

Long Island University

Digital Commons @ LIU

Selected Full Text Dissertations, 2011-

LIU Post

8-2022

Communication of Financial Information: A Content Analysis of Media Reports

Geetawatie Ali

geetawatie.ali@my.liu.edu

Follow this and additional works at: https://digitalcommons.liu.edu/post_fultext_dis



Part of the [Library and Information Science Commons](#)

Recommended Citation

Ali, Geetawatie, "Communication of Financial Information: A Content Analysis of Media Reports" (2022).
Selected Full Text Dissertations, 2011-. 46.

https://digitalcommons.liu.edu/post_fultext_dis/46

This Dissertation is brought to you for free and open access by the LIU Post at Digital Commons @ LIU. It has been accepted for inclusion in Selected Full Text Dissertations, 2011- by an authorized administrator of Digital Commons @ LIU. For more information, please contact natalia.tomlin@liu.edu.

Communication of Financial Information:

A Content Analysis of Media Reports

A Dissertation

Submitted to the Faculty

of

Long Island University

C.W. Post Campus

by

Geetawatie Ali

In partial fulfillment of the requirements for the degree

of

Doctor of Philosophy

August 2022

Dedication

For my daughters, Ariana and Stephanie, my husband, Steve, and my late parents, Surojnie and Narain, with all my love and gratitude always. Thank you for your devotion, unwavering love and your “too many to number” sacrifices. This could not have been possible without you.

Acknowledgements

Thank you to the members of my committee for your contributions of time, knowledge, support, and guidance throughout my doctoral journey: Dr. Bea Baaden, Dr. Wei Xiong, Dr. David Jank, Dr. Stephanie White, and Dr. Qiping Zhang. I am truly honored to have all of you on my committee and I am fortunate to have your guidance throughout this process.

First, to the Chair of my committee, Dr. Bea Baaden, my heart is full of gratitude for all you have done for me. Working with you has been an extraordinary experience. Thank you for sharing your knowledge and expertise with me with such kindness and care. Thank you for believing in me and helping me to reach the finish line.

Dr. Wei Xiong, my external advisor, you are such an important part of this journey. You are a wonderful and dedicated educator, and you have inspired me to work hard and to stay focused on my goals. Thank you for all you have done to support me and guide me through this process. Your mentorship has enabled me to be precise in my writing and to challenge myself in this ever-changing world of technology.

Dr. David Jank, I have had the privilege and the joy of being your student from my first semester in the program. Thank you for mentoring me throughout my years at LIU, for your kindness, for imparting wisdom in subtle ways, and for so generously sharing your time on numerous occasions. The ease with which you communicate very complicated things has always impressed me and I now have a deeper understanding of information organization and content analysis than ever before. Your unique sense of humor throughout the years has kept me smiling – even in the tough times.

Dr. Stephanie White, I clearly remember the semester I took Information Systems. It was a critical part of my studies in the program, and it was a time that helped me to understand the value of hard work and perseverance. Thank you for taking the time to share your knowledge and expertise with me and for your feedback that enabled me to answer some very important questions about my research. Your guidance has helped to make my work so much better.

Dr. Qiping Zhang, I am grateful for your time and guidance as a professor and as a member of my committee. I look with fresh eyes at the issues surrounding access and user experiences in computer technology because of your work in human-computer-interaction. I appreciate your willingness to share your knowledge so freely.

Thank you from the bottom of my heart to my amazing family for always being there for me and helping to make my dreams come true. I don't have enough words to express my deep gratitude and love for you. Thank you to all my professors, my friends, and colleagues for your kind words of encouragement and all your good wishes.

Table of Contents

Abstract	6
Chapter 1 Introduction and Background.....	7
1.1 The Financial Crisis of 2008.....	9
1.2 Significance of the Study.....	12
1.3 Financial Reporting	15
<i>1.3.1 Preparers of Financial Statement</i>	<i>16</i>
<i>1.3.2 Preparing Financial Reports</i>	<i>18</i>
<i>1.3.3 Communicating Financial Information</i>	<i>22</i>
<i>1.3.4 Users of Accounting Information</i>	<i>27</i>
Chapter 2 Literature Review	31
2.1 Understanding a Complex Financial System.....	31
<i>2.1.1 Size and Interconnectedness</i>	<i>32</i>
<i>2.1.2 Dynamic Nature of Financial Information and Risk in Financial Instruments</i>	<i>37</i>
2.2 Media as a Communication Channel for Financial Information.....	45
<i>2.2.1 Tone of Media Reports.....</i>	<i>45</i>
<i>2.2.2 Macroeconomic News Reports</i>	<i>47</i>
<i>2.2.3 Future Earnings and Market Fluctuations</i>	<i>50</i>
2.3 Communicating Financial Information to the Public.....	53
<i>2.3.1 What is Owed to the Public and Related Challenges</i>	<i>54</i>
<i>2.3.2 Duty to Report by the Press</i>	<i>57</i>
2.4 Relationship to the Proposed Study	61
Chapter 3 Methodology	64
3.1 Research Objective.....	65
3.2 Research Questions and Operational Definitions	65
3.3 Methodology Chosen	67
3.4 Data Sources	69
<i>3.4.1 Newspapers</i>	<i>69</i>
<i>3.4.2 Books.....</i>	<i>70</i>
<i>3.4.3 Congressional Hearings</i>	<i>71</i>
3.5 Research Scope and Limitations.....	71
3.6 Data Collection and Analysis.....	73
3.7 Coding and Coding Scheme Development.....	75
3.8 Pilot Study	76
3.9 Intercoder Reliability.....	77
3.10 Content Analysis of the Full Dataset.....	78
<i>3.10.1 Types of Gaps</i>	<i>79</i>
<i>3.10.2 Causes of Gaps</i>	<i>88</i>
<i>3.10.3 Measures Taken to Close Gaps</i>	<i>96</i>
Chapter 4 Results.....	102
4.1 Coding Results for RQ 1: Types of Gaps	102
4.2 Coding Results for RQ 2: Causes of Gaps	103
4.3 Coding Results for RQ 3: Measures Taken	104

4.4 Linking the Data.....	106
4.4.1 <i>Unreliable Valuation and Causes of Gaps</i>	106
4.4.2 <i>Misleading Financial Information and Causes of Gaps</i>	107
4.4.3 <i>Interconnectedness and Causes of Gaps</i>	108
4.4.4 <i>Weakness in Transparency and Causes of Gaps</i>	109
4.4.5 <i>Weakness in Regulation and Causes of Gaps</i>	110
4.4.6 <i>Securitization and Types of Gaps</i>	111
4.4.7 <i>Derivatives, Types of Gaps and Measures Taken</i>	112
4.4.8 <i>Strengthen Regulation, Types and Causes of Gaps</i>	113
Chapter 5 Discussion.....	115
5.1 Complexity.....	115
5.2 High Risk	118
5.3 Regulation.....	124
5.4 Future Research.....	127
5.5 Conclusion	128
Appendix	
Appendix A Data for Intercoder Reliability	135
Appendix B Data for Pilot Study	136
References.....	140

List of Tables

Table 1.1 Apple Inc.'s Table of Contents for Form 10K	27
Table 3.1 News Articles by Companies (Years 2006 to 2009)	74
Table 3.2 Coding Scheme for the Dataset	79
Table 4.1 Coding Results for Types of Gaps.....	102
Table 4.2 Coding Results for Causes of Gaps	104
Table 4.3 Coding Results for Measures Taken to Close Gaps	105
Table 4.4 Unreliable Valuation and Causes of Gaps	106
Table 4.5 Misleading Financial Information and Causes of Gaps.....	107
Table 4.6 Interconnectedness and Causes of Gaps	108
Table 4.7 Weakness in Transparency and Causes of Gaps	109
Table 4.8 Weakness in Regulation and Causes of Gaps	110
Table 4.9 Securitization and Types of Gaps.....	111
Table 4.10 Derivatives, Types of Gaps, and Measures Taken	112
Table 4.11 Strengthen Regulation, Types and Causes of Gaps.....	114

List of Figures

Figure 1.1 The Accounting Process	19
Figure 1.2 Users of Accounting Information.....	28
Figure 4.1 Frequency Count for Types of Gaps	103
Figure 4.2 Frequency Count for Causes of Gaps.....	104
Figure 4.3 Frequency Count for Measures to Close Gaps	105
Figure 4.4 Frequency Count for Unreliable Valuation and Causes of Gaps	107
Figure 4.5 Frequency Count for Misleading Financial Information and Causes of Gaps	108
Figure 4.6 Frequency Count for Interconnectedness and Causes of Gaps	109
Figure 4.7 Frequency Count for Weakness in Transparency and Causes of Gaps	110
Figure 4.8 Frequency Count for Weakness in Regulation and Causes of Gaps	111
Figure 4.9 Frequency Count for Securitization and Types of Gaps	112
Figure 4.10 Frequency Count for Derivatives, Types of Gaps and Measures Taken.....	113
Figure 4.11 Frequency Count for Strengthen Regulation, Types and Causes of Gaps	114

Abstract

The Financial Crisis of 2008, also known as the Great Recession of 2008, marked a time of severe economic downturn in the United States and the global community. The magnitude of the crisis is often compared to that of the Great Depression. Oftentimes after a crisis, questions arise on whether accurate and relevant information was made available to the public in a timely manner because of the widespread consequences of failing to do so. The Financial Crisis of 2008 provides a unique opportunity to examine the communication of financial information to the public by evaluating information gaps in this process.

The research questions in this study were formulated to identify the types of gaps that exist in the communication of financial information from publicly held corporations to the public, the causes of such gaps, as well as measures that can be taken to close those gaps. Content analysis is the methodology chosen for data analysis. Three kinds of sources were used for collecting data: newspaper articles from *The Wall Street Journal* and *The New York Times* during the years 2006 to 2009, books written by financial experts, and congressional documents from hearings that produced an evaluation on the Financial Crisis of 2008. Answers to the research questions present what has been documented in the data sources used in this study.

Findings show that 1) types of gaps include misleading financial information, unreliable valuation of assets, and the interconnectedness of the financial system; 2) causes of gaps include subprime mortgages, securitization, derivatives, and financial leverage; and 3) findings suggest that decreasing financial leverage, increasing regulations, and increasing transparency in reporting can mitigate the potential for gaps in communicating financial information.

Keywords: Financial Crisis of 2008, publicly held corporations, interconnectedness, subprime mortgages, securitization, derivatives, and financial leverage

Chapter 1: Introduction

“The ability to acquire and disseminate information, to control the flow of information, has often been described as a source of power” (Mayer-Schonberger & Lazer 2007, 6). Most organizations have structures in place to control the flow of information by limiting access to certain individuals (Needles, Anderson, Caldwell 1993, 255). The process of transferring information to the public differs based on the source of the information and the various information systems in place. Accurate and relevant information, in general terms, is essential to any decision-making process. Accurate financial information, in particular, is needed for making timely economic decisions (Needles, Anderson, and Caldwell 1993, 297). Broadly, this study seeks to examine the process of delivering accurate financial information to the public in a timely manner because of the real-life consequences when there is a breach in this process.

Accountability and transparency are concepts that communicate levels of confidence in financial reports (Wild, Shaw, and Chiapetta 2013, 13). In this context, accountability refers to taking responsibility for the information reported on the daily operations of the corporation and disclosure of the corporation’s performance (Anand 2006, 26). Transparency speaks to openness and honesty in disclosing financial reports (Norris 1999). In addition, transparency describes “the extent to which outsiders have knowledge regarding a company’s financial performance and financial position” (Kimmel, Weygandt, and Mitchell 2022, 47). Timeliness forms the third cornerstone of sound financial reporting. To meet the timeliness threshold “requires distribution of financial reports in time to influence a user’s decision” (Warren and Jones 2019, 9). The International Accounting Standards Board refers to timeliness as an important factor in financial reporting (McGee and Igoe 2009). Timeliness in financial reporting is a “measure of transparency and quality ... The lapse of time between a company’s year-end and the date when

financial information is released to the public is related to the quality of the information reported” (McGee and Igoe 2009, 190). In other words, timeliness is “having information available to decision-makers before it loses its capacity to influence decisions” (Kieso, Weygandt, and Warfield 2016, 47).

A publicly held corporation, also referred to as a public company or publicly traded company, is a corporation whose shares of stock are sold to the public in a securities market such as the New York Stock Exchange (Miller and Cross 2013, 698). Publicly held corporations in the United States file financial reports with the Securities and Exchange Commission on a quarterly and annual basis and the financial statements must be personally certified by the corporation’s chief executive officer and the chief financial officer (Beatty and Samuelson 2010, 355). The Securities and Exchange Commission is a government agency that “has authority over the accounting and financial disclosures for companies whose shares of ownership (stocks) are traded and sold to the public” (Warren and Jones 2019, 9).

The laws that regulate the sale of securities to the public signal the importance of protecting the rights of investors and promoting economic activity. In 2002, Congress enacted the Sarbanes-Oxley Act “to protect investors by improving accuracy and reliability of corporate disclosures ...” (Sarbanes-Oxley Act of 2002, Public Law 107-204). This act established the Public Company Accounting Oversight Board and strengthened internal controls of corporations (Anand 2006, 1-2). Financial reporting must be credible by conveying “business activity as faithfully as possible without coloring the picture being presented in order to influence anyone in a certain direction” (Needles, Anderson, and Caldwell 1993, 297-298). In 2010, Congress passed the Dodd-Frank Wall Street Reform and Consumer Protection Act “to promote the financial stability of the United States by improving accountability and transparency in the financial

system ... to protect consumers from abusive financial services practices ...” (H. R. 4173 – Dodd-Frank Wall Street Reform and Consumer Protection Act, 111th Congress 2009-2010, par. 1).

1.1 The Financial Crisis of 2008

This study proposes to look at the Financial Crisis of 2008, also known as the Great Recession of 2008, to examine the flow of financial information from publicly held corporations to the general public. The Financial Crisis of 2008 was the largest economic downturn since the Great Depression (Hilsenrath, Ng, and Paletta 2008). This period lasted from December 2007 to June 2009 and triggered a global recession in 2009 (Rich 2013). There were significant economic consequences to this crisis. The Financial Crisis of 2008 involved an estimated \$300 billion in government bailouts of failing banks and securities firms (Enrich et al. 2008). In addition, in October 2008, Congress passed the Troubled Asset Relief Program (TARP) authorizing “a \$700 billion intervention for the entire financial system (Geithner 2014, 3).

The collapse of Bear Stearns, an investment bank in business since 1923, marked the beginning of the period known as the Financial Crisis of 2008: “The bank would become the first domino to fall in the financial crisis, the worst panic to grip Wall Street since 1929” (Egan 2018, par. 3). During 2007, the price of a share of Bear Stearns’s stock peaked at \$173 (Egan 2018). However, by March 16, 2008, Bear Stearns was sold to J.P. Morgan for \$2. per share along with the government covering \$30 billion dollars of the bank’s securities (Egan 2018; Moyer 2018).

In September 2008, *The Wall Street Journal* reported that the United States government was going to take over American International Group, Inc. (AIG), one of the biggest insurance companies, in an \$85 billion government bailout (Karnitschnig, Solomon, Plevin, and Hilsenrath 2008). Also, in September 2008, Lehman Brothers Holdings Inc., an investment bank and

securities firm, with \$639 billion in assets, filed for bankruptcy (Lioudis 2019; Mollenkamp et al. 2008). Lehman Brothers Holdings Inc. had 25,000 employees throughout the world and was the largest bankruptcy filing in U.S history (Lioudis 2019). Ben Bernanke, former chairman of the Federal Reserve Board from 2006 to 2014, recalled the magnitude of this crisis: “September and October of 2008 was the worst financial crisis in global history, including the Great Depression” (Da Costa 2014).

In many ways, looking back briefly at the Great Depression offers some perspective in understanding the events leading up to the Great Recession. In 1929, the historic stock market crash led to the closure of 9,000 banks between 1929 and 1933 with depositors losing an estimated \$400 million dollars (Mishkin 1998, 266). In addition, the 1930s marked a time of severe economic downturn in the United States with loss of wealth and unemployment of up to 25% (McConnell and Brue 1996; Mishkin 1998, 220). After the crash, the lack of information provided to the public became evident and President Roosevelt took steps to correct this. In March 1933, President Roosevelt started his famous fireside chats – a series of radio broadcasts to explain the banking system to the public: “I want to talk for a few minutes with the people of the United States about banking – with the comparatively few who understand the mechanics of banking but more particularly with the overwhelming majority who use banks ...” (Peters and Wolley 2018, par. 1).

President Roosevelt’s message showcases three main points: first, the public’s need to be informed of the workings in the banking system; second, the role the government plays in informing the public; and third, the widespread effects of major economic downturns on people’s everyday lives. The banking crisis in the 1930s led to the passage of legislation with the purpose of protecting the rights of investors and greater transparency of financial information (Mishkin

1998, 266-267). Congress passed the Banking Act of 1933 which separated the activities of commercial banks and investment banks (Irwin 2015). In addition, Congress passed the Securities Act of 1933 – with the main objectives requiring that “investors receive financial and other significant information concerning the securities being offered to the public and prohibit deceit, misrepresentations, and other fraud in the sale of securities” (U.S. Securities and Exchange Commission 2015, par. 6).

There are three sources of information that apply to this study: publicly held corporations, the government, and the news media. Some types of information need to be analyzed or filtered before it is communicated to the general public. Examples that come to mind are medical information, academic information, and financial information -- that is information or knowledge that originate with experts in their respective fields -- and may not be easily understood by everyone. Financial information, for instance, can be filtered by the government, as in the case of President Roosevelt during the 1930s, or by the media, in the form of news reports or broadcasts. In this way, the government and the media act as intermediaries between the original source of information and the public.

By the turn of the twenty-first century, the structures for communicating information had undergone radical changes with the advent of the Internet. Today financial reports can be accessed freely from the Securities and Exchange Commission but the format is similar to financial statements published by corporations. This study analyzes three data sources related to the dissemination of financial information to the public: two major newspapers (*The New York Times* and *The Wall Street Journal*), books published by financial experts, and congressional hearings conducted by the U.S. government. Justification for the selection of *The New York Times*, *The Wall Street Journal*, and the other data sources will be provided in the Methodology

chapter. This study looks at information surrounding the time period of the Financial Crisis of 2008, with emphasis being placed on a selected period preceding the financial crisis.

There are laws and governing bodies that regulate financial information for publicly held corporations. However, the Financial Crisis of 2008 shows that there were significant discrepancies in the information reported to the public. For example, why was the housing market overpriced by \$600 billion and when was this information made available? Why was Bear Stearns's stock offered for sale at \$2 per share in 2008 when it was worth \$173 per share months earlier? Why did the government spend \$85 billion to bailout AIG? How did Lehman Brothers, with \$639 billion in assets, file for bankruptcy in September 2008 when in 2006, Lehman Brothers was "one of the fastest-growing" investment banks? (Sraders 2018, par. 9). In 2007, Lehman Brothers was reporting \$19.3 billion in revenues and \$4.2 billion in net income" (Sraders 2018, par. 9). These discrepancies are significant considering that the Securities and Exchange Commission, an independent federal agency, oversees the reporting of financial information by publicly held corporations.

1.2 Significance of the Study

The problem this study seeks to examine centers around information gaps in the transfer of financial information from publicly traded corporations to the public. The seismic changes in the financial markets during the Financial Crisis of 2008 presents an opportunity to examine this process. By looking at the Financial Crisis of 2008 as a sample, this study can shed light on possible fractures in the information channel that functions to communicate financial information to the public.

The multidisciplinary nature of Information Studies allows for the analysis of information through various lenses. This problem will be studied by analyzing published business articles

from two major newspapers (*The New York Times* and *The Wall Street Journal*) focusing on a selected number of years surrounding the crisis. The analysis also includes congressional hearings and books written by financial experts after the crisis. More than a decade after this event, there is a vast amount of information explaining the causes of the crash and the details of it. The perspective here is to trace original reporting during the years surrounding the crisis in order to present a clear picture of what has been documented in the data sources. Research can highlight whether the public was informed in a timely manner or not – was there a lack of information or misinformation about the financial positions of major corporations during this time? Could a collapse of such proportions be overlooked in reporting periods leading up to the event?

Financial information on businesses is useful to the government, creditors, vendors, investors, and consumers. Even though many people know about the events we describe as major economic downturns, such as the Great Depression and the Great Recession, many may still not fully understand the details of what happened or the cost. Why dredge up bank failures and a stock market crash from more than a decade ago? Why is it still relevant today? It may be that some analysts surmise that such an event can happen again (Larsen 2015).

In 2020, concerns of another financial crisis grew with the onset of the COVID-19 pandemic: “For the second time in 12 years, the U. S economy and financial markets are facing an unexpected crisis of uncertain proportions” (Osterland 2020, par. 1). Frequent references to the Financial Crisis of 2008 during the early months of the COVID-19 pandemic serve to underscore two important points: first, the Financial Crisis of 2008 is considered the point of reference for comparing other economic downturns, and second, there are linkages that exist

among reliable information, public confidence, and volatility in the financial system (Irwin 2020; Osterland 2020; Sorkin 2020).

Major economic downturns do not only affect Wall Street and financial investors. The effects trickle down in a chain reaction to the public as well. Even though many people may not be investors, many employees have 401k plans or pension plans. If the market crashes, it takes down retirement earnings as well. In the case of the Financial Crisis of 2008, the effects were widespread: “At its depths, \$15 trillion in household wealth had disappeared, ravaging the pensions and college funds of Americans who had thought their money was in good hands. Nearly 9 million workers lost their jobs; 9 million people slipped below poverty line; 5 million homeowners lost homes” (Geithner 2014, 16).

In addition, “assumed knowledge” in this context describes knowledge that is taken for granted. For example, there can be an implicit assumption among the public that the laws enacted by Congress are reliable and the knowledge disseminated through expert financial analysts are correct. The public then does not have to figure out what terms on financial statements mean or whether the calculation of revenues is questionable. The problem here is that it took a crisis situation to draw attention to what the current researcher calls our “assumed knowledge” – calling into question the producers of the information and the intermediaries that function as filters for the public. The effects of a financial crisis such as the Great Recession show that when the economy is in decline at the macro level, it trickles down to the micro level and to everyday life. Conclusions drawn from this research can lead to important findings and improvements in the process of communicating financial information from publicly traded corporations to the public.

1.3 Financial Reporting

Publicly held corporations are an important part of the complex financial system in the United States. The ownership of a corporation is divided into shares of stock with each share of stock representing one unit of ownership (Miller and Cross 2013, 709). For publicly held corporations, shares of stock are sold to the public in a securities market, such as the New York Stock Exchange (NYSE) or the NASDAQ – the National Association of Securities Dealers Automated Quotations (Miller and Cross 2013, 698). This section attempts to explain how financial information from corporations are collected, processed, and communicated to the public.

Accounting is called the “language of business,” and it is the methodology used for processing and reporting financial information (Warren, Reeve, and Duchac 2016, 3).

Accounting is defined as an information system that “identifies, records, and communicates information about an organization’s business activities” (Wild, Shaw, and Chiapetta 2017, 4).

Financial data is generated from monetary transactions and is measured and recorded in dollars and cents as the common unit of measurement (Warren, Reeve, and Duchac 2016, 8).

Information technology, including computers, networks, and other devices, is widely used in accounting information systems to “store, retrieve, transmit, and manipulate data (Romney and Steinbart 2018, 30). Accounting principles provide the structure that allows for the control of vast amounts of data. Accuracy is essential in this process since “even the slightest hint of accounting irregularity at a company leads to a subsequent pounding of the company’s stock price” (Kieso, Weygandt, and Warfield, 2016, p. 5).

Financial information for corporations is summarized and communicated through accounting reports, commonly referred to as financial statements (Warren, Reeve, and Duchac

2016, 15). The four main financial statements are the Income Statement, the Statement of Stockholders Equity, the Balance Sheet, and the Statement of Cash Flows. Financial statements hold important information for investors, creditors, and other decision-makers because a company's viability can be determined through analysis of its financial reports. This information is used for many purposes, but of major importance, it is used by millions of people who invest money in publicly held companies.

“For information to be useful, it must be trusted” (Wild, Shaw, and Chiapetta 2017, 7). Someone who wants to invest in a company or extend a loan to a company needs information that is reliable. As such, two main characteristics of financial information are relevance and faithful representation. Relevance simply means that the information “has the potential to impact decision-making” and faithful representation refers to information that “accurately reflects an entity's economic activity or condition,” -- that is, the accounting entries correspond with what actually happened (Kieso, Weygandt, and Warfield 2016, 42-45; Warren, Reeve, and Duchac 2016, 9).

Who prepares the financial statements of a corporation? How are financial statements prepared? How is this information made available to the public? Who are “users” of accounting information? These questions will be addressed in this section to provide the necessary background information for this proposed research.

1.3.1 Preparers of Financial Statements

According to the Securities and Exchange Commission (SEC), “A company's management has the responsibility for preparing the company's financial statements and related disclosures (U.S Securities and Exchange Commission, sec.gov., par. 4). Since management is responsible for preparing documents that the public relies on to make financial decisions, steps

must be taken to give the public confidence that management has not falsified or misrepresented information for the benefit of the corporation (Needles and Powers 2012, 23). To this end, if a corporation sells shares of stock to the public, certain conditions must be in place to monitor this process.

First, financial statements of publicly held corporations must be subjected to audits by independent certified public accountants – individuals who are not employed by the corporation or have any compromising associations with the corporation (Needles and Powers 2012, 23). A certified public accountant must meet state requirements for education and experience. During an audit, the independent certified public accountant examines the financial statements as well as the system in place for recording, storing, and retrieving data that produces those financial statements, to ensure that generally accepted accounting principles have been followed. The independent certified public accountant then “provides an opinion as to how accurately the financial statements present the company’s results” (Weygandt, Kimmel, and Kieso 2020, 1-27).

In addition, the Securities and Exchange Commission has authority over the accounting and financial disclosures for any company trading shares of stock to the public (Warren and Jones 2019, 9). The Securities and Exchange Commission requires companies to file annual reports on Form 10-K, quarterly reports on Form 10-Q, and current reports on Form 8-K. The annual reports are considered the most important and are subjected to closer scrutiny by the SEC. The annual report is a comprehensive report that includes the company’s financial statements, notes to the financial statements, and the report from independent auditors (Kenton 2019, par. 2).

A company’s chief executive officer and chief financial officer “must certify the financial and certain other information contained in annual reports on Form 10-K and quarterly reports on Form 10-Q” (U.S Securities and Exchange Commission, sec.gov. par 1). This process is from the

Sarbanes-Oxley Act of 2002, section 302, that requires the chief executive officer and the chief financial officer of any publicly traded corporation to certify that financial statements and disclosures “fairly present, in all material respects, the operations and financial condition of the company” (Marden, Edwards, and Stout 2006, par. 1). This certification statement is made under oath.

The process in its totality shows the layers involved in preparing financial reports for public access:

- Reports are prepared by management
- Reports are audited by an Independent Public Accountant/Independent Public Accounting Firm
- Reports are certified by the Chief Executive Officer and Chief Financial Officer of the Corporation
- Reports are filed with the Securities and Exchange Commission

1.3.2 Preparing Financial Reports

Business transactions, also referred to as business activities, are the starting point of financial reports (Wild, Shaw, and Chiapetta 2017, 54). A business transaction is “an economic event or condition that directly changes an entity’s financial condition or its results of operations” (Warren and Jones 2019, 12). The process to get from business transactions to financial reports begins with source documents. Every transaction is identified from a source document and entered into the accounting system. Common examples of source documents are sales receipts, bills from suppliers or vendors, employee earnings records, purchase orders, checks, tape or electronic files from cash registrars, and bank statements. Source documents can

be electronic documents or hard copies. “Source documents are objective and reliable evidence about transactions and events and their amounts” (Wild, Shaw, and Chiapetta 2017, 54).

Corporations can have thousands of business transactions daily. For example, in 2017, Starbucks reported sales of \$22.4 billion and Amazon reported sales of \$177.87 billion (BBC News 2018, par. 1; Starbucks Investor Relations 2017, par. 4). Such high volume of transactions can result in an overwhelming amount of information but technology has helped to reduce the time, cost, and accuracy of recording transactions (Wild and Shaw 2019, 4). “To understand accounting information, we need to know how the accounting system captures relevant data about transactions, and then classifies, records, and reports data (Wild, Shaw, and Chiapetta 2013, 15). The following illustration shows a breakdown of the process that starts with business transactions and ends with financial reports.

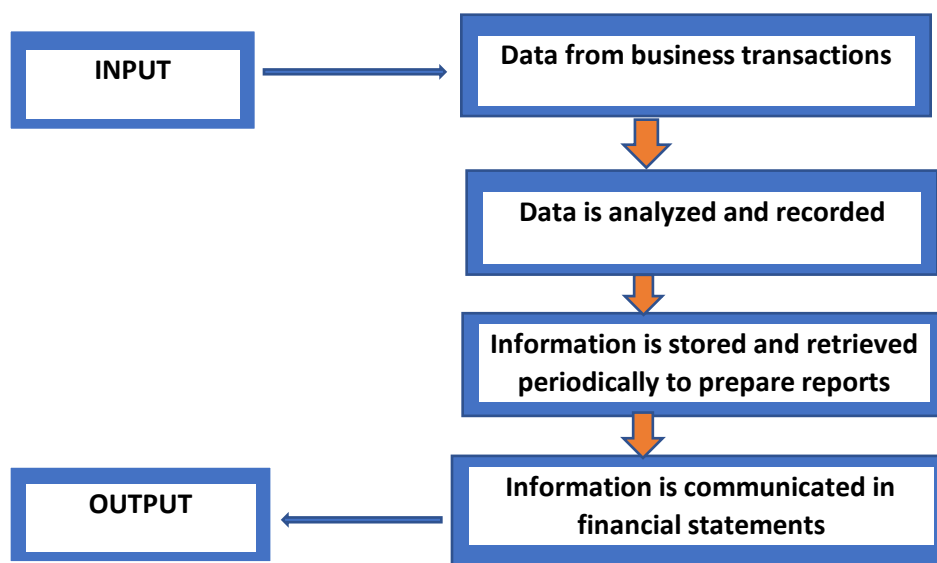


Figure 1.1: The Accounting Process

The accounting equation is the basic foundation for accounting systems in *all* companies: “from the smallest business, such as the local convenience store, to the largest business such as the Coca-Cola Company” (Warren, Reeve, and Duchac 2016, 9). The equation is written as follows:

$$\text{ASSETS} = \text{LIABILITIES} + \text{STOCKHOLDERS' EQUITY}$$

Assets, liabilities, and stockholders' equity are called elements of the accounting equation. Simply stated, assets are economic resources owned by the business; liabilities are debts of the business or what the business owes; and stockholders' equity represent the net worth or residual value of the business (Warren, Reeve, and Duchac 2016, 9). The equation shows that economic resources (assets) that belong to the business are equal to the claims against those resources. (Needles, Caldwell, and Anderson 1993, 15). Liabilities represent claims by creditors and stockholders' equity represent claims by the owners (investors). In other words, everything the business owes to creditors subtracted from everything the business owns will result in the net worth of the business.

Each element of the accounting equation can be thought of as a main category that is further classified into subgroups related to that category. For example, a listing of everything a business owns is classified as assets and a listing of everything a business owes is classified as liabilities. “The whole process of accounting is one of classification by stages so that significantly classified information may be prepared and presented” (Briloff 1952, 386).

Formal definitions of the elements of the above accounting equation are defined by Kieso, Weygandt, and Warfield (2019, 2-13):

- ASSETS: “Probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events”

- LIABILITIES: “Probable future sacrifices of economic benefits arising from present obligations of a particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events”
- STOCKHOLDERS’ EQUITY: “Residual interest in the assets of an entity that remains after deducting its liabilities. In a business enterprise, the equity is the ownership interest”

Business transactions are analyzed using the accounting equation to determine the effect of the transaction on the financial position of the company: “All business transactions can be stated in terms of the change in one or more of the three elements of the accounting equation” (Warren and Jones 2019, 27). For example, when a corporation issues stocks to investors, this will result in changes to two elements of the equation: an increase in assets and an increase in stockholders’ equity.

The accounting equation represents the basis of double-entry bookkeeping founded in the 15th century and still used today to analyze simple and complex financial transactions (Victor-Schonberger and Cukier 2013, 80). The double-entry system represents the principle of duality, and using this principle keeps the accounting equation in balance after analyzing any business transaction.

In accounting terminology, an account is a storage unit for data where increases and decreases from business transactions are recorded and stored (Needles and Powers 2014, 42). Each account has a descriptive title and an identification number (Needles, Powers, and Crosson 2012, 54). There is a separate account for each asset, liability, and each component of stockholders’ equity (Needles and Powers 2014, 42). Records of all accounts are collected in the General Ledger, also called the Ledger. To facilitate easy retrieval of information, every account

in a company's accounting system, along with its unique identification number, is listed in a Chart of Accounts (Wild, Shaw, and Chiapetta 2013, 54).

The first recording of a business transaction in the accounting records takes place with a Journal entry (Needles and Powers 2014, 47). The Journal is also called the book of original entry. The Journal is important in a business because it contains complete records of all transactions, in one location, listed in chronological order. This data includes the date of the transaction, the accounts affected by the transaction, the dollar amount, and an explanation of the transaction (Needles, Powers, and Crosson 2012, 60-61).

The following steps summarize the accounting process from analyzing business transactions to the preparation of financial statements (Wild, Shaw, and Chiapetta 2017):

- Each business transaction is identified from a source document
- Each transaction is analyzed using the accounting equation
- The first records of transactions are made in the Journal
- Data is then transferred or “posted” from the Journal to the General Ledger or the Ledger
- Account balances in the Ledger are checked periodically to test the accuracy of the accounting process and necessary adjustments are made
- Financial Statements are prepared periodically with the help of customized worksheets (also called the accountants' working papers)
- Closing entries in the Journal and the Ledger mark the end of the reporting period and prepare the accounts for the following accounting period

1.3.3 Communicating Financial Information

The purpose of the financial accounting process is to prepare financial reports (Keiso, Weygandt, and Warfield 2019, 3). The objective of financial reports is “to provide financial

information on the reporting entity that is useful to present and potential equity investors, lenders, and other creditors in decisions about providing resources to the entity” (Keiso, Weygandt, and Warfield 2019, 3-5). An important characteristic of usefulness in accounting information is reliability. Users must be able to depend that the information is “credible and verifiable by independent parties” (Needles, Anderson, and Caldwell 1993, 297).

The Securities and Exchange Commission’s website provides a guide for beginners to gain a basic understanding of financial statements and financial reports. According to the SEC, the purpose of financial statements is to “show you the money. They show you where a company’s money came from, where it went, and where it is now” (U.S Securities and Exchange Commission 2007, par. 3).

The four financial statements are prepared in the following order: (1) Income Statement, (2) Statement of Stockholders’ Equity, (3) Balance Sheet, and (4) Statement of Cash Flows. These statements provide a summary of the financial activities for a business during a specified period of time, for example, a month, a quarter, or a year.

The Income Statement summarizes revenues and expenses of the business for a specified period of time. Revenues are defined as “sales of products or services to customers” (Wild, Shaw, and Chiapetta 2013, 15). Expenses are the necessary costs incurred to earn revenues (Wild, Shaw, and Chiapetta 2013, 15). In addition, the Income Statement shows whether the business has a net profit or a net loss during that accounting period. Another term for net profit is net income or earnings.

The Statement of Stockholders’ Equity shows any changes, increase or decrease, in the value of shareholders’ ownership for a specified period of time. This statement also shows the beginning and ending balances of stocks for the specified period and the issuance of any

additional stocks. In addition, the Statement of Stockholders' Equity shows payment of dividends to stockholders. Dividends are distributions made by a corporation to its stockholders and the distributions are usually made in cash from the corporation's past earnings (Needles and Powers 2014, 790).

The Balance Sheet mirrors the accounting equation in that it lists in summarized format the assets, liabilities, and stockholders' equity of the business at a specified date. On the Balance Sheet, the total amount of assets is equal to the combined totals of liabilities and equity – illustrating the principle that the accounting equation stays in balance after each business transaction has been analyzed. The format of the Balance Sheet is designed to show the financial position of a business in terms of what the business owns and what the business owes.

The Statement of Cash Flows summarizes all cash receipts and cash payments for a specified period of time. The inflows and outflows of cash in the business are classified under three categories: cash from operating activities, cash from investing activities, and cash from financing activities.

Financial reports of a publicly held corporation contain more than financial statements. The following is a list of the information available in the corporate financial reports (Kieso, Weygandt, and Warfield 2019, 1-3):

- Financial Statements
- President's letter or supplementary schedules
- Prospectuses (details on investment offerings to the public)
- Reports filed with government agencies
- News releases
- Management's forecasts

- Statements on corporations social and environmental impact

Information on publicly held corporations is available from several sources, including the following: (date of last access for the URLs provided below is 03/05/2022)

- (i) Reports published by the corporation, for example, on the corporation's website. Publicly held corporations publish annual reports to explain the financial position and operations of their business (Kenton 2019, par. 1). Many publicly held corporations also publish interim financial statements – quarterly or monthly (Needles and Powers 2014, 662). Interim financial reports can show “early signs of change in a company's earnings trends” (Needles and Powers 2014, 662)
- (ii) Reports are filed with the Securities and Exchange Commission and are available to the public free of charge at <https://www.sec.gov/> under Filings. They include annual reports (Form 10-K), quarterly reports (Form 10-Q), and current reports (Form 8-K). If the corporation has “more than \$10 million in assets and more than 500 shareholders, they must file these reports electronically at the Securities and Exchange Commission's EDGAR database at: <http://www.sec.gov/edgar/search/webusers.htm>. (Needles and Powers 2014, 662).
- (iii) The EDGAR database is a special feature of the Securities and Exchange Commission's website. EDGAR is an acronym for Electronic Data Gathering, Analysis, and Retrieval system that provides public access to information on corporations
 - The EDGAR advanced search allows access to full-text of electronic filings since 2001 at the following site: <https://www.sec.gov/edgar/search/>
 - The historical archive search “allows you to enter complex queries to retrieve all but the most recent day's EDGAR filings (from 1994 through 2021)” (U. S.

Securities and Exchange Commission 2012, par. 1). The historical archive can be accessed at <https://www.sec.gov/cgi-bin/srch-edgar>

(iv) Financial reports are available on financial websites such as Yahoo Finance, Google Finance, and Bloomberg.com at the following websites: <https://finance.yahoo.com/>; <https://www.google.com/finance/>; and <https://www.bloomberg.com/>

(v) Credit and Investment Advisory Services, for example, Moody's Investors Service, Dun and Bradstreet and Standard & Poor's provide financial reports and industry data at the following websites: <https://www.moody.com/>; <https://www.dnb.com/ca-en/>; and <https://www.spglobal.com/ratings/en/>; (Needles and Powers 2014, 663).

Even though financial information is available from various sources, users of financial reports may still have difficulty finding the information they need. In addition, it is assumed that users of financial reports "have a reasonable knowledge of business and economic activities" (Kieso, Weygandt and Warfield 2019, 48). Some financial reports can be too complex to analyze without assistance (Kieso, Weygandt, and Warfield 2019, 48). Finding information on the EDGAR database among the various filings requires practice on using the website and understanding the information.

As noted by Keiso, Weygandt, and Warfield (2019, 1-2), "Companies also express concerns with the complexity of the financial reporting system." Within this complex system, there is a need to target and deliver the information investors need for informed decision-making (Keiso, Weygandt, and Warfield 2019, 1-2). The complexity can be seen in the following example of the Table of Contents for Form 10-K for Apple, Inc. retrieved from the EDGAR database: (<https://www.sec.gov/edgar/search-and-access>):

Table 1.1 Table of Contents of Apple Inc.'s Form 10 K for the fiscal year ended September 28, 2013.

<p style="text-align: center;">Apple Inc. Form 10-K For the Fiscal Year Ended September 28, 2013 TABLE OF CONTENTS</p>	
	<u>Page</u>
<u>Part I</u>	
Item 1. <u>Business</u>	1
Item 1A. <u>Risk Factors</u>	9
Item 1B. <u>Unresolved Staff Comments</u>	20
Item 2. <u>Properties</u>	20
Item 3. <u>Legal Proceedings</u>	21
Item 4. <u>Mine Safety Disclosures</u>	21
<u>Part II</u>	
Item 5. <u>Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</u>	22
Item 6. <u>Selected Financial Data</u>	24
Item 7. <u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	25
Item 7A. <u>Quantitative and Qualitative Disclosures About Market Risk</u>	42
Item 8. <u>Financial Statements and Supplementary Data</u>	44
Item 9. <u>Changes in and Disagreements With Accountants on Accounting and Financial Disclosure</u>	81
Item 9A. <u>Controls and Procedures</u>	81
Item 9B. <u>Other Information</u>	82
<u>Part III</u>	
Item 10. <u>Directors, Executive Officers and Corporate Governance</u>	83
Item 11. <u>Executive Compensation</u>	83
Item 12. <u>Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</u>	83
Item 13. <u>Certain Relationships and Related Transactions and Director Independence</u>	83
Item 14. <u>Principal Accounting Fees and Services</u>	83
<u>Part IV</u>	
Item 15. <u>Exhibits, Financial Statement Schedules</u>	

1.3.4 Users of Accounting Information

Decision-makers or users of accounting information are typically people who own and/or manage a business as well as people who have direct or indirect interest in a business. Users of accounting information can be classified into two groups: internal users and external users.

External users are people outside the corporation and have “limited access” to a corporation’s accounting information – they access information from financial reports (Wild and

Shaw 2019, 4). The purpose of financial accounting is to “provide relevant and timely information for the decision-making needs of users *outside* of the business” (Warren, Reeve, and Duchac 2016, 4). Examples of external users include:

- Investors/Shareholders: owners of the corporation
- Creditors/Lenders: examples are banks, mortgage companies, savings and loans
- Potential Investors and Creditors
- Government: for example, the IRS and regulators
- Suppliers: need information before extending credit
- Customers

Internal users are people inside the corporation, and more specifically, executives, and employees in management positions within the corporation (Wild and Shaw 2019, 4). Internal users benefit from additional information provided by a branch of accounting called managerial accounting or cost accounting. Examples of internal users include:

- Chief Executive Officer
- Chief Financial Officer
- Managers for Research and Development, Production, Purchasing, Marketing, Human Resources

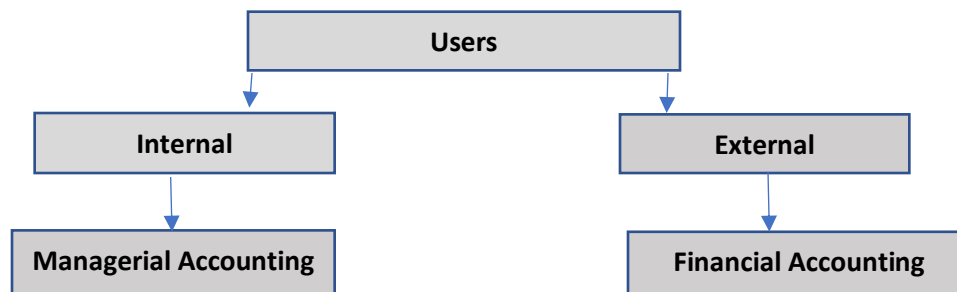


Figure 1.2 Users of Accounting Information

The accounting system is designed with the user in mind in both areas of accounting: financial and managerial (Warren, Reeve, and Duchac 2012, 3). Financial accounting is concerned with the preparation of financial statements whereas managerial accounting is geared towards preparing management reports (Warren, Reeve, and Duchac 2012, 829). One important difference is that financial accounting must be prepared using generally accepted accounting principles (GAAP), but this is not a strict requirement for managerial accounting since this information is only used by the management of the company (Warren, Reeve, and Duchac 2012, 829). This study will look at financial information available to external users in the Financial Crisis of 2008.

The ability for financial information to reach the public is dependent on reliable channels of communication. In the case of financial reports, communication starts with the preparation of financial statements as outlined in this section. Tracing this process that starts with business transactions and ends with financial reports provide the basic framework for understanding the possibility for gaps or breaches within such a system, for example, gaps such as improper classification of transactions or omission of significant data. Even though the accounting information system is designed to process and report on vast amounts of information, financial innovation and a global financial system have contributed to a challenging environment in which information changes at a rapid pace leading to further gaps in communication.

It is important to consider the accounting information system within the context of a global financial system because of the potential impact on financial reporting. Thus, in order to fully evaluate gaps in communicating financial information, it is necessary to understand what is characteristic of a global financial system and the dynamic information that flows through it. The following literature review in Chapter 2 provides insight into these processes that influence the

communication of financial information to the public as evidenced by the Financial Crisis of 2008.

Chapter 2: Literature Review

This study seeks to address a fundamental problem as seen in the intersection of two areas that organize everyday life: financial information that governs economic decision making and the systems in place that communicate such information. The Great Recession of 2008 presents a unique opportunity to examine how these two areas intersect and to identify possible ruptures in this process. This study looks to evaluate an underexplored facet of the crisis since much of the literature around the 2008 financial crisis explains technically what it means to have a housing bubble and how that bubble is procedurally formed (Geithner 2014; Paulson Jr. 2011; Wolf 2014,). Subsequently, the literature reflects the widespread effects of the housing bubble and what was done at the policy level to address the crisis (Bernanke, Geithner and Paulson Jr. 2019; Geithner 2014; Wessel 2009). The purpose of this review is twofold: to evaluate the gap that exists between the experts in financial information and the laymen who depend on such information for economic decision-making; and to analyze media as a channel for communicating timely and accurate financial information between financial experts and the public.

This chapter will examine the afore-stated issue from the following three interrelated perspectives by reviewing relevant publications: 1) the complexity of the financial system in the United States, 2) media as a communication channel for financial information, and 3) communicating financial information to the public.

2.1 Understanding a Complex Financial System

Financial information is processed in complex financial systems, that is, systems with complex processes involving many variables. Jackson (2003, xiii) writes: “Complexity stems from the nature of problems. They rarely present themselves individually, but come related to

other problems, in richly interconnected problem situations that are appropriately described by Russ Ackoff as ‘messes.’” Analyzing what makes the financial system complex is important in understanding the scope of the problem should such a system fail. This section attempts to explore such complexity by looking at research on the system itself as well as the information that flows through the system.

The literature around financial information and financial systems uses consistent indicators to characterize complexity. These indicators include the sheer size of the system and the number of interconnected or interrelated parts (Arinaminpathy, Kapadia, and May 2012; Ba 2021; Blundell-Wignall 2017; Paulson, Jr. 2010; Sau 2013; Wen and Yang 2019), the dynamic nature of financial information and risk in financial instruments (Mishkin 2019, Sau 2013; Schwarcz 2009, Sorkin 2009, Wang et al. 2019). These indicators are themselves interrelated and are discussed within larger contexts of economic complexity.

2.1.1 Size and Interconnectedness

The financial system as a whole can be seen as a vast network of interconnected systems, the size of which is difficult to conceive in a tangible way. This network of systems is extensive because of the structures that facilitate an interdependent global economy (Ba 2021). The financial system in the United States is made up of the banking system, nonbank financial institutions, and the financial markets, with each one of these sectors further subdividing into other systems (Lee 2001).

In describing the breadth and depth of the system, Mishkin (2018, 6) writes: “The financial system is complex, comprising many different types of private sector financial institutions, including banks, insurance companies, mutual funds, finance companies, and investment banks” Mishkin’s (2018) work emphasizes not only the magnitude of the system,

but also underscores the broad radius where people are impacted. Jackson (2003, 3) defines a system in general as “a complex whole the functioning of which depends on its parts and the interactions between those part.” Similar to Mishkin (2018), The Organization for Economic Development (2005) defines a financial system based on what makes up the system:

“A financial system consists of institutional units and markets that interact, typically in a complex manner, for the purpose of mobilizing funds for investments, and providing facilities, including payment systems, for the financing of commercial activity.”

In a discussion of the economic roots of national power and influence, Ba (2021) looks at complex interdependencies and instability of financial systems in a global economic setting. Noting that the United States banking system is “the largest and most interconnected banks in the world,” Ba (2021, 375, 403) argues that this interconnectedness in hierarchical systems creates conditions of instability and volatility, since a larger system within this network will affect the other economic systems.

Hierarchy within a system is indicative of complexity because a hierarchical system is one that has subsystems and the subsystems have their own subsystems (Simon 1962). Ba (2021, 401) argues that “the size, interconnectedness, and scale of the US banking industry is the fundamental source of America’s financial autonomy and influence, and this influence prevails system-wide.” By this she means that the influence of a large financial system within this structure can be felt throughout the system and all its subsystems. This argument is used to understand the widespread effects of the financial crisis in 2008 where the influence of the United States in terms of global financing “means that it disproportionately affects the stability of the international economy, and by extension the welfare of billions of people” (Ba 2021, 402).

Ba (2021) points out that over the past four decades, the complexity of interdependence has grown significantly. She explains “complex interdependence” in terms of investments, production, trade, consumption, and international banking that takes place across national borders in a global economy. This interactivity involves households, businesses, and governments on an international level. Ba (2021, 371) asserts that because of this, “changes among actors’ interactions in one part of the system can quickly spread to actors in other parts of the system through real and financial linkages.” Additionally, Ba (2021, 403) argues that “the hierarchical organization of the financial system and American centrality in it critically affects its stability.” In this context, the financial relationship of the United States with other countries can lead to instability and crisis as changes in the financial cycle in the United States is not contained within a single system.

Ba (2021) provides important aspects of complex interdependence, a factor that significantly contributes to the complexity of the financial system. This is because economic systems are linked through globalization and as capital flows through such a system, interdependence allows for the spread of financial contagion. In addition, by identifying hierarchical organization as a feature of complex interdependence, linkages of economic systems within a global economy further expands the complexity of the system. Last, by emphasizing the scale and the interconnectedness of the U.S. banking system within the global financial system, changes in one part of the system are seen to have system-wide effects.

Blundell-Wignall (2017, 62) writes: “Global finance is the perfect example of a complex system, consisting as it does of a highly interconnected system of subsystems” He points out that this complexity is a product of international trade, investments, and swift advances in digital technology and networks. These developments led to financial products with greater complexity

designed to hedge risk and stock exchanges, to facilitate mergers and acquisitions among businesses, to manage new technological innovations for trading of volatile or unstable products, and to promote international banking (Blundell-Wignall 2017). This perspective is reflected by the Financial Crisis Inquiry Commission (2011, xvii) in describing the changes that have occurred over the past three decades: “The financial markets have become increasingly globalized. Technology has transformed the efficiency, speed, and complexity of financial instruments and transactions.”

Blundell-Wignall (2017) explains that the banking system became the epicenter of the global financial crisis in 2008 because risk was underpriced and offers some insight into why this was the case. First, there were businesses in the banking system that had poor regulation at the institutional level as well as excessive debt, and became too big to fail. Too-big-to-fail banks and financial institutions that wield the most influence are American organizations that are problematic because they increase system risk (Ba 2021). Paulson, Jr. (2010, 441) offers further insight into the “too-big-to fail” institutions: “The largest financial institutions are so big and complex that they pose a dangerously large risk ... This dramatic concentration, coupled with much greater interconnectedness, means that the failure of any of a few large institutions can take down a big part of the system.”

Additionally, Blundell-Wignall (2017) links the failures in the banking system with increased risk because of a surge of institutional investors in the financial markets along with the growth of leverage and derivatives. Between the years of 1978 and 2007 debt held by the financial sector increased from \$3 trillion to \$36 trillion (The Financial Crisis Inquiry Commission 2011, xvii). This is supported by Paulson, Jr. (2010, 440) who also draws attention to the significant increase of leverage in the financial system and writes: “Much of the leverage

was embedded in largely opaque and highly complex financial products.” As Blundell-Wignall (2017) explains, technological innovations in financial markets led to new financial products and new ways of trading securities, including high frequency trading.

Blundell-Wignall (2017, 63) identifies examples of this increase in complexity using terms that are complicated as well: “The increasing separation of owners from the governance of companies also added a new layer of complexity compounding some of these issues (passive funds, exchange-traded funds, or ETFs, lending agent’s custody, re-hypothecation, advisors and consultants are all in the mix).” He also makes a distinction between a financial system that is by its nature big and complex, and the reformulation of a system due to advances in information technology and reforms in regulation. Factors associated with this environment include fragmentation that has resulted in growing numbers of stock trading venues and “dark-trading pools,” issues of transparency in the stock market, and financial securities that favor speed and complexity over long-term investments (Blundell-Wignall 2017, 64-65).

Arinaminpathy, Kapadia, and May (2012) use a theoretical approach in developing a model to analyze size, interdependency, and complexity in financial systems. The authors point out that in recent decades, the increased changes in financial systems can be observed in terms of size, dynamic behavior, and complexity. The implementation of models when working with mass amounts of data is supported by White (2012, 1): “When defining a complex problem, systems engineers create abstractions to reduce complexity and increase understanding.” Arinaminpathy, Kapadia, and May’s (2012) model constructs a system of 200 interconnected banks allowing them to draw parallels with other large and complex systems. The banks in this model were connected through the interbank market in a system that shared the same group of external assets.

In asking the question: “What role do large banks play in systemic risk?” Arinaminpathy, Kapadia, and May (2012, 18338) establish a link between the financial system and channeling contagion from one bank to another. Besides looking at size and interconnectedness, the model also incorporates the effect of confidence within the system. As noted by Geithner (2014, 7), “Financial systems, after all, are built on belief.” A crisis of confidence that disrupted the entire financial system occurred during the Great Depression and again during the Great Recession of 2008 (Bernanke, Geithner, and Paulson Jr. 2019, 3). Arinaminpathy, Kapadia, and May (2012) further point out that policy discussions on the size and interconnectedness of some banks, and their impact on the financial system have not been well-received by the financial industry.

Arinaminpathy, Kapadia, and May (2012) highlight some important points in their findings. First, because of the presence of nonlinear relationships, stability within the system is disproportionately affected by large and well-connected banks. Second, large banks can be stabilizing if they remain healthy but the failure of large banks can negatively affect the entire system and the effects of confidence can be seen to increase dynamics in the financial system. The authors then conclude that market confidence and unparalleled interconnectivity result in widespread complex dynamics within modern financial systems.

2.1.2 Dynamic Nature of Financial Information and Risk in Financial Instruments

Sau (2013) argues that financial markets are complex systems. What makes the systems complex? According to Sau (2013), the system is complex because the nature of the economy is complex and this complexity can be explained through factors such as a capitalist system, instability, and uncertainty. He looks at complexity in the financial system by analyzing the differences in two hypotheses: the Efficient Markets Hypothesis and Hyman Minsky’s Financial Instability Hypothesis.

The Efficient Market Hypothesis is a theoretical approach that emphasizes efficiency in the financial markets (Sau 2013). This approach may be better suited to ideal economic conditions. Here, financial markets are thought of as “self-regulating and self-stabilizing,” so that crisis and unstable conditions are short-term events (Sau 2013, 497). Securities markets are seen as “extremely efficient in reflecting information about individual stocks and about the stock market as a whole” (Malkiel 2003, 59). This means that new information is reflected promptly in stock prices (Sau 2013). In this way, uncertainty is reduced since the market as a whole adjusts based on market news and “the probability of financial crisis is ruled out” (Sau 2013, 499).

Hyman Minsky’s (1992) work on the Financial Instability Hypothesis has both theoretical and empirical aspects. The theoretical aspect looks at the economy “as a capitalist economy with expensive capital assets and a complex, sophisticated financial system” (Minsky 1992, 2). Capital development in such an economy, argues Minsky (1992), involves the exchange of present money for future money: present money pays for resources that produce investment output and future money is characterized by earned profits. The empirical perspective deals with the potential for inflations and debt inflations in capitalist economies, and the probability of losing control during these periods (Minsky 1992).

The capitalist economic structure has financial systems that are increasingly complex because of the way the system operates (Sau 2013; Whalen 2001). There are components within the system that are constantly changing (Whalen 2001). Sau (2013, 501) describes the resulting instability, uncertainty, and risk as complex dynamics and argues that probability models are insufficient in analyzing this level of risk and uncertainty: “Under conditions of fundamental uncertainty the behavior of economic agents is so complex that formal probabilistic treatment of expectations is not feasible.” Interdependence in this context means decision-making for one

person depends on decisions made by other people on a large scale, contributing to uncertainty (Sau 2013).

Sau (2013) identifies the role of institutional investors and money managers that contribute to the internal dynamics of financial markets and makes two important points. First, a trend that started in the 1980s and 1990s shows that money managers now have a principal role in the economy instead of great numbers of individual investors who used to be the primary drivers of the financial markets. Factors contributing to the development of money managers include deregulation and reduced oversight over a 30-year period. Second, financial decision-making by corporate executives is heavily influenced by money managers “to drive up the short-term stock market valuation of their firms” (Sau, 2013, 505). The reason for this is “Money managers exert this pressure through their control of pension and mutual funds, venture capital funds, private equity funds, and, of course, hedge funds” (Sau 2013, 505).

Sau (2013) argues that structural changes within the financial system resulted in problems in the system as well as excessive risk. These changes took place in two ways: securitization and globalization. Sau (2013) writes: “Securitization involves a pooling of illiquid assets (mortgages, car loans, student loans) and issuing securities representing an interest in the pool. Financial globalization is the process of internationalization of both the funds and the assets of the funds” This restructuring in the financial markets through securitization was a disadvantage to traditional banks because business activities were moving away from banks into more innovative and complex financial instruments.

Mishkin (2019, 243) describes securitization as “one of the most important financial innovations of the past two decades, arising from improvements in information technology.” This refers to a process that bundles illiquid financial assets into market securities, for example,

residential mortgages, auto loans, and credit card receivables can be bundled together. The following example demonstrates the link between the housing market and the financial system:

“Securities whose income and value came from a pool of residential mortgages were being amalgamated, sliced up, and reconfigured again, and soon became the underpinnings of new investment products marketed as collateralized debt obligations.” (Sorkin 2009, 89).

Sorkin (2009) also supports the argument that the reason for the process of securitization is to spread and reduce risk. This means that banks did not have to keep loans on their balance sheets. The risk of the loans can be spread over thousands of parties, meaning that “many institutions and investors were interconnected ... A municipal pension fund in Norway might have subprime mortgages from California in its portfolio and not even realize it (Sorkin 2009, 90).

Complexity is “the greatest financial market challenge of the future” (Schwarcz 2009, 213). This author argues that one source of complexity in financial markets arises from risky ventures because of investors who are looking for higher yields. This objective leads to offerings of more complex securities and new types of assets that allow for the hedging or offsetting of risk. As a result, these securities can carry a higher price than the value of their underlying assets. Understanding the complexities of some of the underlying assets would require an individualized modeling approach to estimate risk factors involved – risk factors such as default risk, interest rate risk, and prepayment risk: “When multiple asset classes underlie a given class of securities, modeling can become exponentially complicated” (Schwarcz 2009, 216-217).

Cognizant complexity refers to processes involved in the valuation of investment securities that are “too complex to understand” (Schwarcz 2009, 214). This can be seen in the terms and conditions attached to financial assets such as mortgage-loans that include “low-to-

zero down payment requirements, interest-only payment options, and negative amortization” (Schwarcz 2019, 217). Adding another layer to this process, government agencies and investment banks bought these loans and further created a securitization process by bundling them into what is known as mortgage-backed securities (Schwarcz 2009).

Schwarcz’s (2009) work on the subprime financial crisis takes a close look at different perspectives of complexity in modern financial markets. The subprime financial crisis played a significant role in leading up to the Great Recession, as explained by the Financial Crisis Inquiry Commission (2011, xxiii): “Many mortgage lenders set the bar so low that lenders simply took eager borrowers’ qualifications on faith, often with a willful disregard for a borrower’s ability to pay.” In an environment of high risk and leverage, these practices threatened the stability of a system that was too big and interconnected (Bernanke, Geithner, and Paulson Jr. 2019, 112). In October 2008, the United States Congress passed the Troubled Asset Relief Program that authorized the spending of \$700 billion to repurchase subprime mortgage assets from failing institutions and to stabilize the entire financial system (Mishkin 2019, 283).

In addition, Schwarcz (2019, 221) shows how the operations of modern finance in the United States and around the world involve “complex issuance by SPVs (special purpose vehicles) of securities backed by a wide range of financial assets. An SPV is used by companies to limit the spread of financial risk (Na’im 2006). One of the ways companies use SPVs is to create these vehicles that are off-balance-sheet transactions as a technique to absorb the companies’ debt: “This mechanism provides the instrument for the firms to hide their loan or potential material liabilities from appearing explicitly in their financial statements” (Na’im 2006, 7).

Expanding and understanding some of the processes and complex financial assets discussed in Schwarcz (2019) requires a closer look at some specific changes in financial institutions such as the rise of the shadow banking system and financial derivatives. Some of the traditional operations of banks evolved due to financial innovation and this led to significant changes in the financial system (Mishkin 2019, 239; Wolf 2014, 127-128). One such change is known as the development of the shadow banking system, where loans made by traditional banks and funded by deposits were replaced by loans through securities markets (Bernanke, Geithner, and Paulson Jr. 2019, 112; Mishkin 2019, 239).

The shadow banking system included institutions such as mutual funds, investment banks, and hedge funds. These institutions were not subjected to the same regulation requirements as commercial banks (Bernanke, Geithner, and Paulson Jr. 2019, 112; The Financial Crisis Inquiry Report 2011, 455). The shadow banking system increased in growth during the early 2000s with total assets reaching around \$13 trillion in 2007 making the shadow banking system larger than the traditional banking system (Wolf 2014, 130). Geithner (2014, 504) writes: “Shadow banking is a term often used to describe entities with bank-like risk that are not regulated as banks ... many of the largest firms and markets described as ‘shadow’ activity were operating in broad daylight, as public companies”

In making a comparison between the Great Depression in 1929 and the Great Recession in 2008, Geithner (2014, 8, 78) writes: “Of course, the banking system that FDR inherited didn’t have ‘collateralized debt obligations,’ ‘asset-backed commercial paper,’ or other complexities of twenty-first-century finance, for example, derivatives used for hedging and distributing risks.” Derivatives, also referred to as financial derivatives, are known as highly complex financial instruments. Financial derivatives were developed as a product to “hedge” or protect financial

institutions and investors from interest rate risk (Mishkin 2019, 241). As noted by the Financial Crisis Inquiry Report (2011, 45), “During the financial crisis, leverage and complexity became closely identified with one element of the story: derivatives.” The prices of these financial contracts are ‘derived’ from “the value of some underlying asset, rate, index, or event” and are available in various forms such as over-the-counter-swaps and exchange-traded futures and options (The Financial Crisis Inquiry Report 2011, 46). The consequences of financial derivatives and other complex financial instruments enhanced risk and a lack of transparency to a degree far greater than the Great Depression.

The measurement of dynamics and complexity in financial systems by Wang et al. (2019) is complex in itself as their model is designed to look at the dynamics and complexity in a financial system with time delays. This method allows for precise measures of the features of financial systems. Time delays are included in the process as well to take into account the amount of time that elapsed beginning from the time that a policy or decision is made to the time that the policy or decision takes effect (Wang et al. 2019).

Wang et al. (2019) highlight some important aspects of measuring chaos and complexity in financial systems. First, the measurement of dynamics refers to the level of chaos within the financial system. Second, measuring complexity with varying parameters shows that chaos in the system result in higher complexity measures. Third, the presence of chaos means there is instability and unpredictability in the financial system. As noted by Wang et al. (2019, 7): “If high complexity measure result is observed, it means that the system has complex dynamical behavior and some necessary control policies should be considered.” Additionally, the findings show that the financial system has a “wide region of high complexity” and time delay is “one of the important reasons for generating chaos in the system” (Wang et al. 2019, 7-8).

Similar to the study done by Wang et al (2019), Wen and Yang (2019) examine complexity and chaos in financial systems. Describing the financial system as “an open complex giant system that exchanges energy, such as material, capital, and information, with the outside of the system,” Wen and Yang (2019, 242) note that the financial system is even more complex because of subjective perceptions of the people that engage with the system. They develop a model to analyze the stability of the system with variables such as interest rates, investment demand, price index, and the demand elasticity of the commercial market.

The findings from Wen and Yang (2019) offer insight into the internal complexity of the financial system. Complex dynamic behaviors and chaos are products of nonlinear financial systems. The authors recognize that a combination of factors contribute to the formation of financial chaos such as the behavior of investors, non-equilibrium fluctuation in financial markets, excessive financial innovation, and lack of financial supervision. The results show that an overly active system leads to chaos and makes it difficult to predict and control outcomes: “Instability and complexity make accurate economic forecasting very limited and reasonable expected behavior becomes complicated” (Wen and Yang 2019, 250).

Explaining complexity from the perspective of the system and the information that flows through the system reveals various issues and changes that have occurred mainly over the past four decades with the rapid growth of technology, and a financial structure that developed to facilitate globalization. Studying the Financial Crisis of 2008 further shows the role complexity plays in hampering communication to the public by providing alternative ways of banking, and by extension, unmonitored ways of engaging with and disseminating financial information. When an alternative system stemming from traditional banking emerges, the heightened lack of communication affects not only alternative systems, but the original system as well. Emphasizing

complexity underscores how the Financial Crisis of 2008 was able to reverberate throughout economies and markets across the globe.

2.2 Media as a Communication Channel for Financial Information

This section seeks to review the literature on the use of media as a communication channel for the purpose of informing the public about financial information. The role of the media is an important one because the nature of financial information, as seen in the previous section, is inherently complex. The media, then, acts as an intermediary between the experts in financial information and laymen who need this information for investing and other everyday economic decision-making. Communication of financial information through media is reviewed from the following perspectives: 1) the tone of media reports (Ahmad, Han, Hutson, Kearney, and Liu 2016; Behr 2002; Roush 2008), 2) effects of macroeconomic news reports (Birz and Lott Jr. 2011; Kalogeropoulous 2018), and 3) media reports on future earnings and market fluctuations (Pena-Martel, Perez-Aleman, and Santana-Martin 2018; Strycharz, Strauss, and Trilling 2018).

2.2.1 Tone of Media Reports

Tone is an important concept in communication. Tone potentially could have had an impact on the communication of financial information in the 2008 Financial Crisis. Ahmad et al. (2016) analyze the effects of negative media reports on firms' stock returns over a ten-year period using 5.5 million news articles. The study looks at twenty large firms in the United States from January 2001 to December 2010 to show how "media-expressed negative tone impacts firm-level returns episodically in ways that vary across firms and over time" (Ahmad et al. 2015, 152-153). News articles comprising of daily data were drawn from several sources including newspapers, web-based publications, trade magazines, and financial blogs.

The emphasis on examining media content in this context is on the tone of the reports and any relationship this may have on financial market results at the firm level (Ahmad et al. 2016). Studies at the firm level are sparse and the reason for that, notes Ahmad et al. (2016, 153) is because most firms are not frequently reported on in the media, so researchers are unable to develop trends in “firm-specific tone.” The firms examined in this study were taken from the 2011 Fortune 500 list that includes high profile companies such as Apple, Dell, General Electric, ExxonMobil, Cisco, Home Depot, IBM, Microsoft, Pfizer, Verizon, and Walmart.

Journalists play an important role in “providing background, conducting in-depth analysis, and sometimes undertaking further investigations – provide the ‘processing’ that assists market participants to evaluate the implications of news stories for fundamental firm value” (Ahmad et al. 2016, 171). In some instances, the tone of media reports over long periods of time had no effect on a firm’s returns, but there were also infrequent episodes where media reports showed significant effects (Ahmad et al. 2016). According to Ahmad et al. (2016), it can be inferred that media reports in some instances can be noise and in other instances media analysis carry valuable and relevant news and information.

Can tone in the media be influenced by public opinion? Roush (2008) offers insight into the possible impact of public opinion on news coverage that preceded the Financial Crisis of 2008. He views tone in news reports as one of the challenges faced by financial journalists because of public sentiment towards negative news reports during this period of time. The public was reluctant to read negative news when the stock market, and by extension, people’s 401(k) plans were doing well (Roush 2008). In this way, the public did not pay attention to reporting that was important in signaling the growing risks involved with credit derivatives stemming from faulty loans in the housing market (Roush 2008).

Roush (2008, 35) also addresses criticism of the business press for failing to report on “the murky financial underpinnings of the real-estate bubble” that precipitated the collapse of the economy in 2008. He claims that this criticism arises from the perception that journalists showed a deferential attitude towards chief executive officers from firms with high profit margins, instead of closer scrutiny of financial statements and reporting those findings to the public. The press, argues Roush (2008), should not be blamed for failing to anticipate the crisis because government regulators and the public were not attentive to current reporting.

2.2.2 Macroeconomic News Reports

How does macroeconomic news affect the financial markets? Birz and Lott Jr. (2011, 2791) look at news of financial markets based on macroeconomic variables, instead of firm-specific news, to see the effects on stock returns. More specifically, their study utilizes newspaper articles from 1991 to 2004 to measure the effect of macroeconomic news on stock prices. Macroeconomic factors include unemployment, industrial production, retail sales, durable goods, and generally, components of gross domestic product (GDP) and gross national product (GNP). Gross domestic product and gross national product represent measures of “aggregate economic activity” (Birz and Lott Jr. 2011, 2791). The gross domestic product is “the market value of all final goods and services produced in a country during the course of a year” (Mishkin 2019, 19). The gross national product is also a measure of aggregate economic output, but for American companies at home and abroad.

Stock prices are affected by news on money growth and changes in interest rates (Birz and Lott Jr. 2011). However, the authors point out that the effects of macroeconomic news on stock prices are mixed. They explain that the effects of real sector news on stock prices may depend on the prevailing economic conditions at the time of the news release, indicating that “the

same economic surprises can mean different things in different economic environments” (Birz and Lott Jr. 2011, 2792). In further explaining “mixed results” of macroeconomic news, the authors expand on “market participants’ earlier expectations of statistics” – that is, when news releases validate what investors already expect, there is less effect on stock prices than news releases “with an unexpected value of a statistic” (Birz and Lott Jr. 2011, 2792).

Emphasis is placed on the effect of the same news in different economic conditions to show the role of business cycles on stock prices (Birz and Lott Jr. 2011). Business cycles refer to the constantly changing levels of economic activity. These upward and downward changes “vary in length, in how high or low the economy moves, and in how much the economy is affected (Gitman and McDaniel 2008, 69). For example, in 1998, growth in gross domestic product was 1.2% higher than market expectations and the subsequent financial news from the *New York Times* reported market activities as sluggish, while the same results in gross domestic product in 1997 had corresponding news reports from the *New York Times* of significant improvement in economic activities (Birz and Lott Jr. 2011).

In addition to providing statistical facts, Birz and Lott Jr. (2011) demonstrate three important functions of newspapers. First newspapers are as a source for providing explanations for statistical data. Second, newspaper articles “indicate whether the news media perceives something as important” (2792), and third, newspaper articles report on whether the economic performance met investors’ expectations. The same authors argue that in looking at whether stock returns are affected by real sector economic news, it is essential to consider that providing statistical information as economic announcements is not the only relevant factor; it is important to look at the way this information is “interpreted by the public.” Newspaper coverage was chosen for their study as a way to analyze how investors interpret macroeconomic news.

After looking at factors such as GDP growth, retail sales, unemployment, and durable goods, (Birz and Lott Jr. (2011, 2799) show that news about unemployment and GDP growth “significantly affects stock returns,” but “correlations between stock returns and news about durable goods and retail sales are statistically insignificant.” These results indicate that durable goods and retail sales are not as important to investors’ assessment of the future economic environment.

Kalogeropoulos (2018) examines the effects of economic news reports from a different perspective: the relationship between economic news and individuals’ decision-making behaviors. The author looks at how the exposure to different types of mass-mediated news reports affects personal economic expectations on an individual level. This study was conducted in Denmark during a period of economic recovery after the downturn from the Great Recession of 2008. It was designed to capture the reactions of the public on an individual basis on economic news from various media outlets, including newspapers and their websites. Denmark is known for its high circulation of newspapers and Kalogeropoulos’ (2018) study identified that newspapers in Denmark showed a strong presence of economic news in their reporting.

News articles were analyzed based on the tone and topics covered in economic news (Kalogeropoulos 2018). Topics included unemployment, inflation, financial crisis, financial profits, interest rates, stock market, GDP, GNP, and investment. Kalogeropoulos (2018) raises the issue of whether citizens access to economic information from the media can be used to bring about national economic changes. Besides holding businesses and political actors accountable for the nation’s economic conditions, business news have another important function. The author writes: “Citizens, apart from voting decisions, need to make every day financial decisions

concerning their household and some media stories might affect their decisions” (Kalogeropoulos 2018, 262).

The visibility of economic news was examined in printed and online articles from traditional news outlets, tabloids, and television (Kalogeropoulos 2018). The findings from Kalogeropoulos (2018) provide information that is useful to understanding the conditions under which media affects personal expectations. Similar to Birz and Lott Jr. (2011) the topic of unemployment news was a strong predictor of personal economic expectations. Even though the study shows that the tone of economic news was not a strong predictor of individual economic expectation, the content of the news on unemployment was negative. Kalogeropoulos (2018, 261) writes: “the more time individuals spent watching and reading unemployment news in the media, the lower their economic expectations for the next year became over time.”

The results also show that the effect of unemployment news on individuals were observed on those with exposure to tabloid news stories (Kalogeropoulos 2018). There are important aspects to consider in these findings. Kalogeropoulos (2018,261) states: “Our expectation would be that the perceived credibility of tabloid-style journalism would make citizens less susceptible to media effects from them.” In addition, because economic news is not highly visible in tabloid news, the reaction from individuals is stronger when it is present. The result can also be explained by the personalized style of reporting by tabloids making economic news, in this instance, relatable to the public (Kalogeropoulos 2018).

2.2.3 Future Earnings and Market Fluctuations

Pena-Martel et al. (2018) look at the media’s role in informing investors about accounting earnings. The authors note media’s role as an important channel for communicating information to investors and point out that the media can be viewed as an information intermediary between

external investors and companies, as well as in helping to increase transparency. Pena-Martel et al. (2018, 168-169) write: “The media select, analyze, communicate and can influence the informativeness of earnings reported by firms” adding that the media can play a part as a “governance mechanism” since it collects, compiles, and communicates information.

The findings reported by Pena-Martel et al. (2018) highlight important aspects of the relationship between the media and informed investors in Europe. First, information reported through the media affected earnings informativeness in a positive way. Second, the results show that if there are negative reports about a firm in the media, these reports impact the firms’ performance: “negative news items increase dominant owner incentives to offer quality accounting information in order to enhance their reputation, thereby increasing earnings informativeness” (Pena-Martel et al. 2018, 177). Third, this study shows that the media also functions effectively in terms of corporate governance. Pena-Martel et al. (2018, 177) argue that insight into media coverage has benefits for investors, analysts, and auditors because the media is seen as a mechanism for corporate governance, and they point out that “high quality financial press may enhance the transparency of accounting earnings disclosed by companies.

There are other indicators besides earnings that are of interest to investors and future investors. Strycharz, Strauss, and Trilling’s (2018) study looks at the relationship between changes in stock prices and news media coverage for three companies over a period of two years. The authors focus at ING, Philips, and Shell, companies listed on Amsterdam Exchange Index, using frequency counts, sentiment analysis, and topic modeling to examine the media’s effect on stock market prices.

By taking a comprehensive approach in analyzing how news media, in particular, financial news, influence movements in the stock market, Strycharz, Strauss, and Trilling (2018)

argue that the prediction of changes in stock prices increases when reporting includes relevant discussions on corporate sentiments, as well as corporate topics, and expert opinions. Based on their analysis of the Efficient Market Hypothesis, Strycharz, Strauss, and Trilling (2018, 68) write: “the financial markets are not efficient in a way that all available information is instantaneously integrated in prices as assumed by proponents of EMH ... not all investors can be assumed to be equally well informed, having enough time and attention to process and evaluate information.” This is supported by Sau (2013) who argues that the Efficient Market Hypothesis is suited to economic conditions that are ideal.

According to Strycharz, Strauss, and Trilling (2018), news media plays a role in both disseminating and interpreting financial information. Additionally, investors most likely wait for the financial market to react to news and they follow the direction of the market’s movement. The news media can also influence investors’ decision-making when media coverage increases for a particular stock or company which then leads to investors showing more interest in the stock (Strycharz, Strauss, and Trilling 2018).

Strycharz, Strauss, and Trilling (2018, 79-80) raise some important questions in their study, for example, “How media coverage of companies triggers share price reactions?” and “What kind of coverage impacts the evaluation of the company on the stock market the most?” The relationship between media coverage and stock market fluctuations show that the amount of media attention matters when looking at its relation to stock prices. In addition, when testing for sentiment, emotionality, and corporate topics, their findings show positive relationships between emotionality and the prediction of stock market fluctuations. Corporate topics influenced stock market fluctuations with topics such as “market relevant news for investors.” Examples include

news about the products of a company and news on corporate social responsibility – both relevant to stock price.

The review above shows how financial information's content and complexity shape what is communicated through the media. In many ways, the relationship between financial indicators and positive or negative news coverage is reciprocal: companies stock prices can rise or plummet based on the perception of panic or confidence by investors when looking at financial news reports. Similarly, whether a news report is overtly skeptical of financial reports provided by companies is based on if the public will lose interest in stories. In comparison to other topics covered by journalists, the composition of financial information, more specifically its ability to change, likewise, presents a particular challenge to reporting it. This challenge is extremely relevant to the 2008 Financial Crisis because while the public relies on this information to know about potential dangers to their financial stability, any change of such information can alter outcomes in the market and the speed at which such changes take place can create barriers in the communication channel. Such barriers could potentially have contributed to what led to the Financial Crisis of 2008.

2.3 Communicating Financial Information to the Public

This section seeks to review the literature on communicating financial information from the financial sector to the public. As seen in previous sections, complexity is a consistent thread that provides challenges in understanding and disseminating such information. The importance of this information to public confidence in the economic system is evidenced by the widespread effects of two major economic downturns in the history of the United States: The Great Depression and the Financial Crisis of 2008 (Geithner 2014). The financial system has grown exponentially in size and complexity since the Great Depression and the Financial Crisis of 2008

serves to magnify the effects of those changes in terms of how information is communicated to the public.

Communicating financial information to the public is reviewed from the following perspectives: 1) what is owed to the public and the related challenges (Carstens and Vandlindingham 2015; Fertakis 1969; Zadorozhnyi, Ometsinska, and Moravshy 2021)) and 2) duty to report by the press (Behr 2002; Doyle 2006; Schifferes and Coulter 2012).

2.3.1 What is Owed to the Public and Related Challenges

A publicly held corporation is a corporation that sells its securities (stocks) to the general public (Kimmel, Weygandt, and Kieso 2019, 3). These securities are traded on public markets such as the New York Stock Exchange or NASDAQ and the company is obligated to disclose “financial information regularly to the public” (U.S. Securities and Exchange Commission 2018, par. 2). Financial reports are published by corporations and are available through the Securities and Exchange Commission’s EDGAR database (Needles and Powers 2014, 663). Even though this information can be accessed through various sources, the literature shows that there are significant challenges in the communication of such financial information to the public.

Carstens and Vandlindingham (2015) address the public’s right to know and to have access to financial information. The authors show that such financial information is difficult for the public to understand because of the “sheer volume of these records and their highly technical nature” (Carstens and Vandlindingham 2015, 38). Other challenges to communication include the ability to search the information, the readability of the information, important disclosures in footnotes of financial statements, and in general, the public’s ability to use the data.

Zadorozhnyi, Ometsinska, and Moravshy (2021) argue that there are several barriers to communicating financial information, which are related to the understanding of accounting

information. The authors describe financial reporting as a communication channel for transferring accounting information to interested users, with particular focus on financial statements. Accounting is used to process and communicate financial information through financial statements. The first barrier is unclear financial reporting indicators because of different interpretations for accounting concepts. Second, in considering both the communicator and the recipient of the information, there is insufficient level of knowledge for the communication process to work. Third, financial reporting can be inaccurate because of intentional or unintentional actions by the producers of the information. Other barriers include an oversaturation of information, and the inefficiency of the communication process.

Financial Statements are the primary means of communicating accounting information among all users (Needles, Anderson, and Caldwell 1993; Zadorozhnyi, Ometsinska, and Moravshy 2021). While Carstens and Vandlindingham (2015) refer to the high reading level that makes it difficult for the public to understand, Zadorozhnyi, Ometsinska, and Moravshy (2021) drill down on the element that makes the information hard to read: the accounting system that provides information using complicated terminology. “Accounting methodology and techniques often depend on many objective and subjective factors that create significant barriers to information users’ communication” (Zadorozhnyi, Ometsinska, and Moravshy 2012, 75).

Zadorozhnyi, Ometsinska, and Moravshy (2021) take a multi-variable perspective to assess what hinders transparency of financial information and the inefficiency of the communication channel. While acknowledging the role of users’ ability to understand financial information, the work presented by the authors call for a comprehensive overhaul of barriers to communication. They argue that deterioration in communication channels will continue because of several key factors. The most relevant one to this study is the assertion that the difference in

knowledge base exists between those communicating financial information and those who receive such information. They write, “This barrier could lead to the formation of poor quality accounting information (insufficient level of knowledge of the communicator) and making wrong decisions (lack of necessary knowledge of the recipient, which causes misunderstanding of accounting information and inability to operate with accounting data” (Zadorozhnyi, Ometsinska, and Moravshy 2021, 79).

Fertakis’ (1969) perspective on the communication process of accounting reports includes ways of meeting the different needs of users. One way is by widening the scope of accounting reports to include additional data that would expand the usefulness of financial reports. He argues for the need to carefully analyze the content of financial reporting as well as the process of communicating this information. He looks at the information-communication process, specifically how information is communicated in a complex society. The arguments articulated by Fertakis (1969) are relevant to the changes and challenges in financial reporting and the communication of this information to the user in today’s business environment.

Similar to Zadorozhnyi, Ometsinska, and Moravshy (2021), Fertakis (1969) also identifies the content of the accounting process as a barrier to the communication process: “A possible solution is providing nonfinancial information in addition to more financial data ...” (Fertakis 1969, 283) This is because investors lack the base knowledge to understand financial statements and yet this understanding is important in making decisions about their investments. The author describes this as limitations of users that influence their ability to make rational decisions based on financial information.

This is a scenario of the severity of the gap between the experts and laymen beyond investors to the general public. If this information cannot be useful and meaningful to investors

in their decision-making, then it is essentially useless to the public. In addition, what becomes obvious from Ba's (2013) discussion of complex interdependencies, (see Section 2.1), is that the activities summarized in financial reports are consequential to not only investors, but to the everyday lives of people around the world. Hence the importance of its clear communication to the public cannot be overstated.

2.3.2 Duty to Report by the Press

The role of the media in financial reporting has been well documented by scholars in journalism and communication studies (Galbraith 2009; Jensen 1987; Tunstall 1971). Most specifically, Doyle (2006) assesses the parameters and conditions by which reporters select, interpret, and disseminate financial information to the public. News reporters are often seen as observers who document potential lack of transparency that can lead to crisis (Doyle 2006). What is implied in news reporting is an assumption by the public that the press asks questions to get "the truth." But as Doyle (2006) notes, with respect to financial information, while reporters believe the truth is important, they also believe that making the truth accessible is not their responsibility. The Great Depression established a historical benchmark for which transparency and accountability were emphasized in financial statements and in information shared with the public (Needles, Anderson, and Caldwell 1993, 300). Seventy-five years after the Great Depression, the Financial Crisis of 2008 called into question various aspects of financial reporting from corporations, and business news reporting from the press.

Doyle (2006) provides an examination of news reporters' relationship to the public and more specifically, their role in reporting financial information. She writes, "More generally, this article aims to consider the nature of the contribution to public knowledge made by financial journalism" (Doyle 2006, 434). Drawing attention to the accounting scandals of the early 2000s

including the collapse of Enron, the author shows that it is unlikely that news reporters would be in a position to uncover financial irregularities in company records. However, questions persist as to why the massive failure of Enron surprised financial journalists. These questions would be repeated after the Financial Crisis of 2008.

Examining the duty to report relies on an understanding of the process, sources, and ways in which stories are selected. As discussed in Section 2.1, financial information is complex in nature (Ba 2021; Blundell-Wignall 2017; Sau 2013). The public's ability to comprehend financial information has influenced the kinds of stories reported (Doyle 2006). Because of the assumption made that the public will not have the ability to understand the information being presented and thus lose interest in articles, reporters at times conflate their obligation to the public with entertaining the public, instead of presenting factually relevant material (Doyle 2006). Doyle (2006, 448) writes: "it is difficult to be sure whether what is being offered is financial news in the guise of entertainment or vice versa." She adds that this can create an incentive to write stories with a purpose other than reporting financial information: "Financial news selection decisions within mainstream media are strongly determined by the need not to lose the interest of lay audiences" (Doyle 2006, 448). This allows for a judgment on what is considered newsworthy.

Behr (2002) also reflects on the role of the media by looking back at the collapse of the energy giant, Enron. In 2001, Enron was the largest bankruptcy filing in the history of the United States, erasing accumulated stock market wealth of \$60 billion (Behr 2002). There were no glaring signs of trouble in Enron's quarterly and annual financial statements filed with the Securities and Exchange Commission. But as Behr's (2002) analysis shows, the complexity of the company's reporting helped to conceal their fraudulent activities and instead show high

earnings forecasts. The author notes that business news reporters are not given access to the inner workings of corporations. Behr (2002, 8) also lists some examples of reporters asking questions such as “How does Enron make its money?” and “Was Enron’s stock overpriced?” However, because of the company’s size and influence, the few questions that challenged the company’s financial performance went unanswered.

Taken together, the assumption of the public’s inability to understand important financial information, and shifting the content and tone of what newspapers report, provide a critical context to understand the role the media may have played in communicating financial information to the public during the 2008 Financial Crisis. The evolving ways in which reporters select and obtain stories interrupt traditional processes that held transparency and accessibility to the public as essential in maintaining public trust and confidence.

Do reporters see their role and relationship to the public differently than the belief traditionally held by the public about the work of the press? Doyle (2006, 450) notes, “A burning desire to facilitate an improved grasp on the part of the general public over business and economic issues does not appear to factor highly in the conscious understanding that financial journalists in the commercial sector have of what purposes their professional activities serve.” She clarifies that this does not mean that the reporting done by the press is for self-interest. Rather, the press does not feel a sense of responsibility to inform the public “as to the meaning and significance of business and economic events” (Doyle 2006, 450).

Further, Doyle (2006) emphasizes that analysts rather than journalists hold a monopoly on expertise with respect to financial information. Such a distinction serves to underscore the belief that journalists will not pick up financial warning signs (Doyle, 2006). Similarly, Behr (2002) is critical of business analysts who failed to accurately assess the financial position of the

company and Enron's board of directors whose role is to protect the interests of shareholders. In other words, the complexity of financial information is mirrored in the complexity of how such information is reported.

Schiffes and Coulter (2012) examine news coverage from the Financial Crisis of 2008 using data from the BBC website. Describing journalists as gatekeepers for the public, they acknowledge that financial journalists came under criticism for news coverage that appeared superficial and for pandering to special interests in the buildup to the crisis. Public confidence in financial journalists was heavily damaged: "During the crisis, the financial media was accused of failing to warn the public about potential risks, and therefore abdicating its public responsibilities" (Schiffes and Coulter 2012, 229). Another criticism that financial journalists faced referred to media coverage creating panic in the public and thereby worsening the crisis. The authors note that journalists were challenged during this time to make decisions under pressure and their coverage reflected the information that was available to them. As previously noted by Doyle (2006), there were other factors that may have influenced how journalists covered financial news on the crisis such as pressures to make news coverage more appealing for the public.

In response to the criticism leveled at journalists for failing to explain the developments of the crisis, and for creating headlines that caused public panic, Schiffes and Coulter (2012, 245) write: "Journalists were not so much stoking panic as reflecting real market conditions, and they were trying to judge fast-breaking stories with limited resources that were available to them at the time." Other findings from data collected from the BBC show that during the critical phase of the crisis, there was increased interest in crisis-related business news and that the tone of reporting was not predominantly negative. Journalists focused on government leaders and other

elected officials, central banks, chief executive officers of banks, and stories related to policy responses to the crisis. President Obama, President Bush, and Ben Bernanke, Chairman of the Federal Reserve (2006 to 2014), were frequently featured in business news. There was an increased demand for news on market data tracking the movements of shares prices.

Whether the information is complex or not, the duty to report remains a principle that underlies any intermediary institution like the press. The literature surrounding the duty to report and the relationship between journalists and the public shows how complexity and the changing nature of financial systems have subsequently resulted in newspapers responding to changing interests when reporting this kind of information. The rise in public relation firms and the pressure applied to the media to report narratives that emphasize positive stories for companies creates an alternative reporting framework where journalists may be observing and interpreting data while simultaneously relying on analysts to provide clarity for such complex information. In many ways, the duty of reporting with respect to financial information has shifted out of the hands of journalists and into the hands of public relations firms and analysts (Doyle 2006).

In shifting who the media relies on for interpretation of data, there is also a shifting in the intended audience. Using Enron's bankruptcy filing as an example (Behr 2002), there are questions on whether financial information was manipulated through systems of communication to convey a narrative that is beneficial to those who have the ability to control such information. "What readers and viewers want from us is a way to see the bottom line with clarity and not confusing unfinished calculations" (Behr 2001, 8).

2.4 Relationship to the Proposed Study

In asking whether the channel of communication functioned correctly between financial experts and the public during the critical period leading up to the Financial Crisis of 2008, the

above review provides an entry point as to the importance, urgency, and relevance of the proposed research. Major economic downturns do not only affect Wall Street and financial investors. Rather, the effects trickle down in a chain reaction to the public as well. Even though many people may not be investors, many employees have retirement plans. When the market crashes, it takes down retirement earnings too as seen in the widespread effects of the Financial Crisis of 2008.

The review of duty to report and what is owed to the public is interconnected -- how reporters choose and shape stories can be dependent on how they perceive its reception from the public. Experts, however, assume that lack of comprehension of financial information equates to not needing such information, which creates a dangerous precedent that led to The Great Depression and the accounting scandals, such as Enron, in the early 2000s. Ultimately, this study intends to engage with a similar evaluation: what gaps in financial information existed in the period preceding the crisis in 2008? This research specifically plans to examine the importance of communication channels that serve to inform the public about financial information related to their everyday lives and the consequences of failing to do so.

The relationship between the public and experts is of particular interest to this project. Financial information is unique in that it is information that requires financial knowledge to interpret and use. Financial information is dependent on an expert to produce, deliver, and explain what such information means. In general, the role the public plays in the process of obtaining financial information and making decisions is tied to stability (Geithner 2014, 7; Bernanke, Geithner, and Paulson Jr. 2019, 15). Crisis, even crisis outside the purview of finance and economics, generally emerge when there is a lack of public trust and confidence. A financial crisis is “a crisis of confidence throughout the system. People get scared and want their money

back” (Bernanke, Geithner, and Paulson Jr. 2019, 15). Lack of public trust and confidence is directly tied to the extent to which information that belongs to the public is shrouded by those who have the ability to control such information. Thus, the aim of this research is to examine the process of communicating financial information to the public by exploring gaps in this process during the Financial Crisis of 2008.

Chapter 3: Methodology

The Financial Crisis of 2008 marked a time of severe economic downturn in the United States. The magnitude of the crisis is often compared to that of the Great Depression. The Great Depression is a point of reference for comparing the events that precipitated the Financial Crisis of 2008. More specifically, the lack of information provided to the public was evident after the stock market crashed in 1929. In addition, the failure of the banking industry was a common factor in both crises.

The events that unfolded in 2008 that signaled the start of the Financial Crisis and subsequent collapse of the financial system were documented on a daily basis through media reports. There are two crucial reasons for focusing specifically on the Financial Crisis of 2008. First, the experts who have written on the Financial Crisis of 2008 reference it as the worst economic crisis in history, including the Great Depression (Bernanke, Geithner, Paulson Jr. 2019). Second, the aftermath of the crisis showed the collapse of business organizations (for example, Lehman Brothers, AIG, and Bear Stearns) that were deemed “too- big-to-fail.” These were corporations that were highly visible because of their size and fast-growing financial success during the early 2000s. How then was it possible that they would be the first to fall in the early days of the crisis?

This study intends to concentrate on publicly held corporations that, by definition, must share information with the public so that they can make financial decisions. In essence, the importance of considering what the Financial Crisis of 2008 represents for communicating financial information from publicly held corporations to the public cannot be ignored. The ramifications of this crisis did not just impact the U.S., but the global community at large (Ba 2021). Examining the research questions presented below will allow the current researcher to

assess breaches in the flow of information from publicly traded corporations to the public in the period of time leading up to one of the worst recorded financial crises in history.

3.1 Research Objective

The objective of this research is to examine the process of communicating timely and accurate financial information from publicly held corporations to the public through the channel of media by exploring gaps in that communication process as well as identifying ways to prevent the same outcome from happening again in the future.

3.2 Research Questions and Operational Definitions

In developing the research questions for this study, an assumption can be made, based on the literature review, that there were gaps in communicating financial information to the public during the Financial Crisis of 2008. This is evidenced by discussions on topics such as the too-big-to-fail banks by Blundell-Wignall (2017), the development of opaque financial products by Paulson Jr. (2010), and analysis of media coverage during the Financial Crisis of 2008 by Schifferes and Coulter (2012). Based on these observations and the afore-stated research problem in Section 3.1, this study seeks to answer the following three research questions (RQ):

- *RQ 1: What gaps exist in communicating financial information to the public via the media?*
- *RQ 2: What causes the gaps in communicating financial information to the public?*
- *RQ 3: What measures can be taken to close the gaps in communicating financial information to the public?*

The first research question is important in identifying what gaps there are in the communication process, and this is followed by the second research question that drills down on the causes of the gaps. The third research question, based on the findings from RQ 1 and RQ 2 attempts to suggest

what is needed for the communication channel to function as it is supposed to. Namely, publicly held corporations report on their financial position in an accurate and timely manner, and this information is then communicated to the public in a similar manner via the media. By addressing the intersection of financial information and communication, the three research questions will help in achieving the research objective stated in Section 3.1. Taken together, what is being described in the research questions is specifically what characterizes the gaps that exist, what causes the gaps, and what potential solutions can be constructed to breach the divide and prevent recurrence in the future.

Of the three research questions, the following variables need to be defined operationally:

- Gaps -- Gaps in this study describe breaches in the process of communicating financial information. Qualities such as accuracy, timeliness, and the omission of significant data are considered when measuring this variable by comparing what was reported before the Financial Crisis of 2008 to what was revealed after the crisis.
- Financial information – Financial information is information obtained from financial reports. Financial reports consist mainly of financial statements, news releases by the business entity, management’s forecasts, and reports filed by corporations with the Securities and Exchange Commission (Keiso, Weygandt, and Warfield 2019, 1-3). Of these, financial statements are the primary source for information on the financial performance of the company and is grounded in the principles of financial accounting (Wild, Chaw, and Chiapetta 2013, 20).
- The public – The public, for the purpose of this research, refers to anyone outside of financial experts or, anyone who does not have academic knowledge, experiential knowledge, or formal training in the field of finance, accounting, or economics.

- The media – The media in this study references newspapers, published books written by financial experts, and congressional hearings that were broadcast to the public. The newspapers that will serve as data sources are *The Wall Street Journal* and *The New York Times*.

3.3 Methodology Chosen

The methodology chosen for this research is content analysis. Content analysis has its origins in the fields of journalism and mass communication and is widely used to analyze newspaper articles and messages in all forms of media reports (Krippendorff 2013, 11-12). White and Marsh (2006, 22) also note that content analysis as a research methodology “has its roots in the study of mass communication.” It is suitable for analyzing textual data from sources such as archival records, newspaper articles, and congressional documents: “the researcher obtains copies of the communications produced (when available) and asks questions about these records. The content of the communication serves as the basis for making inferences” (Frankfort-Nachmias, Nachmias, and DeWaard 2015, 275).

Content analysis is selected to enable the current researcher to answer the research questions formulated in this study – that is to illuminate details in terms of information gaps and the causes of such gaps in the Financial Crisis of 2008, as well as measures to close those gaps in the future. Content analysis is a particularly useful tool in extracting content from large sums of textual data (i.e., news reports, books, and congressional hearings). As such, content analysis can help to identify and quantify the frequency for which certain elements related to the variables (for example, gaps and causes of such gaps) in the research questions are raised in this study. Since content analysis explores texts, this is particularly useful for analyzing financial information reported in different time periods by newspapers.

This research uses content analysis as a method for both data collection and data analysis. Chu (2021, 2) notes that content analysis can be used for the purpose of data collection, “because researchers would analyze the content in texts qualitatively in order to gather data.” Data so gathered are already analyzed as a result of the research process. Therefore, data collection and data analysis in this study use content analysis as an integrated process.

Additionally, content analysis is usually categorized into two types: manifest content analysis and latent content analysis. Manifest content analysis describes what can be observed and measured directly while latent content analysis describes subtle meanings in messages that can be measured through indicators (Neuendorf (2017, 31). Chu (2021, 4-5) differentiates between manifest content analysis and latent content analysis as follows: manifest content analysis refers to the process of identifying whether terms that are observable and countable are present in the text, whereas latent content analysis implies the more challenging process of going beyond identifying and measuring the presence of visible and countable terms. Latent content analysis seeks to uncover underlying or conceptual meanings and messages that are unobservable and uncountable. Thus, content analysis chosen in this study belongs to the latent category because it is the most compatible tool for investigating the research questions for this proposed study.

This research seeks to investigate the kinds of gaps existing and the causes of such gaps in communicating financial information to the public as well as measures to close the gaps. Specifically, gaps in communicating financial information to the public via media is dynamic, illusive, and not easily observable. Unlike measuring a standard variable that is clearly visible and countable, gaps and causes of such gaps in communicating financial information are multi-layered due to the complexity of financial information as well as the ways in which the data can

be interpreted. Therefore, latent content analysis is the category that is primarily suited for gathering and analyzing data because it allows the current researcher to investigate below the surface of what is presented in the data.

3.4 Data Sources

The following three kinds of sources will be used for collecting data to answer the previously stated research questions: newspapers, books written by financial experts who have since evaluated what they were observing in real time, and congressional documents from hearings that produced an evaluation on the Financial Crisis of 2008. This study looks at what has been documented in these data sources and reports what has been found.

3.4.1 Newspapers

The newspapers selected for this study as data sources are *The Wall Street Journal* and *The New York Times*. *The Wall Street Journal* has been continuously published for 132 years and *The New York Times* for 170 years. *The Wall Street Journal* has been cited as a leading source for financial news and it is considered “the most complete financial newspaper in the United States and is published every business day” (Needles and Powers 2014, 663). *The New York Times* is described as one of the leading newspapers that emphasize business and financial coverage (Nelson 1990). In 1978, *The New York Times* became the first newspaper to start a separate section for business and financial reporting with expanded coverage (Nelson 1990, 24). Kitch (2007, 24) writes: “*The New York Times* is among the most prestigious of many news organizations that have recast themselves as public historians” Both newspapers will help to minimize confirmation bias or the probability that the newspapers were misreporting because of personal affiliations. Newspaper articles from both *The Wall Street Journal* and *The New York Times* are important to this study because the events that unfolded before and after the Financial Crisis of 2008 were documented through media reports. These events include the collapse of

Bear Stearns, Lehman Brothers, and AIG, the three giant corporations that were highly visible because of their financial success before the crisis as well as the effects of their failure on the entire financial system.

3.4.2 Books

Books selected for this research as data sources are written by two categories of financial experts: 1) those who held positions in the government at the time leading up to and during the crash and 2) financial journalists. The utilization of such sources helps to detect the kinds of gaps in communication that exist between publicly held corporations and the general public. The following books are selected for this study:

- *Firefighting: The Financial Crisis and Its Lessons* by Ben Bernanke, Timothy Geithner, and Henry Paulson Jr. (2019).
- *Too Big to Fail* by Andrew Ross Sorkin (2009)

Firefighting: The Financial Crisis and Its Lessons by Ben Bernanke, Timothy Geithner, and Henry Paulson Jr. (2019) provides the unique vantage point from each of the experts in the government at the time of the crisis. In other words, the heads of each of the largest oversight committees in the U.S. share what they were seeing with respect to reporting in real time. Ben Bernanke was the Chair of the Federal Reserve from 2006 to 2014. Timothy Geithner was the Secretary of the Treasury from 2009 to 2013. Geithner was also President of the Federal Reserve Bank of New York from 2003 to 2009. Henry Paulson Jr. was the Secretary of the Treasury from 2006 to 2009 and prior to that, he was the Chief Executive Officer of Goldman Sachs. Andrew Sorkin's (2009) book, *Too Big to Fail*, adds a separate dimension of what was being observed and reported by newspapers. Sorkin is an award-winning journalist for *The New York Times*. In addition, Sorkin (2009) provides a comprehensive analysis of the Financial Crisis of 2008.

3.4.3 Congressional Hearings

The third and last type of data sources for this study is the congressional hearings following the Financial Crisis of 2008 and collapse of Bear Stearns, Lehman Brothers, and AIG. The following congressional hearings are used in this study:

- Public Hearing on the Shadow Banking System
- Public Hearing on the Role of Derivatives in the Financial Crisis
- Published Conclusions of the Financial Crisis Inquiry Commission

The Public Hearing on the Shadow Banking System includes financial activities of Bear Stearns. The Public Hearing on the Role of Derivatives in the Financial Crisis includes financial activities of AIG. The published conclusions summarize the findings of the Financial Crisis Inquiry Commission.

Congressional documents are also an invaluable tool in answering the research questions of this study on the kinds of gaps, the causes of the gaps, and measures taken to close the gaps in the process of communicating financial information to the public. Congressional testimonies will help triangulate with data to be collected from two newspapers and the related books written by financial experts.

3.5 Research Scope and Limitations

According to the research objective of the current study and in consideration of the time factor, the current researcher will only examine the following data sources as outlined in Section 3.4, using the content analysis method: two newspapers (i.e., *The Wall Street Journal* and *The New York Times*) published from 2006 to 2009 along with books written by financial experts as well as congressional hearings and testimonies.

The time period selected for newspaper articles from *The Wall Street Journal* and *The New York Times* used in this study is from 2006 to 2009. This period is selected because: 1) 2006 and 2007 were the two years leading up to the Financial Crisis of 2008; 2) 2008 was the year when the crash occurred; and 3) 2009 was one year after the crash.

As outlined in Section 3.4.2, books written by financial experts and congressional hearings and testimonies are the two other types of data sources chosen for this study. The book written by Ben Bernanke, Timothy Geithner, and Henry Paulson Jr. (2019), *Firefighting: The Financial Crisis and Its Lessons*, was selected because the authors are considered experts in financial information and held positions in the government at the time of the crash. The book written by Andrew Ross Sorkin (2009), *Too Big to Fail*, was chosen because Sorkin is recognized for his expertise in financial journalism and chronicled the collapse of the “too-big-to-fail” corporations. Congressional hearings and testimonies held in 2010 produced an evaluation on the Financial Crisis of 2008 and provide a high level of reliability in the data obtained.

In assessing the scope of this study, a particular challenge arises that is specific to financial information: how can a study be both general and yet specific to a complex system that regulates the global economy? The answer depends on two crucial points. First, while this study acknowledges and has expressed in Chapter 2 why financial information is an example of a complex system, the case chosen is specific to a particular historical event, the Financial Crisis of 2008, that threatened the stability of the entire system. Thus, it provides an individualized window into the relationship between information and the precipitation of a crisis. Second, while the 2008 Financial Crisis is a specific case, it is generalizable in that it is reflective of constants necessary in the quality of information: accuracy, timeliness, and reliability in helping

the market function with relative stability. This study narrows down the possibility of what is being evaluated by looking specifically at the flow of information from publicly held corporations to the general public through the channel of media.

3.6 Data Collection and Analysis

Content analysis as a research method is unique in that it can be used for both data collection and data analysis (Chu 2021, 1). Thus, data collection and data analysis are inseparable during the process of content analysis research, and as such, they are discussed together in this section. Data will be collected from a combination of newspapers, books written by financial experts, and congressional documents depicted in Section 3.5. Data so gathered will be analyzed simultaneously with the content analysis technique to answer the research questions for this study.

For newspapers, collection of data was done by filtering a search on both *The Wall Street Journal* and *The New York Times* using Long Island University's ProQuest databases. First, each digital newspaper's database was searched for locating articles about Lehman Brothers, AIG, and Bear Stearns from 2006 to 2009. The search terms used were the term "financial*" along with the name of each corporation. As stated in Section 3.5, this period is selected because 2006 to 2007 were the years leading up to the Financial Crisis, 2008 was the year when the crisis occurred, and 2009 was one year after the crisis.

The three giant corporations, Lehman Brothers, AIG, and Bear Stearns, were chosen for this research because of their representation of corporations that were highly visible, well-known for their influence, and were examples of corporations where large sums of money were implicated. Searches for newspaper articles for Bear Stearns, Lehman Brothers, and AIG were performed in November 2021 and yielded a total of 457 news articles.

Table 3.1 News Articles by Company (years 2006 – 2009)

Company	WSJ	NYT	Totals
Bear Stearns	63	81	144
Lehman Brothers	90	86	176
AIG (American International Group)	60	77	137
Total	213	244	457

As Chu (2021, 12) emphasizes, coding is one of the major techniques for content analysis but there are also other analytical techniques associated with it. This is because coding requires the simultaneous use of comparison, abstraction, induction, and other analytical techniques in the data collection and analysis process.

In defining the unit of analysis during the process of content analysis, Wildemuth (2009, 310) writes: “The unit of analysis refers to the basic unit of text to be classified during content analysis ... Qualitative content analysis usually uses individual themes as the unit for analysis, rather than the physical linguistic units (e.g., word, sentence, or paragraph)” As Wildemuth (2009, 310-311) explains, when looking for expressions of ideas, a code can be assigned to “a text chunk of any size, as long as that chunk represents a single theme or issue of relevance to your research question(s).” As such, for the coding procedure in this study, the unit of analysis is coding by excerpt.

Research Question 1 in this study aims to investigate gaps in communicating financial information from publicly held corporations to the public via the media. As such, “gaps” is a variable that will be coded. Research Question 2 intends to investigate what specifically causes gaps in the communication process. Thus, “causes of the gaps” will be an additional variable coded. Finally, Research Question 3 looks to identify ways to close the gaps of communicating financial information from publicly held corporations to the public. “Measures taken to close

gaps” is also a variable that will be coded. The values for these variables will become the codes that make up a coding scheme for the study.

3.7 Coding and Coding Schema Development

“Coding is the process of reducing the entire content of the messages in your sample into quantitatively analyzable data describing only the variables in which you are interested” (Wildemuth 2009, 300). Coding requires a very close reading as to the context within which each term is used. As indicated in Section 3.6, coding carries the complexity of simultaneously using abstraction, induction, and other analytical techniques in the data collection and analysis process. The coding scheme is an important component in content analysis. Based on the research questions presented in Section 3.2, a two-level coding scheme was created for this research.

The first level of the coding scheme consists of three broad categories, namely, types of gaps, causes of gaps, and measures for closing the gaps. The second level of codes lists the individual values for each of the three first level categories. Each of the second-tier coding was developed by identifying persistent patterns in the data sources that were reflective of the three categories, i.e., re-emerging trends repeated in the documents.

In addition, efforts will be made to ensure that the codes developed for each variable in the coding scheme will be collectively exhaustive and mutually exclusive. As noted by Krippendorff (2019, 162), “The individual values of a variable must be mutually exclusive relative to each other” and “the values of a variable must provide an exhaustive account of all units, which means that the partition of the sample should leave nothing unaccounted for.”

One of the challenges of developing the codes for this study flows from the interrelated nature inherent in financial information. In other words, this interconnectivity leads to linkages from one subsection of the financial system to many other subsections of the system. An

example of this is separating the following terms that are prevalent and discussed together in the source data: subprime mortgages, securitization, and shadow banking. Subprime mortgages are faulty loans made to high-risk borrowers with disregard for the knowledge that the borrowers were unable to repay those loans. Securitization is the process of bundling such loans with other loans and reselling them to investors as securities. Shadow banking allowed for corporations to engage in bank-like risk without banking regulations. Even though these terms are referenced in conjunction with one another in the source data, they are not synonyms of each other and are viewed as separate causes of gaps as seen in Section 3.10.2 later in this chapter. The following excerpt from Commissioner Holtz-Eakin during the Congressional Hearing encapsulates this challenge:

“Obviously the failure within the shadow banking system are in fact the financial crisis. The decline of Bear Stearns, Lehman, AIG, Fannie Mae, Freddie Mac, the freezing of a variety of markets, commercial paper, auction rate securities, lots of securitized vehicles are what transformed a subprime mortgage and housing crisis into a broad full-blown financial crisis in the United States” (Congressional Hearing 2010, 67).

Though referenced together because of their interconnectivity, contexts of further coded examples help show that each code is in fact distinct from the others. The example of subprime mortgages, securitization, and shadow banking reflects similar challenges in developing other codes as well.

3.8 Pilot Study

A pilot study of the research was conducted in order to demonstrate the viability of the methodology chosen. Content analysis for the pilot study was applied to a small subset of the

total data collected for this study (i.e., 40 newspaper articles, one book written by financial experts, and one congressional hearing) with the aim to develop an initial coding scheme.

Specifically, forty newspaper articles were selected using systematic sampling, twenty each from *The New York Times* and *The Wall Street Journal* retrieved datasets. Titles for the newspaper articles in the dataset used in the pilot study are presented in Appendix 6B. Using the simple sampling technique, the following book and congressional hearing were selected:

- *Firefighting: The Financial Crisis and Its Lessons* (Bernanke, Geithner, and Paulson Jr. 2019)
- The Public Hearing on the Shadow Banking System on May 5, 2010

The initial coding scheme developed during the pilot study was done in accordance with the three research questions. This draft coding scheme was revised and finalized before being used in coding the entire dataset for this study.

3.9 Intercoder Reliability

Intercoder reliability, also referred to as intercoder consistency or intercoder agreement, is essential to any study adopting the content analysis method. Allan Howell acted as the partner for the intercoder reliability test. Allan Howell (MBA, MPA) is currently the Director of Procurement Services for the Wildlife Conservation Society, Bronx, New York. Prior to this, Allan was the Director of Procurement and Sourcing for Long Island University, Westbury, New York. Of the 40 newspaper articles selected for the pilot study, 12.5% were randomly selected from the dataset for the intercoder reliability test. For each article, codes were identified, and the frequency of each code was tabulated for both coders to calculate the percentage of agreement between the coders. The coders are represented as Coder A and Coder B. The result for the test is 91.38%. The worksheet for the intercoder reliability test can be found in Appendix A.

3.10 Content Analysis of the Full Dataset

In this section, content analysis is used on the total data collected for this study. The full dataset consists of 457 newspaper articles with all non-essential articles and duplicates removed from the dataset, two books written by financial experts, and two congressional hearings. The initial coding scheme from the pilot study was revised and finalized for the content analysis applied to the full dataset. In addition, codes were revised based on theoretical definitions obtained from the following sources:

- Securities and Exchange Commission: Reports and Publications
- Accounting textbooks: *Financial Statement: Analysis & Valuation* 6th Edition by Peter D. Easton, Mary Lea McAnally, and Gregory A. Sommers (2021); *Financial & Managerial Accounting for MBAs* 6th Edition by Peter D. Easton, Robert F. Halsey, and Mary Lea McAnally (2021); *Financial Accounting: Tools for Business Decision Making* 9th Edition by Paul D. Kimmel, Jerry J. Weygandt, and Donald E. Kieso (2019); *Financial Accounting: Tools for Business Decision Making* 10th Edition by Paul D. Kimmel, Jerry J. Weygandt, and Jill E. Mitchell (2022); *Auditing: An Integrated Approach* 7th Edition by Alvin A. Arens and James K. Loebbecke (1997).
- Economics textbooks: *The Economics of Money, Banking, and Financial Markets* 12th Edition by Frederic S. Mishkin (2019).
- Books written by financial experts: *First Responders* edited by Ben Bernanke, Timothy Geithner, Paulson Jr., J. Nellie Liang (2020); *On the Brink: Inside the Race to Stop the Collapse of the Global Financial System* by Henry M. Paulson Jr. (2013)
- The Financial Crisis Inquiry Report (2010)

The following table lists the first level of the coding scheme with three broad categories: types of gaps, causes of gaps, and measures to close gaps. The table also lists the second level of codes for the full dataset.

Table 3.2 Coding Scheme for the Dataset

Types of Gaps	Causes of Gaps	Measures Taken
Misleading Financial Information	Subprime Mortgages	Strengthen Transparency
Interconnectedness	Securitization	Strengthen Regulation
Unreliable Valuation	Derivatives	Decrease Leverage
Weakness in Transparency	Financial Leverage	Other Measures
Weakness in Regulation	Fraud	
Red Flags	Shadow Banking	
Other Types	Other Causes	

3.10.1 Types of Gaps

Types of gaps reference *kinds* of gaps that exist or what *categorizes* and *describes* the gaps in communicating financial information from publicly held companies to the public via the media. Therefore, the codes for this category are descriptive of each type of breach found in the dataset. Seven codes stem from the source data: misleading financial information, interconnectedness, unreliable valuation, weakness in transparency, weakness in regulation, red flags, and “other” types of gaps.

3.10.1.1 Misleading financial information

Misleading financial information references a type of gap that exists in communicating financial information to the public when information that describes the financial position of a company lacks the fundamental quality of faithful representation. Faithful representation means the information reported is accurate, important information has not been omitted, and the

information is not biased (Kimmel, Weygandt, and Kieso 2019, 2-17). The following excerpts were coded as misleading financial information:

- Only last Monday, for example, Bear put out a press release saying, “there is absolutely no truth to the rumors of liquidity problems that circulated today in the market.” The next day, Christopher Cox, the Chairman of the Securities and Exchange Commission, said he was comfortable that the major Wall Street firms were resting on satisfactory “capital cushions.”

Three days later, it was bailout time for Bear (Morgenson 2008, March 16, 2008, *The New York Times*).

- Unfortunately, Lehman is in a similar position to the boy who cried wolf, except that is Lehman’s repeated denials of danger that have damaged its credibility.

Its track record in market forecasting is almost as bad as its record in anticipating its own capital needs.

After Wednesday’s conference call was over, I went back and read some previous call transcripts. The effort showed that Lehman had consistently underestimated the problems it faced.

“Our liquidity position is stronger than ever,” said Christopher O’Meara, then the chief financial officer, just a year ago. “Looking forward, our outlook is cautiously optimistic and our stance is constructive and opportunistic. Looking at past credit corrections, the capital markets have proven to be resilient with previous dislocations lasting three months on average.” (Norris 2008, September 11, 2008, *The New York Times*).

- Richard S. Fuld Jr., the chief executive of Lehman Brothers, offered a spirited defense of his stewardship of the embattled investment bank on Monday, saying he was confident

that Lehman was sound even as the bank posted a second-quarter loss of \$2.8 billion (Story 2008, June 17, 2008, *The New York Times*).

3.10.1.2 Interconnectedness

Interconnectedness references a type of gap that exists in communicating financial information to the public with respect to the size and complex interrelationships in the financial system. Interconnectedness captures one of the significant ways the financial system has evolved. The size of the system with its many interrelated parts does not allow for the ability to view and understand the implications of transactions system wide. This interconnectivity is seen among financial entities through business transactions as interconnectedness also describes gaps in information in terms of the number of transactions, the size of contracts, and the number of parties involved (Girardi, Lewis, and Getmansky 2014; U.S. Securities and Exchange Commission). The following excerpts were coded as interconnectedness:

- The overarching goal of the weekend talks was to prevent a quick liquidation of Lehman, a bank that is so big and so interconnected with others that its abrupt failure would send shock waves through the financial world.

Of deep concern is what impact a Lehman failure would have on other securities firms, insurance companies and banks, notably Merrill Lynch and the American International Group, both of which have come under mounting pressure in the markets. (Anderson, Merced, Story, and White 2008, September 13, 2008, *The New York Times*).

- “For the equilibrium of the world financial system, this was a genuine error,” Christine Lagarde, France’s finance minister, said recently. Frederic Oudea, chief executive of Societe Generale, one of France’s biggest banks, called the failure of Lehman “a trigger”

for events leading to the global crash (Schwartz and Labaton 2008, October 22, 2008, *The New York Times*)

- But the turmoil has spread since to almost every corner of the credit markets. “The realization that mortgages might not be paid off led lenders to realize that other loans might not be paid off,” said Douglas Elmendorf, a former Fed economist.

The pervasiveness of the financial problems and the risks to the economy became increasingly apparent at the beginning of the year. With each firm intricately intertwined with the others in a maze of loans, credit lines, derivatives and swaps, the Fed and Treasury agreed that letting Bear Stearns collapse was a risk not worth taking, because the consequences were simply unknowable (Kelly, Ip, and Sidel 2008, March 15, 2008, *The Wall Street Journal*).

3.10.1.3 Unreliable Valuation

Unreliable valuation references a type of gap that exists in communicating financial information to the public when there is a difference between what assets (securities) are believed to be worth by the corporation and what assets (securities) are actually worth. The accounting standard for valuation is “balance sheets only include items that can be reliably measured. If a company cannot value an asset with relative certainty, it does not recognize an asset on the balance sheet” (Easton, Halsey, McAnally 2021, 2-5). Unreliable valuation occurred because prices for the related assets were not established in the market and unreliable prices were reported by the corporations (Financial Crisis Inquiry Commission 2010, 54). The following excerpts were coded as unreliable valuation:

- One area of concern involves the lack of accurate pricing in the CDO market. There isn't an active market for CDOs, and any valuation of these vehicles involves managers making estimates, which can be overly optimistic. Prices quoted by dealers don't always reflect the value a CDO would fetch if it were actually sold in the market (Scannell, Hughes, and Reilly 2007, June 27, 2007, *The Wall Street Journal*).
- But scores of questions remain unanswered. No one knows the real value of the assets formerly owned by Bear Stearns that the Fed agreed to take as collateral. Fed officials have said they greatly discounted the value of those assets before agreeing to the \$29 billion loan, but they offered no detail of what those assets actually look like (Andrews 2008, March 27, 2008; *The New York Times*).
- So how can investors readjust brokerage firms' stated net worth to sketch out a scenario where these stocks are a buy? One way is to focus on the most illiquid portion of brokers' assets, those which no longer trade in active markets and so have to be valued using internally generated models.

Brokers break out the amount of these assets that are on their balance sheet. While the firms are marking these assets to their best estimate of current market values, by its very nature this is more art than science (Eavis and Reilly, March 18, 2008; *The Wall Street Journal*).

- The principal issue, according to officials, was how much insurance the Fed was willing to provide to JP Morgan Chase in exchange for taking over Bear Stearns and its hard-to-quantify assets (Andrews 2008, March 17, 2008; *The New York Times*).

3.10.1.4 Weakness in Transparency

Weakness in transparency references a type of gap that exists in communicating financial information to the public when financial statements do not meet the standards of transparent financial reporting. “If a company lacks transparency, its financial reports do not adequately inform investors of critical information that is needed to make investment decisions” (Kimmel, Weygandt, and Mitchell 2022, 47). According to the Securities and Exchange Commission, financial transparency means “timely, meaningful, and reliable disclosures about a company’s financial performance (Glassman 2002). Transparent financial reporting “conveys a complete and understandable picture of a company’s financial position ... financial institutions with off-balance sheet arrangements are required to provide certain disclosures regarding those arrangements if those arrangements are reasonably likely to have a future effect on the company’s financial condition ...” (White and Kroeker 2008, SEC). The following excerpts were coded as weakness in transparency:

- Investors have long complained about the lack of transparency when it comes to huge financial firms, whose balance sheets are so big that they can easily mask multimillion-dollar gains or losses. Analysts and investors currently cite several potential factors that could help hide subprime wounds (Reilly and Richardson 2007, August 2, 2007, *The Wall Street Journal*).
- Both of these problems [on derivatives] could have been significantly mitigated by requiring OTC derivatives to clear through a central counterparty with novation and daily margin. This would have created transparency and precluded the systemic risk inherent in a marketplace ... (Public Hearing on the Role of Derivatives 2010, 24).

- The Fed has been active, innovative and aggressive, but there are questions about its [Bear] transparency,” said Lawrence H. Meyer, an economist and former Fed governor. Its actions, he said, “go against a longstanding principle of the Fed not taking on such an explicit credit risk” (Weisman 2008, April 2, 2008, *The New York Times*).

3.10.1.5 Weakness in Regulation

Weakness in regulation references a type of gap that exists in communicating financial information to the public when there is a lack of oversight and enforcement of the rules and laws by regulatory agencies as well as insufficient policies in place. This can allow for the evasion of rules in financial activities and reliable financial reporting. Regulators include the Securities and Exchange Commission, the Federal Trade Commission, the Federal Reserve Bank, and tax agencies (Easton, Halsey, and McAnally 2021, 1-6). The following excerpts were coded as weakness in regulation:

- Standalone securities firms such as Lehman, Merrill and the now-defunct Bear Stearns Cos took no deposits and were lightly regulated, freeing them to take big risks and make fat profits at the cost of occasional losses. (Mollenkamp and Whitehouse 2008, September 16, 2008, *The Wall Street Journal*).
- Whether or not that happens, the government may have to revise its regulatory system, which, as Mr. Geithner noted, has “evolved into a very complex and uneven framework, with substantial opportunities for arbitrage, large gaps in coverage, significant inefficiencies and large differences in the degree of oversight and restraint upon institutions that engage in very similar economic activities” (Norris 2008, March 15, 2008, *The New York Times*).

- Mr. Paulson said he has dealt with matters as best he could, and blamed the turmoil on factors including "government action and mistaken actions, outdated U.S. and global financial regulatory systems, and . . . the excessive risk-taking of financial institutions." (Solomon 2008, November 21, 2008, *The Wall Street Journal*).
- The expanded reach of the Fed comes amid criticism aimed at the Securities and Exchange Commission and its oversight of Bear Stearns Cos. before its collapse. The SEC traditionally has been the regulator of Wall Street firms (Scannell and Reddy 2008, April 3, 2008, *The Wall Street Journal*).

3.10.1.6 Red Flags

Red flags reference a type of gap that exists in communicating financial information to the public when there are early warning signs that were ignored or discounted. By the time such information was communicated, it was not relevant to the decision-making process. Red flags were based on active assessments of companies' viability; these warnings signs were not communicated to the public in a timely manner (Financial Crisis Inquiry Report (2010, xvii).

The following excerpts were coded as red flags:

- In a sign of what a confirmation hearing could look like, Sen. Jim Bunning (R., Ky.), one of the fiercest critics of the Fed, earlier this year accused Mr. Geithner and other officials of missing "an awful lot of red flags" during the past decade (Reddy 2008, November 18, 2008, *The Wall Street Journal*).
- Witness Kotz: In addition, the audit found that prior to Bear Stearns collapse, the SEC became aware of potential red flags regarding Bear Stearns concentration of mortgage securities, high leverage shortcomings of risk management and mortgage-backed

securities, and the lack of compliance with the spirit of international standards, but did not take action to limit these risk factors (Public Hearing on the Shadow Banking System 2010, 240).

- Vice Chairman Thomas: In this instance, there were the reddest of red flags. In 1994, Orange County, California, goes bankrupt in a derivatives deal gone bad. In 1998, Long-Term Capital Management causes a near financial crisis. And in 2001, Enron, knee deep in derivatives, explodes causing what at the time the largest bankruptcy in U.S. history. It's not as if no one warned us (Public Hearing on the Role of Derivatives 2010, 6-7).

3.10.1.7 Other types of Gaps

“Other” types of gaps reference any additional type of gaps that were present in the dataset but not in significant quantity to classify as a separate code. Therefore, these additional gaps were grouped together into the code “other.”

- You don't seem to acknowledge you did anything wrong and that is troubling to me," said Rep. Henry Waxman, a California Democrat who leads the panel. The internal documents, Mr. Waxman said, "portray a company in which there was no accountability for failure" (Craig 2008, October 7, 2008, *The Wall Street Journal*).
- When the credit markets were booming, many firms bought these instruments from AIG, believing the insurance giant's strong credit ratings and large balance sheet could provide a shield against bond and loan defaults (Hilsenrath, Ng, and Paletta 2008, Sept 18, 2008, *The Wall Street Journal*).

- Unfortunately – as has been the case in past speculative booms and busts – we witness an erosion of standards of responsibility and ethics that exacerbated the financial crisis (Financial Crisis Inquiry Report 2010, xxii).

3.10.2 Causes of Gaps

Causes of gaps refer to *activities* related to financial transactions that financial experts engage in – such activities led to the creation of gaps or expansion of gaps that exist in communicating financial information to the public. The codes for this category are defined and explanations are provided below on how such activities cause gaps in information. Seven codes stem from the source data: subprime mortgages, securitization, derivatives, financial leverage, fraud, shadow banking, and “other” causes of gaps.

3.10.2.1 Subprime Mortgages

Subprime mortgages describe loans made to higher risk borrowers where the party making the loans offers low rates initially, followed by much higher variable rates after a few years (Hurst, Fitzgibbon, and Nurse 2020, 32). As the Financial Crisis Inquiry Commission (2011, xxiii) explains: “Many mortgage lenders set the bar so low that lenders simply took eager borrowers’ qualifications on faith, often with a willful disregard for a borrower’s ability to pay.” Subprime mortgages caused gaps in information because as the Commission explains: “Lenders made loans that they knew borrowers could not afford and that could cause massive losses to investors in mortgage securities” and “The Commission’s review of many prospectuses provided to investors found that this critical information was not disclosed (Financial Crisis Inquiry Commission 2010, xxii).

The following excerpts were coded as subprime mortgages:

- The market for subprime loans, those made to borrowers with weak credit histories, has been devastated by payment defaults and bankruptcies among lenders. Lehman also makes home loans and finances other companies in the business. Mr. O'Meara said that about 25% of loans it originated are to subprime borrowers (Kelly and Horowitz 2007, March 15, 2007, *The Wall Street Journal*).
- Although Bear Stearns announced on Friday that it would shore up one of its two faltering hedge funds that are heavily exposed to the subprime mortgage mess, the move did little to instill confidence in an already fearful market (Morgenson 2007, June 24, 2007, *The New York Times*).
- The events have kept Wall Street riveted for two weeks because a lot of firms are deeply invested in the subprime sector – which caters to borrowers with weak credit, and which has suffered in the housing downturn as delinquent loans have spiked (Kelly 2007, June 23, 2007, *The Wall Street Journal*).
- That profile hurt Bear when the subprime-mortgage problems developed last spring. Two of Bear's mortgage-related hedge funds collapsed in July, costing investors more than \$1 billion and worsening the credit crunch then developing (Kelly, Ip, and Sidel 2008, March 15, 2008; *The Wall Street Journal*).

3.10.2.2 Securitization

Securitization is described as “the process of bundling small and otherwise illiquid financial assets (such as residential mortgages, auto loans, and credit card receivables) ... into marketable capital market securities” (Mishkin 2019, 243). Additionally, it is an asset transformation process that involves “a number of different financial institutions working

together (Mishkin 2019, 244). The cause of the gaps in information comes from the bundling process that blurs information on the underlying financial assets of such securities.

The following examples were coded as securitization:

- Though most every Street firm trades mortgages, Bear has so far been singled out by the Goldman analyst and others because it is a major player in mortgage securitization -- or packaging of mortgages so they can be sold to big investors – and the issuance of new mortgages (Kelly 2007, May 25, 2007, *The Wall Street Journal*).
- Let's not forget that Bear Stearns lost billions for its clients last summer, when two hedge funds investing heavily in mortgage securities collapsed. And the firm tried to dump toxic mortgage securities it held in its own vaults onto the public last summer in an initial public offering of a financial company called Everquest Financial. Thankfully, that deal never got done.

As of last Nov. 30, Bear Stearns had on its books approximately \$46 billion of mortgages, mortgage-backed and asset-backed securities. Jettisoning such a portfolio onto a mortgage market that is not operative would, it is plain to see, be a disaster (Morgenson 2008, March 16, 2008, *The New York Times*).

- On Wall Street, rumors about a possible collapse of Bear Stearns, which had been a leader in packaging mortgage-backed securities, gained gale-force strength (Andrews 2008, March 17, 2008, *The New York Times*).

3.10.2.3 Derivatives

A derivative is a “financial contract whose price is determined (derived) from the value of an underlying asset, rate, index or event” (Financial Crisis Inquiry Report 2011, 452). These

financial contracts include “futures, forward contracts, options, swaps and other derivative securities” (Easton, Halsey, and McAnally 2021, 4-17). Derivatives are used to transfer risk, called hedging, or to “speculate on changes in prices, rates, indices or even on events such as the potential default on debts” (Financial Crisis Inquiry Commission 2010, xxiv). For derivatives, the cause of the gaps in information stems from information that is not known and not reported as can be seen from the findings of the Financial Crisis Inquiry Commission (2010, xxv): “the existence of millions of derivatives contracts of all types between systemically important financial institutions – unseen and unknown”

The following examples were coded as derivatives:

- Vice Chairman Thomas: “And so today we will look at derivatives and the financial crisis of two companies: Goldman Sachs and AIG. The two were linked through derivatives, as indeed was all of Wall Street ... We will ask how it came to be that AIG, a once-respected company that Americans looked to for traditional insurance needs, found itself on the losing side of many derivatives transactions with Goldman and other companies and had to be bailed out with a commitment of \$182 billion in taxpayers’ assistance” (Financial Crisis Inquiry Commission 2010, 7).
- American International Group fell 1.17, or 2.7%, to 42.48. Morgan Stanley cut its rating on the insurance company to “equal-weight” from “overweight,” saying losses from credit default swaps may exceed management’s forecast and could reach \$3 billion. These swaps are credit derivatives that pay out in the event of a default on the underlying bonds (Philbin 2008, May 14, 2008, *The Wall Street Journal*).

- Bear has been particularly active in one type of popular derivative, known as an interest-rate swap. The notional amount of these contracts is estimated to be in the hundreds of billions of dollars, according to Swap Financial Group, a South Orange, N.J., advisory firm that specializes in derivatives.

Some of the investors engaged in these swaps with Bear are better positioned than others. Bear created two subsidiary companies, known as special-purpose vehicles, with a separate legal status intended to make their obligations secure even if the parent company goes bankrupt. These SPVs are triple-A rates, and their management would be assumed by another brokerage firm if Bear collapsed (Ng 2007, March 15, 2007, *The Wall Street Journal*).

3.10.2.4 Financial Leverage

Financial leverage “measures the degree to which the company finances its assets with debt versus equity” (Easton, Halsey, and McAnally 2021, 4-5). The degree to which a company is leveraged is reflective of the level of risk the company engages in. Financial leverage causes gaps in communicating information as seen in the Financial Crisis Inquiry Report (2010, xx): “the leverage was often hidden ... in off-balance-sheet entities, and through “window-dressing” of financial reports available to the investing public.” Paulson Jr. (2013, 440) writes: “Much of the leverage was embedded in largely opaque and highly complex financial products.” High leverage is associated with high risk in which the public learns of the outcomes in the aftermath. The following excerpts were coded as financial leverage:

- The Bear Stearns funds, like many others, borrowed big to invest in subprime loans. Investing with borrowed money juices returns in hot markets and magnifies losses in down markets, making losers out of lenders as well as equity investors.

One of the Bear Stearns funds borrowed some \$6 billion, from Merrill Lynch, Goldman Sachs, Bank of America and other powerhouses. For the other fund, Bear Stearns reportedly put up \$3.2 billion to help liquidate holdings. That's 32 cents on the dollar for assets once valued at \$10 billion (The New York Times Online 2007, June 28, 2007, *The New York Times*).

- But since the crisis broke in June, he had been pushing to find answers, accepting responsibility internally and telling people that Bear never should have introduced such a highly leveraged fund that carried so much risk, one of which would go on to lose all investor assets (Thomas Jr. 2007, August 6, 2007, *The New York Times*).
- Managers of hedge funds and mutual funds say the problems at Bear confirmed their worst fears about the brokerages -- that they relied too much on leverage and have done a poor job managing the risks they took on during the boom (Bajaj, Anderson, and Weisman 2008, March 17, 2008, *The New York Times*).

3.10.2.5 Fraud

“Fraud occurs when a misstatement is made and there is both the knowledge of its falsity and the intent to deceive” (Arens and Loebbecke 1997, 110). Fraud is characterized by the manipulation of records, falsified transactions, and misapplication of accounting principles resulting in fraudulent financial reporting (Needles, Anderson, and Caldwell 1993, 303). Fraud is usually committed by management and also includes manipulating stock prices. Fraud causes

gaps in information because of deception and attempts “to conceal the fraud” (Arens and Loebbecke 1997, 144).

The following excerpts were coded as fraud:

- In the year before the fund imploded and as suspicions grew among executives inside Bear Stearns that Mr. Berger was providing fake account statements to investors, he transferred \$141.4 million to the fund’s account at Bear Stearns to meet increased margin requirements and continue selling stocks short, betting that they would decline in value, court filings state. That \$141.4 million was used to cover all the positions in the market for which Bear Stearns would have been liable (Creswell 2007, February 16, 2007, *The New York Times*).
- New York – A federal grand jury in Brooklyn, N.Y., indicted two former Bear Stearns Cos. Hedge-fund managers, alleging they misled investors when their fund was in peril, lied about their financial interest in the portfolios and destroyed evidence in the investigation.

The high-profile criminal case, along with a parallel civil securities-fraud action by the Securities and Exchange Commission, marks the first criminal securities-fraud charges stemming from the mortgage-market crisis. The 27-page indictment paints a picture of the scramble by the managers, Ralph Cioffi and Matthew Tannin, to keep their hedge funds alive (Kelly 2008, June 20, 2008, *The Wall Street Journal*).

- Nine of the defendants have been arrested, and four have pleaded guilty to charges ranging from securities fraud, conspiracy to commit securities fraud and bribery. The investigation, conducted by the S.E.C., the Federal Bureau of Investigation, and the office of the United States attorney in Manhattan, has been under way for more than a year and

is continuing [3 employees from Bear Stearns] (Anderson and Merced 2007, March 2, 2007, *The New York Times*).

3.10.2.6 Shadow Banking

Shadow banking references an alternative way of banking to traditional banking. In shadow banking, loans made by traditional banks and funded by deposits were replaced by loans through securities markets (Mishkin 2019, 239). This allowed companies to engage in bank-like activities but without the exposure to banking regulations (Geithner 2014, 81). The gaps caused here stem from the “shadowy” or secretive financial activities related to the shadow banking system that were not communicated by the corporations so it was not reported to the public.

The following excerpts were coded as shadow banking:

- Commissioner Born: As the chair has said, in parallel with our commercial banking system an enormous shadow banking system grew composed of financial institutions with significantly less regulation than commercial banks, including investment banks like Bear Stearns. By the time of the financial crisis, a great deal of financial activity was taking place outside the regulated banks and in the shadow system (Public Hearing on the Shadow Banking System 2010, 51-52).
- The way that firms like a JP Morgan or a Lehman Brothers now operated bore little resemblance to the way banks had traditionally done business. No longer would a bank simply make a loan and keep it on its books (Sorkin 2009, 89).
- Vice Chairman Thomas: Because we were all aware of the contests that went on as the traditional banking system saw a significant shift from them to the so-called shadow banking or investment banks because of the ability to create more modern instruments, or

more creative, or more bespoke for what they wanted (Public Hearing on the Shadow Banking System 2010, 368).

3.10.2.7 Other causes of gaps:

“Other” causes of gaps reference any additional causes of gaps that were present in the dataset but not in significant quantity to classify as a separate code. Therefore, these additional gaps were grouped together into the code “other.”

- Between 1999 to 2008, the financial sector expended \$ 2.7 billion in reported federal lobbying expenses; individuals and political action committees in the sector made more than \$1 billion in campaign contributions (Financial Crisis Inquiry Report 2010, xviii).
- Now the demise of both firms is rekindling debate over whether so-called mark-to-market accounting has fanned the flames of the credit crisis (Reilly 2008, September 19, 2008, *The Wall Street Journal*).
- The division which admitted to engaging in transactions that violated accounting rules, entered into a deferred-prosecution agreement with the Justice Department; which in effect means it had to be on its best behavior to avoid charges (Smith, Efrati, and Plevin 2008, June 13, 2008, *The Wall Street Journal*).

3.10.3 Measures Taken to Close Gaps

Measures taken to close gaps reference steps, policy proposals, and suggestions to prevent such gaps in the process of communicating financial information from recurring in the future. Measures for closing gaps can be viewed as corresponding to types of gaps and causes of gaps identified. In the dataset, measures to close gaps were presented and discussed in three

major ways: addressing the need to reduce excessive borrowing; addressing the need for clear, complete, and understandable reporting; and addressing the need for increased oversight and regulation. The substance of the discussions for measures to close the gaps is represented in this category in terms of what needs to be done and not about how it is going to be done. Four codes stem from the source data: strengthen transparency, strengthen regulations, decrease leverage, other measures taken.

3.10.3.1 Strengthen transparency

Strengthen transparency references steps, policy proposals, and suggestions to meet the standards of transparency in financial reporting, that is “timely, meaningful, and reliable disclosures about a company's financial performance” (Glassman 2002). In addition, strengthen transparency references steps, policy proposals, and suggestions taken to meet financial reporting standards of “a complete and understandable picture of a company’s financial position ...” (White and Kroeker 2008, SEC).

The following excerpts were coded as strengthen transparency:

- Cox focused on modernizing the SEC and corporate disclosure. He made it easier for investors to read and understand mutual fund prospectuses, forced companies to disclose their executives' compensation in a standard format and instilled rules to make it easier for shareholders to communicate via the Internet (*The New York Times Online*, January 2, 2009).
- Other regulators are demanding more transparency in credit default swaps from the institutions they oversee. At the end of July, the Federal Deposit Insurance Corp. proposed a new rule that would require troubled banks under its regulatory wing to produce, on the agency’s demand, detailed records of swaps and other financial contracts,

their current market values, collateral posted by counterparties, the identities of those parties and copies of the agreements (Morgenson 2008, August 10, 2008, *The New York Times*).

- Meantime, some industry specialists are calling for reforms in the way securities firms package mortgage securities.

Among them is making public the due-diligence reports provided by Clayton and its rivals to both ratings firms and the public. "We need to . . . improve the due- diligence process by standardizing it and by disclosing" the results to ratings agencies and investors, said Rod Dubitsky, head of asset- backed securities research at Credit Suisse Group. Another improvement, he said, would be hiring an independent party to "police" or monitor the loan pool, ensuring that mortgages being packaged into new securities for sale had the loan attributes that had been described (Kelly, Efrati, and Simon, 2008, January 31, 2008, *The Wall Street Journal*).

3.10.3.2 Strengthen regulations

Strengthen regulations reference steps, policy proposals, and suggestions to increase oversight and enforcement of the rules, regulations, and laws by regulatory agencies as well as implementing new policies as needed. Regulators include the Securities and Exchange Commission, the Federal Trade Commission, the Federal Reserve Bank, and tax agencies (Easton, Halsey, and McAnally 2021, 1-6).

The following excerpts were coded as strengthen regulations:

- Washington – For the first time in more than a decade, the Federal Reserve has set up shop inside brokerages to monitor their financial condition, perhaps the beginning of an

expanded role for the central bank and additional regulation for Wall Street. (Scannell and Reddy 2008, April 3, 2008, *The Wall Street Journal*).

- Mr. Geithner said the nation's financial system needs "a stronger set of shock absorbers" for capital and liquidity in the banks and large securities firms that are key to market functioning. He called for stronger supervision of these institutions (Scannell and Reddy 2008, April 4, 2008, *The Wall Street Journal*).
- "The role of the Fed as the systemic risk regulator was well on its way to being adopted, and this will make it more likely," says Robert Glauber, a former Undersecretary at the Treasury Department for domestic finance.

Treasury Secretary Henry Paulson issued a blueprint for a regulatory revamp in March that called for a bigger role for the Fed in guarding the overall health of the financial system. Mr. Paulson said Monday that "major changes" need to be made, including establishing a process to unwind investment banks akin to the orderly process in place for unwinding commercial banks.

Future oversight is "going to have to be streamlined and more effective regulation," he said (Scannell 2008, September 16, 2008, *The Wall Street Journal*).

3.10.3.3 Decrease leverage

Decrease leverage references steps, policy proposals, and suggestions taken to reduce the "degree to which the company finances its assets with debt versus equity" (Easton, Halsey, and McAnally 2021, 4-5). "Financial firms took on too much risky leverage" Bernanke, Geithner, and Paulson Jr. (2019, 12). Decreasing leverage means that the company is lowering its level of

risk, thereby decreasing information that may be hidden or not properly disclosed in financial reports.

The following excerpts were coded as decrease leverage:

- Commissioner Hennessey: We’ve heard a lot of specific questions about the CSE Program, and arguments that in fact the CSE Program needed to be legislatively strengthened. I happen to believe that there should be leverage requirements that are imposed (Public Hearing on the Shadow Banking System 2010, 342).
- After the crisis, Ben [Bernanke] and Tim [Geithner] thought the most important safeguards would be stricter limits on the risk firms could take with borrowed money. That meant requiring them to hold more loss absorbing capital – Tim’s mantra was “capital, capital, capital” – and take on less leverage, the flip side of capital” (Bernanke, Geithner, and Paulson Jr. 2019, 112).
- Erin Callan, Lehman's chief financial officer, said Monday that the bank had moved aggressively to reduce its leverage, which some investors feared might undermine the firm. Since April, Lehman has sold about \$130 billion in assets, reducing its exposure to mortgages and loans used to finance leveraged buyouts (Anderson and Story 2008, June 10, 2008, *The New York Times*).

3.10.3.4 Other measures

“Other” measures to close gaps reference any additional measures taken that were present in the dataset but not in significant quantity to classify as a separate code. Therefore, these additional measures taken to close gaps were grouped together into the code “other.”

- The House overwhelmingly passed a measure Thursday that would impose a bonus surtax of 90% on large firms receiving federal bailout money. The senate is expected to vote on a similar issue by the end of the week (Weisman and Fitzpatrick 2009, Mar 21, 2009, *The Wall Street Journal*).
- The Fed, which is reviewing compensation practices at U.S. Banks has said it favors reducing compensation risks through such moves as deferring pay or seizing pay later if a bank's financial performance suffers (Luchetti 2009, Nov. 23, 2009, *The Wall Street Journal*).
- Regulators and Congress face growing pressure to decide if the market's turmoil has gotten so bad that companies should be shielded from the mark-to market rules, even if just temporarily (Reilly 2008, September 19, 2008, *The Wall Street Journal*).

The data obtained from the full dataset reveal that the types of gaps existing are misleading financial information, interconnectedness, unreliable valuation [of assets], weakness in transparency, weakness in regulation, red flags, and "other" types of gaps. The data links subprime mortgages, securitization, derivatives, financial leverage, fraud, shadow banking and "other" causes of gaps to the creation or expansion of gaps. Findings suggest that strengthening transparency, strengthening regulations, decreasing leverage, and "other" measures to close gaps can mitigate the potential for gaps in communicating financial information to emerge.

Chapter 4: Results

This chapter presents the findings of the study. The results are organized in sections 4.1, 4.2, and 4.3 to answer each of the three research questions outlined in Section 3.2: What gaps exist in communicating financial information to the public? What are the causes of such gaps? And what measures can be taken to close the gaps? Section 4.4 presents the results for a subset of the linkages among the codes. These findings convey what has been documented in the data sources used in this study.

4.1 Coding Results for RQ 1: Types of Gaps

The data for types of gaps indicate a high presence in unreliable valuation, interconnectedness, misleading financial information, and weakness in transparency. Among the types of gaps, both weakness in regulation and red flags or early warning signs of impending corporate failures had a low presence. The total frequency count for types of gaps in the three data sources is 745. Of this total, unreliable valuation had the highest frequency with 32.88% followed by interconnectedness with 22.28%, and misleading financial information with 18.12%. Weakness in transparency was next with a frequency of 14.23% followed by weakness in regulation of 7.92%, red flags with 3.09%, and other types of gaps with 1.48%.

Table 4.1 Coding Results for Types of Gaps

Codes	Frequency	Percentage
Unreliable Valuation	245	32.88%
Interconnectedness	166	22.28%
Misleading Financial Information	135	18.12%
Weakness in Transparency	106	14.23%
Weakness in Regulation	59	7.92%
Red Flags	23	3.09%
Other Types	11	1.48%

Total	745	100%
--------------	------------	-------------

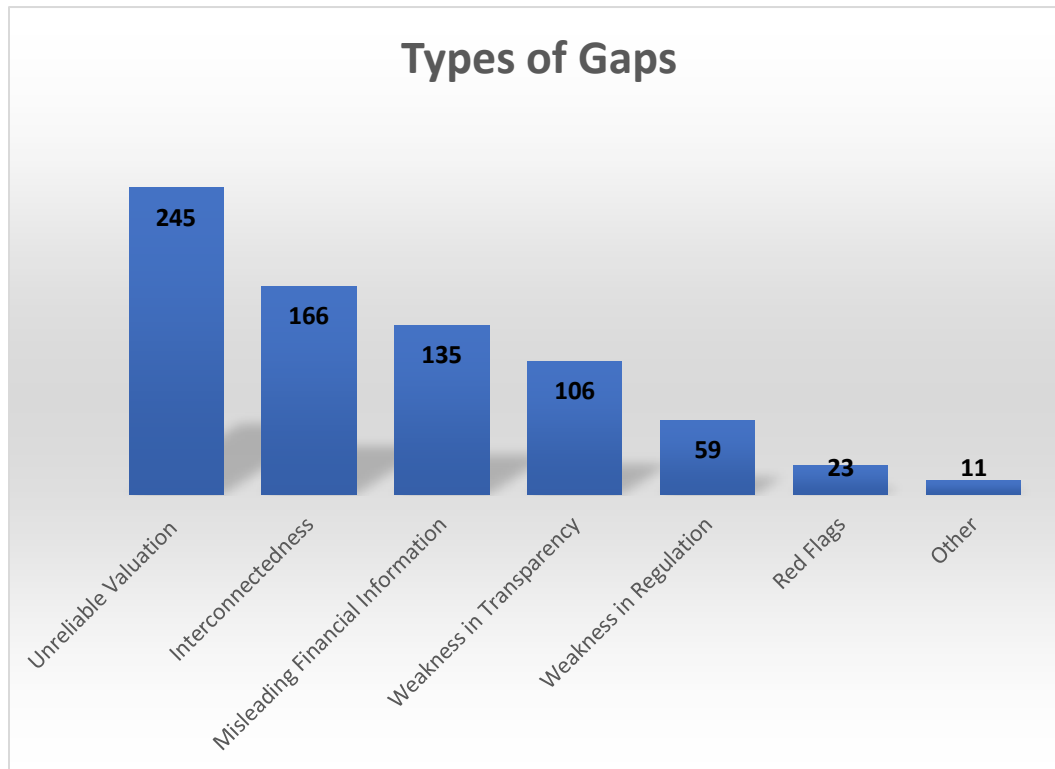


Figure 4.1 Frequency Count for Types of Gaps

4.2 Coding Results for RQ 2: Causes of Gaps

The data for causes of gaps indicate a high presence of securitization, derivatives, subprime mortgages, and financial leverage. Causes of gaps create an environment that could potentially obscure the reporting of financial information leading to layers of gaps. The total frequency count for causes of gaps in the three data sources is 696. Of this total, securitization had the highest frequency with 27.01%, followed by derivatives with 23.42%, subprime mortgages with 17.82%, and financial leverage with 15.52%. Fraud was next with a frequency of 8.91% followed by shadow banking with 6.03%, and other causes of gaps with 1.29%.

Table 4.2 Coding Results for Causes of Gaps

Codes	Frequency	Percentage
Securitization	188	27.01%
Derivatives	163	23.42%
Subprime Mortgages	124	17.82%
Financial Leverage	108	15.52%
Fraud	62	8.91%
Shadow Banking	42	6.03%
Other Causes	9	1.29%
Total	696	100%

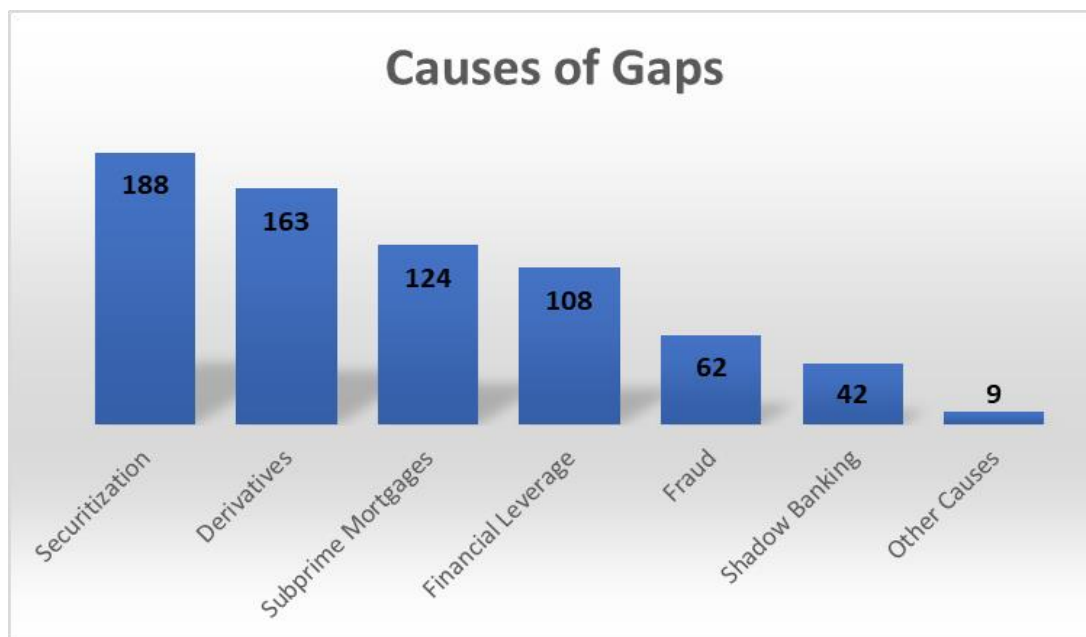


Figure 4.2 Frequency Count for Causes of Gaps

4.3 Coding Results for RQ 3: Measures Taken

Finally, the data on measures taken indicate that strengthening regulation, strengthening transparency, and decreasing leverage will help to close the gaps in information. If the potential

causes of gaps in information as stated in the findings are, for example, securitization, derivatives, financial leverage, subprime mortgages, and shadow banking, then it follows that suggestions made would attempt to reduce, eliminate, or strengthen policies and oversight over such activities. The total frequency count for measures to close gaps is 122. Of this total, strengthen regulation had the highest frequency with 63.93%, followed by strengthen transparency with 21.31%, decrease leverage with 9.02%, and other measures to close gaps with 5.74%.

Table 4.3 Coding Results for Measures Taken to Close Gaps

Codes	Frequency	Percentage
Strengthen Regulation	78	63.93%
Strengthen Transparency	26	21.31%
Decrease Leverage	11	9.02%
Other Measures	7	5.74%
Total	122	100%

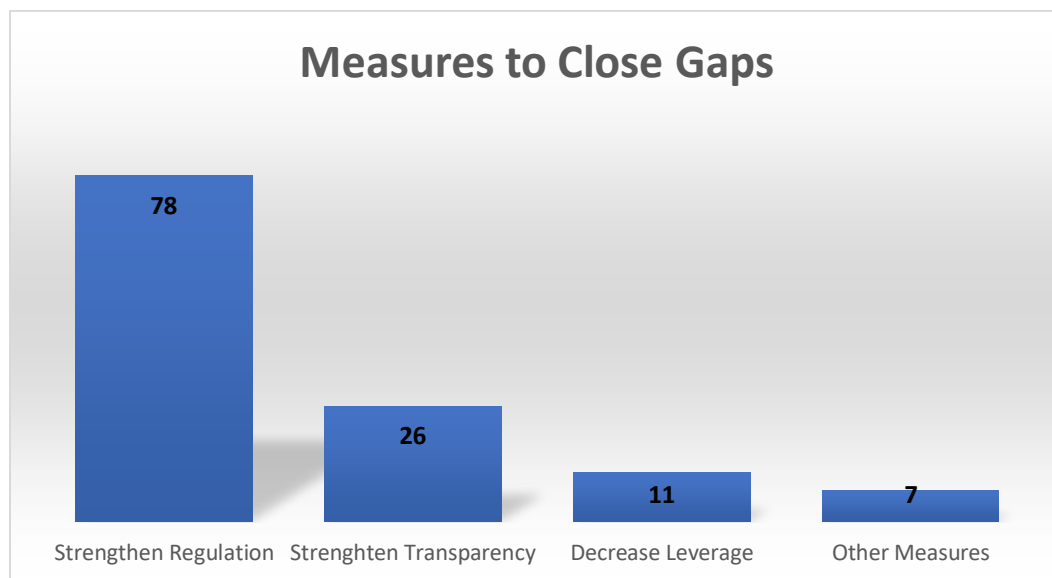


Figure 4.3 Frequency Count for Measures to Close Gaps

4.4 Linking the Data

Patterns emerge during the analysis of the dataset that contribute to the findings of the study. This can be seen in linkages among the codes developed to identify types of gaps in communicating financial information with the causes of such gaps, and measures to close the gaps. A feature of financial information is the strong presence of interconnectivity in financial transactions that can create multiple linkages at the same time. It is this aspect of the financial system that leads to discussions of complexity in the system. A subset of the total linkages among the codes is presented in this section. Based on the frequency in the appearance of linkages, the following examples rank among the highest stemming from the dataset.

4.4.1 *Unreliable Valuation and Causes of Gaps*

For types of gaps, unreliable valuation with the highest frequency count in this category was linked in the data with the following codes: securitization, subprime mortgages, derivatives, and financial leverage. The total frequency count for the linking of unreliable valuation with causes of gaps is 107. Of this total, securitization has the highest frequency of 41.12% followed by subprime mortgages with 30.84%, derivatives with 26.17%, and leverage with 1.87%.

Table 4.4 Unreliable Valuation and Causes of Gaps

Unreliable Valuation	Frequency	Percentage
Securitization	44	41.12%
Subprime Mortgages	33	30.84%
Derivatives	28	26.17%
Financial Leverage	2	1.87%
Total	107	100%

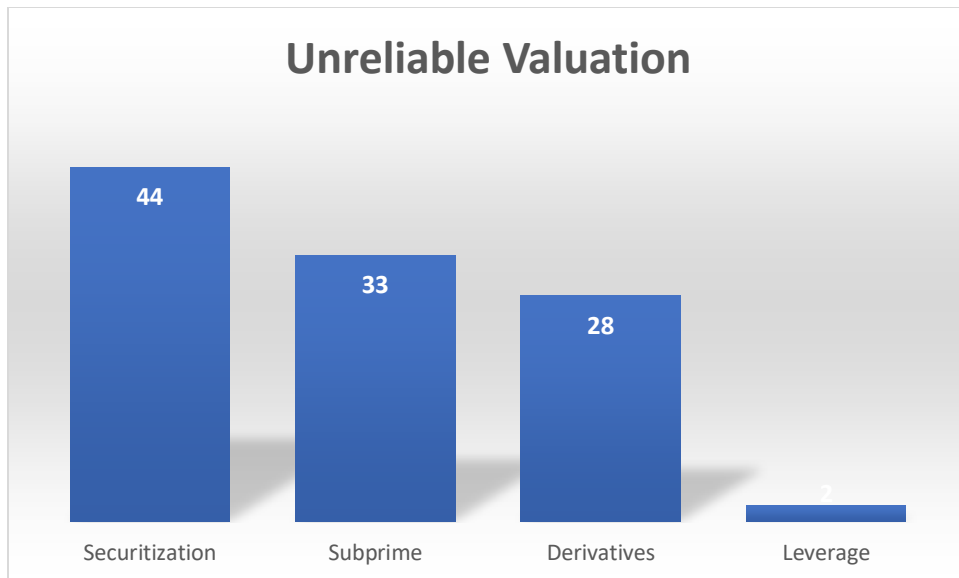


Figure 4.4 Frequency Count for Unreliable Valuation and Causes of Gaps

4.4.2 Misleading Financial Information and Causes of Gaps

Misleading financial information is a type of gap that is linked in the data to the following codes: subprime mortgages, derivatives, securitization, and financial leverage. The total frequency count is 35. Of this total, derivatives have the highest frequency of 42.68% followed by subprime mortgages with 37.14%, financial leverage with 11.43%, and securitization with 8.57%.

Table 4.5 Misleading Financial Information and Causes of Gaps

Misleading Financial Information	Frequency	Percentage
Derivatives	15	42.86%
Subprime Mortgages	13	37.14%
Financial Leverage	4	11.43%
Securitization	3	8.57%
Total	35	100%

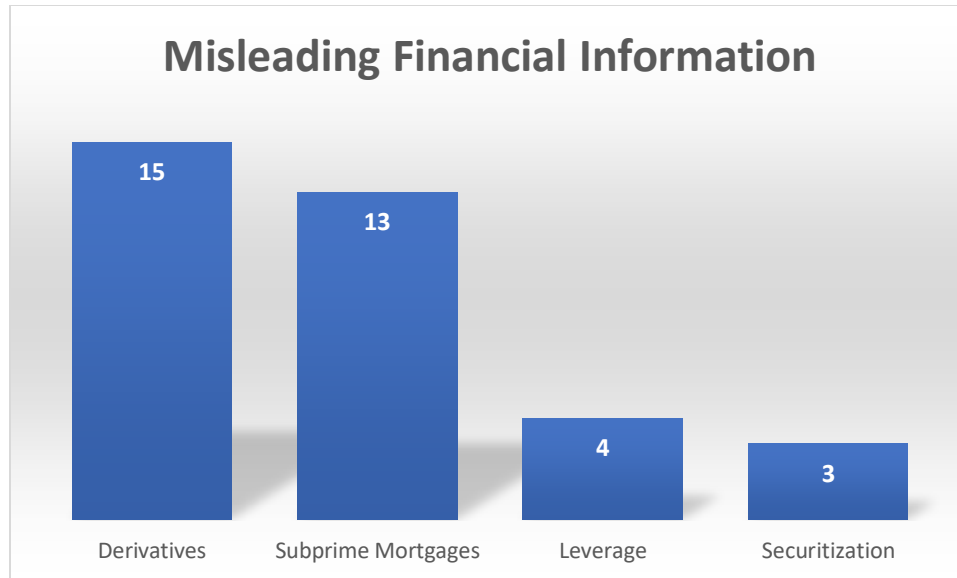


Figure 4.5 Frequency Count for Misleading Financial Information and Causes of Gaps

4.4.3 Interconnectedness and Causes of Gaps

Interconnectedness is also a type of gap that is linked in the data to the following codes: financial leverage, subprime mortgages, derivatives, and securitization. The total frequency count is 27. Of this total, derivatives have the highest frequency with 48.16% followed by subprime mortgages with 22.22%. Securitization and financial leverage are tied with 14.81%.

Table 4.6 Interconnectedness and Causes of Gaps

Interconnectedness	Frequency	Percentage
Derivatives	13	48.16%
Subprime Mortgages	6	22.22%
Securitization	4	14.81%
Financial Leverage	4	14.81%
Total	27	100%

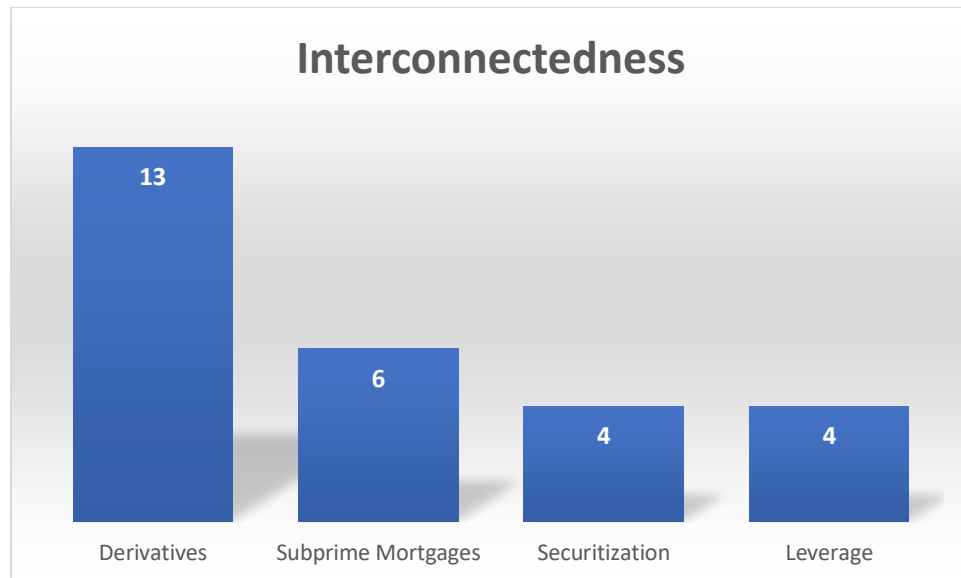


Figure 4.6 Frequency Count for Interconnectedness and Causes of Gaps

4.4.4 Weakness in Transparency and Causes of Gaps

Weakness in transparency is a type of gap that is linked in the data to the following codes: subprime mortgage, securitization, derivatives, financial leverage, and fraud. The total frequency count is 29. Of this total, derivatives have the highest frequency with 37.93%, followed by subprime mortgage with 27.6% and securitization with 17.24%. Next is financial leverage with 13.79% and fraud with 3.44%.

Table 4.7 Weakness in Transparency and Causes of Gaps

Weakness in Transparency	Frequency	Percentage
Derivatives	11	37.93%
Subprime Mortgages	8	27.6%
Securitization	5	17.24%
Financial Leverage	4	13.79%
Fraud	1	3.44%
Total	29	100%

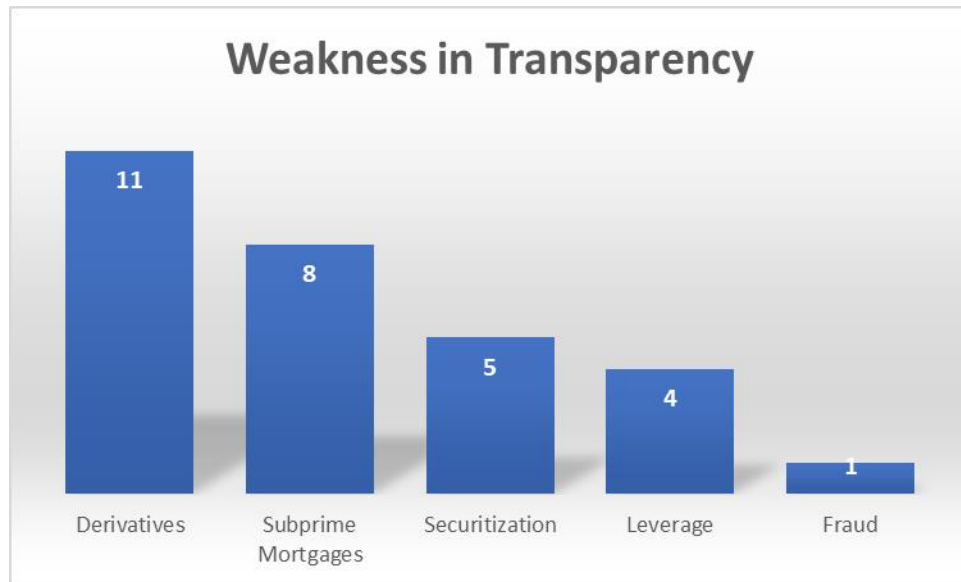


Figure 4.7 Frequency Count for Weakness in Transparency and Causes of Gaps

4.4.5 Weakness in Regulation and Causes of Gaps

Weakness in regulation is a type of gap that is linked in the data to the following codes: derivatives, subprime mortgages, financial leverage, shadow banking, and securitization. The total frequency count is 24. Of this total, derivatives have the highest frequency with 37.5%. Subprime mortgages and financial leverage are tied with 20.8% followed by shadow banking with 16.7%, and securitization with 4.2%.

Table 4.8 Weakness in Regulation and Causes of Gaps

Weakness in Regulation	Frequency	Percentage
Derivatives	9	37.5%
Subprime Mortgages	5	20.8%
Financial Leverage	5	20.8%
Shadow Banking	4	16.7%
Securitization	1	4.2%
Total	24	100%

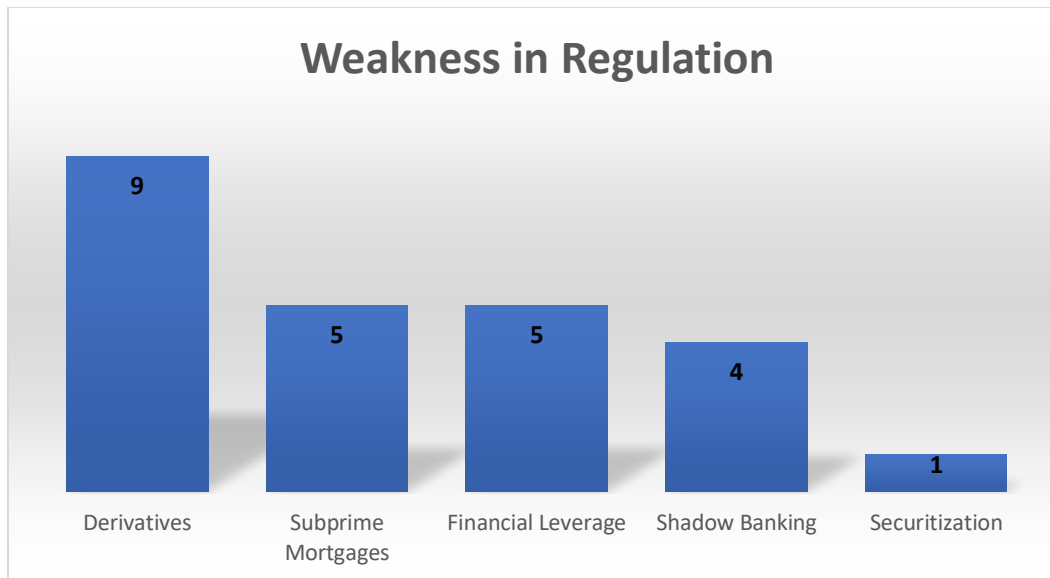


Figure 4.8 Frequency Count for Weakness in Regulation and Causes of Gaps

4.4.6 Securitization and Types of Gaps

Securitization is a cause of gaps that is linked in the data to the following codes: unreliable valuation, weakness in transparency, misleading financial information, and interconnectedness. The total frequency count is 17. Of this total, unreliable valuation has the highest frequency with 52.94%, followed by weakness in transparency with 35.3%. Misleading financial information is tied with interconnectedness at 5.88%.

Table 4.9 Securitization and Types of Gaps

Securitization	Frequency	Percentage
Unreliable Valuation	9	52.94%
Weakness in Transparency	6	35.3%
Misleading Financial Information	1	5.88%
Interconnectedness	1	5.88%
Total	17	100%



Figure 4.9 Frequency Count for Securitization and Types of Gaps

4.4.7 Derivatives, Types of Gaps, and Measures Taken

Derivatives is a cause of gaps that is linked in the data to the following codes: unreliable valuation, interconnectedness, weakness in transparency, weakness in regulation, misleading financial information, and strengthen regulation. The total frequency count is 46. Of this total, unreliable valuation has the highest frequency with 47.82%, followed by weakness in regulation with 30.43%, and interconnectedness with 8.71%. Next is weakness in transparency with 6.52%, strengthen regulation with 4.35% and misleading financial information with 2.17%.

Table 4.10 Derivatives, Types of Gaps, and Measures Taken

Derivatives	Frequency	Percentage
Unreliable Valuation	22	47.82%
Weakness in Regulation	14	30.43%
Interconnectedness	4	8.71%
Weakness in Transparency	3	6.52%
Misleading financial information	1	2.17%

Strengthen Regulation	2	4.35%
Total	46	100%

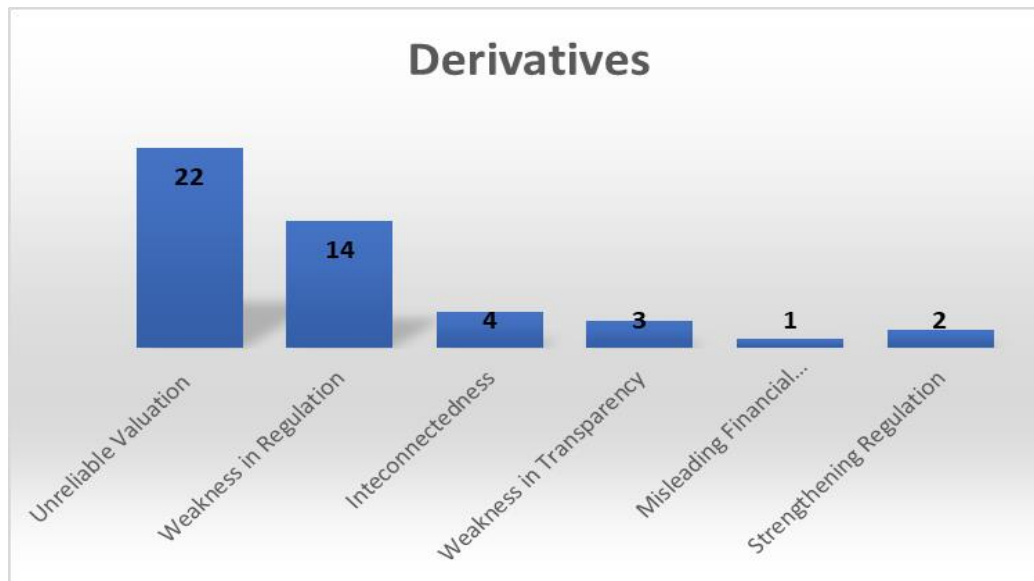


Figure 4.10 Frequency Count for Derivatives, Types of Gaps, Measures Taken

4.4.8 Strengthen Regulation, Types, and Causes of Gaps

Strengthen regulation is a measure taken to close gaps that is linked in the data to the following codes: derivatives, financial leverage, subprime mortgage, securitization, and unreliable valuation. The total frequency count is 27. Of this total, derivatives have the highest frequency with 66.68%, followed by financial leverage with 14.81%, subprime mortgages with 11.11%. Securitization and unreliable valuation are tied at 3.7%.

Table 4.11 Strengthen Regulation, Types, and Causes of Gaps

Strengthening Regulations	Frequency	Percentage
Derivatives	18	66.68%
Financial Leverage	4	14.81%
Subprime	3	11.11%
Securitization	1	3.7%
Unreliable Valuation	1	3.7%
Total	27	100%

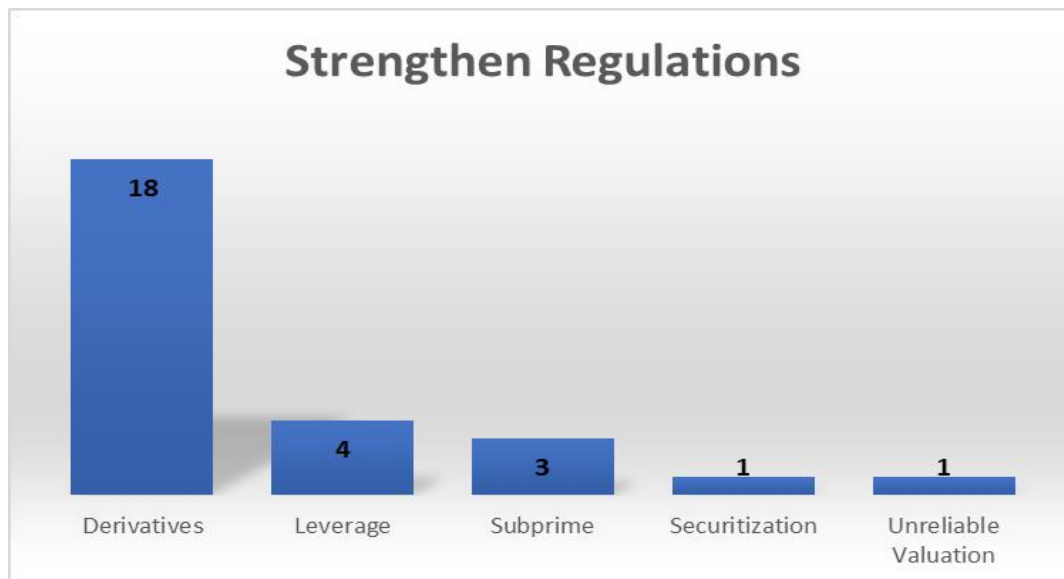


Figure 4.11 Frequency Count for Strengthen Regulation, Causes, and Type of Gaps

The analysis of linkages among types of gaps and causes of gaps shows high frequency counts for derivatives and subprime mortgages. When looking at linkages in the reverse direction with causes of gaps and types of gaps, the data shows high frequency counts in unreliable valuation, weaknesses in regulation, and transparency. For linkages when looking at measures to close gaps, there is a strong link among strengthening regulations and derivatives.

Chapter 5: Discussion

This discussion highlights components of the research that were most prominent in the findings. Even though a high frequency count in the three categories of codes is meaningful, the frequency count is a starting point in analyzing the findings of this study. Of the results that were presented in Chapter 4, there are standout observations that can be drawn. As such, this discussion is organized around the following themes that emerged from the findings: complexity, high risk, and regulation.

5.1 Complexity

The significance of the valuation of assets is critically important to this discussion. “The valuation issue is perhaps the most controversial issue in accounting. It focuses on assigning monetary value to a business transaction” (Needles, Anderson, and Caldwell 1993, 48). For all items on the balance sheet, the value assigned is the cost or the exchange price: “If a company cannot value an asset with relative certainty, it does not recognize an asset on the balance sheet (Easton, Halsey, and McAnally 2021, 2-5). This principle was not applied by the investment banks in the years preceding the crisis, especially for items described as complex financial instruments, many backed by subprime mortgages. Once uncovered, the valuation issue describes such a huge gap, that as Geithner (2014, 7) writes: “People lose confidence that their money is safe” The crisis that started in the financial markets in 2008 seeped into the rest of the economy and the taxpayers became the lenders of last resort as the government used \$700 billion to stabilize the banking system.

Unreliable valuation, with the highest frequency count, is the code that describes the type of gap that exists because of discrepancies between what assets were believed to be worth by the corporation and what the assets were actually worth. What was reported to the public was based on the value that was assigned by the corporation. For the dataset used in this study, there were

no valuation issues reported in 2006 or early 2007 in newspaper articles. By June 2007, *The Wall Street Journal* reported that Bear Stearns' \$600 million high risk fund had tumbled in value because of a surge in home mortgage defaults (Kelly and Ng 2007). By the end of June, *The Wall Street Journal* reported: "One area of concern involves the lack of accurate pricing in the CDO market ... any valuation of these vehicles involves managers making estimates which can be overly optimistic (Scannell, Hughes, and Reilly 2007, *The Wall Street Journal*, June 27, 2007).

The issue surrounding unreliable valuation of assets persisted throughout 2007 and into 2008. In November 2007, Bear Stearns had to write down its assets by \$1.2 billion and reported its first quarterly loss in its 84-year history (Levitz and Kelly 2007, *The Wall Street Journal*, November 15, 2007). Similar reports were present for AIG and Lehman Brothers "Lehman's losses from both write-downs on assets ... will top \$2 billion (Craig 2008, *The Wall Street Journal*, June 3, 2008); "Lehman once a leader ... fears about the true value of its assets" (Anderson 2008, *The New York Times*, July 11, 2008).

The valuation of assets was discussed in the congressional hearings in terms of "price discovery." The Public Hearing on the Role of Derivatives (2010) sheds some light on what is described as a lack of price discovery that created the problem. Price discovery means that the price or the cost of securities, such as stocks and bonds, are established by market forces, for example, when securities trade on an exchange (like the NYSE). As Commissioner Born states: "if this had been trading on an exchange, there would have been price discovery that showed what the values were and what one party owe to another" (Public Hearing on the Role of Derivatives 2010, 51-55).

How important was the valuation issue and what was previously unknown to the public? The collapse of Bear Stearns was swift: On Tuesday March 11, 2008, Bear Stearns reported a

capital base of \$17 billion (Sidel et al. 2008, *The Wall Street Journal*, March 18, 2008). By Thursday, March 13, their cash had reduced to \$2 billion. The company planned to file for bankruptcy on Friday March 14. But the Federal Reserve agreed to lend J.P. Morgan \$30 billion to cover Bear's toxic assets. By Sunday March 16, 2008, J.P. Morgan offered to purchase Bear Stearns for \$2. per share. As Sidel et al. (2008) note just two days later: uncertain values of securities backed by home mortgages "helped sparked the current crisis" (*The Wall Street Journal*, March 18, 2008).

Interconnectedness, is a type of gap with the second highest frequency. Based on the dataset of newspaper articles used in this study, interconnectedness was not present in news reports during 2006. Discussions on interconnectedness show up in June 2007 when valuation issues grew with regards to Bear Stearns. *The Wall Street Journal* reports on June 23, 2007: "Over the past decade or so, financial markets have grown substantially and have spread globally, leading to sophisticated and complex ways to place bets, often with large amounts of leverage" (Kelly 2007). The Public Hearing on the Role of Derivatives (2010, 24) uses similar terms to describe interconnectedness: "...systemic risk inherent in a marketplace comprised of opaque webs of interconnectedness and overleveraged counterparties." Counterparties are tied to "bets" in derivatives transactions and in both excerpts, leverage is associated with interconnectedness and financial derivatives. Counterparties and bets will be explored in more detail in the discussion on derivatives.

As Paulson, Jr. (2011, 68)), explains: "The market became opaque as structured products grew increasingly complex and difficult to understand even for sophisticated investors." In addition, interconnectedness also gave rise to the term, "too-big-to-fail" used in reference to banks during the Financial Crisis of 2008 that were a threat to the entire system.

Interconnectedness had a high presence in newspaper articles throughout 2008 and discussed frequently in the congressional hearings and books used in the dataset. As seen previously, it is often described in the literature in terms of tangled webs of interconnections and is associated with complex financial products (Financial Crisis Inquiry Report 2010; Bernanke, Geithner, Paulson Jr. 2019).

In the Public Hearing on Shadow Banking (2010, 167), Commission Born refers to interconnectedness in the same vein: “What about your interconnectedness? I mean you had thousands and thousands of counterparties ...” and “Do you think that the reason the Federal Reserve was willing to step in and assist JP Morgan’s purchase of Bear Stearns was because of concerns that essentially the institution was too large and/or interconnected to fail?”

Interconnectedness is an important gap because it is reflective of what is referred to as the size and complexity of the system – the more challenging aspect being complexity. As Paulson, Jr. (2011, 447) writes: “Complexity is the enemy of transparency ...” and as Schwarcz (2009, 213) notes: Complexity is “the greatest financial market challenge of the future.”

5.2 High Risk

The discussion in this section includes the following codes assigned to causes of gaps: subprime mortgages, securitization, derivatives, financial leverage, and shadow banking. It is important to note that these codes are distinct from each other and are not interchangeable in terms of their definitions, but analysis of the data shows that they interact with each other in significant ways.

First, subprime mortgages are “loans made by creditors that specialize in lending to borrowers with FICO scores generally below 620” (Barr et al. 2020, 320). Subprime mortgages

are also described in the literature as “interest-only loans” and “low-or-no-documentation requirements” loans (Financial Crisis Inquiry Report (2010, xxiii). In the years before the financial crisis, the underwriting standards for residential mortgages were drastically lowered to facilitate what has been described as predatory lending and fraudulent practices among mortgage originators (Financial Crisis Inquiry Report (2010, xxiii). The gap created here stems from the practices of mortgage-lenders and the lowered standards for underwriting these loans that were not reported until mortgage borrowers started defaulting in large numbers.

Second, “securitization turns illiquid assets like mortgages, commercial loans, and other receivables into marketable securities” (U.S Securities and Exchange Commission 2013, par.3). In other words, along with mortgages, the bundling of these loans included consumer debt such as student loans and credit card balances, making it even more difficult to identify individual borrowers (Mollenkamp and Whitehouse 2008, *The Wall Street Journal* Sept 16, 2008). In this way, securitization extends the gap created by subprime mortgages because it allows mortgage-lenders to sell the loans and avoid the risk of default or delinquent payments. The gap is extended because “additional risks were often difficult for investors to assess because the securitization process does not just transfer ownership of the underlying loans, it bundles, divides, and repackages them as well” (U.S. Securities and Exchange Commission 2013, par. 6). *The Wall Street Journal* reported on June 17, 2008: “Lehman securitized more than \$700 billion in assets ... About 85% of these, or about \$600 billion were residential mortgages” (Reilly 2008).

Third, derivatives play a role in further extending the gap in information through credit default swaps and counterparties. A derivative is a “financial contract whose price is determined (derived) from the value of an underlying asset, rate, index, or event” (Financial Crisis Inquiry

Report 2010, 450). A credit default swap is a type of credit derivative. It is not a security. The credit default swap allows the buyer of the swap to transfer the risk of loan default to a seller of the swap. In this transaction, “the seller agrees to pay the purchaser if a default event occurs. The purchaser does not need to own the loan covered by the swap” (Financial Crisis Inquiry Report 2010, 452). A counterparty describes a party in this contract. An important aspect of credit default swaps is that it allows for speculation, that is, investors can speculate on whether a company will be able to repay their debts. The term used for this transaction with credit default swaps is “betting.” The size of the derivatives market grew to \$664 trillion by 2008 in an unregulated market (Financial Crisis Inquiry Report 2010, 4). Lehman Brothers had more than 900,000 unregulated open derivatives contracts (Bernanke, Geithner, and Paulson Jr. 2019, 63).

The gaps that were caused by the credit-default-swaps stem from lack of information. *The New York Times* reported that “the market for credit-default- swaps is not regulated or tracked through any clearinghouse of data ... No one knows who owes this money, how much each counterparty owes ...” (Walsh 2008, Oct. 11). Additionally, companies did not know if the counterparties would be able to pay – in a market that was over \$600 trillion.

What are the connections between subprime mortgages, securitization, derivatives, and leverage? Faulty loans through subprime mortgages were issued and then bundled with other loans into securities through the process of securitization. As Paulson, Jr. (2013, 68) explains, investors often bought credit default swaps to offset the credit risk on these mortgage-backed securities created through securitization. High levels of leverage became a large part of these transactions.

Financial leverage is the code assigned to a cause of gaps. Financial leverage measures the amount of debt a company uses in financing its assets (Easton, Halsey, and McAnally 2021,

4-5). Financing with debt is risky because a corporation must repay its debt. Therefore, a high amount of debt means a high amount of risk. The Financial Crisis Inquiry Report (2010, xix) found that investment banks like Bear Stearns, Lehman Brothers, and AIG engaged in excessive borrowing in what they described as “extraordinarily thin capital.” The Report goes on to explain what this means: “By one measure, their leverage ratios were as high as 40 to 1, meaning for every \$40 in assets, there was only \$1 in capital to cover losses. Less than a 3% drop in asset values could wipe out a firm” (Financial Crisis Inquiry Report 2010, xix).

For Bear Stearns, the data shows that at the end of 2007, the company reported \$11.8 billion in equity with \$383.6 billion in liabilities and Bear Stearns was borrowing about \$70 billion in the overnight market (Financial Crisis Inquiry Report 2010, xx). This means that their debt exceeded their capital by \$371.8 billion. In the Public Hearing for the Shadow Banking System (2010, 28), Chairman Angelides explains this with regards to Bear Stearns: “I mean, just kind of in lay person’s terms, the way you guys were set up, it’s like a small business that had \$50,000 in cash, it borrows \$2 million, and \$300,000 is coming due every night. It just seems to me that it’s ultimately not sustainable.”

The overnight market, also known as the repo market or the repurchase market is described by Paulson, Jr. (2013, 98) as an obscure market, where many investment banks borrowed money on an overnight basis: “Most of the money was lent overnight. That meant that giant balance sheets filled with all kinds of complex, often illiquid assets were poised on the back of funding that could be pulled at a moment’s notice.” The expansion of gaps caused by financial leverage takes place because “the leverage was often hidden –in derivatives positions, in off-balance sheet entities, and through “window-dressing” of financial reports available to the investing public” (Financial Crisis Inquiry Report 2010, xx). As noted by Kimmel, Weygandt,

and Mitchell (2022, 24), “Off-balance-sheet financing is an intentional effort by a company to structure financing arrangements so as to avoid showing liabilities on its balance sheet.”

Shadow banking is the code assigned to a cause of gaps. The importance of shadow banking can be seen in the Public Hearing on the Shadow Banking System (2010) with testimonies by former executives from Bear Stearns and the former chairman from the U.S. Securities and Exchange Commission. Among the seven codes assigned to causes of gaps, shadow banking ranks sixth with a frequency of 6.03%. Its low frequency count in the data bears significance as the term “shadow banking” was not present in newspaper articles in the dataset. This further leads to questions on how much was fully known or understood about the shadow banking system -- questions that can be explored in greater detail in future research.

As the term indicates, the gaps caused by the shadow banking system stem from the “shadowy” or secretive financial activities associated with shadow banking. The shadow banking system “most often refers to borrowing and lending using nonmonetary instruments, as well as money, outside of the traditional banking system” (Public Hearing on the Shadow Banking System (2010, 248). The shadow banking system, an alternative way of banking to traditional banking, was associated with investment banks such as Bear Stearns, Lehman Brothers, and insurance companies like AIG (Bernanke, Geithner, and Paulson, Jr. 2019, 22). As noted by Bernanke, Geithner, and Paulson, Jr. (2019, 22), “Before the crisis, more than half the leverage in U.S. finance had migrated to these ‘shadow banks’ or ‘nonbanks.’”

In 2006, newspaper articles used in this study show a small presence of subprime mortgages and in terms of positive earnings reported. For example, in June 2006, it was reported that Bear Stearns had a record increase in revenues of \$1.17 billion “up 44% from a year earlier ...” in large part due to its mortgage business (Craig 2006, *The New York Times*, June 16, 2006).

Securitization was present in the articles during 2006 from the beginning of the year – for Bear Stearns, “the securitization binge appears to be continuing” (Anderson 2006, *The New York Times*, January 6, 2006). Derivatives was also reported in a positive light in 2006 newspaper articles: “Lehman Brothers Holdings and Bear Stearns Companies post record fourth-quarter earnings helped by corporate bonds and derivatives ... The companies cited rising sales of so-called credit products, which include credit-default swaps” (*The New York Times Online*, December 15, 2006). Leverage had a very small presence in the data in 2006.

In 2007, there was a stronger presence in the data for subprime mortgages, and securitization than in derivatives and leverage. By May 2007, the reports on subprime mortgages were negative describing weaknesses in the subprime market and its effects on company earnings. *The Wall Street Journal* reported on the near collapse of Bear Stearns’ hedge funds: “Together the two Bear funds once commanded investments of more than \$20 billion in complex debt instruments, mostly backed by subprime mortgages, in addition, to billions more in wagers that certain markets would fail” (Kelly 2007, June 23, 2007). For Lehman Brothers, reports show that they were able to offset the weaknesses in the mortgage market by “hedging its bets” using credit default swaps (Hadi 2007, *The Wall Street Journal* June 12, 2007). For AIG, the world’s largest insurance company, concerns about subprime mortgages and their portfolio of mortgage-backed securities were reported toward the end of the year with a decline in earnings.

Taken together, the data shows the significance of how these variables interact with each other. The discussion of causes of gaps that references subprime mortgages, securitization, derivatives, financial leverage, and shadow banking shows the willingness of companies such as Bear Stearns, AIG, and Lehman Brothers to engage in high-risk activities – possibly due to high profits in the reporting periods before the onset of the crisis. As the data shows, Bear Stearns’

earnings were in the billions in 2006 mainly due to the packaging and trading of mortgage-backed securities and derivatives. Bundling loans into securities and taking bets on the default risk of those securities are described in the literature as very high-risk activities. Securitization did not start with subprime mortgages, but the data shows there was increased growth of these securities backed by subprime mortgages in the years preceding the crisis.

5.3 Regulation

The failure of Bear Stearns, according to Paulson Jr. (2013, 125), brought to light many of the flaws in the regulatory structure in place for the U.S. financial system. This is due in large part to the changes in the system over the two decades prior to the Financial Crisis of 2008. As Paulson, Jr. (2013, 125) explains: “The products they designed and sold had become infinitely more complex, and big financial institutions had become inextricably intertwined, stitched tightly together by complex credit arrangements.” He argues that the regulations in place at the time were designed for the world of the Great Depression with traditional businesses, and that structure could not keep up with the growth of complex financial products.

Paulson, Jr.’s (2013) argument has some merits. Of the eight Acts passed by Congress that govern the securities industry, three were in the 1930s and two were in 1940. Sarbanes-Oxley was in 2002, and Dodd Frank, which has been partially repealed, was in 2010. The Glass Steagall Act from the 1930s (not included among the eight) was repealed in 1999. The Glass-Steagall Act was discussed several times in the Public Hearing on the Shadow Banking System (2010) because of the blurring of the lines in banking activities.

Glass Steagall was enacted in 1933, during the years of the Great Depression. The main purpose was to separate commercial and investment banking activities: “To provide for a safer and more effective use of assets of banks, to regulate interbank control, to prevent the undue

diversion of funds into speculative operations ...” (Banking Act of 1933, 1). By the 1990s, bankers, mostly from the largest banks, were voicing concerns about the Glass Steagall Act (Irwin 2015, *The New York Times* Oct 14, 2015). Lawmakers and bankers argued the soundness of using laws from the 1930s in a global economy. In 1999, Glass-Steagall was repealed by the Gramm-Leach Bliley Act (also known as the Financial Services Modernization Act of 1999). The Financial Crisis of 2008 took place just nine years after the repeal of Glass-Steagall, once again sparking debates on re-instating Glass Steagall because this was the first major crisis after its repeal.

Observations made in the dataset for measures taken to close the gaps are relatively smaller in quantity when compared to types of gaps and causes of gaps. Codes for measures taken were not present in 2006. By June in 2007, measures taken were present in the articles and had an even stronger presence in 2008 and 2009. Congress was under pressure to pass laws to regulate the financial industry after the taxpayer bailout of failing banks and this was reflected in the newspaper articles: “a split is forming over how to strengthen oversight of financial institutions after decades of deregulation” and “given the philosophical differences about the value of government regulations, some experts were skeptical that Congress and the Bush administration would agree on more than cosmetic changes” (Andrews and Labaton 2008, *The New York Times* March 23, 2008).

A critical part of this discussion includes transparency. As noted in *The Wall Street Journal* on June 12, 2008, “As things stand, firms create an information gap for investors ... Ever since the credit crisis began, investors have been hungering for as much detailed financial information as they can get about the strength of Wall Street’s biggest banks” (Reilly 2008,). As Reilly (2008) explains, companies release their earnings information and delay the release of the

balance sheet for several weeks: “investors get only the financial red meat they seek when the banks file actual quarterly results with the SEC -- weeks after earnings release.” Earnings were reported regularly in the articles analyzed for this study, but with very little supporting details. Reilly (2008) writes: “By the time, though, analysts’ one chance to publicly question executives on the quarterly conference call has passed and markets have moved on to forecasting the next quarter.” According to Reilly (2008), a recommendation has been made to the Securities and Exchange Commission for companies to include financial statements (income statement, balance sheet, and cash flow tables) with their earnings releases.

Strengthening regulations had a strong presence in the Public Hearings for Shadow Banking and on the Role of Derivatives. Commissioner Born points out that “As a result of pressures from a number of the country’s largest financial institutions ... Congress passed a statute in 2000 called The Commodity Futures Modernization Act that eliminated virtually all regulations over the over-the-counter derivatives market” (Public Hearing on the Role of Derivatives 2010, 51). In this way, the code for weakness in regulation is linked to the code for derivatives, a cause of gaps, because this legislation allowed for the “bets” to be made through credit default swaps. As the Financial Crisis Inquiry Report (2010, xvi) states, there were “widespread failures in financial regulation and supervision” and this included the Federal Reserve and the Securities and Exchange Commission.

This discussion of the findings represents what was documented in the data sources used in this study – that is documenting what others have said. The findings also present a foundational piece of knowledge that establishes the groundwork needed for future research. These results can be viewed as a starting point for researchers interested in conducting studies on

information gaps from other perspectives not covered in this dissertation. The following section presents some examples of interest for future research.

5.4 Future Research

It has been fourteen years since the Financial Crisis of 2008. Discussions of the crisis still feature regularly in business news as it serves as a benchmark for current economic downturns. Much has been written and debated over the years about the crisis and its causes. This study takes a different approach by examining the communication of financial information during this period to investigate gaps in this process. The findings in this study can be built upon for future works. The following are some examples for future areas of interest:

- *Regulatory Reforms: An Analysis of the Glass-Steagall and Dodd Frank Acts:* Debates over the Glass-Steagall Act have persisted before its repeal and years after its repeal in 1999. There is still interest in taking a closer look at the provisions of Glass-Steagall, the provisions in the Gramm-Leach Bliley Act that repealed Glass-Steagall, as well as the Dodd Frank Act of 2010. Parts of Dodd Frank have also been repealed in 2018. Keeping in mind the challenges in the rapidly changing financial environment as presented in the data for this current study, recommendations can be made about the current regulatory system in place after the Financial Crisis of 2008.
- *Comparative Analysis of the Communication of Financial Information:* This future research interest builds on the findings from the dissertation and continues the research by examining the process of communicating financial information outside of the United States in the same time frame. By using the coding scheme developed for this study to analyze news articles from two leading foreign newspapers in the same time period, the

findings can provide a broader perspective in terms of similarities and differences in gaps in information.

- *The Use of Technology to Improve Transparency in Financial Reporting*: This study can be designed to trace the evolution of technology from the 1990s in the field of finance and accounting that includes trends in emerging technologies to improve areas such as transparency in financial reports. Research has shown interest in using blockchain technology to increase faithful representation of accounting information.
- *Preparing Students in Finance and Accounting*: This future research interest can use the findings from this study as well as college and university curriculums to see how students in today's environment are being prepared for the complexity that is an intrinsic part of the financial world.

5.5 Conclusion

This dissertation has examined gaps in the flow of information from publicly held corporations to the public by looking at what has been documented in the selected data sources. This study has identified several types of gaps that existed in Bear Stearns, Lehman Brothers, and AIG's communication of financial information to the public. In addition, it has examined variables responsible for such gaps. Finally, measures to close the gaps were presented as a recommendation of how to move forward in transparency related to the communication of financial information. A few crucial points must be addressed as to the implications of this dissertation and future works that emanate from it: the first is related to the methodological and social importance of newspapers as a communication tool; second, the significance of public trust and confidence as tied to crises; third, the importance of regulation as tied to accounting

principles; fourth, the question of what is owed to the public; and fifth, the present challenge posed to accounting and information systems moving forward.

In evaluating different mediums of communicating financial information to the public, an important trend emerged: newspapers are a crucial communication tool. This has implications both methodologically and socially. Methodologically, newspapers serve as a reliable source that give researchers a window as to how events transpired in real time. It also provides consistency and stability for analysis of documents. This is because newspapers have been used across time to communicate information to the public. With respect to Information Studies, newspapers allow for a reliable metric of communication to be established. The use of newspapers in this dissertation enabled the current researcher to answer the questions posed in this study related to gaps in the flow of information. In other words, the ability to answer the research questions around breaches in the communication process, through an analysis of newspapers, shows how effective newspapers as a communication tool has historically been and continues to be.

The social significance of newspapers stems from its relationship as a communication tool and the information it provides in decision-making processes to the public. This process of communication establishes a link between experts and laypeople. Fundamentally, it creates a precedent that such information is owed to the public because it impacts their everyday lives. One example of the importance of delivering information owed to the public can be seen through the public's role as a lender of last resort. The taxpayers' money was used to bailout banks who engaged in excessive risk despite the taxpayers' disengagement from such practices. An informed public is able to use the information presented to them to make the best decisions possible. The role of the newspaper in establishing information that is owed to the public can be understood as underscoring the need for transparency in relaying financial information, or

information that affects everyday life. For the purposes of this dissertation, the social value of newspapers in bridging the gap that exists between experts and laypeople serves as a mechanism or check to those responsible for delivering the information.

Related to the importance of newspapers both methodologically and socially, the significance of public trust and confidence must also be discussed. Though the degree of expertise needed to understand financial information is high, it is a system that impacts all individuals. The interconnectedness of the system means that individuals cannot escape the effects of the market or poor decisions that are made on behalf of the public without their consent. Andrew Ross Sorkin (2009, 544) points to the detriment of what happens when public trust is lost. Beyond the emergence of a financial crisis, a crisis in confidence and breach in public trust can lead to a rejection of institutions in totality. This rejection is often coupled with the replacement of established principles with inaccurate information that complicates institutional arrangements further. The findings of this dissertation indicate that the taxpayer who relies on transparent communication of information is simultaneously the lender of last resort. Put another way, while there appeared to be a belief by experts in the government, Bear Stearns, Lehman Brothers, and AIG that the primary agents information related to the company belonged to were investors, the public still suffered for decisions they did not undertake. Taxpayers footed the bill when companies were bailed out for their excessive engagement in risk while simultaneously losing their 401Ks and retirement savings.

The breadth of the financial system as well as its interconnectedness means that the system's structure ties all individuals together. Small businesses in America are impacted by supply chain shortages abroad which in turn impacts the prices companies set and the burden of cost the consumer absorbs. A common analogy of a contagion both in the dataset and literature

was used to describe the consequences of poor decisions in a highly interconnected system. When a pathogen is introduced to the financial system, it has the ability to weaken the system in totality. Though the taxpayer by and large is removed from the undertakings of Bear Stearns, Lehman Brothers, and AIG, the decisions of the companies deemed “Too Big to Fail” impacted retirement plans for the public that forced many Americans to work longer. When the public is a lender of last resort for companies engaging in excessive risk, there is no safety net for the public once the burden of bailout is placed on them.

Accounting principles enhance the ability for public trust to be established. This is because accounting as a discipline was designed to implement stability by controlling the vastness of the data associated with the system. Accounting reproduces data by communicating what has already happened. In doing so, it gives interested parties the tools they need to make financial decisions. Through the research undertaken in this dissertation, it was discovered that two crucial accounting principles were violated. The first is related to transparency. The second is tied to what is represented on the balance sheet. With respect to transparency, an analysis of the dataset found words like “opaque,” “murky,” and “dark world” being used to describe the financial activities of Bear Sterns, Lehman Brothers, and AIG. These descriptions are antithetical to the foundations of accounting that were created to be transparent and reliable.

The balance sheet represents everything that a business owns and owes. Accounting principles define how items on the balance sheet are measured. It is the foundation that undergirds the business world because it is the communication tool that transmits critical information used by other financial entities. In principle, what appears on the balance sheet must only be reliable information. Thus, anything that is unclear or unreliable should not be reflected on the balance sheet. In taking a frequency count of types of gaps that existed in the flow of

information from publicly held corporations to the public, unreliable valuation of assets appears most frequently. This means that assets that were “toxic” or not reliably valued were being used to make decisions as if they could be trusted. Once this is implemented on a large scale, it becomes impossible to distinguish what are “good” assets and what are “toxic” assets.

A discussion of the principles of accounting speaks to the need for regulation. What is at stake is not a question of whether accounting principles are still viable. Rather, it points to the necessity for regulations to insulate accounting principles from disruption. As the financial system and markets grow, regulation must be implemented to allow for accounting principles to adapt accordingly so it can be an effective tool used to document financial information. If the system continues to grow and deregulation remains a bedrock principle of free market enterprise, the interest of profit will drive decisions companies make as to what is reported on the balance sheet and ultimately, what reaches the public. Therefore, it is important to present as “measures” the suggestion of increasing regulation that enables accounting principles to address the growth of the system with effective oversight.

While it has been previously discussed in Section 2.3.1 as to the assumptions made of what is owed to the public, an additional point related to this must be made. The question of what is owed to the public is a significant one because denying the public critical information that impacts their lives, while simultaneously relying on them for bailouts, puts the general public at significant risk. The taxpayer is consistently impacted by the system while not benefiting from its current configuration. Transparency in reporting information and adhering to the belief that expertise is not a prerequisite for delivering information holds those in power accountable for their decisions. If companies adhere to communicating information in a transparent way because it is owed to the public, it forces them to explain their choices and reckon with the consequences

of poor decisions *before* a crisis occurs. This is because actions of public companies are held in public debate and discourse.

Perhaps one of the most significant points of discussion that stem from the findings of this dissertation is the current challenge for the discipline of accounting as it relates to the financial system: the vastness of the system has made it difficult to control, regulate, and monitor. The system has grown to an extent that makes the current ways of addressing surveillance of the system challenging at best and near impossible at worst. It has been pointed out by both Sorkin (2009) and the Public Hearing on the Role of Derivatives (2010) that failure to regulate the system may continue to place the burden of bailing out companies with the taxpayer as the lender of last resort.

Lastly, while this dissertation discussed the intersection of Accounting with Information Studies, the work presented here has interdisciplinary implications. The findings can speak to the legal profession in policy implementation and questions around the constitutional authority of the government's regulatory powers. It speaks to political theory in a discussion of what tends to fill gaps in reliable information and how crisis in confidence not only can be tied to financial crises, but the emergence of failed states. The discussion of hegemony bears heavily on sociology, particularly a discussion of poverty and systemic inequality as well as a growing wealth gap in America. It has implications for the significance of historical analysis in tracing the evolution of social phenomena. It provides questions for economists as to the sustainability of the current structure of the market.

This dissertation provides substantial data that can be used to assess how financial systems intersect with other institutions and disciplines in ways that can determine the life outcomes of everyone it encloses. If we are able to see the consequences to the integrity of

institutions, the security of individuals, and the stability of society, we are able to glimpse why addressing the challenge of identifying types of gaps in information, causes of such gaps, and ways to mend the breach is the critical, nearly universal challenge of the 21st century.

Appendix A Data for Inter-coder Reliability

Articles	Codes Identified	Coder A Frequency	Coder B Frequency	% Agreement
Article 1	Interconnectedness	3	3	
	Derivatives	2	2	
	Weakness in Regulation	1	1	
Total		6	6	100%
Article 2	Fraud	1	1	
Total		1	1	100%
Article 3	Strengthen Regulation	8	6	
	Weakness in Regulation	2	1	
	Securitization	1	1	
	Fraud	1	1	
	Subprime Mortgage	1	1	
Total		13	10	76.92%
Article 4	Subprime Mortgage	1	1	
	Securitization	1	1	
	Financial Leverage	1	1	
	Unreliable Valuation	2	1	
Total		5	4	80%
Article 5	Derivatives	2	2	
Total		2	2	100%
Total Agreement				91.38%

Appendix B Data for Pilot Study

The following tables lists the articles used in the Pilot Study from *The Wall Street Journal* and *The New York Times*.

Date	Titles <i>The Wall Street Journal</i>
04/01/2005 *	Moving the Market: AIG's Admission Puts the Spotlight on Auditor PWC
05/27/2005*	AIG Probes Bring First Charges; NY Suit Accuses Insurer, Greenberg ...
06/16/2005*	Moving the Market: Wall Street Earnings Net Rises on Strength of Stock Trading
07/11/2005*	Morgan Stanley Gets AIG Role
02/09/2006	AIG Agrees to \$1.6 Billion Settlement; Big Insurer Is Set to Pay SEC
06/13/2006	Moving the Market: Lehman Reports 47% Surge in Profit; Investment Banking Gives Results a Boost but Stock Drops in Market Worries
06/27/2007	SEC Probes CDOs and Bear Funds; Cox Testifies the Agency Has About 12 Inquiries; Accurate Pricing is an Issue
12/14/2007	Lehman Profit Falls but Beats Forecasts
03/15/2008	Fed Races to Rescue Bear Stearns In Bid to Steady Financial System; Storied Firm Sees Stock Plunge 47%; J.P. Morgan Steps In
05/20/2008	Greenberg Role Seen in AIG Gen Re Case
05/20/2008	AIG's Board was Right to Remove Hank Greenberg
08/20/2008	Lehman Slides 13%; Fannie Freddie Fall
09/16/2008	Surviving the Panic
09/17/2008	U.S. To Take Over AIG in \$85 Billion Bailout; Central Banks Inject Cash as Credit Dries Up
09/19/2008	Crisis on Wall Street: In Crisis, Fingers Point at Mark-to-Market Rule
11/18/2008	U.S. News: For Fed's Geithner, Rescue Ties Cut Both Ways
03/14/2009	Bear Stearns: A Year Later: From Fabled to Forgotten—Bear's Name and Culture Fade Away
03/27/2009	Top Risk Officers Remain at Insurer's Helm
05/19/2009	USA Inc: Black Rock Wears Multiple Hats – In the Crisis, Fink's Firm Is Buyer, Seller, Adviser, "Our Clients Trust Us"
08/21/2009	Large Stock Focus: Talked Up By CEO, AIG Climbs by 21%

Date	Titles <i>The New York Times</i>
04/01/2005*	Irish Financial Regulator Faces Its First Major Test
04/01/2005*	Obscure Offshore Entities Emerge to Trouble AIG
05.07/2005*	An Executive at Berkshire Faces Charges From SEC
05/12/2005*	U.S/ Attorney Subpoenas Chubb Over Its Use of Reinsurance
11/15/2005*	AIG Profit Declines on Hurricane Claims
12/14/2005*	Lehman Says Its Earnings Rose 41% in 4 th Quarter
04/11/2006	Lawyer Leaves AIG
02/12/2008	Prosecutors Say Ex AIG Executives Created a Fraud
02/26/2008	Guilty Verdict for 5 in AIG Case
03/17/2008	Fears that Bear Stearns Downfall May Spread
03/21/2008	Lawmaker Urges New Financial Oversight
03/23/2008	Split is Forming Over Regulation of Wall Street
06/10/2008	As Losses Mount, the Fed and the White House Step Up Fortunes Reverse for a Bank and Its Leader
06/17/2008	Shares are Mixed as Oil Price Declines
09/12/2008	Investors Turn Gaze to AIG
09/17/2008	Fed In an \$85 Billion Rescue of an Insurer Near Failure
04/07/2009	Inspector to Audit AIG's Counterparty Payouts
09/15/2009	Bear's Ex-Chief on Being Too Big To Fail
10/14/2009	Pay Czar Talking on Bonuses at AIG
10/23/2009	In Bear Trial Prosecutor Seems to Falter

*Newspaper articles in 2005 used for the pilot study indicate that AIG had accounting irregularities that are unrelated to the Financial Crisis of 2008. Reports in 2005 show that AIG faced state and federal investigations because of the company's attempts to mislead regulators and investors by manipulating their financial statements in the early 2000s (Anderson 2005; Browning 2005). The years selected for the full dataset used in this study are 2006 to 2009 to

avoid conflating reports from this investigation with the events leading up to the Financial Crisis of 2008. Therefore, newspaper articles from 2005 were eliminated from the full dataset.

Firefighting: The Financial Crisis and Its Lessons by Ben S. Bernanke, Timothy F.

Geithner and Henry M. Paulson Jr. (2019) is the book used in the pilot study. It describes their joint efforts in working with Congress to approve legislation on the Troubled Asset Relief Program. This account focuses on the period between 2007 and 2009 as they explain the roots of the crisis and the complexity of financial innovations such as securitization, subprime mortgages, hidden leverage, and shadow banking. Lehman Brothers, AIG, and Bear Stearns are also discussed throughout this narrative.

Congressional Hearing for the Shadow Banking System Cover Page:

Financial Crisis Inquiry Commission, United States of America
FINANCIAL CRISIS INQUIRY COMMISSION

4

5 Official Transcript

6 Hearing on "The Shadow Banking System"

7 Wednesday, May 5, 2010

8 Dirksen Senate Office Building, Room 538

9 Washington, D.C.

10 9:00 A.M.

11

12 COMMISSIONERS

13 PHIL ANGELIDES, Chairman

14 HON. BILL THOMAS, Vice Chairman

15 BROOKSLEY BORN, Commissioner

16 BYRON S. GEORGIOU, Commissioner

17 HON. BOB GRAHAM, Commissioner

18 KEITH HENNESSEY, Commissioner

19 DOUGLAS HOLTZ-EAKIN, Commissioner

20 HEATHER H. MURREN, Commissioner

21 JOHN W. THOMPSON, Commissioner

22 PETER J. WALLISON, Commissioner

23

24 Reported by: JANE W. BEACH

25 PAGES 1 - 369

2

1 Session 1: Investment Banks and the Shadow Banking System:

2 PAUL FRIEDMAN, Former Chief Operating Officer of

3 Fixed Income, Bear Stearns

4 SAMUEL MOLINARO, JR., Former Chief Financial

5 Officer and Chief Operating Officer, Bear Stearns

6 WARREN SPECTOR, former President and

7 Co-Chief Operating Officer, Bear Stearns

8

9 Session 2: Investment Banks and the Shadow Banking System:

10 JAMES E. CAYNE, Former Chairman and

11 Chief Executive Officer, Bear Stearns

12 ALAN D. SCHWARTZ, Former Chief Executive Officer,

13 Bear Stearns

References

- Ahmad, Kurshid, Jing Guang Han, Elaine Hutson, Colm Kearney, and Sha Lui. 2011). "Media expressed negative tone and firm-level stock returns." *Journal of Corporate Finance* 37: 152-172.
- Anand, Sanjay. 2007. *Essentials of Sarbanes-Oxley*. NJ: John Wiley & Sons, Inc.
- Anderson, Jenny. 2005. "AIG Posts 44% Earnings Rise Under New Leader." *The New York Times*. June 29, 2005. Retrieved from: www.nytimes.com.
- Anderson, Jenny. 2006. "A Good Year, for the Record." *The New York Times*. January 6, 2006.
- Anderson, Jenny and Michael J. de la Merced. 2007. "13 Accused of Trading As Insiders." *The New York Times*. March 2, 2007.
- Anderson, Jenny. 2008. "Shares of Lehman Take a Beating as Anxiety Builds in the Mortgage Market." *The New York Times*. July 11, 2008.
- Anderson, Jenny, Michael J. de la Merced, Louise Story, and Ben White. 2008. "Lehman's Fate is in Doubt as Barclays Pulls Out of Talks." *The New York Times*. September 13, 2008.
- Anderson, Jenny and Louise Story. 2008. "As Losses Mount, the Fed and the White House Step up Fortunes Reverse for a Bank and Its Leader." *The New York Times*. June 10, 2008.
- Andrews, Edmund L. 2008. "In Sweeping Move, Fed Backs Buyout and Wall St. Loans." *The New York Times*. March 17, 2008.
- Andrews, Edmund L. 2008. "Senators Seek Details About Bear Stearns Deal." *The New York Times*. March 27, 2008.
- Andrews, Edmund, L., Michael J. de la Merced, and Mary Williams Walsh. 2008. "Fed in an \$85 Billion Rescue of an Insurer Near Failure." *The New York Times*. September 17, 2008.
- Andrews, Edmund, L. and Stephen Labaton. 2008. "Split Is Forming Over Regulation Of Wall Street." *The New York Times*. March 23, 2008.
- Arens, Alvin A. and James K. Loebbecke. 1997. *Auditing: An Integrated Approach*. 7th ed. NJ: Prentice Hall.
- Arinaminpathy, Nimalan, Sujit Kapadia, and Robert M. May. 2012. "Size and complexity in model financial systems." *Proceedings of the National Academy of Science of the United States of America* 109 no. 45: 18338-18343.
- Arora, Sanjeev, Boaz Barak, Markus Brunnermeier and Ge Rong. 2011. "Computational Complexity and Information Asymmetry in Financial Products." *Communications of the ACM* 54 no. 5: 101-107. DOI: 10.1145/1941487.1941511

- Ba, Heather. 2021. "Hegemonic instability: Complex Interdependence and the Dynamics of Financial Crisis in the Contemporary International System." *European Journal of International Relations* 27 no. 2: 369-402.
- Bajaj, Vikas, Jenny Anderson, and Steven R. Weisman. 2008. "Fears that Bear Stearns' Downfall May Spread." *The New York Times*. March 17, 2008.
- Banking Act of 1933, H.R. 5661 Public – No. 66, Chapter 89 of the 73rd Congress 1st Session. June 16, 1933. Retrieved June 2022: [COMPS-255.pdf \(govinfo.gov\)](https://www.govinfo.gov/comps-255.pdf)
- Barr, Michael, Neel T. Kashkari, Andreas Lehnert, and Phillip Swagel. 2020. "Crisis-Era Housing Programs" In *First Responders*, edited by Ben S. Bernanke, Timothy E. Geithner, Henry M. Paulson, Jr. and J. Nellie Liang, 320 – 358. New Haven: Yale University Press, 2020.
- BBC News. 2018. Business: "Amazon 2017 Sales Jump by Nearly a Third." *BBC News*. February 1, 2018. Retrieved from: <https://www.bbc.com/news/business-42911123>
- Beatty, Jeffery F., and Susan S. Samuelson. 2010. *Introduction to business law*. 3rd ed. Ohio: South-Western Cengage Learning.
- Behr, Peter. 2002. "Looking for Answers in the Enron Story." *Nieman Reports* 56 no. 2: 8-9.
- Bernanke, Ben S., Timothy F. Geithner, and Henry M. Paulson, Jr. 2019. *Firefighting: The Financial Crisis and Its Lessons*. New York: Penguin Books.
- Birz, Gene and John R. Lott Jr. 2011. "The effect of macroeconomic news on stock returns: New evidence from newspaper coverage." *Journal of Banking & Finance* 35: 2791-2800.
- Blundell-Wignall, Adrian 2017. "Complexity and the financial system." In *Debate the Issues: Complexity and Policy Making, OECD Insights*, edited by Patrick Love and Julia Stockdale-Otarola, 61-65. Paris: OECD Publishing, 2017.
<http://dx.doi.org/10.1787/9789264271531-en>.
- Briloff, Abraham. J. 1952. "Classification in Accounting." *New York Certified Public Accountant* 22 no. 7: 386.
- Browning, Lynnley. 2005. "Obscure Offshore Entities Emerge to Trouble A.I.G." *The New York Times*. April 1, 2005. Retrieved from: www.nytimes.com.
- Carsens, Deborah Sater and Gary Vandlandingham 2015. "Through a Glass, Darkly: The Promise and Reality of State Transparency Websites." *Online Journal of Applied Knowledge Management* 3 no. 1: 37-50.

- Chu, Heting. 2021. "Chapter 9 Content Analysis." In *"Research Methods and Design: From Principles to Practice."* Unpublished book manuscript. New York: Taylor & Francis.
- Craig, Susanne. 2006. "Moving the Market-Wall Street Earnings: Bear Stearns Profits Surges 81%, Driven by Bond and Stock Trading." *The Wall Street Journal*. June 16, 2008.
- Craig, Susanne. 2008. "Lehman Finds Itself In Center of a Storm." *The Wall Street Journal*. March 18, 2008.
- Craig, Susanne. 2008. "Losses Push Lehman to Weigh Raising New Capital." *The Wall Street Journal*. June 3, 2008.
- Craig, Susanne. 2008. "The Financial Crisis: Lawmakers Lay Into Lehman CEO; Field Testifies That He Didn't Deceive Investors Ahead of Firm's Bankruptcy Filing." *The Wall Street Journal*. October 7, 2008.
- Creswell, Julie. 2007. "Bear Stearns Told to Pay \$160 Million to Investors." *The New York Times*. February 16, 2007.
- Doyle, Gillian (2006). "Financial news journalism: a post-Enron analysis of approaches towards economic and financial news production in the UK." *Journalism: Theory, Practice and Criticism* 7 no. 4: 433-452.
- Easton, Peter D., Mary Lea McAnally, and Gregory A. Sommers. 2021. *Financial Statement: Analysis & Valuation*. 6th ed. IL: Cambridge Business Publishers.
- Easton, Peter D., Robert F. Halsey, and Mary Lea McAnally. 2021. "Analyzing and Interpreting Financial Statements," In *Financial & Managerial Accounting for MBAs*. 6th ed. 1-61. IL: Cambridge Business Publishers, 2020.
- Easton, Peter D., Robert F. Halsey, and Mary Lea McAnally. 2021. *Financial & Managerial Accounting for MBAs*. 6th ed. IL: Cambridge Business Publishers.
- Eavis, Peter and David Reilly. 2008. "Bear's Fall Sparks Soul Searching: At a Certain Point Wall Street Firms Are 'Buys' but When?" *The Wall Street Journal*. March 18, 2008.
- Egan, Matt. 2018. The stunning downfall of Bear Stearns and its bridge-playing CEO. *CNN Business*. Retrieved from: <https://www.cnn.com/2018/09/30/investing/bear-stearns-2008-crisis-jimmy-cayne/index.html>
- Enrich, David, Carrick Mollenkamp, Damain Paletta, and Jon Hilsenrath. 2008. U. S. agrees to rescue struggling Citigroup. *The Wall Street Journal*. Retrieved from www.wsj.com/articles
- Fertakis, John P. (1969). "On Communication, Understanding, and Relevance in Accounting Reporting." *The Accounting Review* 44 no. 4: 680-691.

- Financial Crisis Inquiry Commission. 2010. *Public Hearing on the Shadow Banking System, Dirksen Senate Office Building*. Washington DC: May 5, 2010. Accessed Dec 1, 2021. <https://fcic.law.stanford.edu/hearings/testimony/the-shadow-banking-system>
- Financial Crisis Inquiry Commission. 2010. *Public Hearing on the Role of Derivatives in the Financial Crisis*. Washington DC: June 30, 2010. Accessed Dec 1, 2021.
- Financial Crisis Inquiry Commission. 2011. *The Financial Crisis Inquiry Report: Final Report Of the National Commission on the Causes of the Financial and Economic Crisis in the United States*. New York: Public Affairs.
- Frankfort-Nachmias, Chava, David Nachmias, and Jack DeWaard. 2015. *Research Methods in the Social Sciences*. 8th ed. New York: Worth Publishers.
- Galbraith, John Kenneth. (2009). *The Economics of Innocent Fraud: Truth of Our Time*. London: Penguin.
- Geithner, Timothy. F. 2014. *Stress test: reflections on financial crises*. New York: Broadway Books.
- Geraci, Marco Valerio. 2017. "Essays on Complexity in the Financial System." *Universite Libre de Bruxelles, ULB Institutional Repository*.
- Giles, Matt. 2008. "Ten years ago, Wall Street collapsed." *The New York Times*. September 15, 2008. Retrieved from: www.nytimes.com.
- Girardi, Giulio, Craig Lewis, and Mila Getmansky. 2014. "Interconnectedness in the CDS Market." *U.S. Securities and Exchange Commission*. Retrieved June 2022: https://www.sec.gov/dera/staff-papers/white-papers/28apr14_girardi_interconnectedness-in-the.html
- Glassman, Cynthia A. 2002. "Speech by SEC Commissioner: Opening Remarks before the Symposium on Enhancing Financial Transparency." *U.S. Securities and Exchange Commission*. Retrieved June 30, 2022. <https://www.sec.gov/news/speech/spch565.htm>
- Gleeson-White, Jane. 2011. *Double entry: How the Merchants of Venice Created Modern Finance*. New York: W. W. Norton & Co.
- Hadi, Mohammed. 2007. "Profit Hopes Attract Activity in Brokerages." *The Wall Street Journal*. June 12, 2007.
- Hilsenrath Jon, Serena Ng, and Damian Paletta. 2008. "Worst Crisis Since '30s With No End Yet in Sight." *The Wall Street Journal*. September 18, 2008. Retrieved from: www.wsj.com.

- Horowitz, Jed, Gaston F. Ceron, Randall Smith. 2006. "Moving the Market: Lehman Net Jumps but Disappoints; Bear Just Jumps." *The Wall Street Journal*. December 16, 2008.
- Hurst, Charles E., Heather M. Fitzgibbon, Anne M. Nurse. 2020. *Social Inequality: Forms, Causes, and Consequences*. 10th ed. New York: Routledge.
- H. R. 4173 – Dodd-Frank Wall Street Reform and Consumer Protection Act, 111th Congress, (2009 – 2010). Retrieved from: <https://www.congress.gov/bill/111th-congress/house-bill/4173/text>
- Irwin, Neil. 2015. "What is Glass-Steagall? The 82-year-old banking law that stirred the Debate." *The New York Times*. October 14, 2015 Retrieved from: www.nytimes.com.
- Irwin, Neil. 2020. "Did America Learn Anything From the Last Economic Crisis?" *The New York Times*. April 24, 2020. Retrieved from: www.nytimes.com.
- Jackson, Michael C. 2003. *Systems Thinking: Creative Holism for Managers*. NJ: John Wiley & Sons.
- Jensen, Klaus Bruhn. (1987). "News as Ideology: Economic Statistics and Political Ritual in Television Network News." *Journal of Communication* 37 no.1: 8-27.
- Kalogeropoulos, Antonis. (2018). "Economic News and Personal Economic Expectation." *Mass Communication and Society* 21, no. 2: 248-265.
- Karnitschnig, Matthew, Deborah Solomon, Liam Plevin, and Jon Hilsenrath. 2008. "U.S. to take over AIG in \$85 billion bailout; central banks inject cash as credit dries up." *The Wall Street Journal*. September 16, 2008. Retrieved from: <https://www.wsj.com/articles/SB122156561931242905>
- Kelly, Kate. 2007. "Lifeline: Bear Stearns Bails Out Fund With Big Loan; Injection of \$3.2 Billion Caps Day of Drama; Subprime Sector Fears." *The Wall Street Journal*. June 23, 2007.
- Kelly, Kate. 2007. "Wall Street Gets Bearish about ... Itself; Earnings downgrade made on Bear Stearns may not be last." *The Wall Street Journal*. May 25, 2007.
- Kelly, Kate. 2008. "Two Ex-managers At Bear Indicted Over Hedge Funds." *The Wall Street Journal*. June 20, 2008.
- Kelly, Kate, Amir Efrati, and Ruth Simon. 2008. "State Subprime Probe Takes a New Tack." *The Wall Street Journal*. January 31, 2008.
- Kelly, Kate, Greg Ip, and Robin Sidel. 2008. "Fed Races to Rescue Bear Stearns In Bid to Steady Financial System; Storied Firm Sees Stock Plunge 47%; J.P. Morgan Steps in." *The Wall Street Journal*. March 15, 2008.
- Kelly, Kate, and Jed Horowitz. 2007. "Earnings Digest – Financial Services: Lehman Net Resists Loan Troubles; Business Mix, Hedging Lift Profit to a Record Despite Subprime Fears." *The Wall Street Journal*. March 15, 2007.

- Kelly, Kate and Serena Ng. 2007. "Subprime Woes Pinch Bear's Mortgage Star; Risky Funds Big Loss Forces a Bond Auction; Goldman Profit Diverges." *The Wall Street Journal*. June 15, 2008.
- Kenton, Will. 2019. Annual report. *Investopedia*. May 24, 2019. Retrieved from: <https://www.investopedia.com/terms/a/annualreport.asp>
- Keiso, Donald E., Jerry J. Weygandt, and Terry D. Warfield. 2019. *Intermediate Accounting*. 17th ed. NJ: John Wiley & Sons, Inc.
- Kimmel, Paul D., Jerry J. Weygandt, and Donald E. Kieso. 2019. "Chapter 11 Reporting and Analyzing Stockholders' Equity." In *Financial Accounting: Tools for Business Decision Making*. 9th ed., 1-56. NJ: John Wiley & Sons, Inc.
- Kimmel, Paul D., Jerry J. Weygandt, and Jill E. Mitchell. 2022. "Chapter 2 A Further Look at Financial Statements." In *Financial Accounting: Tools for Business Decision Making*. 10th ed., 1-47. NJ: John Wiley & Sons, Inc.
- Kimmel, Paul D., Jerry J. Weygandt, and Jill E. Mitchell. 2022. "Chapter 10 Reporting and Analyzing Liabilities." In *Financial Accounting: Tools for Business Decision Making*. 10th ed., 1-60. NJ: John Wiley & Sons, Inc.
- Kitch, Carolyn. 2007. "Selling the 'Authentic Past': *The New York Times* and the Branding of History." *Westminster Papers in Communication & Culture* 4, no. 4: 24-41.
- Krippendorff, Klaus. 2013. *Content Analysis: An Introduction to Its Methodology*. 3rd ed. Los Angeles: Sage.
- Krippendorff, Klaus. 2019. *Content Analysis: An Introduction to Its Methodology*. 4th ed. Los Angeles: Sage.
- Larsen, Sven. 2015. "The Great Recession could happen again soon, and this time it could be worse for U.S." *The Street*. Retrieved from: www.thestreet.com.
- Laudon, Kenneth, C., and Jane P. Laudon. 2007. *Management Information Systems: Managing the Digital Firm*. 9th ed. New York: Pearson Education, Inc.
- Levitz, Jennifer and Kate Kelly. 2007. "Bear Faces First Loss, Fraud Complaint." *The Wall Street Journal*. November 15, 2007.
- Lioudis, Nick. 2019. The collapse of Lehman Brothers: a case study. *Investopedia*. Retrieved from: <https://www.investopedia.com/articles/economics/09/lehman-brothers-collapse.asp>
- Luccetti, Aaron. 2009. "Big Paydays for Lehman, Bear." *The Wall Street Journal*. November 23, 2009.
- Malkiel, Burton, G. (2003). "The Efficient Market Hypothesis and Its Critics." *Journal of*

Economic Perspectives 17, no.1: 59-82.

- Marden, Ronald. E., Randall K. Edwards, and William D. Stout. 2006. The CEO/CFO Certification Requirements. *The CPA Journal*. Retrieved from: <http://archives.cpajournal.com/2003/0703/features/f073603.htm>
- Mayer-Schonberber, Viktor and David Lazer. 2007. *Governance and information technology*. London: The MIT Press.
- McCallig, John, Alastair Robb, and Fiona Rohde. (2019). "Establishing the representational Faithfulness of financial accounting using multiparty security, network analysis, and a Blockchain." *International Journal of Accounting Information Systems* 33: 47-58.
- McConnell, Campbell R., and Stanley L. Brue. 1996. *Economics*. 13th ed. New York: McGraw-Hill, Inc.
- McGee, Robert W., and Danielle N. Igoe. 2009. The Timeliness of Financial Reporting. A Comparative Study of Selected EU and Transition Economy Countries. *Corporate governance in transition economies*. Boston: Springer Science.
- Miller, Roger, L., and Frank B. Cross. 2013. *Business law*. 12th ed. Ohio: South-Western Cengage Learning.
- Minsky, Hyman, P. 1992. "The Financial Instability Hypothesis." The Jerome Levy Economics Institute of Bard College.
- Mishkin, Frederic S. 2019. *The Economics of Money, Banking, and Financial Markets*. 12th ed. New York: Pearson.
- Mohammed, Hadi. 2007. "Profit Hopes Attract Activity in Brokerages." *The Wall Street Journal*. June 12, 2007.
- Mollenkamp, Carrick, Susanne Craig, Serena Ng, and Aaron Lucchetti. 2008. "Lehman Files for Bankruptcy, Merrill sells, AIG Seeks Cash." *The Wall Street Journal*. September 16, 2008. Retrieved from: <https://www.wsj.com/articles/SB122145492097035549>
- Mollenkamp, Carrick and Mark Whitehouse. 2008. "Old-School Banks Emerge Atop New World Finance." *The Wall Street Journal*. September 16, 2008.
- Morgenson, Gretchen. 2007. "When Models Misbehave." *The New York Times*. June 24, 2007.
- Morgenson, Gretchen. 2008. "Credit Default Swap Market Under Scrutiny." *The New York Times*. August 10, 2008.
- Morgenson, Gretchen. 2008. "Rescue Me: A Fed Bailout Crosses a Line." *The New York Times*. March 16, 2008.

- Na'im, Ainun. (2006). "Special Purpose Vehicle Institutions: Their Business Natures and Accounting Implications." *Gadjah Mada International Journal of Business* 8, no.1: 1-19.
- Needles, Belverd, Henry R. Anderson, and James C. Caldwell. 1993. *Principles of accounting*. 5th ed. Boston: Houghton Mifflin Company.
- Needles, Belverd. E., Marian Powers, and Susan V. Crosson. 2014. *Principles of Accounting*. 12th ed. Mason: South-Western Cengage Learning.
- Nelson, Dean. 1990. "Business Day & the New York Times: New life for an old priority." *Newspaper Research Journal* 11, no. 4: 24-37.
- Neuendorf, Kimberly A. 2017. *The Content Analysis Guidebook*. 2nd ed. Los Angeles: Sage.
- Ng, Serena. 2007. "Wall Street Ponders Extent of the Woes At Other Firms." *The Wall Street Journal*. March 15, 2007.
- Norris, Floyd. 1999. Looking Back at the Crash of 29. *The New York Times*. Retrieved from: www.nytimes.com.
- Norris, Floyd. 2008. "F.D.R's Safety Net Gets a Big Stretch." *The New York Times*. March 15, 2008.
- Norris, Floyd. 2008. "Lehman's Assurances Ring Hollow." *The New York Times*. September 11, 2008.
- Osterland, Andrew. (2020). "Here are key ways the Coronavirus crisis differs from the Great Recession." *CNBC*. May 27, 2020. Retrieved from: <https://www.cnbc.com>
- Paulson Jr., Henry M. (2010). *On the Brink: Inside the Race to Stop the Collapse of the Global Financial System*. New York: Business Plus.
- Pena-Martel, Devora, Jeronimo Perez-Aleman, and Domingo Javier Santana-Martin. (2018). "The role of media in creating earnings informativeness: Evidence from Spain." *Business Research Quarterly* 21, no. 3: 168-179.
- Philbin, Brett. 2008. "Boeing Rides Higher But Bear Struggles; S&P Report Lifts Mood of Investors; Fannie, Freddie Up." *The Wall Street Journal*. March 14, 2008.
- Pleven, Liam and Randall Smith. "Dow's 360-92 Point Shudder; AIG, Morgan Stanley Show Subprime Losses Aren't Quite Over Yet." *The Wall Street Journal*. November 18, 2007.
- Reddy, Sudeep. 2008. "U.S. News: For Fed's Geithner, Rescue Ties Cut Both Ways." *The Wall Street Journal*. November 18, 2008.
- Reilly, David. 2008. "Assets Get Harder to Shake; Balance Sheets Can Swell Again Under Proposal." *The Wall Street Journal*. June 17, 2008.

- Reilly, David. 2008. "Crisis on Wall Street: In Crisis, Fingers Point At Mark-to-Mark Rule." *The Wall Street Journal*. September 19, 2008.
- Reilly, David. 2008. "Devil Is in Lack of Details; Earnings Releases From Big Banks Skip Balance Sheets." *The Wall Street Journal*. June 12, 2008.
- Reilly, David and Karen Richardson. 2007. "Subprime Detectives Search In Dark for Next Victim; Wall Street Can Bury Mistakes." *The Wall Street Journal*. August 2, 2007.
- Rich, Robert. 2013. The Great Recession. *Federal Reserve History*. Retrieved from: https://www.federalreservehistory.org/essays/great_recession_of_200709
- Romney, Marshall. B., and Paul J. Steinbart. 2018. *Accounting Information Systems*. 14th ed. Essex: Pearson Education Limited.
- Roush, Chris. 2008. "Unheeded Warnings." *American Journalism Review* 30, no. 6 34-39
- Sarbanes-Oxley Act Of 2002, Public Law 107-24 107th Congress (2002). Retrieved from: www.sec.gov.
- Sau, Lino. 2013. "Instability and Crisis in Financial Complex Systems." *Review of Political Economy* 25, no. 3: 496-511. <https://doi.org/10.1080/09538259.2013.807674>.
- Scannell, Kara, Siobhan Hughes, and David Reilly. 2007. "SEC Probes CDOs and Bear Funds; Cox Testifies the Agency Has 'About 12' Inquiries; Accurate Pricing Is an Issue." *The Wall Street Journal*. June 27, 2007.
- Scannell, Kara. 2008. "The Financial Crisis: Scope of Regulating Revamp is Likely to Widen; Derivatives Market Could Get Oversight As Fed Expands Role." *The Wall Street Journal*. September 16, 2008.
- Scannell, Kara and Sudeep Reddy. 2008. "The Fed Hits the Street; Brokerage Firms Get Cash – and On-site Scrutiny." *The Wall Street Journal*. April 3, 2008.
- Scannell, Kara and Sudeep Reddy. 2008. "Officials Say They Sought to Avoid Bear Bailout." *The Wall Street Journal*. April 4, 2008.
- Schwartz, Nelson and Stephen Labaton. 2008. "Struggling to Keep Up as the Crisis Raced On." *The New York Times*. October 22, 2008.
- Schifferes, Steve and Stephen Coulter. 2012. "Downloading disaster: BBC news online coverage of the global financial crisis." *Journalism* 14, no. 2: 228-252.
- Sidel, Robin, Greg Ip, Michael M. Phillips, and Kate Kelly. 2008. "The Week That Shook Wall Street, Inside the Demise of Bear Stearns." *The Wall Street Journal*. March 18, 2008.

- Smith, Randall, Amir Efrati, and Liam Plevin. 2008. "AIG Group Tied to Swaps Draws Focus of Probes." *The Wall Street Journal*. June 13, 2008.
- Solomon, Deborah. 2008. "U.S. News: Paulson Defends Moves, Questions Wall Street Pay." *The Wall Street Journal*. November 21, 2008.
- Sorkin, Andrew Ross. 2009. *Too Big to Fail*. New York: Penguin Books.
- Sorkin, Andrew Ross. 2020. "This Is the Only Way to End the Coronavirus Financial Panic." *The New York Times*. March 18, 2020. Retrieved from: www.nytimes.com.
- Sraders, Anne. 2018. "The Lehman Brothers Collapse and How it's Changes the Economy Today." *The Street*. September 12, 2018. Retrieved from: <https://www.thestreet.com/markets/bankruptcy/lehman-brothers-collapse-14703153>
- Starbucks Investor Relations. 2017. Press Releases: Starbucks Reports Q4 and Full Year Fiscal Results. *Starbucks Corporation*. Retrieved from: <https://investor.starbucks.com/press-releases/financial-releases/press-release-details/2017/Starbucks-Reports-Q4-and-Full-Year-Fiscal-2017-Results/default.aspx>
- Story, Louise. 2008. "At Lehman, Chief Excludes Confidence." *The New York Times*. June 17, 2008.
- Strycharz, Joanna, Nadine Strauss, and Damian Trilling. (2018). The Role of Media Coverage In Explaining Stock Market Fluctuations: Insights for Strategic Financial Communication." *International Journal of Strategic Communication* 12, no. 1: 67-85.
- The Organization for Economic Development. 2005. *OECD: Financial System: Compilation Guide on Financial Soundness Indicators, IMF*. Washington DC (par .2). Retrieved July 3, 2022: [OECD Glossary of Statistical Terms - Financial system Definition](https://www.oecd.org/glossary/financial-system-definition/)
- The New York Times Online. 2006. "Debt Trading Aids Earnings of Two Firms Of Wall Street." *The New York Times*. December 15, 2006.
- The New York Time Online. 2006. "Today in Business." *The New York Times*. December 15, 2006.
- The New York Times Online. 2007. "Housing and Hedge Funds." *The New York Times*. June 28, 2007.
- The New York Times Online. 2009. "Cox leaves mixed legacy at SEC." *The New York Times*. January 2, 2009.
- The New York Time Online. 2009. "How Lehman Brothers Got Its Real Estate Fix." *The New York Times*. May 2, 2009.

- The Wall Street Journal Online. 2008. "Surviving the Panic." *The Wall Street Journal*. September 16, 2008.
- Thomas Jr., Landon. 2007. "A Top Official at Bear Stearns Ousted Over Funds Implosion." *The New York Times*. August 6, 2007.
- Tunstall, Jeremy. (1971). *Journalists at Work: Specialist Correspondents*. London: Constable
- U.S Securities and Exchange Commission: the laws that govern the securities industry.
United States Securities and Exchange Commission: Retrieved from:
<https://www.sec.gov/answers/about-lawsshtml.html#secact1933>
- U.S. Securities and Exchange Commission. 2013. "The Need for Effective Regulation of the Asset-Backed Securities Market." August 28, 2013. Retrieved June 20, 2022:
[SEC.gov | The Need for Effective Regulation of the Asset-Backed Securities Market](https://www.sec.gov/answers/about-lawsshtml.html#secact1933)
- U.S. Securities and Exchange Commission. 2014. Interconnectedness in the CDS Market
https://www.sec.gov/dera/staff-papers/white-papers/28apr14_girardi_interconnectedness-in-the.html
- U.S. Securities and Exchange Commission. (2014). Investor Publications: Beginners' Guide to Financial Statements.
<https://www.sec.gov/oiea/reportspubs/investor-publications/beginners-guide-to-financial-statements.html#:~:text=Assets%20are%20things%20that%20a,%2C%20trucks%2C%20equipment%20and%20inventory.>
- U.S. Securities and Exchange Commission. (2015). *Investor Bulletin: An Introduction to the U.S. Securities and Exchange Commission – Rulemaking and Laws*.
https://www.sec.gov/oiea/investor-alerts-bulletins/ib_rulemaking.html
- U. S. Securities and Exchange Commission: EDGAR Full-text Search. *United States Securities And Exchange Commission*. Retrieved from: <https://www.sec.gov/edgar/search/>
- U. S. Securities and Exchange Commission. 2021. EDGAR search and access. *United States Securities and Exchange Commission*. Retrieved from:
<https://www.sec.gov/edgar/search-and-access>
- U. S. Securities and Exchange Commission: Exchange Act Reporting Registration. *United States Securities and Exchange Commission*. Retrieved from:
<https://www.sec.gov/smallbusiness/goingpublic/exchangeactreporting#:~:text=SEC%20rules%20require%20your%20company,statement%20for%20a%20public%20offering.>
- U. S. Securities and Exchange Commission: Form 10-K. *United States Securities and Exchange Commission*. Retrieved from:
<https://www.sec.gov/Archives/edgar/data/320193/000119312513416534/d590790d10k.ht>

- U. S. Securities and Exchange Commission. 2012. Historical EDGAR documents. United States Securities and Exchange Commission. Retrieved from:
<https://www.sec.gov/cgi-bin/srch-edgar>
- U. S. Securities and Exchange Commission: Investor publications – All About Auditors: What Investors Need to Know. *United States Securities and Exchange Commission*. Retrieved from:
<https://www.sec.gov/reportspubs/investor-publications/investorpubsaboutauditorshtm.html#:~:text=Who%20Prepares%20a%20Company's%20Financial,and%20disclosures%20to%20an%20audit.>
- U.S Securities and Exchange Commission. 2007. Investor Publications: Beginner’s Guide to Financial Statements. *United States Securities and Exchange Commission*. Retrieved from <https://www.sec.gov/reportspubs/investor-publications/investorpubsbegfinstmtguidehtm.html>.
- U. S. Securities and Exchange Commission. n.d. “Public Companies.” Accessed Oct 17, 2021.
<https://www.investor.gov/introduction-investing/investing-basics/how-stock-markets-work/public-companies>
- U. S. Securities and Exchange Commission. 2008. “SEC Advisory Committee Makes Recommendations to Improve Financial Reporting for Investors.” *U.S. Securities and Exchange Commission*: <https://www.sec.gov/news/press/2008/2008-166.htm>
- Walsh, Mary Williams. 2008. “Insurance on Lehman Debt Is the Industry’s Next Test.” *The New York Times*. October 11, 2008.
- Wang, Shaojie, Shaobo He, Amin Yousefpour, Hadi Jahanshahi, Robert Repnik, and Matjaz Perc. (2019). “Chaos and complexity in a fractional-order financial system with time delays.” *Elsevier Ltd* 131: 1-9.
<https://doi.org/10.1016/j.chaos.2019.10952>
- Warren, Carl S., James M. Reeve, and Jonathan E. Duchac. 2012. *Accounting*. 22 ed. Mason: South-Western Cengage Learning.
- Warren, Carl S., James M. Reeve, and Jonathan E. Duchac. 2016 *Corporate Financial Accounting*. 14th ed. Boston: Cengage Learning.
- Warren, Carl S., and Jefferson P. Jones. 2019. *Corporate Financial Accounting*. 15th ed. Boston: Cengage Learning.
- Wen, Chunhui and Jinhai Yang. 2019. “Complexity Evolution of Chaotic Financial Systems based in Fractional Calculus.” *Elsevier Ltd* 128: 242-251.
- Weisman, Steven R. 2008. “Bernanke to Face Bear Stearns Questions.” *The New York Times*. April 2, 2008.

- Weisman, Jonathan and Dan Fitzpatrick. 2009. "The AIG Controversy: Obama Seeks to Soften the Punitive Legislation." *The Wall Street Journal*. March 21, 2009.
- Wessel, David. (2009). *In Fed We Trust: Ben Bernanke's War On The Great Panic*. New York: Three Rivers Press.
- Westbrook, Lynn. 1994. "Qualitative Research Methods: A Review of Major Stages, Data Analysis Techniques. And Quality Controls." *Library & Information Science Research* 16: 241-254.
- Weygandt, Jerry J., Paul D. Kimmel, Donald E. Keiso. 2020. *Financial Accounting*. 11th ed.
- Whalen, Charles, J. (2001). "Integrating Schumpeter and Keynes: Hyman Minsky's Theory of Capitalist Development. *Journal of Economic Issues* 35, no. 4: 805-819.
- White, John D. and James L. Kroeker. 2008. "Testimony Concerning Transparency in Accounting, Proposed Changes to Accounting for Off-Balance Sheet Entities." *U.S. Securities and Exchange Commission*. Retrieved June 30, 2022.
<https://www.sec.gov/news/testimony/2008/ts091808jww-jlk.htm>
- White, Marilyn, D., and Emily E. Marsh. 2006. "Content Analysis: A Flexible Methodology." *Library Trends* 55, no. 1: 22-45.
- White, Stephanie, M. (2012). "Using Cybernetics with Soft Systems Methodology in Complex System Development." Paper presented at *IEEE International Systems Conference SysCon 2012*: 1-6.
<https://doi.org/10.1109/SysCon.2012.6189458>
- Wild, John J., Ken W. Shaw, and Barbara Chiapetta. 2013. *Fundamental Accounting Principles*. 21st ed. New York: McGraw Hill.
- Wild, John. J., Ken W. Shaw. Barbara Chiappetta. 2017. *Fundamental Accounting Principles*. 23rd ed. New York: McGraw Hill.
- Wildemuth, B. 2009. *Application of Social Research Methods to Questions in Information and Library Science*. Westport, CT: Libraries Unlimited.
- Wolf, Martin. 2014. *The Shifts and the Shocks: What We've Learned – and Have Still to Learn – from the Financial Crisis*. New York: Penguin Books.
- Zadorozhnyi, Zenovii-Mykhaylo, Iryna Ometsinska, and Volodymyr Muravskyi. (2021). "Determinants of Firm's Innovation: Increasing the Transparency of Financial Statements." *Marketing and Management of Innovations* 2: 74-86.

