interest rate would increase (see chapter 5.1.1) and borrowers either defaulted or, if their home price had risen, refinanced (ibid., p. 169). As the originators did not keep the loans on their balance

sheets, the event of a borrower's default was of no interest to them while the refinance option was merely a chance to charge the borrower new fees (ibid.). Therefore, the following hypothesis will be evaluated by scientific research: "The originate-to-distribute model led mortgage originators to degrade their own lending standards which increased the likelihood of default" (see chapter 3.3).

Bhalla (2009, p. 48) pleads that while the originate-to-distribute model was initially designed to deliver a more efficient allocation and distribution of risks in the economy, it actually gave rise to inefficient outcomes and distorted the behavior of the various parties involved in the securitization process. In regard to the originators of subprime loans, Bhalla confirms Lewis' statement, their incentives to screen and monitor borrowers may have been reduced under the originate-to-distribute model, once they sold the originated assets to investment banks that subsequently repackaged them into securities (ibid). Instead, loan originators rather focused on expanding volumes of originated loans in order to increase their profits (ibid.). The hypothesis that the originate-to-distribute model ultimately led to a decline in lending standards, is further approved by Brunnermeier (2009, p. 78). He similarly argues that this financial innovation was initially supposed to stabilize the banking system by transferring risk to those most able to bear it, but instead led to an unprecedented credit expansion that helped feed the boom in housing prices (ibid.). Gorton (2009, p. 38) also supports this position by referring to a principal-agent problem, in which the agent (the originator of the loans) did not have the incentives to act fully in the interest of the principal (the ultimate holder of the loan). Tarr (2010, p. 171) comparably refers to a moral hazard problem in this context. While originators had every incentive to increase the origination volume in order to raise their profits through fees, they had weak incentives to maintain an adequate loan quality (Gorton, 2009, p. 38).

Purnanandam (2010, p. 2) generally agrees and goes further into detail by illustrating that lending decisions are based on a number of hard borrower characteristics which are easy to credibly communicate to third parties, as well as soft characteristics that cannot be easily verified by parties other than the originator itself. Consequently, as the originating institution sheds off the credit risk and as the distance between the originator and the ultimate holder of risk increases, the originator's incentives to collect and consider soft information decreases (ibid.). This argument is further strengthened by the fact that in 2007, 40 percent of subprime loans were made through automated underwriting approvals that allowed loans to be approved without appropriate qualitative review and documentation made by humans (Sun & Bellamy, 2010, p. 112). Linn (2009, p. 9) goes further and claims that the originate-to-distribute model caused not just a loosening of underwriting standards, but encouraged originators and lending officers to participate in mortgage fraud schemes such as

staging loan files to include false documents, or adverting their eyes to obvious misinterpretations on loan documents.

In contrast to Lewis' opinion however, Gorton and Purnanandam both reject the view that by use of the originate-to-distribute model, the entire risks of loans were passed along to investors, leaving the originators with no risk, since significant losses had been suffered up and down the entire subprime chain (Gorton, 2009, p. 38; Purnanandam, 2010, p. 2). Before single loans could be bundled and securitized, or later be divided into tranches and sold as CDOs, they had to be warehoused by the respective party which were then facing direct exposure to the originated risk (Gorton, 2009, p. 39). In addition, the originators typically guaranteed the loan performance for the first 90 days after origination (Purnanandam, 2010, p. 2).

Furthermore, Thomas (2010) argues a differing view about the role of securitization in the subprime crisis. In his opinion, I. The growth of leveraged buyers; II. The repackaging of MBSs into CDOs; and III. The impact of mark-to-market accounting played a pivotal role in regard to its causes (ibid., p. 20). Thomas claims that while leveraged investments in MBSs prevented securitization from fulfilling its primary economic function of disintermediation, they also increased the risk of systematic fear (ibid, p. 21). He further states that since the willingness of credit agencies to accept that a pooling of mezzanine bonds could be retranched into a new bond with a senior tranche of AAA, and the willingness of investors to believe that the AAA label on this product implied low risk, the eventually poor performance of CDOs, reflecting the highest investor losses in the U.S. subprime market, has tarnished the reputation of securitization (ibid.). Lastly, he argues that the requirement of banks to mark-to-market their MBS portfolios unnecessarily created enormous additional volatility in the financial system (ibid.).

Nevertheless, Purnanandam (2010, p. 33) concludes that quantitative evidence comprised of banks with high such as banks with low participation in the originate-to-distribute market confirms the belief that the lack of screening incentive, created by the separation of origination from the ultimate bearer of the default risk, has been a contributing factor to the subprime crisis.

5.1.5 Hypothesis V

Lewis explains that the creation of synthetic CDOs was initiated because there were not enough uncreditworthy U.S. Americans applying for loans in order to satisfy the investor's demand to invest in respective mezzanine CDOs (Lewis, 2010, p. 143). Accordingly, originators used cash flows from CDSs in order to replicate bonds backed by actual home loans (ibid.). Consequently, the ultimate losses in the financial system were much greater than just the subprime loans (ibid). Based on Lewis'

opinion, the following hypothesis will be evaluated by scientific research: “Because synthetic CDOs were used to replicate bonds backed by actual home loans, the losses in the financial system were much greater than just the losses in subprime loans” (see chapter 3.3).

Gorton’s general description of synthetic CDOs is congruent to the one made by Lewis, as he claims that Synthetic CDOs sell credit protection via CDSs instead of purchasing cash assets (Gorton, 2009, p. 27). Contrarily to Lewis’ description of the reason why synthetic CDOs were created, Chen and Akinbami list additional benefits offered by the products: From an originator’s perspective, the transfer of credit risk was facilitated via CDSs because of lower structuring costs, especially if the loans were from different legal jurisdictions (Chen, 2009, p. 192). Consequently, synthetic CDOs enabled originators to offload credit risk without selling loans, and thereby to save structuring costs (ibid). From an investors perspective, synthetic CDOs could provide additional arbitrage opportunities (Akinbami, 2010, p. 179).

Jacobs (2009, p. 5) takes Lewis’ position regarding the initiation for synthetic CDOs as he acknowledges the growth in popularity of CDOs, of which USD 552 billion were sold between 2004 and 2006, and argues that the demand had outstripped the supply of raw material. The CDO exposure to mezzanine MBS issuance, which amounted to 65 percent in 2004, increased to 160 percent in 2005 and to 193 percent in 2006 (ibid). Accordingly, the excess exposure was synthetically created by the use of CDSs (ibid.). Gorton also agrees that mezzanine CDOs issued between 2005 and 2006 used CDSs to take on significantly greater exposure to the 2005 and 2006 vintages of subprime BBB- rated MBSs than were actually issued (Gorton, 2009, p. 29). This is justified by recorded data which indicate that BBB- rated subprime MBS issuance amounted to USD 12,3 billion in 2004; USD 15,8 billion in 2005; and USD 15,7 billion in 2006, while the exposure of mezzanine CDOs amounted to USD 8.0 billion in 2004 (65%); USD 25.3 billion in 2005 (160%); and USD 30.3 billion in 2006 (193%), further proving Jacobs’ percental indication displayed above (ibid.). Consequently, Gorton concludes that the demand for exposure to riskier tranches of subprime MBSs exceeded the supply by a wide margin and was therefore created synthetically (ibid).

In regard to the hypothesis, Stacey & Morris (2009, p. 6) confirm that synthetic credit structures substantially added to leverage in the financial systems and interpret it as one of the five intersected factors that built the roots for the crisis.

5.2 Result[2]

As aforementioned, hypothesis I states: “The artificially low ‘teaser’ rates for the first years of a subprime mortgage loan led many potential borrowers, that could actually not afford such a loan, to take it and caused a wave of defaults when the rates eventually increased” (see chapter 3.3). Lewis’ fundamental introduction into the rationale and the mechanism of ‘teaser’ rates in ARMs could similarly be found in all selected scientific sources, dedicated to hypothesis I. The claim that a multitude of subprime loans were designed with artificially low ‘teaser’ interest rates which reset to higher, floating rates after two years of origination was generally confirmed by Aalbers (2008), Akinbami (2010), Feldstein (2010), Macey et al. (2009), O’Connell (2010), Schmudde (2009), and Sholarin (2010). However, based on a quantitative analysis of loan data in the state of Massachusetts, Foote et al. (2008, p. 8) argue that the ‘teaser’ rates could not be considered low as they were averagely priced three percent above the nearest prime equivalent. A second argument adds that interest rates of subprime mortgages originated in 2006 and 2007 remained at similar levels even after the two-year ‘teaser’ period was over, as the short-term interest rates, on which the floating reset rates were based upon, had decreased (ibid., p. 9). While the scope of these arguments needs to be considered limited to the geographical area of where the analysis was conducted, it possibly undermines Lewis’ implied claims that I. ‘Teaser’ rates were low; as well as that II. ‘Teaser’ rates reset to higher rates after two years of origination. While one’s understanding and interpretation of the adjective ‘low’ can vary individually, Lewis’ statement in regard to a definite increase of interest rates after termination of the respective ‘teaser’ period is potentially contradicted. However, as Lewis specifically refers to subprime loans originated in early 2005 (Lewis, 2010, p. 30); and Foote et al. address loans originated in 2006 and 2007 (Foote et al., 2008, p. 9), Lewis’ statement holds true. Since apart from Foote et al., all remaining sources confirm Lewis’ claim, it may be considered vague as Lewis does not compare the implied ‘low’ pricing of ‘teaser’ interest rates to the pricing of prime loan interest rates, though it shall not be considered false.

The position that ‘teaser’ rates led many potential borrowers, who could actually not afford such a loan, to take it, is confirmed by Macey et al. (2009), Schmudde (2009), and Sholarin (2010) while the conclusion that a wave of defaults was caused when the ‘teaser’ rates eventually increased is further agreed upon by Aalbers (2008), Akinbami (2010), Feldstein (2010), and Macey et al. (2009). Although Schmudde questions the perspective to entirely blame ARMs for the default of borrowers and

[2] The following conclusions are based on the discussion presented in chapter 5.1. All sources that are used without a complete reference have been properly cited in chapter 5.1 and can be found in the list of references. All additional sources are regularly cited directly in the text.

points out that if the terms of the mortgage are completely understood, an ARM can also be beneficial to a borrower, he also concedes that ARMs did offer traps which have contributed to defaults. Accordingly, while Lewis' arguments may occasionally lack reasoning, the essence of his statements are confirmed as per the selected sources. Consequently, hypothesis I is verified by scientific research.

Hypothesis II reads "The rating agencies' rating practices were inadequate, defective, corrupt, and manipulable. Investment banks took advantage in order to obtain 'riskless ratings' on high risk products" (see chapter 3.3). The essence of the hypothesis, that either inadequate, defective, manipulable, or corrupt practices carried out by credit rating agencies have negatively impacted the course of the subprime crisis is confirmed by all selected sources dedicated to hypothesis II. The inadequacy, defectiveness, and manipulability of rating practices that Lewis' refers to are predominantly based on an alleged lack of evaluation regarding individual loan level data when rating MBS or CDO tranches. He accuses rating agencies of having relied their measures entirely on summary statistics which did not correctly reflect the risk and were not resistant to manipulation. That rating agencies did not evaluate individual loan level data and instead entirely based their ratings upon summary statistics is confirmed by Carruthers (2010), Kling (2010), Rona-Tas et al. (2010), and Schmudde (2009). However, as Jacobs (2009) and Pagano et al. (2010) partly dissent, it is indicated that Moody's began to request loan level data in 2007 but had not done so before. Accordingly, since Lewis displays the fact in a generalized manner as he typically lumps together S&P, Moody's, and Fitch and does not refer to an exact time range, his reasoning is not refuted but may be interpreted as one-sided and incomplete. An incomplete argumentation can be further evidenced as Lewis' claim regarding the missing differentiation between long and short credit histories in the rating process is moderated by Rona-Tas et al. (2010) who explain that FICO already reflects such variables in its score, which again was used by the rating agencies and was thereby considered in the rating, whereas indirectly.

Furthermore, the subsequent claim that rating agencies' models were not resistant to manipulation of which investment banks took advantage, is confirmed by Rona-Tas et al., who do not only blame rating agencies but also FICO, as their scores offered significant options for manipulation. This indicates a possible tendency of bias since it is only addressed very briefly by Lewis as he states that FICO scores were simplistic and manipulable, however he emphasizes that the problem with FICO scores was overshadowed by the way they were misused by the rating agencies (Lewis, 2010. p. 99). The claim that rating agencies acted corrupt is based upon Lewis' proposition that they predominantly cared about profit maximization and feared to lose clients in case of a proper risk evaluation. This is generally confirmed by Bosworth et al. (2009),

Eisenbeis (2009), Hindmoor (2010), Kirkpatrick (2009), Levine (2010), and Pagano et al. (2010). In fact, by referring to a conflict of interest, by mentioning that rating standards were consciously adjusted in order to increase profits, and by emphasizing the fact that next to the issuance of ratings, agencies also consulted originators on how to structure their instruments in order to achieve the desired ratings, some of the authors particularly stress the corruptness of rating agencies. However, Lewis' allegation that rating agencies lacked a general understanding of the products they were rating as they gained in complexity seems exaggerated as Rona-Tas et al. merely mentions that an increasing volume of products led to higher time pressure resulting in looser judgement of ratings, as opposed to a lack of judgement altogether. Additionally, Lewis' assertion that investment banks specifically employed people designated to elude the rating agencies' models could neither be confirmed nor denied.

While the basic statements in regard to the misbehavior of rating agencies formulated by Lewis could all be confirmed by scientific research, some individual, detailed positions could either not be found or were identified as one-sided, incomplete or exaggerated. Thus, while the hypothesis formed out of Lewis' statements is generally verified, some of his positions towards rating agencies as causes of the crisis can be considered disproportional and therefore may indicate a tendency toward bias or embellishment.

Hypothesis III states the following: "Regulating government institutions neither thoroughly investigated, nor sufficiently counteracted the negative development of the subprime mortgage market" (see chapter 3.3). The hypothesis was based on Lewis' explicit allegations encompassing I. An absence of comprehension and engagement of the SEC; and II. Alan Greenspan's willful negligence towards the developing crisis. A generally insufficient engagement of the SEC or the Fed regarding the developing crisis is confirmed by all sources dedicated to hypothesis III. While Baklanova (2009) and Campbell (2010) acknowledge some investigative involvement by the SEC throughout the course, they evaluate this involvement as inadequate or emphasize on its late timing. The accusation that Alan Greenspan as representative for the Fed knowingly ignored the crisis' development is specifically confirmed by Levine (2010). However, a lack of comprehension regarding the SEC as alleged by Lewis could neither be confirmed nor denied. Accordingly, hypothesis III is verified by scientific research while a potential overstatement regarding the SEC's incomprehension about the general affairs of the crisis cannot be precluded.

Hypothesis IV reads: "The originate-to-distribute model led mortgage originators to degrade their own lending standards which increased the likelihood of default" (see chapter 3.3). The hypothesis is generally confirmed by Bhalla (2009), Brunnermeier

(2009), Gorton (2009), Linn (2009), Purnanandam (2010), Sun & Bellamy (2010), and Tarr (2010). As Thomas (2010) argues a separate view about the role of securitization in the subprime crisis by naming his perception of the three most crucial drivers, he presents a different perspective but does not disagree with Lewis' claims. However, Lewis' allegation that originators were not interested whether their borrowers defaulted or not as they kept none of the risk of the loan, is contradicted by Gorton (2009) and Purnanandam (2010) who argue that losses have occurred throughout the entire subprime chain and emphasize that originators were also facing risk, at least for the duration between origination and distribution. Accordingly, another overstatement which may potentially be used to embellish the facts in order to increase the value of entertainment by Lewis is identified. Consequently, while the essence of hypothesis IV is verified by scientific research, it shall be considered that not every contextual detail stated by Lewis could be agreed upon.

Hypothesis V states "Because synthetic CDOs were used to replicate bonds backed by actual home loans, the losses in the financial system were much greater than just the losses in subprime loans" (see chapter 3.3). Lewis' proposition, on which the first part of the hypothesis is based upon, claims that there were not enough subprime loans in order to satisfy the demand of investors willing to buy CDOs with underlying real estate portfolios. Accordingly, synthetic CDOs were created to replicate bonds backed by actual home loans. This rationale is confirmed by Gorton (2009) and Jacobs (2009) who both justify their statements by providing specific numbers in regard to an excess exposure of CDOs to mezzanine MBS issuance. However, as Akinbami (2010) and Chen (2009) mention additional benefits offered by synthetic CDOs, an indication for a simplified as well as a one-sided argumentation from Lewis is provided as he does not mention any additional benefits of CDOs. Furthermore, as for instance, Carruthers (2010, p. 179) mentions: "To keep things simple, I do not discuss synthetic CDOs", a significant portion of selected scientific sources does specifically not cover the topic of synthetic CDOs in order to stay within certain limits of complexity. This increases the assumption for a potentially simplified approach carried out by Lewis. Nevertheless, as Stacey et al. (2009) confirm that synthetic credit structures in general substantially added to leverage in the financial systems, a correct essence of hypothesis V is probable. However, due to a lack of scientific opinions in regard to the topic, the second part on which hypothesis V is based upon, that losses in the financial system were much greater because of synthetic CDOs, can neither be confirmed nor denied. Consequently, as no contradicting opinions have been identified, Lewis' arguments hold true while a simplified approach towards his explanation of circumstances is indicated.

6 Conclusion

6.1 Summary

The subprime crisis was initiated by a steep increase in mortgage loan origination – specifically regarding subprime loans, incentivized through a low federal funds rate as well as innovative financial instruments related to the process of securitization, that increasingly gained attention. Thereupon, as house prices began to rise disproportionally throughout the U.S., it could eventually be referred to a house price bubble, which abruptly burst in the second quarter of 2006. As refinancing became problematic and 'teaser' rates of ARMs reset to higher, floating rates, a multitude of mortgage borrowers, especially those of subprime loans, were not able to repay their mortgages which resulted in increasing delinquency and foreclosure rates. Accordingly, as rating agencies eventually downgraded financial products with underlying mortgages in the year of 2007, asset prices decreased, companies defaulted, and the entire financial system indicated signs of a collapse. Lastly, as a multitude of international financial companies needed to be rescued by their central banks, trillions in U.S. private household wealth disappeared, and millions of U.S. citizens were suddenly unemployed, the subprime crisis transformed into a global financial crisis in 2008. World consumption, production, and trade were significantly impacted by the crisis and forced central banks around the globe to react by applying several conventional such as unconventional monetary policies.

After Michael Lewis had worked several years for Salomon Brothers, he was inspired to write his first book "Liar's Poker: Rising through the Wreckage on Wallstreet" at the age of 29 years, in which he negatively illustrated the wheelings and dealings of Wall Street. He subsequently published a number of non-fictional, entertaining, and educating books that have earned considerable success and were praised by an extensive variety of readers. The Big Short being one of them, was published in May 2010 and deals with the occurrence and the causes of the subprime crisis. After it was declared a best-seller and received a number of awards, Paramount Pictures released a movie based on the book, which turned into another success.

Lewis' targeting of mainstream markets for his publications as well as his personal history, warranted an investigation of accuracy and objectivity regarding his portrayal of the subprime crisis. As Lewis states reasons for the crisis from several different perspectives, five hypotheses, respectively focused on each main perspective have been formulated based on Lewis' statements. The perspectives entail I. The underlying mortgage market; II. Credit rating agencies; III. Financial regulation; IV. Securitization; and V. Synthetic securitization.

By the application of a SLR, 378 scientific sources from two search engines have been analyzed and strategically reduced to 35 in order to evaluate the hypotheses extracted from The Big Short. The method specifically aimed at unbiasedly inspecting an extensive variety of scientific publications for relevant insights in regard to the validation of hypotheses based on Lewis' statements. Furthermore, research eligibility criteria were used to limit potential sources to journal articles and book extracts that existed before Lewis' had published The Big Short, in order to preclude possible scientific recognitions that came to light after Lewis had finished his investigation.

The following findings were generated in the discussion regarding each hypothesis: Hypothesis I, "the artificially low 'teaser' rates for the first years of a subprime mortgage loan led many potential borrowers, that could actually not afford such a loan, to take it and caused a wave of defaults when the rates eventually increased" (see chapter 3.3), was verified with the remark that Lewis' arguments occasionally lack reasoning. Hypothesis II, "the rating agencies' rating practices were inadequate, defective, corrupt, and manipulable. Investment banks took advantage in order to obtain 'riskless ratings' on high risk products" (see chapter 3.3), was verified while some of Lewis' statements, on which the hypothesis was built upon, were identified as one-sided, incomplete or exaggerated which were assessed as a disproportional position towards rating agencies, indicating bias or embellishment. Hypothesis III, "regulating government institutions neither thoroughly investigated, nor sufficiently counteracted the negative development of the subprime mortgage market" (see chapter 3.3), was verified, however without a confirmation of Lewis' underlining allegation regarding the SEC's incomprehension about the general affairs of the crisis. Accordingly, a potential overstatement of facts is possible. Hypothesis IV, "the originate-to-distribute model led mortgage originators to degrade their own lending standards which increased the likelihood of default" (see chapter 3.3), was verified while a contextual overstatement could be identified again, as Lewis falsely claims that the originate-to-distribute model left originators with no risk. Lastly, hypothesis V, "because synthetic CDOs were used to replicate bonds backed by actual home loans, the losses in the financial system were much greater than just the losses in subprime loans" (see chapter 3.3), could only be partially verified as the selected literature comprised limited evidence in regard to the subject. However, Lewis statements hold true as specific, contradicting claims could not be found. Nevertheless, indications for a one-sided argumentation as well as for simplification were repeatedly given.

As presented in the introduction, the aim of this thesis is to analyze to what extent the causes of the subprime crisis cited in Michael Lewis' The Big Short are confirmed by scientific research. Based on a thorough validation of Lewis' arguments throughout

various contextual subjects, the result that virtually every general hypothesis formed upon his statements could be verified, proves that his display of the crisis is principally confirmed. Nevertheless, as one-sided, incomplete, and exaggerated argumen-tation could repeatedly be identified within Lewis' individual positions on a more detailed level, the presented incentives for investigation including simplification, bias or a conscious use of embellishment cannot be rejected.

6.2 Critical acclaim

While this thesis was conducted in a disciplined manner, certain limitations should be considered in regard to its methodical approach. The research eligibility criteria formulated for the SLR limited possible findings to peer-reviewed journal articles and book extracts in English language, available at two scientific search engines within the author's university library system. Thereby, a vast number of potential sources, possibly contradicting the findings presented herein, were excluded on the grounds of the limited scope a bachelor's thesis allows for.
Additionally, as research eligibility criteria is determined prior to the retrieval of publications, the possibility for an unbalanced allocation of sources in regard to the different subjects exists. Because the formulated criteria shall be consistent throughout the process, it cannot be amended individually in order to counteract such a development. Thus, the number of complementing or contradicting arguments used in each discussion according to the five individual hypotheses, is not always equally allocated.

6.3 Outlook

Since the repercussions of the financial crisis are still observable, especially with regard to increased regulatory policies such as higher capital requirements and compliance measures within the financial sector, it seems unlikely that another crisis could occur in a similar way, in the near future. From a different point of view, considering the S&P/Case-Shiller index, it can be evidenced that current U.S. house prices are even higher than they were at their peak in 2006, prior to the crisis. As their growth rate is currently estimated to remain stable, it is questionable how it will develop and possibly impact mortgage borrowers, in a long-term perspective.
On another note, as the discussion in this thesis was specifically limited to the time range between 2007 and 2010, it did not take into account any discoveries based on sources published after 2010. Accordingly, as the subprime crisis is still being investigated and has been investigated in the meantime, it is questionable how new scientific findings would impact the outcome of this thesis and could be of interest for future research.

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VI. Declaration of originality

I do hereby declare that this bachelor's thesis and the work herein was composed by and originated entirely from me. Information derived from published and unpublished work of others has been acknowledged in the text and references are given in the list of references.

VII. Declaration of consent

I do hereby agree that my bachelor's thesis will be included in the department's library. Third party rights will not be violated.

Appendix

I. Outline

II. List of figures and tables

1 Clustering of hypotheses

1.1 Hypothesis I

Hypothesis: The artificially low ‘teaser’ rates for the first years of a subprime mortgage loan led many potential borrowers, that could actually not afford such a loan, to take it and caused a wave of defaults when the rates eventually increased.

Table 1: Hypothesis I

Statement from The Big Short	Page
“The subprime mortgage loans being made in early 2005 were, he felt, almost certain to go bad. But as their interest rates were set artificially low, and didn't reset for two years, it would be two years before that happened. Subprime mortgages almost always bore floating interest rates, but most of them came with a fixed, two-year "teaser" rate. A mortgage created in early 2005 might have a two-year "fixed" rate of 6 percent that, in 2007 would jump to 11 percent and provoke a wake of defaults. The faint ticking sound of these loans would grow louder with time, until eventually a lot of people would suspect, as he suspected, that they were bombs”.	30 ff.
“Since 2000, people whose homes had risen in value between 1 and 5 percent were nearly four times more likely to default on their home loans than people whose homes had risen in value more than 10 percent. Millions of Americans had no ability to repay their mortgages unless their houses rose dramatically in value, which enabled them to borrow even more”.	65
“The subprime market tapped a segment of the American public that did not typically have anything to do with Wall Street: the tranche between the fifth and the twenty-ninth percentile in their credit ratings. That is, the lenders were making loans to people who were less creditworthy than 71 percent of the population”.	96
“The homeowner would pay a fixed teaser rate of, say, 8 percent for the first two years, and then, at the start of the third year, the interest rate would skyrocket to, say, 12 percent, and thereafter it would float at permanently high levels. It was easy to understand why originators like Option One and New Century preferred to make these sorts of loans: After two years the borrowers either defaulted or, if their home price had risen, refinanced. To them the default was a matter of indifference, as they kept none of the risk on the loan; the refinance was merely a chance to charge the borrower new fees”.	169

Source: Author’s own rendering based on (Lewis, 2010, pp. 30-169); Page numbers are given in second column

1.2 Hypothesis II

Hypothesis: The rating agencies' rating practices were inadequate, defective, corrupt, and manipulable. Investment banks took advantage in order to obtain 'riskless ratings' on high risk products.

Table 2: Hypothesis II

Statement from The Big Short	Page
"'The rating agencies didn't really have their own CDO model,' says one former Goldman CDO trader. 'The banks would send over their own model to Moody's and say, 'How does this look?'' Somehow roughly 80% of what had been risky triple-B-rated bonds now looked like triple-A-rated bonds".	76
"The sudden ability of his baby nurse to obtain loans was no accident: Like pretty much everything else that was happening between subprime mortgage borrowers and lenders, it followed from the defects of the models used to evaluate subprime mortgage bonds by the two major rating agencies, Moody's and Standard & Poor's".	98
"They quickly figured out, for instance, that the people at Moody's and S&P didn't actually evaluate the individual home loans, or so much as look at them. All they and their models saw, and evaluated, were the general characteristics of loan pools".	99
"Moody's and S&P asked the loan packagers not for a list of the FICO scores of all the borrowers but for the average FICO score of the pool. To meet the rating agencies' standards - to maximize the percentage of triple-A rated bonds created from any given pool of loans - the average FICO score of the borrowers in the pool needed to be around 615. There was more than one way to arrive at that average number".	99
"Apparently, the agencies didn't grasp the difference between a 'thin-file' FICO score and a 'thick-file' FICO score".	100
"The models used by the rating agencies were riddled with these sorts of opportunities. The trick was finding them before others did".	100
"All they knew was that Wall Street investment banks apparently employed people to do nothing but game the rating agencies' models".	101
"Moody's and S&P were piling up these triple-B bonds, assuming they were diversified, and bestowing ratings on them - without ever knowing what was behind the bonds! There had been hundreds of CDO deals - USD 400bn worth of the things had been created in just the past three years - and yet none, as far as they could tell, had been properly vetted".	130 ff.

“Inside the free market, however, there might be some authority capable of checking its excess. The rating agencies, in theory, were just such an authority. As the securities became more complex, the rating agencies became more necessary. Everyone could evaluate a U.S. Treasury bond; hardly anyone could understand a subprime mortgage-backed CDO”.	155
“All the rating agencies worried about was maximizing the number of deals they rated for Wall Street investment banks, and the fees they collected from them”.	157
“The rating agencies were about as low as you could go and still be in the industry, and the people who worked for them really did not seem to know just how badly they had been gamed by big Wall Street firms”.	158
“Eisman learned that the rating agencies simply assumed that the borrower would be just as likely to make payments when the interest rate on the loan was 12 percent as when it was 8 percent”.	169
“’When we shorted the bonds, all we had was the pool-level data’ … The pool-level data told you, for example, that 25 percent of the home loans in some pool were insured, but not which loans - the ones likely to go bad or the ones less likely to. It was impossible to determine how badly the Wall Street firms had gamed the system. ‘We of course thought that the rating agencies had more data than we had,’ said Eisman. ‘They didn't‘”.	170
This was insane: “The arbiter of the value of the bonds lacked access to relevant information about the bonds … ‘S&P was worried that if they demanded the data from Wall Street, Wall Street would just go to Moody's for their ratings’”.	171

Source: Author’s own rendering based on (Lewis, 2010, pp. 98-170); Page numbers are given in second column

1.3 Hypothesis III

Hypothesis: Regulating government institutions neither thoroughly investigated, nor sufficiently counteracted the negative development of the subprime mortgage market.

Table 3: Hypothesis III

Statement from The Big Short	Page
“A friend at the [Wall Street] Journal hooked them up with the enforcement division of the SEC, but the enforcement division of the SEC had no interest either. In its lower Manhattan office, the SEC met with them and listened …. ‘But they didn't know anything about CDOs, or asset-backed securities. We took them through our trade but I'm pretty sure they didn't understand it.’ The SEC never followed up”.	166

"'I think Alan Greenspan will go down as the worst chairman of the Federal Reserve in history,' he'd say, when given the slightest chance. 'That he kept interest rates too low for too long is the least of it. 'I'm convinced that he knew what was happening in subprime, and he ignored it, because the consumer getting screwed was not his problem. I sort of feel sorry for him because he's a guy who is really smart who was basically wrong about everything'".	229

Source: Author's own rendering based on (Lewis, 2010, pp.166-229) Page numbers are given in second column

1.4 Hypothesis IV

Hypothesis: The originate-to-distribute model led mortgage originators to degrade their own lending standards which increased the likelihood of default.

Table 4: Hypothesis IV

Statement from The Big Short	Page
"Even more shocking was that the terms of the loans were changing, in ways that increased the likelihood they would go bad. Back in 1996, 65 percent of subprime loans hat been fixed-rate …. By 2006, 75 percent of subprime loans were some form of floating-rate, usually fixed for the first two years. The original cast of subprime financiers had been sunk by the small fraction of the loans they made that they had kept on their books. The market might have learned a simple lesson: Don't make loans to people who can't repay them. Instead it learned a complicated one: You can keep on making these loans, just don't keep them on your books. Make the loans, then sell them off to the fixed income departments of big Wall Street investment banks, which will in turn package them into bonds and sell them to investors".	23 ff.
"That is, a lot of people couldn't actually afford to pay their mortgages the old fashioned way, and so the lenders were dreaming up new instruments to justify handing them new money. 'It was a clear sign that lenders had lost it, constantly degrading their own standards to grow loan volumes,' Burry said. He could see why they were doing this: They didn't keep the loans but sold them to Goldman Sachs and Morgan Stanley and Wells Fargo and the rest, which packaged them into bonds and sold them off. The end buyers of subprime mortgage, he assumed, were just 'dumb money'".	28

“The homeowner would pay a fixed teaser rate of, say, 8 percent for the first two years, and then, at the start of the third year, the interest rate would skyrocket to, say, 12 percent, and thereafter it would float at permanently high levels. It was easy to understand why originators like Option One and New Century preferred to make these sorts of loans: After two years the borrowers either defaulted or, if their home price had risen, refinanced. To them the default was a matter of indifference, as they kept none of the risk on the loan; the refinance was merely a chance to charge the borrower new fees”.	169

Source: Author’s own rendering based on (Lewis, 2010, pp.23-28); Page numbers are given in second column

1.5 Hypothesis V

Hypothesis: Because synthetic CDOs were used to replicate bonds backed by actual home loans, the losses in the financial system were much greater than just the losses in subprime loans.

Table 5: Hypothesis V

Statement from The Big Short	Page
“The credit default swaps, filtered through the CDOs, were being used to replicate bonds backed by actual home loans. There weren't enough Americans with shitty credit taking out loans to satisfy investors' appetite for the end product. Wall Street needed his bets in order to synthesize more of them. ‘They weren't satisfied getting lots of unqualified borrowers to borrow money to buy a house they couldn't afford,’ said Eisman. ‘They were creating them out of whole cloth. One hundred times over! That's why the losses in the financial system are so much greater than just the subprime loans. That’s when I realized they needed us to keep the machine running. I was like, this is allowed?’”.	143

Source: Author’s own rendering based on (Lewis, 2010, p.143)

2 Systematic literature review

2.1 First sample

Table 6: First sample

Hypothesis 1		Hypothesis 2		Hypothesis 3		Hypothesis 4		Hypothesis 5	
Emerald Insight	Ebscohost	Emera d Ins ght	Ebscohost	Emera d Insight	Ebscohost	Emerald Insight	Ebscohost	Emerald Ins ght	Ebscohost
Abolafia M. Y. (2010). The in	AALBERS M. B. (2009). Th	Aalbers M. B. (2009). Wro	Asensio A. & Lang D.	Baklanova V. (2009). Re	Ayadi R. & Behr P. (20	Ahmed A. (2010). Global	ALLEN F. & CARLETTI E	Akinbami F. (20 0). The gl	Arestis P. & M hailov A.
Agénor P. R. & Pereira da Sil	Bar-Gil O. & Warren E. (	Agénor P. R. & Pereira da	Assenmacher-Wesche	Becker B. Derbes E. K.	Begg I. (2009). Regulat	Akinbami F. (2010). The	Bhalla V. (2009). Global	Carruthers B. G. (2010). Ki	Ayadi R. & Behr P. (200
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	Hindmoor A. (2010). The b	Garcia G. G. H. (2009). Ign	Calomiris C. W. (2009).		Kofner S. (2007). Hedgi		Kriesler P. (2008). The cu		Gilbert U. Rasche A. Ak
	Issa D. (2006). *Unaffordab*	Goddard J. Molyneux P.	Catanach Jr A. & Ragg		Listings A. & Index G. (		Lang W. W. & Jagtiani J		Gorton G. (2009). The su
	Kahn G. A. (2010). Taylor f	Guillén M. F. & Suárez S.	Cavallo E. (2008). *Educ*		Listings A. & Index G. (		Lee J. W. & Park C. Y. (2		Gorton G. & Metrick A.
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	Lee J. W. & Park C. Y. (20	Hudson R. & Maio i S. (20	Chambers C. (2010). U		Silvers D. A. (2008). *How*		Lumpkin S. (2009). Resol		Hu H. T. C. & Black B. (2
	Liu R. (2009). The SwapRe	Iannuzzi E. & Berardi M.	Cheltenham U. K. & N		Treanor W. M. Katsoris		McKibbin W. J. & Stoeck		Jacobs B. I. (2009). Tumb
	Macey J. Miller G. O'Har	Jain A. K. (2009). Regulatio	CHEN N.-F. (2009). Ba				Nielsen R. P. (2010). Hig		Levin E. J. & Pryce G. B.
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	M lls E. S. (2009). Urban la	Klimecki R. & Willmott H	Cooney B. J. R. & Beat				North V. Credit A. Impl		Liu R. (2009). The SwapR
	Moore S. & Grimm T. (20	Levine R. (2010). An autop	Cooper R. W. & Ph D.				O'CONNOR A. (2010). Ge		MacKenzie D. (2010). *Ina*
	Muller B. Y. A. Almy R. &	Lo A. W. (2009). Regulato	Cowen T. (2009). A sim				OECD. (2009). *The corpo*		McKibbin W. J. & Stoeck
	Newman K. (2010). Go put	Matthews R. & Tiemsani	De Bondt W. Muradog				Padoa-Schioppa T. (2008		North V. Credit A. Imp i
	North V. Credit A. Implic	Mazumder M. I. & Ahma	de la Torre A. & Ize A				Piris J.-C. & Piris J.-C. (2		Piris J.-C. & Piris J.-C. (20
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	Rakshit M. (2009). The IM	O'Connell J. (20 0). The 20	Dowd K. (2009). Mora				Thomas R. (2010). The ru		Vasudev P. M. (2009). De
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	Sackley W. H. (2009). Subp	Perrow C. (2010). The mel	Eisenbeis R. A. (2009).				Wirth J. (2008). Federal		
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	Silvers D. A. (2008). *How d*	Rapp W. V. (2010). The lav	Eling M. & Toplek D.						
	Subprime T. H. E. Crisis M	Robertson R. A. & Perez-(	Fairfax L. M. (2009). Th						
	Young D. (2009). From wa	Rona-Tas A. & Hiss S. (20	Ferguson N. & Schular						
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		Sholarin O. (2010). The sub	Financial Executives Int						
		Smolo E. & Mirakhor A. (	Fishman R. M. (2010).						
		Sun W. & Be lamy L. (20	Ford C. (2010). Princip						
		Swedberg R. (2010). The s	Forte A. & Pesce G. (						
		Tarr D. G. (20 0). The po i	Fortin M. Ph D. & D						
		Troia R. (2009). The subpr	Fostel A. & Geanakop						
		Trow S. (2010). Did the be	Germain R. (2009). Fir						
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		Wong L. (2009). The crisis:	Haiss P. (2010). Bank h						
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		Yessenova S. (2010). Borro	Harrington S. E. (2009						
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			Hetzel R. (2009). Shou						
			Hindmoor A. (2010). T						
			Horan P. Co lege W.						
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			Jacobs B. I. (2009). Tur						
			Jaffee D. Kunreuther						
			Jameson D. A. (2009).						
			Jorion P. (2009). Risk m						
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			Kling A. (2010). *THE Fi*						
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			Kudrin A. (2009). The						
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			Landis J. D. & McClure						
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			Lehmann A. P. & Hofm						
			Lim J. (2008). Central						
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			Lumpkin S. (2009). Res						
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			Martin J. Jensen M. &						
			Miller M. Mohanty I.						
			Montgomerie J. & W						
			Neal P.(2008). *Mortga*						
			Nielsen R. P. (2010). H						
			Nishimura K. G. (2010						
			North V. Credit A. Im						
			O'CONNOR A. (2010).						
			OECD. (2009). *The corp*						
			Orenstein E. (2008). *Su*						
			Padoa-Schioppa T. (20						
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			Pantola A. V. Pancho-						
			Peretz P. & Schroeder						
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			Phi lip Swagel. (2009).						
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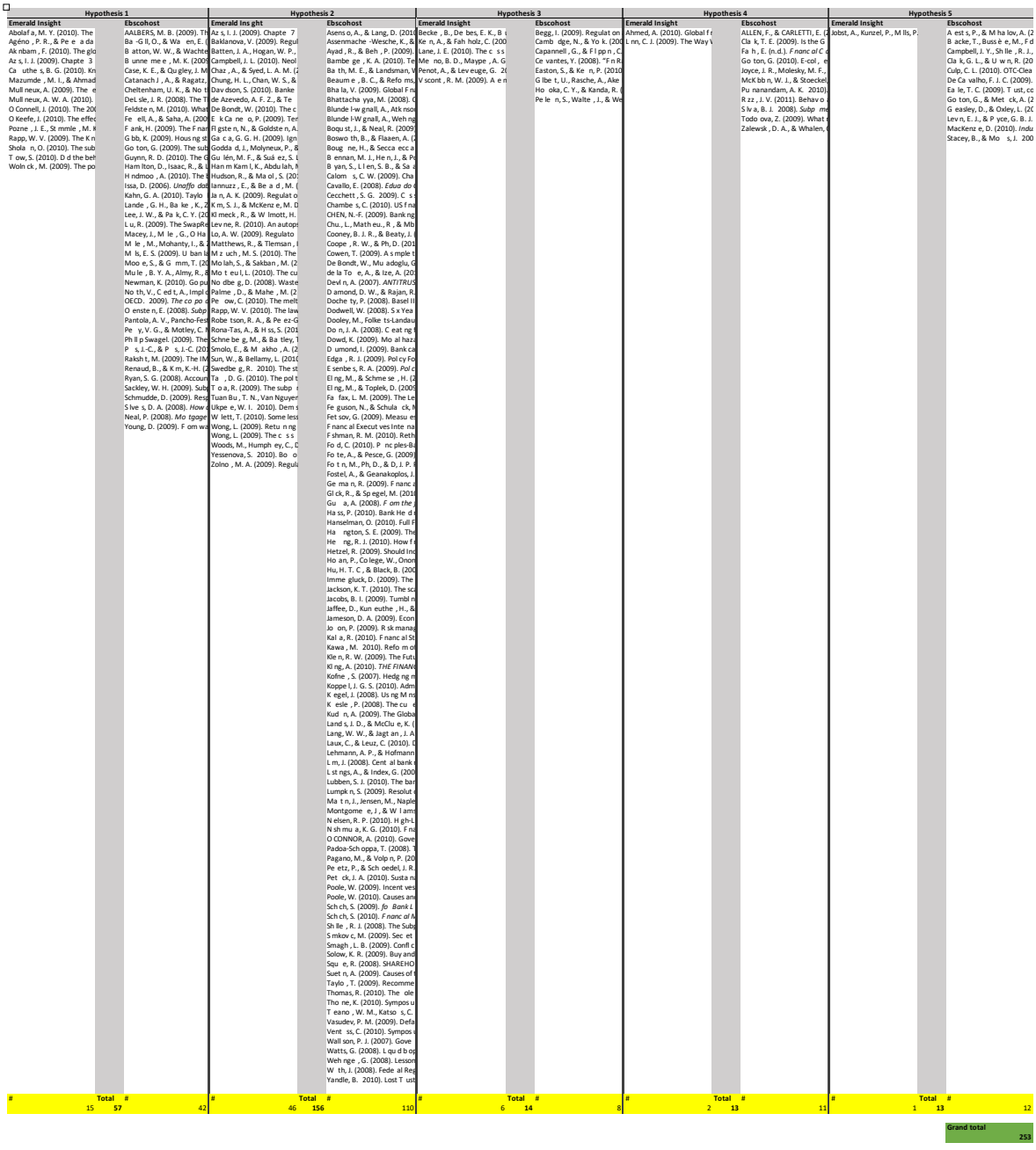
			Poole W. (2009). Incen						
			Poole W. (2010). Caus						
			Renaud B. & Kim K.-H						
			Ryan S. G. (2008). Acc						
			Schich S. (2009). *for Ba*						
			Schich S. (20 0). *Finan*						
			Schmudde D. (2009). R						
			Shiller R. J. (2008). The						
			Simkovic M. (2009). Se						
			Smaghi L. B. (2009). C						
			Solow K. R. (2009). Bu						
			Squire R. (2008). SHAR						
			Suetin A. (2009). Caus						
			Taylor T. (2009). Reco						
			Thomas R. (2010). The						
			Thorne K. (2010). Sym						
			Treanor W. M. Katsor						
			Vasudev P. M. (2009).						
			Ventriss C. (2010). Sym						
			Wallison P. J. (2007). G						
			Watts G. (2008). Liquic						
			Yandle B. (2010). Lost						
# Total: #		# Total: #		# Total: #		# Total: #		# Total: #	
15 58 43		59 87 128		6 38 22		9 49 40		10 46 36	

Grand total: 378

Source: Author's own rendering

2.2 After rejection of duplicates

Table 7: After rejection of duplicates



Hypothesis 1		Hypothesis 2		Hypothesis 3		Hypothesis 4		Hypothesis 5	
Emerald Insight	Ebscohost	Emerald Insight	Ebscohost	Emerald Insight	Ebscohost	Emerald Insight	Ebscohost	Emerald Insight	Ebscohost
Abolaf a, M. Y. (2010). The	AALBERS, M. B. (2009). Th	Az s, I. J. (2009). Chapte 7	Asens o, A., & Lang, D. (2010	Becke , B., De bes, E. K., B	Begg, I. (2009). Regulat on	Ahmed, A. (2010). Global f	ALLEN, F., & CARLETTI, E. (2	Jobst, A., Kunzel, P., M lls, P.	A est s, P., & M ha lov, A. (2
Agéno , P. R., & Pe e a da	Ba -G ll, O., & Wa en, E. (	Baklanova, V. (2009). Regul	Assenmache -Wesche, K., &	Ke n, A., & Fah holz, C. (200	Camb dge, N., & Yo k. (200	L nn, C. J. (2009). The Way	Cla k, T. E. (2009). Is the G		B acke, T., Buss è e, M., F d
Ak nbam , F. (2010). The glo	B atton, W. W., & Wachte	Batten, J. A., Hogan, W. P.,	Ayad , R., & Beh , P. (2009),	Lane, J. E. (2010). The c s s	Capannell , G., & F l pp n, C		Fa h , E. (n.d.). *F nanc al C*		Campbell, J. Y., Sh lle , R. J.,
Az s, I. J. (2009). Chapte 3	B unne me e , M. K. (2009	Campbell, J. L. (2010). Neol	Bambe ge , K. A. (2010). Te	Me no, B. D., Maype , A. G.	Ce vantes, Y. (2008). "F n R		Go ton, G. (2010). E-col , e		Cla k, G. L., & U w n, R. (20
Ca uthe s, B. G. (2010). Kri	Case, K. E., & Gu gsley, J. M	Chaz , A., & Syed, L. A. M. (2	Ba th, M. E., & Landsman, W	Penot, A., & Lev euge, G. 2(	Easton, S., & Ke n, P. (2010		Joyce, J. R., Molesky, M. F.,		Cuby, C. L. (2010). OTC-Clea
Mazumde , M. I., & Ahmad	Catanach J , A., & Ragatz,	Chung, H. L., Chan, W. S., &	Beaum e , B. C., & Refo ms,	V scont , R. M. (2009). A e n	G lbe t, U., Rasche, A., Ake		McK bb n, W. J., & Stoeckel,		De Ca valho, F. J. C. (2009).
Mull neux, A. (2009). The e	Cheltenham, U. K., & No t	Dav dson, S. (2010). Banke	Bha la, V. (2009). Global F nu		Ho oka, C. Y., & Kanda, R. (		Pu nanandam, A. K. 2010).		Ea le, T. C. (2009). T ust, co
Mull neux, A. W. A. (2010).	Del sle, J. R. (2008). The T	de Azevedo, A. F. Z., & Te	Bhattacha yya, M. (2008). C		Pe le n, S., Walte , J., & We		R zz , J. V. (2011). Behav o		Go ton, G., & Met ck, A. (2
O Connell, J. (2010). The 20(	Feldste n, M. (2010). What	De Bondt, W. (2010). The c	Blunde l-w gnall, A., Atk nso				S lv a, B. J. (2008). *Subp me*		G easley, D., & Oxley, L. (2(
O Keefe, J. (2010). The effec	E k Ca ne o, P. (2009). Ter	E k Ca ne o, P. (2009). Ter	Blunde l-W gnall, A., Weh ng				Todo ova, Z. (2009). What a		Lev n, E. J., & P yce, G. B. J.
Pozne , J. E., St mmle , M. K	F ank, H. (2009). The F nan	Fl gste n, N., & Goldste n, A.	Boqu st, J., & Neal, R. (2009				Zalewsk , D. A., & Whalen, (		MacKenz e, D. (2010). *Indu*
Rapp, W. V. (2009). The K n	G bb, K. (2009). Hous ng st	Ga c a, G. G. H. (2009). Ign	Boswo th, B., & Flaaen, A. (2						Stacey, B., & Mo s, J. 200
Shola n, O. (2010). The sub	Go ton, G. (2009). The sub	Godda d, J., Molyneux, P., &	Boug ne, H., & Secca ecc a						
T ow, S. (2010). D d the bel	Guynn, R. D. (2010). The G	Gu lén, M. F., & Suá ez, S. I	B ennan, M. J., Hie n, J., & Pe						
Woln ck , M. (2009). The po	Ham lton, D., Isaac, R., & I	Han m Kam l, K., Abdu lah, M	B yan, S., L l en, S. B., & Sa a						
	H ndmoo , A. (2010). The S	Hudson, R., & Ma ol, S. (201	Calom s, C. W. (2009). Cha						
	Issa, D. (2006). *Unoffo dat*	Iannuzz , E., & Be a d , M. (	Cavallo, E. (2008). *Educ ato*						
	Kahn, G. A. (2010). Taylo	Ja n, A. K. (2009). Regulat o	Cecchett , S. G. (2009). C s						
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	Macey, J., M le , G., O Ha	Lo, A. W. (2009). Regulato	Cooney, B. J. R., & Beaty, J. I						
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	M ls, E. S. (2009). U ban la	M z uch , M. S. (2010). The	Cowen, T. (2009). A s mple t						
	Moo e, S., & G mm, T. (20	Mo lah, S., & Sakban , M. (2	De Bondt, W., Mu adoglu, G						
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	OECD. 2009). *The co po*	Pe ow, C. (2010). The melt	Doche ty, P. (2008). Basel II						
	O enste n, E. (2008). *Subp*	Rapp, W. V. (2010). The law	Dodwell, W. (2008). S x Yea						
	Pantola, A. V., Pancho-Fest	Robe tson, R. A., & Pe ez-G	Dooley, M., Folke ts-Landau						
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	Young, D. (2009). F om wa	Wong, L. (2009). Retu n ng	F nanc al Execut ves Inte na						
		Wong, L. (2009). The c s s	F shman, R. M. (2010). Reth						
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		Yessenova, S. 2010). Bo o	Fo te, A., & Pesce, G. (2009)						
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			Gl ck, R., & Sp egel, M. (201						
			Gu a, A. (2008). *F om the g*						
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			He ng, R. J. (2010). How f						
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			Kawa , M. 2010). Refo m of						
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			Kl ng, A. (2010). *THE FINAN*						
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			N sh mu a, K. G. (2010). F na						
			O CONNOR, A. (2010). Gove						
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			Smagh , L. B. (2009). Conf l c						
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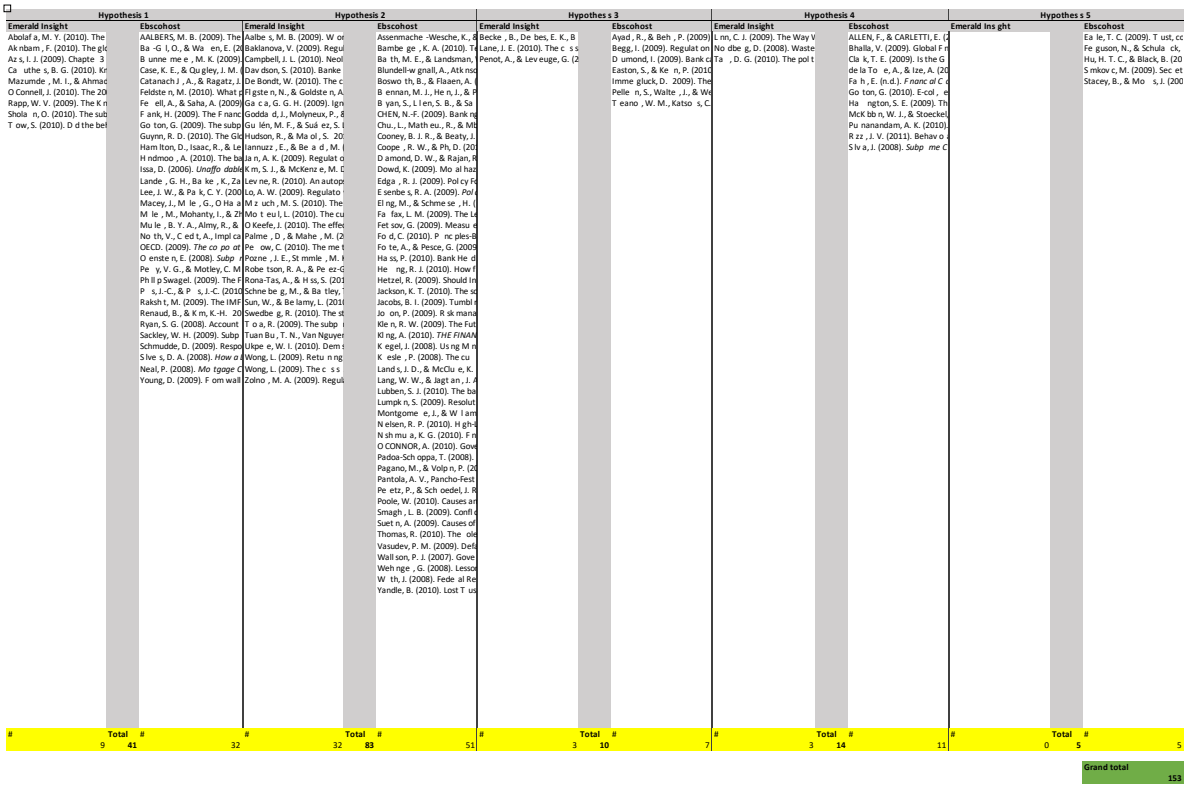
			Vent ss, C. (2010). Sympos						
			Wall son, P. J. (2007). Gove						
			Watts, G. (2008). L q d b op						
			Weh nge , G. (2008). Lesson						
			W th, J. (2008). Fede al Reg						
			Yandle, B. 2010). Lost T ust						
# Total #		# Total #		# Total #		# Total #		# Total #	
15 57	42	46 156	110	6 14	8	2 13	11	1 13	12

Grand total: 253

Source: Author's own rendering

2.3 After title analysis

Table 8: After title analysis

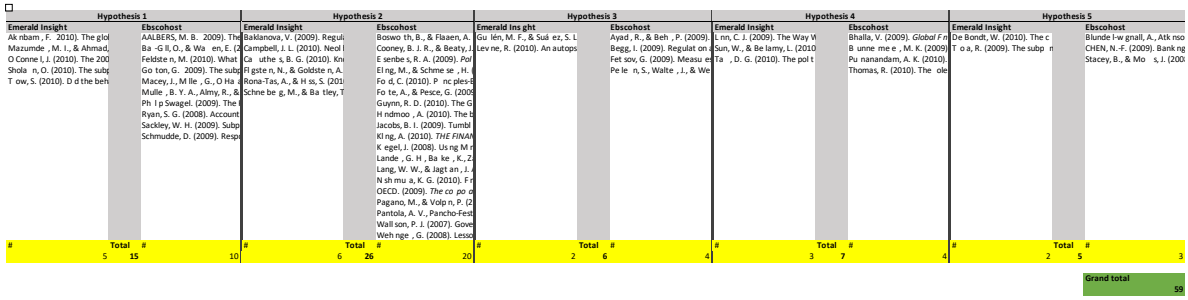


Hypothesis 1		Hypothesis 2		Hypothes s 3		Hypothesis 4		Hypothes s 5	
Emerald Insight	Ebscohost	Emerald Insight	Ebscohost	Emerald Insight	Ebscohost	Emerald Insight	Ebscohost	Emerald Ins ght	Ebscohost
Abolaf a, M. Y. (2010). The	AALBERS, M. B. (2009). The	Aalbe s, M. B. (2009). W or	Assenmache -Wesche, K., &	Becke , B., De bes, E. K., B	Ayad , R., & Beh , P. (2009)	L nn, C. J. (2009). The Way V	ALLEN, F., & CARLETTI, E. (		Ea le, T. C. (2009). T ust, cc
Ak nbam , F. (2010). The gl	Ba -G l, O., & Wa en, E. (2	Baklanova, V. (2009). Regu	Bambe ge , K. A. (2010). Te	Lane, J. E. (2010). The c s s	Begg, I. (2009). Regulat on	No dbe g, D. (2008). Waste	Bhalla, V. (2009). Global F r		Fe guson, N., & Schula ck,
Az s, I. J. (2009). Chapte 3	B unne me e , M. K. (2009)	Campbell, J. L. (2010). Neol	Ba th, M. E., & Landsman,	Penot, A., & Lev euge, G. (2	D umond, I. (2009). Bank c	Ta , D. G. (2010). The pol t	Cla k, T. E. (2009). Is the G		Hu, H. T. C., & Black, B. (20
Ca uthe s, B. G. (2010). Kn	Case, K. E., & Qu gley, J. M.	Dav dson, S. (2010). Banke	Blundell-w gnall, A., Atk nso		Easton, S., & Ke n, P. (2010		de la To e, A., & Ize, A. (20		S mkov c, M. (2009). Sec et
Mazumde , M. I., & Ahmad	Catanach J , A., & Ragatz, J	De Bondt, W. (2010). The c	Boswo th, B., & Flaaen, A. (		Imme gluck, D. 2009). The		Fa h , E. (n.d.). *F nanc al C*		Stacey, B., & Mo s, J. (200
O Connell, J. (2010). The 20	Feldste n, M. (2010). What p	Fl gste n, N., & Goldste n, A.	B ennan, M. J., He n, J., & P		Pelle n, S., Walte , J., & We		Go ton, G. (2010). E-col , e		
Rapp, W. V. (2009). The K n	Fe ell, A., & Saha, A. (2009)	Ga c a, G. G. H. (2009). Ign	B yan, S., I en, S. B., & Sa		T eano , W. M., Katso s, C		Ha ngton, S. E. (2009). Th		
Shola n, O. (2010). The sub	F ank, H. (2009). The F nanc	Godda d, J., Molyneux, P., &	CHEN, N.-F. (2009). Bank ng				McK bb n, W. J., & Stoeckel,		
T ow, S. (2010). D d the bel	Go ton, G. (2009). The subp	Gu lén, M. F., & Suá ez, S. L	Chu., L., Math eu., R., & ME				Pu nanandam, A. K. (2010).		
	Guynn, R. D. (2010). The Gl	Hudson, R., & Ma ol , S. (20	Cooney, B. J. R., & Beaty, J.				R zz , J. V. (2011). Behav o a		
	Ham lton, D., Isaac, R., & Le	Iannuzz , E., & Be a d , M. (	Coope , R. W., & Ph, D. (20				S lv a, J. (2008). *Subp me C*		
	H ndmoo , A. (2010). The ba	Ja n, A. K. (2009). Regulat o	D amond, D. W., & Rajan, R						
	Issa, D. (2006). *Unaffo dable*	K m, S. J., & McKenz e, M. D	Dowd, K. (2009). Mo al haz						
	Lande , G. H., Ba ke , K., Za	Lev ne, R. (2010). An autop	Edga , R. J. (2009). Pol cy Fo						
	Lee, J. W., & Pa k, C. Y. (200	Liq, A. W. (2009). Regulato	E senbe s, R. A. (2009). *Pol*						
	Macey, J., M le , G., O Ha a	M z uch , M. S. (2010). The	El ng, M., & Schme se , H. (						
	M le , M., Mohanty, I., & Zh	Mo t eu l, L. (2010). The cu	Fa fax, L. M. (2009). The Le						
	Mu le , B. Y. A., Almy, R., &	O Keefe, J. (2010). The effec	Fet sov, G. (2009). Measu e						
	No th, V., C ed t, A., Impl ca	Palme , D., & Mahe , M. (2	Fo d, C. (2010). P nc ples-B						
	OECD. (2009). *The co po at*	Pe ow, C. (2010). The me t	Fo te, A., & Pesce, G. (2009						
	O enste n, E. (2008). *Subp r*	Pozne , J. E., St mmle , M. H	Ha ss, P. (2010). Bank He d						
	Pe y, V. G., & Motley, C. M	Robe tson, R. A., & Pe ez-G	He ng, R. J. (2010). How f						
	Ph ll p Swagel. (2009). The F	Rona-Tas, A., & H ss, S. (201	Hetzel, R. (2009). Should In						
	P s, I.-C., & P s, J.-C. (2010	Schne be g, M., & Ba tley, J	Jackson, K. T. (2010). The sc						
	Raksh t, M. (2009). The IMF	Sun, W., & Be lamy, L. (2010	Jacobs, B. I. (2009). Tumbl e						
	Renaud, B., & K m, K.-H. 20	Swedbe g, R. (2010). The st	Jo on, P. (2009). R sk mana						
	Ryan, S. G. (2008). Account	T o a, R. (2009). The subp i	Kle n, R. W. (2009). The Fut						
	Sackley, W. H. (2009). Subp	Tuan Bu , T. N., Van Nguyen	Kl ng, A. (2010). *THE FINAN*						
	Schmudde, D. (2009). Respo	Ukpe e, W. I. (2010). Dem s	K egel, J. (2008). Us ng M r						
	S lve s, D. A. (2008). *How a*	Wong, L. (2009). Retu n ng	K esle , P. (2008). The cu						
	Neal, P. (2008). *Mo tgage C*	Wong, L. (2009). The c s s	Land s, J. D., & McClu e, K.						
	Young, D. (2009). F om wall	Zolno , M. A. (2009). Regul	Lang, W. W., & Jagt an , J. A						
			Lubben, S. J. (2010). The ba						
			Lumpk n, S. (2009). Resolut						
			Montgome e, J., & W l am						
			N elsen, R. P. (2010). H gh-s						
			N sh mu a, K. G. (2010). F n						
			O CONNOR, A. (2010). Gove						
			Padoa-Sch oppa, T. (2008).						
			Pagano, M., & Volp n, P. (20						
			Pantola, A. V., Pancho-Fest						
			Pe etz, P., & Sch oedel, J. R						
			Poole, W. (2010). Causes an						
			Smagh , L. B. (2009). Confl c						
			Suet n, A. (2009). Causes of						
			Thomas, R. (2010). The ole						
			Vasudev, P. M. (2009). Def						
			Wall son, P. J. (2007). Gove						
			Weh nge , G. (2008). Lesso						
			W th, J. (2008). Fede al Re						
			Yandle, B. (2010). Lost T us						
# Total #		# Total #		# Total #		# Total #		# Total #	
9 41		32 83		3 10		3 14		0 5	
									5
								Grand total	
								153	

Source: Author's own rendering

2.4 After abstract analysis

Table 9: After abstract analysis



Hypothesis 1		Hypothesis 2		Hypothesis 3		Hypothesis 4		Hypothesis 5	
Emerald Insight	Ebscohost	Emerald Insight	Ebscohost	Emerald Ins ght	Ebscohost	Emerald Insight	Ebscohost	Emerald Insight	Ebscohost
Ak nbam , F. 2010). The glo	AALBERS, M. B. 2009). The	Baklanova, V. (2009). Regul	Boswo th, B., & Flaaen, A.	Gu lén, M. F., & Suá ez, S. L	Ayad , R., & Beh , P. (2009).	L nn, C. J. (2009). The Way V	Bhalla, V. (2009). *Global F n*	De Bondt, W. (2010). The c	Blundel-w gnall, A., Atk nso
Mazumde , M. I., & Ahmad	Ba -G ll, O., & Wa en, E. (2	Campbell, J. L. (2010). Neol	Cooney, B. J. R., & Beaty, J.	Lev ne, R. (2010). An autops	Begg, I. (2009). Regulat on a	Sun, W., & Be lamy, L. (2010	B unne me e , M. K. (2009)	T o a, R. (2009). The subp n	CHEN, N.-F. (2009). Bank ng
O Conne l, J. (2010). The 200	Feldste n, M. (2010). What	Ca uthe s, B. G. (2010). Kn	E senbe s, R. A. (2009). *Pal*		Fet sov, G. (2009). Measu es	Ta , D. G. (2010). The pol t	Pu nanandam, A. K. (2010).		Stacey, B., & Mo s, J. (200
Shola n, O. (2010). The subp	Go ton, G. 2009). The subp	Fl gste n, N., & Goldste n, A.	El ng, M., & Schme se , H. (		Pe le n, S., Walte , J., & We		Thomas, R. (2010). The ole		
T ow, S. (2010). D d the beh	Macey, J., M lle , G., O Ha a	Rona-Tas, A., & H ss, S. (201	Fo d, C. (2010). P nc ples-B						
	Mulle , B. Y. A., Almy, R., &	Schne be g, M., & Ba tley, T	Fo te, A., & Pesce, G. (2009						
	Ph l p Swagel. (2009). The F		Guynn, R. D. (2010). The G						
	Ryan, S. G. (2008). Account		H ndmoo , A. (2010). The b						
	Sackley, W. H. (2009). Subp		Jacobs, B. I. (2009). Tumbl e						
	Schmudde, D. (2009). Respo		Kl ng, A. (2010). *THE FINAN*						
			K egel, J. (2008). Us ng M r						
			Lande , G. H , Ba ke , K., Za						
			Lang, W. W., & Jagt an , J. A						
			N sh mu a, K. G. (2010). F n						
			OECD. (2009). *The co po at*						
			Pagano, M., & Volp n, P. (20						
			Pantola, A. V., Pancho-Fest						
			Wall son, P. J. (2007). Gove						
			Weh nge , G. (2008). Lesso						
# Total #		# Total #		# Total #		# Total #		# Total #	
5 15		6 26		2 6		3 7		2 5	
									3
								Grand total	
								59	

Source: Author's own rendering