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CAN CREDIT RATINGS CREATE VALUE FOR
THE ICELANDIC FINANCIAL MARKET?

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Abstract

Credit ratings are considered an important part of today’s financial markets and contribute to increased investor protection, market efficiency and transparency in the market. While ratings have come under criticism for the role they played in the financial crisis in 2008, their presence in modern financial markets is still considered important. Ratings have a short history in Iceland and their use is not highly established among market participants. This thesis examines whether any potential value could be created in the Icelandic financial market with increased usage of credit ratings. It, furthermore, analyzes whether international credit rating methodologies are valid when rating an Icelandic organization and how the financial crisis in 2008 affected the credit rating market and its subsequent effect on ratings in Iceland. The analysis was done by reviewing credit rating agencies, their role and assigned credit ratings they use. This involved examining prior research and conducting interviews with domestic market participants. The main results indicate that with increased usage, ratings could increase comparability between potential investments and improve investors' risk assessments and risk management. Moreover, ratings could potentially reduce the overall risk of the market and lower aggregated costs for market participants. Additional conclusions are that it is important to use similar rating methodologies as the larger international agencies to maintain comparability. The financial crisis also initiated a string of regulatory changes surrounding ratings that are likely to be introduced in the Icelandic market in the foreseeable future. Lastly, the way forward for credit ratings in Iceland is considered, by identifying steps that could assist with the proper establishment of ratings in the Icelandic financial market.

Keywords: Credit ratings, asymmetric information, market efficiency, credit risk, Icelandic financial market.
Declaration of Research Work Integrity

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature of any degree. This thesis is the result of my own investigations, except where otherwise stated. Other sources are acknowledged by giving explicit references. A bibliography is appended.

By signing the present document I confirm and agree that I have read RU’s ethics code of conduct and fully understand the consequences of violating these rules in regards of my thesis.

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Date and place Kennitala Signature
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1. Introduction

The Icelandic bond market is small in size and scope when compared to the bond market in the United States (US) or in many other European countries, the Icelandic bond market is, for an example, roughly, only 0.05% of the size of the US bond market (Securities Industry and Financial Markets Association, 2015; The Central Bank of Iceland, n.d.-d). Because of its small size and scope, the market is considered illiquid, highly volatile, and interdependent, thus making it inefficient in nature. It is, therefore, of interest whether the inherent values that have been identified in credit ratings could be transferred or used to assist the domestic market to operate more efficiently.

Credit ratings provide opinions on the creditworthiness of debt issues and issuers, and in doing so serve an important role in modern financial markets to reduce informational asymmetry between counterparties in debt security investments (e.g. investors and debt security issuers). Credit rating agencies (CRAs) create valuable information for both parties as ratings reduce aggregated costs for all involved. For example, ratings can reduce the borrowing costs for issuers and each interested investor does not have to conduct his own risk analysis (Dreibelbis & Breazeale, 2012). Furthermore, credit ratings provide important functions to enhance investor protection, market efficiency, and transparency (Langohr & Langohr, 2008, p. 89-90; McDaniel, 2002). Thus lowering uncertainty premiums and reducing costs for issuers, and increase the prices of securities.

When compared to other markets, credit ratings have a relatively short and limited history in Iceland and are not highly established among market participants. While credit ratings have been issued for over 100 years in the US (Sylla, 2002), the first credit rating issued in relation to Iceland was issued in 1986 when Standard & Poor’s (S&P) issued an unsolicited rating for the Icelandic government (The Central Bank of Iceland, n.d.-f). In contrast, the first published ratings were issued in the US, back in 1909, by John Moody. Since then, ratings have established themselves as an integral part of not only the US financial system, but also the worldwide financial system (Dreibelbis & Breazeale, 2012; White, 2010).

Since the late 1990s, larger organizations in Iceland have requested ratings from S&P, Moody’s, and Fitch to assist them in gaining access to international capital markets, e.g. to reduce the cost of borrowing and currency risk (The Central Bank of Iceland, n.d.-f).
1. Introduction

However, the first, and only, domestic CRA was not established in Iceland until 2010 when Reitun began issuing both unsolicited and solicited ratings for Icelandic issuers and issues (Reitun, n.d.-a).

While most research on credit ratings and the value they provide for financial markets has mostly been conducted in larger markets, where the markets are more liquid and efficient, it still does not necessarily reduce the potential value that credit ratings could create for the Icelandic financial market. For example, Elayan, Hsu, & Meyer (2003) found that credit ratings can be even more valuable for smaller markets as CRAs can act as substitute information providers. The study found that in smaller markets organizations are followed by fewer analysts and there is less information available to investors. The CRAs, therefore, can serve to fill this informational asymmetric gap between investors and debt issuers.

The aim of this thesis is to analyze credit ratings in Iceland and to study whether a further introduction, and usage, of domestic credit ratings could create value for the Icelandic financial market. The thesis also looks into whether international credit rating methodologies are valid methods of choice when rating an entity within Iceland and how credit rating methodologies changed, or were affected, due the global financial crisis, and potential effects it had on ratings in Iceland.

The review of the subject is split up into seven chapters, where domestic and international credit ratings are analyzed. The second chapter of this thesis is dedicated to an overview of credit ratings and what their role and functions are in today’s financial markets. Credit ratings are analyzed and reviewed in the context of the role and workings of CRAs, the interpretation of ratings, the size of the credit rating market, the effects of ratings on financial markets, and the evolution of rating methodologies through financial crises and scandals. Lastly, the chapter highlights the major criticisms directed at ratings and the CRAs. The third chapter examines the size and development of the Icelandic bond market, with a review of the market and its largest investors, the capital controls, and risk in small economies. Chapter four evaluates the credit rating process and methodologies. It starts with a general overview of ratings and then digs deeper into the more important criteria of ratings. The chapter ends with a review of the general credit rating analysis for corporations. In chapter five the role of credit ratings in the global financial crises is analyzed and chapter six demonstrates how international standards and regulatory frameworks have subsequently changed. Information
acquired from interviews with domestic market participants, regarding domestic ratings and markets, is presented and analyzed in chapter seven. The last chapter reviews the major findings of the thesis in relations to its implications with regards to the questions that it sought to answer.
Credit ratings are provided by agencies that specialize in evaluating credit risk. Ratings express the forward-looking opinion of CRAs regarding the creditworthiness of issuers or, in other words, ratings are intended to evaluate an issuer’s ability or willingness to uphold contractual repayments of financial obligations. A credit rating speaks to the credit quality of individual debt issues, such as corporate or municipal bonds, and the relative chances that the issues may default (Standard & Poor’s Financial Services, 2009; Standard & Poor’s Ratings Services, 2011). Previously issued credit ratings also change over time. Issuers and issues are upgraded or downgraded by CRAs when the likelihood of default, as assessed by the agencies, improves or deteriorates (Fabozzi, Modigliani, & Jones, 2010, p. 420-422).

“Credit rating agencies assign ratings to issuers, such as corporations and governments, as well as to specific debt issues, such as bonds, notes, and other debt securities” (Standard & Poor’s Ratings Services, 2011). According to Standard & Poor’s Ratings Services (2014a) credit ratings enable organizations and governments to raise money in capital markets instead of having to borrow from a bank (or banks) or directly from investors by issuing bonds in private offerings. In addition, to assisting entities to access financing in primary markets, ratings also aid debt securities to remain liquid for the long-run in secondary markets (Choudhry, 2008; Langohr & Langohr, 2008, p. 97; Nigro, Jones, & Aydogdu, 2010). Credit ratings are required by many individual and institutional investors seeking to purchase debt securities as they need to be adequately compensated for the amount of risk they take on. In the US regulated investors are limited to investments in highly rated debt securities. It is for these reasons that ratings are of significant importance, as a low rating may prevent institutional investors from even considering investing in a particular bond issue. As a consequence, the influence of ratings, and their agencies, is vast in today’s financial markets (Fabozzi et al., 2010; Partnoy, 1999; Sylla, 2002; White, 2010). Credit ratings reduce

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1 Credit risk refers to the risk that a borrower will fail to repay a loan or other obligations.
2 Default occurs when a debt issuer fails to make the required payments or honor his debt.
3 The primary market is the market where new securities are issued, and organizations obtain funding. The secondary market is where investors trade previously issued securities amongst each other (Fabozzi, Modigliani, & Jones, 2010, p. 296-303).
2. Credit Ratings

asymmetric information⁴, as they standardize information for all investors and stakeholders. Ratings also reduce aggregated cost for all involved as the cost of borrowing can be reduced for the issuer of a debt security and each lender should have a lesser need to conduct his own research on an issuer’s credit risk (Dreibelbis & Breazeale, 2012).

Furthermore, credit ratings are viewed as important functions to enhance investor protection, and market efficiency and transparency (McDaniel, 2002). The first function of credit ratings is to be an objective measure of the credit risk of the issuer’s business and its debt financing, and to resolve information asymmetry surrounding it. This is the original economic function of credit ratings. Asymmetric information is a fundamental issue in finance as two counterparties to a transaction might not have incentives to reveal all the relevant information to the other party. By reducing information asymmetry between borrowers and lenders, credit ratings enhance capital market efficiency and transparency. The more accurate ratings are in predicting underlying default, the less information asymmetry will be between investors and issuers and the more value it brings to its users. This is the function that issuers are most willing to pay for. The second function of ratings is to provide a means of credit risk comparisons between all organizations and debt issues. This is the function that investors are most willing to pay for as they seek to use ratings to structure their portfolios. Lastly, the third function is that credit ratings provide a common standard or language to market participants when referring to credit risk (Langohr & Langohr, 2008, p. 89-90).

The standard reasoning for government regulation of financial markets is that the market, if left to its own devices, will not work in an efficient manner and at the lowest possible cost. Efficient and low-cost markets are hallmarks of a perfectly competitive market⁵. Thus, a market that is unable to run in an efficient manner must be one that is not competitive and will not be able to gain that status by itself. Economists describe the reasons for regulation to be market failures. A market is said to fail if it is unable to, by itself, maintain the requirements for a competitive situation. This is why governments put in place and enforce

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⁴ “Information asymmetry describes the fact that the two parties in an economic transaction do not have access to the same information” (Langohr & Langohr, 2008, p. 90).
⁵ Economic theory describes a perfect competition market as a hypothetical market where no participants are large enough to have the market power to set the price of a homogeneous product (Parkin, 2010).
2. Credit Ratings

disclosure regulation. Disclosure regulations, for an example, require issuers of securities to publish large amounts of financial information to actual and potential investors. The rationale for enforcing disclosure of financial information is to decrease asymmetric information, as an organization’s management has access to much more information regarding the financial health and future of that organization than investors. This informational gap creates potential agency problems where the management might act in their own interest at the expense of investors. For example, a manager might have an incentive to take more risk to increase his chances of receiving certain salary bonuses, or to cover up prior period operational losses to save his job. Investor’s comparatively limited knowledge about an organization, therefore, can encourage and allow the agents to engage in such behavior and, therefore, decrease market efficiency (Brealey, Myers, & Allen, 2014, p. 295-314; Fabozzi et al., 2010, p. 12-13). Thus, by issuing independent ratings on organizations CRAs assist in reducing the informational gap between investors and managers and in turn increase market efficiency, as market participants are in a better position to, for an example, determine the current price of a security.

The fundamental principle of asset pricing in finance is that the price of an asset is equal to the present value of all future cash flows that the owners can expect to receive over the asset’s life. In general, the price of a financial asset is expressed or calculated by discounting all expected future cash flows as follows:

\[
P = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \ldots + \frac{CF_N}{(1+r)^N} \quad \text{(Equation 1)}
\]

- \( P \) = the price of the financial asset.
- \( CF_t \) = the cash flow in year \( t \) (\( t = 1, \ldots, N \)).
- \( N \) = maturity of the financial asset.
- \( r \) = appropriate discount rate.

(Fabozzi et al., 2010, p. 176)

The appropriate discount rate, \( r \), represents the return, or the yield, that the market requires on the asset. The price of an asset is inversely related to the discount rate (i.e. if the discount rate increases, the price of the security decreases). An approximate expression for the discount rate is as follows:
r = RR + IP + DP + MP + LP + EP (Equation 2)

Where
- RR = the real rate of interests, which is the reward for not lending to other users.
- IP = the inflation premium, which is the compensation for the expected decline in purchasing power of the money lent.
- DP = the default risk premium, which is the reward for taking on the risk of default in the case of a loan or bond or the risk of loss of principal for other assets.
- MP = the maturity premium, which is the compensation for lending money for long periods of time.
- LP = the liquidity premium, which is the reward for investing in an asset that may not be readily converted to cash at fair market value.
- EP = the exchange rate risk premium, which is the reward for investing in an asset that is not denominated in the investor’s home currency.

(Fabozzi et al., 2010, p. 176-177)

Equation 2, shows that credit ratings can assist market participants in determining the default premium, i.e. credit risk premium, of an investment, as ratings are in essence estimations of default (Standard & Poor’s Financial Services, 2009). The uncertain repayments of debt securities exposed to credit risk means that these securities, e.g. bonds, have, all else being equal, lower expected cash flow in real terms, or after being discounted with a higher discount rate, than matching risk-free securities, usually referring to Treasury bonds or bills, with the same promised yield (IImanen, 2012, p. 77). The liquidity premium can also be affected by credit ratings since a rated issue may benefit from having a larger base of potential investors, as many institutional investors are restricted from investing in unrated securities (Langohr & Langohr, 2008, p. 85; White, 2010). Investors place a higher liquidity premium on an asset with low liquidity\(^6\) to compensate them for the potential future difficulty of turning the asset into cash (Brealey et al., 2014, p. G-9). An asset with a credit rating may, therefore, have a lower liquidity premium than an unrated asset. The research supports this theory, as ratings have been shown to increase the liquidity of issued debt securities (Choudhry, 2008; Langohr & Langohr, 2008, p. 97; Nigro, Jones, & Aydogdu, 2010). Consequentially, an asset with a credit rating will have a lower default and liquidity premium and, therefore, will also

\(^6\) Liquidity refers to an investor’s ability to sell an asset on short notice for a price that is close to the market price (Brealey, Myers, & Allen, 2014, p. 735).
command a higher price. In the case of bonds, rated assets will, in general, call for a lower cost of borrowing (i.e. lower interest rate).

CRAs stipulate that credit rating reports only represent an opinion of about the creditworthiness of debt issuers, they are not intended as buy, hold or selling recommendations (Fitch Ratings, 2014; Moody’s Investor Service, 2006; Standard & Poor’s Financial Services, 2012a). Nevertheless, credit rating reports are fundamental for many investors (e.g. portfolio managers and institutions) when making purchasing and selling decisions regarding securities. Investors, for an example, use the ratings to make decisions regarding the relative safety (i.e. the chance of default) of an investment. Also, despite CRAs attempts to limit their liability regarding published ratings they still rely upon their reputation and the trust of investors for their services to remain in demand and to be able to remain profitable (Dreibelbis & Breazeale, 2012). Further, the global financial crisis, that started in 2007, demonstrated investors limited understanding of the complexities of credit ratings and their underlying risks, which led to an overreliance on ratings when making investment decisions (Bissoondoyal-Bheenick & Treepongkaruna, 2011).

The following sections are intended to provide an in-depth overview into credit ratings, with a review of their 100 year history in the US, compared to a short history in Iceland. That includes a detailed analyses of CRAs, their rating scales, rating users and business model, an examination of the correct interpretation of ratings, the size of the credit ratings market, the effect of ratings on financial markets, and how credit ratings have developed due to financial crises and scandals. The final section then takes a closer look at the major criticisms surrounding credit ratings.

2.1. History of Credit Ratings

The following two sections cover the development and origins of credit ratings and its much shorter history in Iceland.

2.1.1. Historical Overview

By the time the first CRA was established by John Moody, in the US in 1909 (Sylla, 2002), American investors had been buying bonds for one century (Sylla, 1998) and Dutch investors for three centuries (Dickson, 1967).
2. Credit Ratings

One of the major reasons for the late establishment of CRAs was a low demand, or need, for bond ratings. Most bond investing was in public, or sovereign, debt of nations and governments that investors trusted, most of the time, as being willing and able to honor their commitments. The historical development of how lenders, creditors, and equity investors acquire information about borrowers, debtors and equity shares that corporations issue is mostly originated from the US. In the 19th century, the US was in a different position from its European counter partners. While external capital needs of businesses in Europe were mostly met through bank loans and the issue of stocks, the capital need of the US was on a much grander scale as it sought to expand the railroad system across the North American continent (Sylla, 2002).

During the 19th century, three types of businesses emerged that published reports to inform investors and aid them in making better-educated investment decisions. These businesses were the specialized financial press, credit reporting agencies, and investment bankers. However, the published reports also had a second agenda to directly or indirectly put pressure on obligators to respect or fulfill their obligations. The large capital need of the US in the 19th century was to fund the building of railroads as they expanded across the North American continent. Railroad corporations were the US first big businesses, as they operated over a large geographical territory and employed groups of professional managers. That led to the publication of one of the first specialized business publication on record, the American Railroad Journal, which was started in 1832. In 1849, Henry Poor transformed it into a publication for investors specializing in railroads; when he became editor of the Journal to fulfill the information gap he had identified between lenders and creditors. Poor then went on to create his own firm, The Manual of the Railroads of the United States, which collected and published operating and financial results of US railroad companies, with its first publication starting in 1868. The Mercantile Agency, founded in 1841, was one of the first credit reporting agencies and it gathered information on the standings and creditworthiness of businesses all over the US, which it sold to subscribers. Before the first credit ratings appeared in 1909, investors relied more on the reputation of the investment banks that served as underwriters, purchasers and distributors of debt securities, to conduct an analysis on debt issuing corporations. Investment banks were trusted, to a more extent, to monitor the behavior and conduct of the issuing company, and to ensure that security issuers provided all relevant information related to the company’s operations. The investment banks even
sometimes, in fulfilling that role, insisted that the bank or its banking associates be granted a seat on the board of directors of corporations (Sylla, 2002). The fusion of the function performed by these three institutions led to the foundation of the CRA innovated by John Moody in 1909 (Langohr & Langohr, 2008; Sylla, 2002).

John Moody published the first available bond rating, which focused exclusively on railroad bonds. Moody was followed by the foundation of Poor’s Publishing Company in 1916, the Standard Statistics Company in 1922\(^7\), and the Fitch Publishing Company in 1924 (Partnoy, 1999; White, 2010). During the 1920s, bond investors supported and welcomed, in general, bond ratings and CRAs became a pricing mechanism for information. Valuable information was included in the ratings, but information that was viewed as worthless or excessively optimistic, by the CRAs, was not. At this time, the CRAs income came solely from subscription fees from investors and the agencies competed in gaining investors trust by building their respective reputation by showing independence, integrity and reliability. The CRA market had low entry barriers, at the time, and agencies rose and fell with their reputation and, therefore, issued inaccurate ratings at their own peril (Partnoy, 1999).

Moody was the first to assign letter credit rating grades to issuers and issues in a declining order of credit quality. However, the letter grades were not intended by Moody to have any specific meanings. The grades were, for example, not designed to mark categories of expected probability of default. In 1924, Fitch introduced the more familiar scale of “AAA” through “D” ratings that have become the industry benchmark (Wolfson & Crawford, 2010). By 1929, the credit rating systems and scales were well established. Ratings were divided into categories based on the credit quality of the rated security. A bond rating was intended to approximate the likelihood of default or delay of payments. The agency scales were similar in nature, with all agencies using three subcategories for each broad rating category (e.g. three levels of A’s, B’s and etc.) (Partnoy, 1999).

\(^7\) Poor’s Publishing Company merged with Standard Statistics in 1941 to form Standard and Poor’s.
In the 1930s, the importance and demand for ratings grew due to the stock market crash in 1929, as investors became more concerned with bond default rates and credit risk. The 1929 crash is perhaps best known for marking the onset of the Great Depression, which lasted for about a decade. Reliance on ratings in the 1930s was sufficient enough that higher rated bonds enjoyed more liquidity in the market and dealers purchased blocks of bonds when they anticipated that their ratings would be raised. However, the ratings were mostly used in the secondary market as most bond issues in the 1930s were not rated until after they were distributed in the primary market (Partnoy, 1999; Wolfson & Crawford, 2010).

The CRAs rise in the 1920s and 1930s did not extend over the next two decades. During the 1940s and 1950s, bond prices did not show much volatility, as the US economy remained stable and healthy, and few corporations defaulted (Partnoy, 1999). This sustained stability can, in part, be attributed to changes made in the aftermath of the crisis in 1929. New legislation was introduced designed to limit the risk-taking of banks. For example, the US passed the Glass-Steagall Act in 1933, also known as the Banking Act of 1933, which separated the operations of commercial and investment banking and guaranteed bank deposits up to a maximum amount of USD 2,500. At the time, the US government even considered to abandon the gold standard monetary system\(^8\) altogether (Ahamed, 2009, p. 309). The US economy was also boosted by World War II which started in 1939 (Horwitz & McPhillips, 2013; Steindl, 2007). The decreased volatility in US financial market led to a decreased demand for information regarding credit quality, and the CRAs, consequentially,

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\(^8\) The gold standard tied a currency to a very specific quantity of gold (Ahamed, 2009, p. 11).
suffered. In addition, the CRAs reputations had taken a hit as they had struggled to generate accurate credit ratings after the early 1930s (Partnoy, 1999).

The markets’ demand for more sophisticated financial and credit information started to grow in the 1960. For one, bond volatility increased, somewhat, during the Vietnam War. Second, the issuance of commercial papers increased in the 1960s, without accurate ratings or grading of issuers’ credit quality. In the fallout of Penn Central’s\(^9\) default on USD 82 million of commercial paper in 1970\(^{10}\), investors demanded more sophisticated research into debt issuers’ credit quality. Nevertheless, CRAs remained relatively small and an unimportant source of information for bond market participants (i.e. issuers and investors). This was mostly due to the CRAs being too small to handle the increased demand, and with the agencies having lost their reputation and trust of the market during the 1940s and 1950s, due to inaccurate ratings. In fact, a study of 207 corporate bond rating changes in the time period from 1950 to 1972 showed that rating changes of bonds had little or no informational value during the period. The lag between the change in the bond price due to new information and the corresponding change in the bonds rating was more than a year apart making the rating change irrelevant for market participants. This, apparent, failure of the rating agencies to generate reliable information in a timely manner, especially during times of crisis led to a public cry out for the government to start regulating the credit rating industry (Partnoy, 1999; Sylla, 2002).

In the 1930s, regulators at the US federal and state level began to use CRAs ratings for regulatory purposes, in light of the stock market crash in 1929. Although controversial at the time, the controversies died out during the following decades with US economic condition being in good health and few bond issues defaulting. By the late 1960s, US economic and financial conditions were becoming less stable and in the early 1970s, the practice of incorporating CRA ratings was revived and expanded. In 1973, the US Securities and Exchange Commission (SEC) declared that only ratings from CRAs that were designated as “Nationally Recognized Statistical Rating Organizations” (NRSROs) by the SEC were

---

\(^9\) An American railroad company and the 6\(^{th}\) largest corporation in the US.

\(^{10}\) Penn Central went into bankruptcy proceedings in June 21, 1970 and became the largest bankruptcy in US history.
deemed valid for the determination of the broker-dealers’ capital requirements (Sylla, 2002; White, 2010; Wolfson & Crawford, 2010).

This made ratings from NRSRO certified CRAs important for bond issuers, as it determined whether regulated financial intermediaries could buy the bonds and under what terms. This process led the CRAs to shift their revenue source from investors to issuers in the 1970s. From 1909 to the 1970s CRA revenues came from selling subscriptions to their ratings, but with the new regulations in place CRAs started to charge issuers of debt securities for ratings rather than the investors, as debt issuers now needed a rating from certified CRAs. (White, 2010; Wolfson & Crawford, 2010). During the 1970s, a new era of financial globalization also started to emerge, with flexible international exchange rates\footnote{Governments abandoned the gold standard monetary system.}, that led to new opportunities for CRAs, as the market grew (Sylla, 2002).

![Figure 1. Growth of the credit rating market from 1970 to 2013](Moody’s Investor Service, 2014)

With these two changes in the environment of CRAs the agencies laid the lines for the significant growth they have experienced from the 1970s to the modern day (Langohr & Langohr, 2008, p. 376-378; Sylla, 2002; White, 2010). In 1980, S&P employed 30 professionals, by 1995 S&P had 800 analysts with a total staff of 1,200, and in 2013 the number of employed analysts had grown to 1,465. Moody’s expanded at a similar rate, employing 560 analysts and a total staff of 1,700 in 1995, and by 2013 the number of analysts employed had grown to 1,244 (Sylla, 2002; The U.S. Securities and Exchange Commission,
2. Credit Ratings

2014b). During the same period, the number of rated organizations and sovereign nations grew significantly (see figures 1 and 2). For example, rated sovereign nations grew from only a handful in 1975 to over 120 in 2010.

![Figure 2. The number of foreign currency sovereign ratings by S&P from 1975 to 2010](source image)

The NRSRO certification created significant entry barriers into the credit rating market. Presently, there are only 10 NRSRO certified CRAs, despite the SEC easing its regulation regarding NRSRO certifications in 2006 (The U.S. Securities and Exchange Commission, 2014a). However, the SEC has refused to certify over 130 other agencies that have applied for NRSRO status (Wolfson & Crawford, 2010). Since the initiation of the NRSRO ruling, the credit rating market has grown significantly and today CRAs are considered an important pillar of the economic infrastructure of capital markets (Langohr & Langohr, 2008, 158). Nevertheless, the large entry barrier that the NRSRO regulation created has led three CRAs to provide over 90% of security ratings (OECD, 2010; The U.S. Securities and Exchange Commission, 2014b; Wolfson & Crawford, 2010).

2.1.2. History in Iceland

The Icelandic bond market is not only significantly smaller than in the US, it is also much younger. Indexed Government bonds have been issued since 1964. The first auction for Treasury bills and bonds in Iceland, however, was not conducted until 1992. Since then, bond auctions have become increasingly frequent and in the 1980s the Icelandic bond market grew significantly (Íslandsbanki, n.d.).
Interactions between Iceland and CRAs started in 1986 when S&P decided to categorize several countries that had no formal credit ratings at the time, to establish a base, or indication, of their overall credit rating. Iceland was placed in the second highest category at that time. The second category was for countries that were considered well capable of paying long-term sovereign foreign currency debt (The Central Bank of Iceland, n.d.-f).

In 1988, S&P re-evaluated Iceland’s grade and assigned them a conventional alphabetic credit rating, albeit with a further identifier with the letter “i”\(^\text{12}\). In March 1989, S&P gave Iceland a long-term sovereign rating of “Ai” and a short-term rating of “A-1”. Moody’s soon followed with its own rating in 1989 and gave Iceland an unsolicited rating\(^\text{13}\) of “A2” (The Central Bank of Iceland, n.d.-f).

Iceland’s formal credit rating history began when the Icelandic government requested, first from S&P in 1989 and then from Moody’s in 1990, ratings for Treasury bills that were to be issued in London. The Treasury bills received a short-term rating of “A-1” from S&P and “P-1” from Moody’s\(^\text{14}\).

The Icelandic government then formally asked Moody’s and S&P to assign the country a long-term credit rating in 1994 as it prepared for its first public bond issue in the US market in 1994. S&P gave Iceland a rating of “A” for long-term obligations and Moody’s a rating of “A2” (i.e. both agencies affirmed the previous unsolicited sovereign ratings), which both

\(^{12}\) The “i” refers to the fact that the rating is based in ISK, hence the letter “i” is added to the symbols.

\(^{13}\) A CRAs assessment of a borrower’s creditworthiness without any involvement of the borrower himself.

\(^{14}\) All alphabetic grades are defined and interpreted in tables 4 and 5.
confirmed Iceland’s strong capacity to meet financial commitments (The Central Bank of Iceland, n.d.-f).


Larger organizations in Iceland have requested ratings from Fitch, Moody’s, and S&P since the late 1990s to gain access to financing in international capital markets. In 1997, Íslandsbanki became the first private firm to gain a credit rating when it received an “A3” grade from Moody’s (Morgunblaðið, 1997). The government owned banks, Landsbankinn, Búnaðarbankinn, and FBA acquired ratings in 1998 and 1999, as the government began looking to privatize the banks (Hreinsson, Gunnarsson, & Benediktsdóttir, 2010). Besides the banks, The National Power Company of Iceland has, for an example, also had a rating since 1998, and had the same rating as the Icelandic government until 2009 when S&P downgraded its rating from a grade of “BBB-” to, a junk bond grade of, “BB” for foreign obligations (Landsbankinn, 2009; Landsvirkjun, 2009).

The financial crisis in 2008 marked a significant change in the Icelandic financial market, as the three largest domestic banks, Glitnir Bank, Landsbanki Íslands and Kaupþing Bank, all defaulted. It was, however, only in February 2007 that Moody’s had upgraded the three banks to its highest rating of “Aaa”, as the rating agency considered the banks systemically important and, therefore, the government would assist the banks if markets turned sour. Moody’s, just as Fitch and S&P, failed to adequately measure the correlation or interdependence of the Icelandic market, which led the ratings of the banks to be inflated, i.e. their creditworthiness was overestimated. Furthermore, the CRAs neglected to consider that the size and scope of the three banks had grown far beyond the size of the Icelandic government and that the government simply did not have the capabilities or resources to support the banks if they ran into troubles. As the financial crisis unfolded the banks all failed, Landsbanki Íslands and Glitnir Bank defaulted on October 7th and Kaupþing Bank on October 9th in 2008 (Hilmarsson, 2013; Hreinsson, Gunnarsson, et al., 2010; Moody’s Investor Service, 2009a).
2. Credit Ratings

Table 2. The ratings of Glitnir Bank, Landsbanki Íslands and Kaupþing Bank prior to the financial crisis

<table>
<thead>
<tr>
<th>Date</th>
<th>Glitnir</th>
<th>Landsbankinn</th>
<th>Kaupþing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>A3</td>
<td>A3</td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>A3</td>
<td>A3</td>
<td>A3</td>
</tr>
<tr>
<td>2000</td>
<td>A2</td>
<td>A3</td>
<td>A3</td>
</tr>
<tr>
<td>2001</td>
<td>A2</td>
<td>A3</td>
<td>A3</td>
</tr>
<tr>
<td>2002</td>
<td>A2</td>
<td>A3</td>
<td>A3</td>
</tr>
<tr>
<td>2003</td>
<td>A1</td>
<td>A3</td>
<td>A2</td>
</tr>
<tr>
<td>2004</td>
<td>A1</td>
<td>A2</td>
<td>A1</td>
</tr>
<tr>
<td>2005</td>
<td>A1</td>
<td>A2</td>
<td>A1</td>
</tr>
<tr>
<td>04.04.2006</td>
<td>A1</td>
<td>A2</td>
<td>A1</td>
</tr>
<tr>
<td>23.02.2007</td>
<td>Aaa</td>
<td>Aaa</td>
<td>Aaa</td>
</tr>
<tr>
<td>11.04.2007</td>
<td>Aa3</td>
<td>Aa3</td>
<td>Aa3</td>
</tr>
<tr>
<td>28.02.2008</td>
<td>A2</td>
<td>A2</td>
<td>A1</td>
</tr>
<tr>
<td>30.09.2008</td>
<td>Baa2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>08.10.2008</td>
<td>Caa1</td>
<td>Caa1</td>
<td></td>
</tr>
<tr>
<td>09.10.2008</td>
<td></td>
<td></td>
<td>Baa3</td>
</tr>
</tbody>
</table>

Source: (Hreinsson, Gunnarsson, et al., 2010)

Subsequent, research and court decisions have shown that the ratings of the banks had been misjudged by the CRAs. When the banks were privatized they had inherited the good grade of the state, and the CRAs failed to downgrade the banks once their creditworthiness decreased in the years leading up to the crisis (DekaBank Deutsche Girozentrale v. íslenska ríkinu, 2012; Hilmarsson, 2013; Hreinsson, Gunnarsson, et al., 2010). Today, the three banks all have a long-term “BB+” junk rating from S&P, with positive outlooks (Standard & Poor’s Ratings Services, n.d.-a, n.d.-b, n.d.-c).

The financial crisis also affected the rating of the Icelandic government in a negative way. In March 2008, the government had strong ratings from Moody’s, Fitch, and S&P, the government, for an example, had a long-term rating of “AA” from S&P for debt in domestic currency. In January 2015, the governments rating from S&P stood at “BBB-”, for debt in domestic currency, with positive outlooks (see tables in the appendix).

The first, and only, CRA in Iceland, was established in 2010 when Reitun began publishing credit rating reports. The agency has rating agreements with five domestic entities and also publishes unsolicited credit ratings on bonds issued by 29 corporations, municipalities, investment funds, and financial institutions in Iceland (Reitun, n.d.-a, n.d.-b, n.d.-c).

2.2. Credit Rating Agencies

Langohr & Langohr (2008, p. 158) state that: “Credit ratings have become a real pillar of the economic infrastructure of capital markets.” CRAs play a public interest role by strengthening this infrastructure when reducing information asymmetries between issuers and investors in an independent and objective way. Therefore, CRAs need to ensure
independence, as it is a prerequisite to guaranteeing objectivity in credit rating opinions (Langohr & Langohr, 2008, p. 375).

CRAs are differentiated along several dimensions: The extent and type of coverage (the geography and industry of issuers), methodology (statistical modeling or fundamental credit analysis), pricing model (issuer-pays or subscription), type of scale (ordinal with actual probability of default or cardinal with estimates of relative default probabilities\(^{15}\)), and size. Moreover, capital markets are constantly changing and evolving, varying in their expertise and coverage, so CRAs need to adapt constantly to fast-changing financial and regulatory environments (Langohr & Langohr, 2008, p. 388).

This section reviews the Big Three agencies that rule the international credit rating market and how that came about, what grading scales CRAs use, the users of credit ratings, and the CRAs business model.

2.2.1. The Big Three

The credit rating market is a natural oligopoly\(^ {16}\), where three CRAs control a significant portion of the market (OECD, 2010). The agencies are S&P, Moody’s and Fitch, or the Big Three. There are two main causes for this oligopoly market structure. The first cause relates to regulations which have historically decreased competition in the market by imposing high entry barriers for other CRAs. In 1973, the US introduced legislations that required regulated institutional investors to only invest in debt securities that were rated by NRSRO certified CRAs. At the time only three agencies, Fitch, Moody’s, and S&P, gained this NRSRO status. The NRSRO designation created such a significant entry barrier into the credit rating market, that for an extended period of time only those three CRAs operated as NRSROs. In fact, by year-end 2000 they were the only NRSRO certified CRAs in the market. The second cause is reputation. A strong reputation is necessary to operate in the credit rating market. S&P, Moody’s, and Fitch have existed in the industry for a long time, they have all been around

\(^{15}\) A cardinal number shows quantity and says how many of something there are, such as one, two, three, or four. An ordinal number refers to the order of something in a set, i.e. its relative ranking or position, such as first, second, third, etc.

\(^{16}\) Oligopoly is much like monopoly, but in an oligopoly there are at least two firms controlling the market.
for about 100 years, and this has created an entry barrier for new agencies with less experience to enter the credit rating market (White, 2010).

In 2006, the US eased the SEC regulations regarding NRSRO certifications. As a result, the number of CRAs certified as NRSRO by the SEC has increased to ten rating agencies (The U.S. Securities and Exchange Commission, 2014a).

![Figure 4. The Big Three’s market shares in the credit rating industry](source)

Source: (OECD, 2010)

However, even though the entry barriers for new CRAs have decreased with more agencies being NRSRO certified in the US the Big Three still account for more than 90% of the total credit rating market; S&P, Moody’s and Fitch share in the credit rating market is, respectively, about 40%, 39%, and 15%. (OECD, 2010; The U.S. Securities and Exchange Commission, 2014b). The Big Three’s share in total NRSRO revenues shows that they remain, by far, the largest players in the market.

<table>
<thead>
<tr>
<th></th>
<th>Fiscal Year Percentage of Total Reported NRSRO Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>2010</td>
</tr>
<tr>
<td>S&amp;P, Fitch and Moody’s</td>
<td>94.5%</td>
</tr>
<tr>
<td>All Other NRSROs</td>
<td>5.5%</td>
</tr>
</tbody>
</table>

Source: (The U.S. Securities and Exchange Commission, 2014b)

Table 3. The Big Three’s share of the total reported revenues of all NRSROs in 2013

The Big Three follow a similar pattern, they are large, have a global focus, and provide cross-industry, issuer, and instrument specific ratings. They take an analytical driven rating approach with committee reporting, use ordinal scales, and have an issuer-pays business model. Investors, in general, view the three agencies as equivalent, when it comes to choosing among them, though some biases and differences remain, especially when it comes to the more established incumbents (Langohr & Langohr, 2008, p. 388).
2.2.2. The Other Credit Rating Agencies

While the Big Three CRAs account for more than 90% of the credit rating market, they are far from being the only source available. There are around 150 CRAs in the industry and they, in general, consist of agencies that specialize in particular segments. These segments include specific industry focus, regional focus, model rating focus, and specialization in emerging market corporate debt (Langohr & Langohr, 2008, p. 384-403; OECD, 2010).

2.2.3. Rating Scales

2.2.3.1. Rating Scales of the Big Three

CRAs usually express their ratings, for both corporations and bond issues, with letter grades. Tables 4 and 5, list the credit rating letters used by the Big Three CRAs, their rating descriptions and creditworthiness.

<table>
<thead>
<tr>
<th>Moody’s</th>
<th>S&amp;P</th>
<th>Fitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term</td>
<td>Short-term</td>
<td>Long-term</td>
</tr>
<tr>
<td>Aaa</td>
<td>A-1+</td>
<td>A+</td>
</tr>
<tr>
<td>Aa1</td>
<td>A+</td>
<td>A</td>
</tr>
<tr>
<td>Aa2</td>
<td>A+</td>
<td>A</td>
</tr>
<tr>
<td>Aa3</td>
<td>A+</td>
<td>A</td>
</tr>
<tr>
<td>A1</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>A2</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>A3</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Baa1</td>
<td>BBB+</td>
<td>B-</td>
</tr>
<tr>
<td>Baa2</td>
<td>BBB</td>
<td>B-</td>
</tr>
<tr>
<td>Baa3</td>
<td>BBB</td>
<td>B-</td>
</tr>
<tr>
<td>Ba1</td>
<td>BB+</td>
<td>B-</td>
</tr>
<tr>
<td>Ba2</td>
<td>BB</td>
<td>B-</td>
</tr>
<tr>
<td>Ba3</td>
<td>BB</td>
<td>B-</td>
</tr>
<tr>
<td>B1</td>
<td>B+</td>
<td>B-</td>
</tr>
<tr>
<td>B2</td>
<td>B</td>
<td>B-</td>
</tr>
<tr>
<td>B3</td>
<td>B</td>
<td>B-</td>
</tr>
<tr>
<td>Caa1</td>
<td>CCC-</td>
<td>C</td>
</tr>
<tr>
<td>Caa2</td>
<td>CCC</td>
<td>C</td>
</tr>
<tr>
<td>Caa3</td>
<td>CCC</td>
<td>C</td>
</tr>
<tr>
<td>Ca</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>C</td>
<td>D</td>
<td>/</td>
</tr>
<tr>
<td>/</td>
<td>D</td>
<td>/</td>
</tr>
<tr>
<td>Not prime</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Prime</td>
<td>Investment grade</td>
<td></td>
</tr>
<tr>
<td>High grade</td>
<td>Investment grade</td>
<td></td>
</tr>
<tr>
<td>Upper medium grade</td>
<td>Investment grade</td>
<td></td>
</tr>
<tr>
<td>F1</td>
<td>Lower medium grade</td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td>Lower medium grade</td>
<td></td>
</tr>
<tr>
<td>F3</td>
<td>Lower medium grade</td>
<td></td>
</tr>
<tr>
<td>Non-investment grade speculative</td>
<td>Non-investment grade</td>
<td></td>
</tr>
<tr>
<td>Highly speculative</td>
<td>Non-investment grade</td>
<td></td>
</tr>
<tr>
<td>Substantial risks</td>
<td>Non-investment grade</td>
<td></td>
</tr>
<tr>
<td>Extremely speculative</td>
<td>Non-investment grade</td>
<td></td>
</tr>
<tr>
<td>Default imminent with little prospect for recovery</td>
<td>Non-investment grade</td>
<td></td>
</tr>
<tr>
<td>In default</td>
<td>Non-investment grade</td>
<td></td>
</tr>
</tbody>
</table>

Source: (Fitch Ratings, 2014; Moody’s Investor Service, 2006; Standard & Poor’s Financial Services, 2009)

Historically, the term “investment grade” has been used to describe debt securities (e.g. bonds and bills) that regulators and market participants view as suitable investments for financial institutions. Today, the term is used to describe issuers and issues with relatively high levels of creditworthiness and credit quality. However, the term “non-investment grade”, in general, refers to debt securities where the issue currently has the ability to repay but faces significant uncertainties, such as adverse business or financial circumstances that could affect their credit risk (Fabozzi et al., 2010, p. 420; Standard & Poor’s Ratings Services, 2011).
The metrics behind the letters are different from one CRA to another. Even if CRAs use identical symbols, they have different meanings. Therefore, a “B2” grade from Moody’s cannot be inferred to have the same default probability as a “B” grade from S&P. Every CRA uses its own metric or criteria to position securities on its rating scale (Langohr & Langohr, 2008, p. 49-50).

<table>
<thead>
<tr>
<th>Moody's</th>
<th>Standard &amp; Poor’s</th>
<th>Fitch</th>
<th>Credit worthiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aaa</td>
<td>AAA</td>
<td>AAA</td>
<td>An obligor has extremely strong capacity to meet its financial commitments.</td>
</tr>
<tr>
<td>Aa1</td>
<td>AA+</td>
<td>AA+</td>
<td>An obligor has very strong capacity to meet its financial commitments. It differs from the highest rated obligors only in small degree.</td>
</tr>
<tr>
<td>Aa2</td>
<td>AA</td>
<td>AA</td>
<td>An obligor has strong capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in higher-rated categories.</td>
</tr>
<tr>
<td>Aa3</td>
<td>AA−</td>
<td>AA−</td>
<td>An obligor has strong capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in higher-rated categories.</td>
</tr>
<tr>
<td>A1</td>
<td>A+</td>
<td>A+</td>
<td>An obligor has strong capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in higher-rated categories.</td>
</tr>
<tr>
<td>A2</td>
<td>A</td>
<td>A</td>
<td>An obligor has strong capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in higher-rated categories.</td>
</tr>
<tr>
<td>A3</td>
<td>A−</td>
<td>A−</td>
<td>An obligor has strong capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in higher-rated categories.</td>
</tr>
<tr>
<td>Baa1</td>
<td>BBB+</td>
<td>BB+</td>
<td>An obligor has adequate capacity to meet its financial commitments. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitments.</td>
</tr>
<tr>
<td>Baa2</td>
<td>BBB</td>
<td>BBB</td>
<td>An obligor has adequate capacity to meet its financial commitments. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitments.</td>
</tr>
<tr>
<td>Baa3</td>
<td>BBB−</td>
<td>BBB−</td>
<td>An obligor is less vulnerable in the near term than other lower-rated obligors. However, it faces major ongoing uncertainties and exposure to adverse business, financial, or economic conditions which could lead to the obligor’s inadequate capacity to meet its financial needs.</td>
</tr>
<tr>
<td>Ba1</td>
<td>BB+</td>
<td>BB+</td>
<td>An obligor is less vulnerable in the near term than other lower-rated obligors. However, it faces major ongoing uncertainties and exposure to adverse business, financial, or economic conditions which could lead to the obligor’s inadequate capacity to meet its financial needs.</td>
</tr>
<tr>
<td>Ba2</td>
<td>BB</td>
<td>BB</td>
<td>An obligor is less vulnerable in the near term than other lower-rated obligors. However, it faces major ongoing uncertainties and exposure to adverse business, financial, or economic conditions which could lead to the obligor’s inadequate capacity to meet its financial needs.</td>
</tr>
<tr>
<td>Ba3</td>
<td>BB−</td>
<td>BB−</td>
<td>An obligor is less vulnerable in the near term than other lower-rated obligors. However, it faces major ongoing uncertainties and exposure to adverse business, financial, or economic conditions which could lead to the obligor’s inadequate capacity to meet its financial needs.</td>
</tr>
<tr>
<td>B1</td>
<td>B+</td>
<td>B+</td>
<td>An obligor has more vulnerable than the obligors rated 'BB', but the obligor currently has the capacity to meet its financial commitments. Adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial obligations.</td>
</tr>
<tr>
<td>B2</td>
<td>B</td>
<td>B</td>
<td>An obligor has more vulnerable than the obligors rated 'BB', but the obligor currently has the capacity to meet its financial commitments. Adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial obligations.</td>
</tr>
<tr>
<td>B3</td>
<td>B−</td>
<td>B−</td>
<td>An obligor has more vulnerable than the obligors rated 'BB', but the obligor currently has the capacity to meet its financial commitments. Adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial obligations.</td>
</tr>
<tr>
<td>Caa</td>
<td>CCC</td>
<td>CCC</td>
<td>An obligor is currently vulnerable, and is dependent upon favourable business, financial, and economic conditions to meet its financial commitments.</td>
</tr>
<tr>
<td>Ca</td>
<td>CC</td>
<td>CC</td>
<td>An obligor is currently highly-vulnerable.</td>
</tr>
<tr>
<td>C</td>
<td>C</td>
<td>C</td>
<td>The obligor is currently highly-vulnerable to nonpayment. May be used where a bankruptcy petition has been filed.</td>
</tr>
<tr>
<td>C</td>
<td>D</td>
<td>D</td>
<td>An obligor has failed to pay one or more of its financial obligations (rated or unrated) when it became due.</td>
</tr>
</tbody>
</table>

Source: (Fitch Ratings, 2014; Moody’s Investor Service, 2009b; Standard & Poor’s Financial Services, 2009)

Credit ratings are primarily designed to express a relative ranking of overall creditworthiness among issuers and obligations. Each rating category is associated with a particular level of economic stress that it should be able to endure. For an example, an “Aaa” rated issue or organization would not be expected to default even under extreme stress conditions, such as the Great Depression, while a “Ba2” rated issue would not be expected to default under a modest level of stress in line with market conditions in the US in 2001 (Standard & Poor’s Ratings Services, 2010).
The actual average cumulative default rates for corporations in the period from 1981 to 2011 are shown in table 6. Based on this table, one could assume that there is a 4.59% chance that a “B” rated corporation, in the US, will default on its liabilities during its next operating year, and a 22.02% chance it will default at some point within the next five years. Table 7 further analyzes historical data regarding ratings, as it presents the recovery rates of senior unsecured bonds. From the table, it could be assumed that if an “Aaa” rated unsecured bond defaults in year 4, the investors will be expected to recover 61.88% of the principal and accrued interest.

Table 6. S&P’s corporate average cumulative default rates from 1981 to 2011 (%)

<table>
<thead>
<tr>
<th>Years</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
<td>0.00</td>
<td>0.04</td>
<td>0.17</td>
<td>0.30</td>
<td>0.43</td>
<td>0.56</td>
<td>0.61</td>
<td>0.67</td>
<td>0.80</td>
<td>0.90</td>
<td>0.96</td>
<td>1.01</td>
<td>1.07</td>
<td>1.19</td>
<td>1.32</td>
</tr>
<tr>
<td>AA</td>
<td>0.04</td>
<td>0.09</td>
<td>0.19</td>
<td>0.34</td>
<td>0.48</td>
<td>0.64</td>
<td>0.78</td>
<td>0.90</td>
<td>0.99</td>
<td>1.10</td>
<td>1.20</td>
<td>1.29</td>
<td>1.38</td>
<td>1.45</td>
<td>1.54</td>
</tr>
<tr>
<td>A</td>
<td>0.08</td>
<td>0.23</td>
<td>0.41</td>
<td>0.62</td>
<td>0.84</td>
<td>1.08</td>
<td>1.36</td>
<td>1.62</td>
<td>1.90</td>
<td>2.19</td>
<td>2.44</td>
<td>2.64</td>
<td>2.84</td>
<td>3.02</td>
<td>3.25</td>
</tr>
<tr>
<td>BBB</td>
<td>0.27</td>
<td>0.71</td>
<td>1.18</td>
<td>1.81</td>
<td>2.48</td>
<td>3.16</td>
<td>3.76</td>
<td>4.38</td>
<td>4.99</td>
<td>5.58</td>
<td>6.16</td>
<td>6.63</td>
<td>7.09</td>
<td>7.58</td>
<td>8.07</td>
</tr>
<tr>
<td>BB</td>
<td>0.96</td>
<td>2.93</td>
<td>5.31</td>
<td>7.53</td>
<td>9.50</td>
<td>11.46</td>
<td>13.13</td>
<td>14.65</td>
<td>16.03</td>
<td>17.23</td>
<td>18.21</td>
<td>19.08</td>
<td>19.82</td>
<td>20.43</td>
<td>21.14</td>
</tr>
<tr>
<td>B</td>
<td>4.59</td>
<td>10.29</td>
<td>15.22</td>
<td>19.06</td>
<td>22.02</td>
<td>24.41</td>
<td>26.37</td>
<td>27.94</td>
<td>29.31</td>
<td>30.61</td>
<td>31.75</td>
<td>32.67</td>
<td>33.51</td>
<td>34.28</td>
<td>35.06</td>
</tr>
<tr>
<td>CCC/C</td>
<td>27.58</td>
<td>38.13</td>
<td>44.28</td>
<td>48.19</td>
<td>51.09</td>
<td>52.43</td>
<td>53.59</td>
<td>54.47</td>
<td>55.66</td>
<td>56.51</td>
<td>57.34</td>
<td>58.23</td>
<td>59.18</td>
<td>60.00</td>
<td>60.00</td>
</tr>
</tbody>
</table>

Global

| AAA | 0.00| 0.03| 0.14| 0.25| 0.37| 0.49| 0.55| 0.64| 0.71| 0.78| 0.81| 0.85| 0.89| 0.97| 1.06 |
| AA  | 0.02| 0.07| 0.14| 0.26| 0.37| 0.49| 0.60| 0.69| 0.77| 0.86| 0.94| 1.01| 1.09| 1.17| 1.23 |
| A   | 0.08| 0.18| 0.32| 0.48| 0.66| 0.86| 1.10| 1.31| 1.53| 1.77| 1.97| 2.14| 2.30| 2.45| 2.66 |
| BBB | 0.24| 0.47| 1.13| 1.71| 2.30| 2.88| 3.38| 3.88| 4.38| 4.88| 5.41| 5.85| 6.30| 6.76| 7.22 |
| BB  | 0.90| 2.70| 4.80| 6.80| 8.61| 10.34| 11.85| 13.21| 14.49| 15.59| 16.49| 17.29| 17.97| 18.55| 19.24 |
| B   | 4.48| 9.55| 14.57| 18.15| 20.83| 23.00| 24.76| 26.19| 27.46| 28.70| 29.77| 30.65| 31.47| 32.22| 33.01 |
| CCC/C | 26.82| 35.84| 41.14| 44.27| 46.72| 47.82| 48.79| 49.66| 50.77| 51.65| 52.42| 53.26| 54.24| 55.13| 55.13 |

Source: (Standard & Poor’s Financial Services, 2012b)

2.2.3.2. National Rating Scales

Larger CRAs often have both national and international rating scales. The national rating scales (NRS) are denoted by a specific identifier for the country concerned, e.g. “AAA(arg)” for Argentina. The rating methodologies and scales utilized for the two types of scales are very similar. The key difference is that one scale measures an organization’s ability to meet

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17 Recovery rate is refers to the extent to which the principal and accrued interest on a debt security can be recovered.
obligations relative to a global peer group (i.e. an international rating scale), while the other measures its ability to meet obligations relative to the lowest credit risk within a country (i.e. a NRS) (Global Credit Ratings Co., n.d.). On an international rating scale, a country’s government usually has the lowest credit risk (i.e. highest rating) of organizations within a particular country, as governments, unlike organizations, possess the ability to print more domestic currency to keep from defaulting (Reinhart & Rogoff, 2009, p. 119-138).

NRSs are needed since international rating scales provide inadequate differentiation among issuers within a country, due to low sovereign ratings some markets. This is particularly an issue in emerging markets, such as in Africa (Global Credit Ratings Co., n.d.). Each NRS is unique and is defined to serve the needs of the domestic market in question. The NRS provides a relative measure of creditworthiness for rated organizations only within the country concerned. Under a NRS, an “AAA” rating is assigned to the entity with the lowest relative risk (i.e. the highest rating on international rating scale) within that country, which in most, but not all cases, will be the government. The government would then be assigned an “AAA” rating on the NRS and all other entities would be rated relative to the government. That is, other organizations within the country would be rated and ranked on the NRS in accordance to their perceived risk relative to that of the government, as the government, in this example, has the lowest perceived credit risk. A NRSs rarely include the effects of sovereign and transfer risk and exclude the possibility that investors may be unable to repatriate any debt obligations since the scale is not related to any other national market. Comparisons between different NRSs or between an individual NRS and international rating scales are therefore inappropriate and potentially misleading (Fitch Ratings, 2014; Moody’s Investor Service, 2009b).

NRSs, however, are accompanied by several specific limitations that include the following:

- NRS ratings are only available in selected countries.
- NRS ratings are opinions of the relative credit quality of issuers and issues within a particular country and are, therefore, only directly comparable with other national ratings in the same country. There is a certain correlation between national and international ratings, but there is not a precise translation between the scales. The implied probability of default of a particular NRS rating will vary over time.
- The value of default studies for national ratings can be limited due to the relative nature of NRS. A NRS rating is not intended to represent a fixed amount of default risk over time. As a result, a default study using only
national ratings may not provide an accurate picture of the historical relationship between ratings and default risk.
- Less confidence can be attached to conclusions about NRS default probabilities than for international credit ratings. There has not been conducted a comprehensive global study of the default history among entities with NRS to show that their ex-post default experience has been consistent with ex-ante probabilities implied. This is due to the relatively short history of ratings in emerging markets and the restrictive relative nature of the NRSs. (Fitch Ratings, 2014; Moody’s Investor Service, 2009b)

In February 2014, the Icelandic CRA, Reitun, changed its NRS to better align its ratings to that of the Big Three (see table 8). Reitun’s scale had been significantly different from the scale used by the Big Three but due to pressure from domestic debt issuers and investors the agency instituted the aforementioned change. The agency ratings are based on a domestic comparability and risk-based from the viewpoint of an investor in the domestic market and in ISK (hence the letter “i” is added to the rating symbols). In Reitun’s scale, the Icelandic government automatically receives a rating of “i.AAA” as it is viewed as the best domestic debt issuers in ISK (i.e. it has the best rating on international rating scales). Other issuers receive a weaker rating based on how their credit risk compares to that of the government. The ratings reflect the likelihood of default and levels of recovery in the case of a default (Reitun, 2014).

Reitun compiled a NRS to increase default differentiation between domestic organizations. According to the CRA, if domestic organizations were only rated on international rating scales then most of them would fall into the two rating categories below the Icelandic government’s rating, making risk comparisons between two or more Icelandic entities difficult. For example, if all Icelandic entities were only located in two adjacent rating grades on an international rating scale, say “BB” and “BB-”, it would provide investors with no real way to differentiate between the risks of two or more investments.
2. Credit Ratings

Table 8. Credit rating symbols used by Reitun to describe bond quality and descriptions for the symbols, before and after Reitun changed its rating scale in 2014

<table>
<thead>
<tr>
<th>Reitun Long-term</th>
<th>Rating description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old A+</td>
<td>i.AAA Prime</td>
</tr>
<tr>
<td>New A</td>
<td>i.AAA Prime</td>
</tr>
<tr>
<td>A</td>
<td>i.AA1</td>
</tr>
<tr>
<td></td>
<td>i.AA2</td>
</tr>
<tr>
<td></td>
<td>i.AA3</td>
</tr>
<tr>
<td>A-</td>
<td>i.A1</td>
</tr>
<tr>
<td></td>
<td>i.A2</td>
</tr>
<tr>
<td></td>
<td>i.A3</td>
</tr>
<tr>
<td>B+</td>
<td>i.BBB1</td>
</tr>
<tr>
<td>B</td>
<td>i.BBB2</td>
</tr>
<tr>
<td></td>
<td>i.BBB3</td>
</tr>
<tr>
<td>B-</td>
<td>i.BB1</td>
</tr>
<tr>
<td>C+</td>
<td>i.BB2</td>
</tr>
<tr>
<td></td>
<td>i.BB3</td>
</tr>
<tr>
<td>C</td>
<td>i.B1</td>
</tr>
<tr>
<td></td>
<td>i.B2</td>
</tr>
<tr>
<td>C-</td>
<td>i.B3</td>
</tr>
<tr>
<td>D+</td>
<td>i.CCC1</td>
</tr>
<tr>
<td>D</td>
<td>i.CCC2</td>
</tr>
<tr>
<td></td>
<td>i.CCC3</td>
</tr>
<tr>
<td>D-</td>
<td>i.C</td>
</tr>
<tr>
<td></td>
<td>i.D</td>
</tr>
</tbody>
</table>

Source: (Reitun, 2014)

2.2.4. Credit Rating Users

Standard & Poor’s Ratings Services (2014a) identifies four credit rating users: Investors, intermediaries (i.e. investment banks that facilitate the flow of capital from investor to issuer), issuers (e.g. corporations, financial institutions, states, cities, and national governments), and businesses and financial institutions.

Table 9. How credit rating users utilize the information, i.e. the ratings

<table>
<thead>
<tr>
<th>Investors</th>
<th>Intermediaries</th>
<th>Issuers</th>
<th>Businesses and financial institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enables comparison of different issuers and debt issues when making investment decisions and managing their portfolios</td>
<td>Use to benchmark the relative credit risk of different debt issues</td>
<td>Use to provide independent views of their creditworthiness and the credit quality of their debt issues</td>
<td>Use to assess counterparty risk, i.e. the potential risk that a party to an agreement may not fulfill its financial obligations</td>
</tr>
<tr>
<td>Supplement for own credit analysis of specific debt issues</td>
<td>Use to set the initial pricing for individual debt issues they structure</td>
<td>Use to help communicate the relative credit quality of debt issues, thereby expanding the universe of investors</td>
<td>Assists businesses to analyze their credit exposure to financial firms that have agreed to assume certain financial obligations</td>
</tr>
<tr>
<td>Assists to evaluate risk tolerance</td>
<td>Assist to determine the interest rate that issues will pay</td>
<td>May assist them to anticipate the interest rate to be offered on new debt issues</td>
<td>Assists to evaluate the viability of potential partnerships and other business relationships</td>
</tr>
<tr>
<td>Used to establish thresholds for credit risk and investment guidelines</td>
<td>May evaluate a rating agency’s criteria to understand the agency’s approach towards rating different debt issues or tiers of debt</td>
<td>The more creditworthy an issuer or issue is, the lower the interest rate that the issuer would typically have to offer, and vice versa</td>
<td></td>
</tr>
<tr>
<td>Indication of credit quality</td>
<td>Assists to assess credit risk</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: (Standard & Poor’s Ratings Services, 2014a)

Issuers include four main categories: Corporations, incorporated asset pools, financial institutions, and government bodies. Issuer’s demand for ratings is driven by the fact that credit ratings provide a measure of credit risk. Issuers need to inform investors that they are...
creditworthy, as they seek access to the bonds market. In addition, ratings can assist companies to compete as they can lower financing costs, provide companies name with recognition\textsuperscript{18}, and allow issuers to sell securities to regulated investors\textsuperscript{19}, to name a few of the main advantages of credit ratings (Langohr & Langohr, 2008, p. 91-99; Standard & Poor’s Financial Services, n.d.-b).

Credit ratings enable investors to better understand the risks and the uncertainties they face in investments. This is particularly important, nowadays, as financial globalization has increased as capital flows across international capital markets. Ratings save investors, for an example, the cost of conducting their own credit risk analysis, investors can compare the risk-return relationship across different debt investment options, and ratings provide investors with a valuable input in the construction of investment portfolios (European Securities and Markets Authority, European Banking Authority, & European Insurance and Occupational Pensions Authority, 2014; Langohr & Langohr, 2008, p. 99-103; Standard & Poor’s Financial Services, n.d.-a).

Additionally, credit ratings assist intermediaries set prices and interest rates for debt security being issued (Standard & Poor’s Ratings Services, 2014a).

2.2.5. The Business Model
This section analyzes the business model of CRAs and the potential conflicts of interest that the agencies pricing model has created.

2.2.5.1. Revenues
There are two prevailing pricing model in the credit rating market. One is a subscription-based model, where users of the rating are charged for gaining access to the credit rating reports. The other is an issuer-pays pricing model, where, as the name implies, the CRAs are paid by the issuers whose securities they rate (Langohr & Langohr, 2008, p. 411; Partnoy, 1999; White, 2010).

\textsuperscript{18} Nowadays, local firms need to raise capital in distant markets where they are unknown and, therefore, need a credit rating to be able to raise capital, for an example, in the US public bond market.

\textsuperscript{19} In the US, firms must have a rating from a NRSRO certified CRA in order to sell securities to regulated institutional investors.
Prior to 1970, all agencies provided ratings at no cost to issuers and sold subscriptions to investors for a fee. The subscribers-based business model, however, proved to be unsustainable. While the model has the upside of guaranteeing the CRAs independence from the issuers being rated, the downside is that rating publications can too easily be copied and, therefore, have not been able to provide enough revenues to sustain the CRAs operations (Langohr & Langohr, 2008; White, 2010).

During the US recession in the 1970s, issuers became willing or, to put it more accurately, forced to pay for ratings to gain the trust of the market in regard to their credit quality (White, 2010; Wolfson & Crawford, 2010). While the issuer-pays model can risk the CRAs rating independence it has two justifications. First, the issuer receives substantial value with the publication of an independent rating that provides them access to public debt markets and lowers their cost of capital. Second, without these revenues the CRAs are not able to sustain their activities (Langohr & Langohr, 2008, p. 411-412).

As the amount of rating fee generated is linked to the magnitude of bonds issued in the market, debt issuance trends significantly affect the rating revenues of CRAs. Therefore, the factors affecting the volume of debt issuance also affects the revenues of CRAs. Low interest rates favor new debt issuance, good economic conditions encourage businesses to expand and the subsequent use of debt to finance it, economic growth decreases investors risk premiums and thus corporate spreads and encourages new bond issuance. On the other hand, an economic downturn and increased volatility in financial markets raise investor demands for assurances on credit quality and, therefore, also the need for credit ratings. The increased volatility in markets and uncertainty for investors would lead to credit spreads widening, as investors would seek to be rewarded for the increased credit risk, and for issuers without a credit ratings the uncertainty, i.e. risk, would be even higher and, therefore, also their expected spread increase (Langohr & Langohr, 2008, p. 416).

Another important factor, if not the most important factor, relating to an agency-specific revenue stream is a CRAs installed based in its segment. It stems directly from the reputation that the agency has built up and comprises investors’ beliefs concerning the quality of the

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20 As investors’ confidence in the financial markets increases.
CRAs ratings. Installed base, i.e. the number of past issues or issuers rated, depends on a dense track record, and this track record can be built on unsolicited ratings. CRAs can, therefore, build up demand for their ratings by producing unsolicited ratings that are well researched and reduce information asymmetry (Bayar, 2014; Langohr & Langohr, 2008, p. 416-417).

2.2.5.2. Costs
Aside from the unsolicited ratings and installed base, the fixed costs associated with setting up a CRA are relatively low. The fixed cost is essentially composed of setting up offices and creating an initial network of contacts, which require overhead and management’s time. Economies of scales are also prevalent as the average cost of analyzing issues from the same issuer are reduced once an issuer, and one or two of his bond issues, has been rated (Langohr & Langohr, 2008, p. 417).

2.2.5.3. Conflict of Interest
It has been argued that CRAs have clear conflicts of interest since they serve both the issuers and the investors. Investors want ratings that are independent and objective. Issuers want favorable ratings to lower their cost of capital and to increase their access to capital markets. The issuer-pays revenue model leads the CRAs to having an incentive to overrate the credibility of the issuers to keep from losing clients and to attract new clients (Rafailov, 2011). It has even been claimed that CRAs face little or no risk of loss from inaccurate ratings; while the potential gains increase over time (Partnoy, 2009).

However, despite this apparent conflict of interest the issuer-pays business model has not eroded the credibility of the agencies and, in general, the CRAs behave more like academic research centers rather than businesses (Langohr & Langohr, 2008, p. 421-422). It has also been shown empirically that CRAs consider their reputation for issuing credible and objective ratings to be of paramount importance and that ratings do not appear to be importantly influenced by conflicts of interest (Covitz & Harrison, 2003).

There is still a concern that a situation occurs where CRAs start a fierce competition, not for rating quality, but for clients, market share and revenues, with the subsequent loss in the credibility and objectivity of credit ratings (OECD, 2010). A survey carried out in 2008, by
the Chartered Financial Analysts Institute\footnote{The Chartered Financial Analysts Institute is a global, non-profit association of investment professionals. The institute manages educational programs for investment professionals and analysts, and works to promote ethical standards and professional excellence within the global investment community (Charted Financial Analysts Institute, n.d.).}, revealed that 211 of the 1,959 members surveyed had in fact witnessed a CRA change a rating due to pressure or influence from investors, issuers or underwriters. When asked how that pressure manifested, or was incited, 51\% reported that it involved threats to take future rating business elsewhere, and 17\% stated that the CRAs were offered more business in the future for a better rating (Commission of the European Communities, 2008; McVea, 2010).

2.3. Interpreting Credit Ratings

Credit ratings have been around for over 100 years, yet the business community, regulators, legislators, academics, and journalists still, sometimes, tend to misinterpret or have unrealistic expectations of what ratings actually mean. Ratings are fundamentally forward-looking; they represent a rating agent’s judgment about the degree of credit risk and are not statements of historical facts. The future cannot be known, which means that credit ratings come with various degrees of uncertainty (Bissoondoyal-Bheenick & Treepongkaruna, 2011; Fitch Ratings, 2014; Standard & Poor’s Financial Services, 2012a).

Ratings are not market ratings or investment advice. Unlike equity analysts research reports, they are not buy, sell, or hold recommendations and do not take into account yield, price, other market factors, or specific investor risk preferences. Ratings are only intended to measure creditworthiness, i.e. the probability of default, and to make it easier for investors to compare different potential investments without having to conduct their own credit analysis (Fitch Ratings, 2014; Langohr & Langohr, 2008, p. 85-88; Standard & Poor’s Financial Services, 2012a).

With this in mind, the correct interpretation of credit ratings is in the following sections granted particular attention and explanation:

- Ratings address benchmark measures of probabilities of default; they are not probabilities.
- Ratings maintain a time perspective on credit risk, with a time horizon that is, at the minimum, as long a period as the maturity of the instrument.
2. Credit Ratings

- Ratings are descriptive, not prescriptive, of a debt situation.
- Ratings measure credit risk, they are, however, not intended to price it.
- Credit ratings are not equity ratings.

(Langohr & Langohr, 2008, p. 78)

2.3.1. Ratings Only Address Benchmark Measures of Default

A probability of default is a measure of the likelihood that a counterparty to a financial transaction will default. The probabilities are measured on a continuous scale from 0 to 1 (i.e. 0% to 100%). Which begs the question of how to transfer a letter grade (i.e. a credit rating) to a probability of a default on a scale of 0 to 1 at a particular point in time. One way could be to take a subjective assessment of an instrument’s default probability within, say, the next five years by statistically analyzing past observations. However, that would bring about the question of what past period to use. One could observe the historical default frequencies of an instrument with a similar rating over several five year time periods and obtain several estimations of the five year default frequency. The average of these estimations would provide a statistical measure of the past default probability of that particular rating (Langohr & Langohr, 2008, p. 79). On the other hand, one year or two year time periods might better represent the likelihood of default for the next five years. In addition, it raises the question of what instruments or issuers with the same ratings should be observed, only instruments in the same industry, the same region, or both? The problem is that financial markets are observed to follow a random walk22 (Siegel, 2008, p. 29), i.e. the past cannot be expected to accurately measure expected future default probabilities.

Estimating the likelihood of default by its estimated default frequency over the last 10 years might yield an expected default probability of, say, 1.7%. However, if the last five years were used they might yield a result of 0.8%. It is likely that investors would have different beliefs and opinions on which expected default probability is more representative for what the next five years might bring.

The assignment of default probabilities in this way needs hence to be interpreted carefully. As the example illustrates, the estimation of future default probability can easily become extremely subjective, if not indeterminate or arbitrary. Therefore, ratings should be viewed

22 A random walk is where future returns are considered completely independent of past returns.
as benchmark measures of the probability of default, not as the probability itself (Langohr & Langohr, 2008, p. 80; Standard & Poor’s Financial Services, 2012a).

2.3.2. Ratings Maintain a Long-term Time Perspective on Credit Risk

Credit ratings measure an instrument’s credit risk until its maturity, i.e. CRAs evaluate fundamental drivers of creditworthiness over the long-term. This means that ratings are intended to be cycle-neutral. Ratings should not swing up and down with short-term changes in business or supply-demand conditions. Securities are, for an example, rated with the intent to not rate them conservatively because of short-term performance if the issuer is expected to recover and prosper in the long-term (Langohr & Langohr, 2008, p. 80). However, ratings cycle-neutrality has been put into question in recent times, as the research seems to indicate that ratings have a tendency to be pro-cyclical (Amato & Furfine, 2004; Catarineu-Rabell, Jackson, & Tsomocos, 2005; Mora, 2006).

2.3.3. Ratings are Descriptive, Not Prescriptive

The optimal amount of debt for an organization is adjustable from the shareholder perspective. An organization seeks to optimize its debt-to-equity ratio to maximize shareholder value (Brealey et al., 2014, p. 7-12). To this end, shareholders might have a legitimate interest in pushing an organization’s debt level to its limit. On the other hand, by increasing the debt ratio an organization would intentionally opt for a lower credit rating. Since, as an organization’s debt ratio increases it has a negative effect on its credit ratings (Herzog, Koziol, & Thabe, 2008; Langohr & Langohr, 2008, p. 81).

Shareholders trade off the cost of a lower credit rating against the benefit of increasing debt and lowering the overall cost of capital23 (since the cost of equity is always higher than the cost of debt) (Brealey et al., 2014, p. 221). The optimal credit rating for an organization’s debt can at a certain point in time be anything from speculative to the safest investment grade. In the case of, for an example, a merger, an acquisition, or a leveraged buyout a corporation may opportunistically and temporarily move away from its long-term sustainable financial structure by increasing its debt level significantly. The corporation’s credit rating may

23 The cost of capital is the weighted average cost from an organization’s various capital sources (i.e. equity and debt).
2. Credit Ratings

decline, but that does not necessarily make it a “bad” move for the corporation, or its shareholders, at that point in time. Depending on a corporation’s circumstances, a weak credit rating might be better than a strong one (Herzog et al., 2008; Langohr & Langohr, 2008, p. 81).

However, this does not mean that credit ratings are not relevant when organizations make financing decisions. Survey results have shown that CFOs view credit ratings as their second highest concern when determining their capital structure. The view is that ratings are not only a proxy for default risk and the associated cost of debt, they can also generate discrete costs and benefits to organizations (Langohr & Langohr, 2008, p. 80-81).

2.3.4. Ratings Measure Credit Risk, They Do not Price It.
Credit ratings’ grade credit risk, they do not value the instruments themselves as they could not since default risk is only one factor of security risk. The other factor that influences the market value is market risk (i.e. credit exposure). Ratings have little to say about market risk. Thus, bond prices are distinct from bond ratings. Initial ratings and the yield, when a bond is issued, tend to interact closely with each other, but thereafter, in the secondary market, ratings and yields only occasionally synchronize. This is a result of bond yields changing continuously with market prices, but ratings change discretely at times chosen by the CRAs, usually twice per each calendar year (Fitch Ratings, 2014; Langohr & Langohr, 2008, p. 82-84).

2.3.5. Credit Ratings are Not Equity Ratings
Despite the fact that many of the analytical tools used by credit rating analysts are also used by equity analysts, credit ratings are quite different from their equity rating counterparts. Credit ratings focus on the downside risk factors, as debt security holders require payments at agreed upon intervals. Equity analysts look more at the upside potential of an organization, e.g. a highly leveraged transaction might boost the share price of an organization but the accompanying increased debt may decrease cash flow and may lead to insolvency or bankruptcy. In addition, credit ratings are expected to provide an opinion of the creditworthiness of an organization until the maturity of the issue being rated. In contrast, equity reports often focus on current earning announcements, or the expected performance of a stock over the next 6 to 12 months (Langohr & Langohr, 2008, p. 84).
2.4. Size of the Credit Rating Market

The credit rating industry is relatively small, with overall around 160 CRAs and three global firms, Fitch, Moody’s, and S&P. The industry employs around 4,500 professionals that tend to be at the high end of the IQ scale and are usually well trained and analytically skilled (Langohr & Langohr, 2008, p. 375). As a comparison, the number of investment companies (e.g. mutual funds and closed-end funds) operating in the US, alone, was 16,457 in 2013 and the industry had 166,000 employees (Investment Company Institute, 2014b).

Despite being relatively small in size, the scope of the credit rating market is quite large. The market spans 100 countries, where more than 745,000 securities and over 42,000 issuers are rated from “AAA” though “C”. That represents at least USD 30 trillion, which is almost twice the size of the gross domestic product (GDP) of the US (Bulger, 2005; U.S. Department of Commerce, 2015).

![Figure 5. Rated US corporate bonds issuance from 1996 to 2014](Securities Industry and Financial Markets Association, 2015)

The credit rating market has grown considerably since 1970. Corporations, especially in the US, have significantly increased their use of capital markets, at the expense of commercial banks, thereby expanding the opportunities to credit rate. For example, of the outstanding USD 207.7 billion in corporate financial debt in the US in 1965, 54.9% was in the form of bonds. By 2006, the share of bonds had increased to 79% out of a total debt market of USD 10,979.3 billion (Langohr & Langohr, 2008, p. 128-129).
In Europe, commercial banks still supply the majority of debt financing, corporations in the US have access to cheaper, long-term financing in the capital markets and, therefore, the importance of bank loans has declined more over time (Langohr & Langohr, 2008, p. 128-129).

2.5. Effect of Credit Ratings on Financial Markets

Several studies have documented the influence of credit ratings on capital markets. It has been shown that both actual and forecasted future earnings tend to fall following rating downgrades and analysts tend to increase their forecasts of future earnings following a rating upgrade (Ederington & Goh, 1998). Recent studies show the importance of the informational effect of rating downgrades and upgrades, and that market reactions are most significant following a rating downgrade (Choy, Gray, & Ragunathan, 2006; Hite & Warga, 1997; Jorion, Liu, & Shi, 2005). Choy et al. (2006) also found that only downgrades contain price relevant information. Fatnassi, Ftiti, & Hasnaoui (2014) analysis of market reactions due to sovereign credit rating changes, during the period 2008 to 2012, showed that rating upgrades and downgrades affect both own country returns and other countries’ return, and negative rating news are more informative to the market than positive news.

On the other hand, Elayan et al. (2003) study of the informational content of credit rating announcement in small markets told a slightly different story. The research examined whether reactions to credit rating announcements in small markets is different from large markets, due to limited information, liquidity premium, and analyst neglect factors. Elayan et al. (2003) found that unlike US, UK, and Australian studies that only find a significant

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**Figure 6. Heat map of total corporate bond issuance from 2007 to 2013**

Source: (Tendulkar & Hancock, 2014)
market reaction to bad news (i.e. rating downgrades), a significant positive reaction was found to both positive placements and rating upgrades in the New Zealand market. Han, Shin, Reinhart & Moore (2009) reported similar findings when examining stock market reactions to corporate credit rating changes in 26 emerging market countries. However, Elayan et al. (2003) study also found that significant market reactions were largely connected to corporations not cross-listed in US markets. This suggests that in smaller markets CRAs act as substitute information providers for firms that are followed by relatively few analysts and serve to fill an informational asymmetric gap between investors and debt issuers.

2.6. Development Through Financial Crises and Scandals

One of the largest historic factors in the development of credit ratings and its industry are financial crises and scandals. Government attempts to deal with economic crises have led to the use of ratings in regulations. The first regulatory use of credit rating was during the second banking crisis in the US in March 1931. The impairment in the market value of assets held by banks, particularly bond portfolios, was the most important source of impairment of capital leading to bank suspensions, rather than default on loans or bonds issued. To alleviate the pressure on banks’ capital, the US changed the valuation regulation and ruled that national banks would be required to charge no depreciation to the market value on bonds with ratings of the four highest ratings. Thus, publicly traded bonds with a rating of “BBB” or higher, by at least one CRA could be carried at book value. Otherwise, the bonds would have to be written down (Langohr & Langohr, 2008, p. 430).

The more recent economic crises have had the reverse effect on ratings as the Asian financial crisis in 1997 to 1998, the corporate scandals in the US and Europe in the early 2000s, and the financial crisis in 2008 have prompted demands to investigate CRAs and increase regulations in the credit rating industry. The scandals and crises brought to the foreground issues such as inadequate due diligence, apparent conflicts of interest due to the CRAs issuer-pays revenue model, inadequate explanation of ratings, and unfair commercial practices. These issues can prevent CRAs from producing reliable, timely, and fair ratings. The recent crises have all had a common denominator in that they have all brought about new rounds of regulatory proposals for the credit rating industry (Langohr & Langohr, 2008, p. 430-431; OECD, 2010).
2. Credit Ratings

The financial crisis in 2008, for an example, brought about regulation changes regarding CRAs. The new regulation on the CRAs, especially by the US and European Union (EU), have included periodic inspections on how CRAs operate and monitoring the ratings. CRAs are also required to disclose both their procedures and methodologies, and any changes there within. The aim of the new regulations is to increase transparency and accountability of the CRAs (Bayar, 2014).

2.7. Criticisms Regarding Credit Rating Agencies

As with the development of ratings, most criticism regarding ratings has originated in the times of crises. Following the US stock market crash in 1929, the ratings of all CRAs showed evidence of being inflated. As table 10 demonstrates, during that time most issued ratings were in the highest categories, i.e. they had an “A” grade, while only seven issues had a rating of “C+” or lower. This led rating agencies to lower number of ratings following the crash in 1929, as most institutions and individuals failed to anticipate the rapid decline in the prices of hundreds of bond issues (Partnoy, 1999).

<table>
<thead>
<tr>
<th>Rating</th>
<th>Fitch</th>
<th>Moody</th>
<th>Poor</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>147</td>
<td>97</td>
<td>68</td>
<td>78</td>
</tr>
<tr>
<td>A</td>
<td>64</td>
<td>63</td>
<td>89</td>
<td>93</td>
</tr>
<tr>
<td>A-</td>
<td>80</td>
<td>99</td>
<td>110</td>
<td>104</td>
</tr>
<tr>
<td>B+</td>
<td>40</td>
<td>59</td>
<td>61</td>
<td>40</td>
</tr>
<tr>
<td>B</td>
<td>17</td>
<td>25</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>B-</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>C+</td>
<td>3</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>C-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D+</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Unrated</td>
<td>8</td>
<td>18</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

*Source: (Partnoy, 1999)*

In the aftermath of the financial crisis in 2008, CRAs came under intense scrutiny for the role they played. There were even strong arguments made that credit ratings caused the mortgage crisis in the US, as second-level mortgage-backed securitizations, i.e. the subprime mortgages, were explicitly dependent on high ratings from CRAs. Without the high rating, investor demand for the mortgage securities would have, presumably, been considerably less. The rise and fall of the housing market in the US would have been much less dramatic, and also the subsequent ripple effect in global financial markets (Bayar, 2014; Partnoy, 2009).

Criticisms of CRAs have come in many forms since their inception in 1909. Besides the criticism regarding the CRAs business model, one of the larger criticisms is that ratings are intended to be business cycle-neutral. CRAs are reluctant to alter ratings based on cyclical
considerations even though the number of defaults rises during recessions and the vice versa during booms. However, ratings are meant to be long-term indicators of credit risk and, therefore, have to report on ratings in the same view. Few of the other bigger criticisms include CRAs sluggishness, conservatism, rating frequencies, due diligence, and lack of accountability (Langohr & Langohr, 2008, p. 369; McVea, 2010; White, 2010).

**Sluggishness:** Another frequent criticism is the rather slow and bureaucratic pace of their move, i.e. rating changes. It is important, however, in this context to realize that CRAs were never meant to offer real-time information to investors. A related critique is that CRAs often lag behind events. In other words, CRAs are criticized for updating their rating infrequently; the agencies usually update their ratings twice a year. Subsequently, investors may not be informed, in a timely manner, of potential problems, or worse default, related to credit rated entities. CRSs argue that their role is to provide independent assessments and timing is difficult. For an example, if a CRA moves too soon with a downgrade it runs the risk of being accused of triggering an organization’s problems (Langohr & Langohr, 2008, p. 369; Partnoy, 1999; White, 2010).

**Conservatism:** CRAs are criticized for their tendency to be conservative and that they, for an example, rarely award investment grade ratings to new and fast-growing corporations. The counter-argument is that CRAs are mainly concerned with default rates and that payments are made in time, so they need to be cautious (Langohr & Langohr, 2008, p. 370).

**Rating Frequencies:** A further criticism is that CRAs only update their ratings once or twice a year; while analysts at financial intermediaries monitor daily developments (Langohr & Langohr, 2008, p. 370).

**Due Diligence:** This criticism relates to the information that CRAs base their ratings on and a lack of transparency. CRAs can only base their ratings on information that is known to them, and deemed relevant. The agencies cannot force issuers to hand over information and issuers might, intentional, not provide the agencies with pertinent information. The critique is, therefore, that CRAs should make better assessments of the quality of their information and especially their reliability. In the wake of the financial crisis in 2008, the regulatory framework in both the US and EU have been tighten to force CRAs to increase the
transparency and reliability of the information that is used in the rating process (Bayar, 2014; Langohr & Langohr, 2008, p. 370; Wolfson & Crawford, 2010).

Lack of Accountability: This relates to a long-standing concern regarding CRAs accountability for their market and regulatory power. Credit ratings are used by regulators and market participants alike and some worry that CRAs are not punished in a fitting manner when they are shown to have failed. For example, in the lead up to global financial crisis the CRAs asset-backed securities\(^{24}\) ratings have been shown to have been inflated, giving all involved the impression that the inherent risk involved in investing in those securities was much lower than in reality. Despite this fact, the larger agencies have not lost much credibility or market share. CRAs could, therefore, knowingly provide poor ratings, knowing that they would not be held accountable for the eventual fallout (McNamara, 2012; McVea, 2010).

This chapter has been devoted to enhancing the overall understanding of credit ratings, their current standings, development, and influence on markets. Credit ratings, through time, have become an integrate part of today’s financial markets, but their history in Iceland is small and limited when compared to their history in the US. The subsequent chapters of this thesis will further analyze the usage and integration of ratings in the domestic market. The next chapter will evaluate the Icelandic market, by specifically analyzing the domestic bonds market, bond investors, the influence of the capital controls, and the risk in smaller economies compared to larger ones.

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\(^{24}\) Bonds, or notes, that are backed by financial assets. The security is typically backed by a loan, lease, credit card debt, royalties, or other receivables. Simply put, it takes a collection of financial assets that have predictable cash flows, like a home mortgage, bundles them together into one security that collects the individual payments and uses the money to pay investors.
3. The Icelandic Market

In this chapter, the Icelandic financial market is analyzed with an examination of the bond market, major bond investors, the capital controls, and risk in small economies.

3.1. The Bond Market

In the years leading up to the financial crisis in 2008, bond issuance in Iceland grew rapidly. During the years 2000 and 2001 there were approximately 20 bonds issued per year, with the government being the key player in the market. By 2003, the issuance per year had grown by 50% and the banks had become the predominant issuers. The number of bonds issued doubled in 2004, despite no increase in issuance by the government. However, it was in 2005 that the market experienced a significant boom in the issuance of bond, as the banks issued bonds like never before to finance their expansions and other private corporations in Iceland began looking to capital market for financing. Bond issuance continued to grow until it peaked in 2007. That year was marked by an issuance of over 200 categories of bills and bonds (Icelandic Securities Depository, n.d.). The banks and other financial institution were the dominate issuers in the market as credit lines abroad were in short supply (Howden, 2014; Hreinsson, Gunnarsson, et al., 2010). The following years, 2007 to 2011, were marked by a steep decline in the number of bills and bonds issued. The issuance reduced by about 85%, and of the bills and bonds issued over 50% was issued by the government.

Figure 7. The number of bills and bonds issued from 2000 to 2015 in Iceland
Source: (Icelandic Securities Depository, n.d.)
Despite the dramatic drop in the number of bills and bonds issued and the near erosion of corporate bond issuance in Iceland in the aftermath of the financial crisis in 2008, figure 8 shows that the size of bonds issued in ISK did not fall as dramatically, or only by about 24% from 2007 to 2010. The reason is that the Icelandic government increased its issuance of bonds in 2008 to 2010 as it took steps to deal with the crisis. In fact, as the government attempted to deal with the crisis, the issuance of Treasury bonds, in ISK, increased by an astounding 831% from 2007 to 2010. Since then, the government has decreased its issuance of bonds, but corporations have again stepped into the market.

On the other hand, from 2007 to 2011, the issuance of corporate bonds nearly completely eroded in the aftermath of the crisis. Since then, the corporate bond market has regrouped and in 2014 corporate bonds were issued for close to ISK 100,000 million.
3.2. Bond Investors

When analyzing the Icelandic bond market and the credit rating industry it is important to consider the main bond investors in the market, especially when considering corporate bonds. The largest corporate bond investors in Iceland are institutional investor funds, pension funds, and bond funds. The three types are reviewed individually in the following three sections. The regulatory framework in Iceland puts fewer restrictions on institutional investors than in many other markets, e.g. institutional investors are not restricted from investing in securities that have not been rated by CRAs.

3.2.1. Institutional Investor Funds

Institutional investor funds are, as the name suggests, funds which only institutional investors are allowed to invest in.

Act no. 108/2007 on securities trading (Lög um verðbréfaviðskipti nr. 108/2007) defines institutional investors as investors with extensive knowledge and experience in investments and competent enough to make their own investment decisions and to evaluate the associated risk. The following parties are considered institutional investors by Act no. 108/2007:

1) Legal persons authorized or who engages in regulated activities in financial markets, such as financial institutions, insurance companies, investment funds, and pension funds.
2) Large corporations that meet certain condition regarding the scope/size of their balance sheet, turnover, and equity.
3) National and regional governments, central banks, and international organizations.
4) Other institutional investors whose main activity is to invest in financial instruments.
5) Parties approved as professional clients on the basis of the application of the investor.

Figure 10. A breakdown of the balance sheet of Icelandic institutional investor funds from 2011 to 2015
Source: (The Central Bank of Iceland, n.d.-a)

In the period from 2011 to 2015, institutional funds have decreased the overall share of domestic bonds and bills in their portfolios. Domestic bonds and bills were approximately 70% of the funds’ total assets in 2011, but by 2015 the ratio had dropped to about 60%. On the other hand, when measured in ISK the funds’ holdings in domestic bills and bonds have increased, from roughly ISK 144 billion to around ISK 166 billion. An analyses of the funds holding within the domestic bonds and bills category, shows that the overall share of corporate bonds has grown from 7%, in 2011, to 26% in 2015 (The Central Bank of Iceland, n.d.-a).
Unlike pension funds, institutional investor funds are not limited in their investments in unregistered securities\(^{25}\). This means that the funds can invest in unregistered corporate bonds in accordance with their own investment strategy.

### 3.2.2. Pension Funds

The largest investment group in the bond market is the Icelandic pension funds. Pension funds’ investment strategies are limited by laws and regulations. According to the Act on mandatory pension insurance and pension fund activities no. 129/1997 (Lög um skyldutryggingu lífeyrisréttinda og starfsemi lífeyrissjóða nr. 129/1997), pension funds are, for an example, only allowed to invest up to 20% of their net assets in unregistered securities. However, each pension fund sets up its own investment strategy and they are not bound by any credit rating restrictions.

The pension funds differ on how detailed their published investment policy are, i.e. whether there is a specific numerical criterion or a more vague statement. The published policy at least includes investment guidelines regarding how much can be invested in each type of asset class, e.g. bonds and stocks (Almenni lífeyrissjóðurinn, 2014; Gildi, n.d.; Lifeyrissjóður starfsmanna ríkisins, n.d.; Lifeyrissjóður Verzlunarmanna, n.d.).

\(^{25}\) Act on mutual funds, investment funds and institutional investor’s funds no. 128/2011 (Lög um verðbréfasjóði, fjárfestingsjóði og fagfjárfestasjóði nr. 128/2011).
Almenni Pension Fund (Almenni lífeyrissjóðurinn), for an example, has a more detailed investment policy than most other funds. When investing in credit rated bonds the fund follows the policy in table 11. However, if the bonds being bought are not graded the fund uses more comprehensive guidelines to assess the issuer, e.g. the issuer should have a strong equity ratio and operating profits (Almenni lífeyrissjóðurinn, 2014).

The Icelandic pension funds total investments in fixed-income assets were about ISK 1,600 billion at the start of 2015, which is roughly 54% of the net assets of the funds. Of that amount, corporate bonds accounted for about 13% of the total, or about ISK 209 billion.

Before the financial crisis in 2008, that ratio was around 20% of the pension funds total fixed-income assets. The ratio has been increasing since 2013 when it stood at around 10% to 11% (see table 12). This suggests that pension funds might continue to increase their holdings in corporate bonds in the near future.

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3.2.3. Bond Funds

Figure 13. A breakdown of the balance sheets of Icelandic bond funds from 2000 to 2015

Source: (The Central Bank of Iceland, n.d.-c)

Table 13 shows that bond funds in Iceland have increased their investment in corporate bonds from 4% of their total domestic bonds and bills assets in 2011 to 14% in 2015. The table, however, also demonstrates that the ratio was much higher in the period from 2005 to 2009 when it was in the 20% to 56% range. Therefore, bond funds might yet increase their investments in corporate bonds. For comparison, the holdings of long-term US bonds funds in corporate bonds was 43.7% of the total net assets of the funds in 2013, increasing from 37.4% in 2009 (Investment Company Institute, 2014a).

Table 13. The share of corporate bonds in the overall assets of Icelandic bond funds from 2002 to 2015

Source: (The Central Bank of Iceland, n.d.-c)

3.3. Capital Controls

Direct controls of capital outflows were imposed in Iceland, as the financial crisis hit in 2008, to limit the pressure on the ISK as volatile speculative capital flows threatened the stability of the exchange rate and to deplete foreign exchange reserves (Ariyoshi et al., 2000; Oddsson, Arnarson, Björnsson, Elfasson, & Birgisson, 2011). Despite the frequent usage of capital controls as policy tools, especially in the aftermath of the financial crisis that culminated in 2008, there is no general consensus regarding their efficiency (Amin & Annamalah, 2013; Crotty & Epstein, 1999; Dooley, 1996; Forbes, 2007; Hutchison, 2012). However, controls on capital outflows have been shown to provide only temporary postponement of difficulties
and that they can be harmful to economies in the long-run, as their associated costs increase with time (Ariyoshi et al., 2000; Kitano, 2007; OECD, 2013).

Capital controls are imposed for a number of reasons, but all are based on a desire to protect the domestic economy from international cash flow movements. Three main reasons have been identified. The first is to use capital controls to assist in offsetting exchange rate pressures or concerns when an economy is faced with substantial appreciation or depreciation of its currency. The second is to alleviate concerns over potentially disruptive effects of large and volatile short-term speculative capital cash flows. The third reason is a concern regarding the potential loss of monetary control because of large capital flows (Ariyoshi et al., 2000; Hutchison, 2012).

Regardless of their efficiencies, capital controls entail costs. First, the restrictions on capital flows outflows may interfere with domestic organizations’ ability to court desirable capital and current transactions, along with less desirable ones. Second, the controls may entail significant administrative costs to keep the controls effective and close loopholes, as market participants seek to circumvent the capital controls. Third, by shielding domestic financial markets, the controls may render the domestic private-sector less competitive in the global markets as there is less pressure to adapt and change to international circumstances. Finally, the controls may give rise to negative market perception, i.e. make it more expensive and harder to access foreign capital markets (Ariyoshi et al., 2000).

![Figure 14. The theoretical effects of capital controls on the domestic supply of investment capital and the consequential effect on interest rates](image)

The theoretical effects of capital controls are shown in figure 14. As domestic investors cannot diversify and move capital abroad the supply of investment capital increases in the
domestic market and with it, all else being equal, domestic interest rates go down (Parkin, 2010, p. 245-268).

In general, capital controls are considered to come in two broad forms: Direct controls and indirect controls. Direct controls involve either an outright prohibition on cross-border capital movements or an approval procedure. Indirect controls attempt to discourage certain capital movements by making them more costly (Ariyoshi et al., 2000).

The effects of the capital controls in Iceland have appeared in various forms. According to the Central Bank of Iceland (2012), the capital controls have significantly reduced the securities market efficiency and depressed the interest rate level, as investors do not have the option to move their capital abroad. Consequentially, the Central Bank considers price formation in the bond market to be distorted and that interest rate decisions by the bank are not reflected in the yield curve\(^{26}\). There are also indications of price rises in the Icelandic bond market that is fuelled by excess demand for investment opportunities. The yields, for an example, have been at historical lows on the main benchmark series, especially on bonds with short durations. However, as a result, the Icelandic Treasury has been able to borrow at more favorable rates than otherwise possible. Such favorable rates are not expected to persist once the capital controls are lifted (The Central Bank of Iceland, 2012).

Presently, the Central Bank considers economic conditions favorable for liberalization, as the economic outlook is, comparably, good, GDP growth is strong, and inflation is close to target (of 2.5% per year). More significantly, the Central Bank recognizes that the costs of the capital controls are steadily rising due to both direct costs in enforcing and complying with the controls, and, more substantially, indirect costs which are difficult to measure. The controls have affected organizations’ investment decisions, they distort economic activities, and ultimately reduce GDP growth. The pension funds’ investment options, for an example, are viewed to be limited by the controls and their positive cash flows create the risk of excessive increases in the price of assets that the funds are allowed to invest in.

\(^{26}\) A curve on a graph in which the yield of fixed-income securities is plotted against their maturities.
On the other hand, there still remain significant risk factors to lifting the controls on capital outflows. The most important risk factor is the magnitude of offshore ISK that is waiting to be released once a settlement has been reached regarding the estate of the failed banks. Other factors include non-resident investors’ whose ISK denominated assets are locked in by the controls and the heavy debt service burden on Iceland’s foreign debt (Baldursson & Portes, 2014; The Central Bank of Iceland, 2014).

In regard to the lifting of the capital controls, the Central Bank of Iceland (2012) finds it probable that it could result in higher domestic capital costs. The reason being that Icelandic companies are still highly leveraged, in part with exchange rate linked debt, and that the lifting of the controls could cause a substantial foreign exchange market instability which would weaken the balance sheet of many companies. Even though the capital controls are damaging, i.e. expensive, for domestic organizations, the gains from lifting the controls are likely to be much lower than the probable cost associated with a potential currency crisis that would result from a premature liberalization of capital outflow (Baldursson & Portes, 2014).

3.4. Risk in Small Economies

Small economies, or states, are considered more vulnerable to shifts in the global economy. Due to their, relative, smaller level of bureaucracy, i.e. shorter distances between decision-makers and speedy decision making, smaller states may be quicker to adapt and recover from an international economic crisis. However, small states, more often than not, rely on a few key industries and export markets. This makes smaller states more vulnerable to international economic fluctuations and structural changes in the global economy. In fact, economic downturns, usually, hit small states more swiftly and deeper than large states, especially if a key export industry is significantly affected in a negative way (Handel, 1990; Katzenstein, 1985; Kautto, Fritzell, Hvinden, Kvist, & Uusitalo, 2005; Thorhallsson, 2011). This essentially implies that markets in smaller states are more volatile, i.e. risky, than markets in larger states, or economies, like the US or UK. Furthermore, smaller markets are less liquid since there is a smaller investor pool available and informational asymmetry is wider between management of corporations and investors (Elayan et al., 2003). All else being equal, this should increase investors’ cost of capital and, in turn, the borrowing cost for organizations within smaller states.
Research into the financial crisis in Iceland also demonstrated the interdependence between financial institutions and market participants, and its substantial effect on the magnitude of the crisis. The interdependence significantly increased the systematic danger of the Icelandic financial market. In fact, the interdependence was so significant that if one large financial institution ran into trouble the others quickly followed down the same path (Hreinsson, Benediktsdóttir, & Gunnarsson, 2010).

The Icelandic financial market has experienced significant changes in the last decade. It has experienced both a huge boom in the years leading up to the financial crisis and a subsequent crash that could be described as epic in proportion. It is, however, important to consider that the Icelandic economy is very small when, for an example, compared to the US and most other European economies. With that in mind the next chapter will analyze, in detail, how CRAs rate an issuer and issues, the important factors to consider, and prior research to better understand the applicability of ratings for the Icelandic market and to evaluate whether international rating methodologies are valid when rating an Icelandic organization.
4. Credit Rating Methodologies

The point of a credit rating is to benchmark issuers or issues likely default, not whether profits may skyrocket in the next few years. CRAs scale the default prospects of issues and the likely losses of issuers and investors in the event of a default. To be useful to investors, the performance of ratings is important. If market participants do not trust the ratings they are useless. To this end, ratings must demonstrate a sufficient degree of accuracy in predicting the likelihood of default (Langohr & Langohr, 2008, p. 7-8).

4.1. General Overview

Every CRA applies its own criteria and methodology in measuring creditworthiness and uses a specific rating scale to publish its rating opinions (Standard & Poor’s Ratings Services, 2011). Rating agencies primarily use analysts (i.e. qualitative analysis) or mathematical models (i.e. quantitative analysis), or a combination of the two, to form their opinion of credit risk.

| Model driven rating (Quantitative analysis) | Focuses exclusively on quantitative data, which is incorporated into a mathematical model. Creditworthiness of, for example, a bank is assessed by evaluating that entity’s asset quality, funding, and profitability based on data from public financial statements and regulatory filings. |
|___________________________________________|__________________________________________________________________________________________|
| Analyst driven rating (Qualitative analysis) | Generally involves assigning an analyst, often in conjunction with a team of specialists, to take the lead in evaluating an entity’s creditworthiness. The analysts, usually, obtain information from published reports, as well as from interviews and discussions with the issuer’s management. They then use that information to assess the entity’s financial and operational performance, policies, and risk management strategies. |

Source: (Standard & Poor’s Ratings Services, 2011)

Most CRAs, including the Big Three agencies, rely on a combination of a model and analyst driven credit ratings, i.e. a quantitative and qualitative analysis (Standard & Poor’s Ratings Services, 2010).

Credit risk can also be measured using other methodologies. For example, credit risk extracted from the risk premium embedded in the yield to maturity (YTM) of bonds. Credit risk extracted from a bond’s YTM reflects the market’s view of that bond’s credit risk; while credit ratings are based more on the opinions of CRAs. The YTM of a fixed-income security is defined as the rate of return that recovers (i.e. justifies) the purchasing price plus volatility premium. The credit risk is the spread between the YTM of a risky bond and the “risk-free” rate of a Treasury bond of the same maturity (Murcia, Murcia, Rover, & Borba, 2014).
4. Credit Rating Methodologies

4.1.1. Rating an Issuer

CRAs evaluate the creditworthiness of an issuer by his ability and willingness to repay his obligations on time. This is done by reviewing “a broad range of financial and business attributes that may influence the issuer’s prompt repayment” (Standard & Poor’s Ratings Services, 2011). The agency evaluates available (i.e. public) current and historical information and assesses the potential impact of foreseeable future events (Standard & Poor’s Ratings Services, 2014a). What specific factors are taken account of in establishing a credit rating is dependent in part on the type of issuer. When reviewing, for an example, a corporate issuer an agency usually considers many financial and non-financial factors: Key performance indicators, economic, regulatory and geopolitical influences, management and corporate governance attributes, and competitive position. If the issuer is a sovereign, or national government, the analysis might focus more on political risk, monetary stability, overall debt burden, and the effectiveness of the government’s institutions (Standard & Poor’s Ratings Services, 2014a).

![Figure 15. Factors that S&P uses for assessing a corporate credit rating](source: Standard & Poor’s Ratings Services, 2014a)

4.1.2. Rating an Issue

In rating an issue, e.g. corporate bonds, CRAs typically use, among other things, information from the issuer and other sources to evaluate the credit quality of the issue and the likelihood of default. When the bonds are issued by corporations or municipalities, CRAs usually begin with an evaluation of the creditworthiness of the issuer before assessing the credit quality of a specific debt issue (Standard & Poor’s Ratings Services, 2014a).

In analyzing an individual debt issue, the CRAs consider the following factors, among other things:

- The terms and conditions of the debt issue and its legal structure.
4. Credit Rating Methodologies

- The seniority of the issue compared to the issuers other debt securities and priority of repayment in the case of a default.
- The existence of credit enhancements, such as letters of credit, guarantees, insurance, and collaterals that could limit the potential credit risk of a particular issue. (Standard & Poor’s Ratings Services, 2014a)

4.1.3. Credit Rating Changes

Once CRAs have provided a rating opinion regarding an issuer or individual debt issue, they typically keep track of developments that might alter that specific rating opinion to keep the rating up to date. Subsequent rating adjustment/change can come from various factors. They may be broadly related to overall shifts in the economy or business environment, or more narrowly focused on events affecting a specific industry, entity, or individual debt issue. The CRAs may consider many factors, including, for an example, changes in the business climate or credit markets, new technology or competition, issuers performance, and regulatory changes. CRAs have regular meetings with organizations that they track to allow its management to inform the CRAs of any changes in the company’s plans, discuss new developments that might alter previous expectations, or identify or evaluate other factors that might adjust CRAs opinions regarding the issuer’s creditworthiness (Standard & Poor’s Ratings Services, 2014a).

4.1.4. The Rating Process

The Big Three rating agencies, and almost all other CRAs, including the Icelandic CRA Reitun, use quantitative and qualitative analysis to decide on a credit rating for an issue or issuer (Fitch Ratings, 2006; Langohr & Langohr, 2008, p. 402-407; Moody’s Investor Service, n.d.; Reitun, 2011; Standard & Poor’s Ratings Services, 2014a). Figure 16 splits the overall rating process into eight elements which are review separately in the following sections.
4. Credit Rating Methodologies

4.1.4.1. Rating Request

The rating process, usually, begins with a meeting to introduce the CRAs rating process, methodologies, and products. Then if, and when, the issuing organization is ready to move forward it sends the CRA a formal request, or application, for the process to begin. The CRA then assigns a lead analyst to the client, who works with the support of a back-up analyst. The analysts go through internal conflict checks prior to the start of the analysis. This check is intended to ensure that analysts do not have any potential conflicts of interest before viewing any confidential information, i.e. insider information (Fitch Ratings, 2006; Moody’s Investor Service, n.d.).

4.1.4.2. Initial Evaluation and Inputs

The lead analyst then asks the client to provide relevant financial and non-financial information. The precise information that the client is asked to provide may vary according to the sector and market information available (Moody’s Investor Service, n.d.).

CRA analysts, however, also gather information from other relevant sources. This includes publicly available information on the issuer (e.g. financial and operational statistics), reports filed with regulatory agencies, and industry and economic reports. Additionally, the analysts may incorporate data and insight gathered in the course of their interaction with other entities or experts in the issuer’s sector (Fitch Ratings, 2006).

4.1.4.3. Meeting the Issuer’s Management

For a first-time rating, the initial meeting with the issuers’ management team can last up to a full day and the CRA may, also, conduct site visits. The discussion of the meeting will, in general, focus on the following:

Reykjavik University       June, 2015
- Background and history of the issuer.
- Industry and sector trends.
- The political and regulatory environment.
- Management policies, experience, track record, and attitude to risk.
- The structure of the company.
- Basic operating and competitive position.
- Corporate strategy.
- A detailed review of debt structure.
- Financial position and liquidity, including:
  - Cash flow and stability.
  - Operating margin and developments.
  - Analysis of debt profile and maturity.

(Moody’s Investor Service, n.d.)

4.1.4.4. Analysis

The analytical team then analysis the quantitative data acquired and the data is incorporated into a mathematical model which grades the issuer or issue. The team then analysis factors which the model cannot take stock of, e.g. capital controls, negotiations with creditors and pending legal disputes, and make change to the accompanying grade of those specific factors (Fitch Ratings, 2006; Reitun, 2011).

4.1.4.5. Rating Committee Review

When the analytical team has completed its analysis, the lead analyst presents the rating recommendation and rationale to a rating committee. The rating committee should be comprised of credit risk professionals who have the appropriate knowledge and experience to address all relevant factors related to the client. The lead analyst determines who to include in the committee based on the size of the client and the complexity of the rating analysis. The committee may decide to change the analysts recommended rating if the committee has any issues with it. For example, the committee could have issues with the qualitative or quantitative information used to arrive at a rating, or the appropriate current and prospective performance of the client (Fitch Ratings, 2006; Moody’s Investor Service, n.d.).

4.1.4.6. Notification to Issuer

Once the rating committee has decided on a rating, the lead analyst communicates the rating, and the CRAs rationale, to the client, according the regional practices. In addition, the CRA verifies with the client that intended press releases are factually correct and do not contain any confidential information (Fitch Ratings, 2006; Moody’s Investor Service, n.d.).
4.1.4.7. Publication and Dissemination of Rating Opinion

After the issuer has been notified, the CRA publishes the rating via a press release, which also contains an extensive dissemination of the rating in an accompanying credit rating report (Moody’s Investor Service, n.d.).

4.1.4.8. Surveillance of Issuer and Issue

The rating process involves active and ongoing dialog between the CRAs analysts and the client. Once the rating is finally published, they are continuously monitored and updated through regular dialogues and meetings with the client, where the client presents all information and changes that are relevant to the continuous analysis of the rating. The CRA then issues press releases to announce any subsequent rating or outlook changes (Fitch Ratings, 2006; Moody’s Investor Service, n.d.).

4.2. Rating Methodologies

Credit ratings are essentially about the creditworthiness of issuers and obligations. However simple as that sounds the reality is that there is no “one” formula or method that accurately measures creditworthiness. CRAs attempt to condense the combined effects, of the various facets of creditworthiness, into a rating symbol along a simple, one-dimensional scale. The relative importance of the various factor may, however, change in different situations (Standard & Poor’s Financial Services, 2009).

4.2.1. Important Factors

The primary factor, or centerpiece, of creditworthiness, is the likelihood of default, which encompasses both capacity and willingness to pay. Therefore, a higher rating represents a lower chance of a default, all other things being equal. The relative ranking an issuer or a debt issue is not solely based on default likelihood. CRAs also associate each successively higher rating category with the ability to sustain or withstand successively more stressful economic conditions. Entities in the highest rating category are expected to be able to withstand extreme and severe economic stress without defaulting; while entities in the lowest categories are expected to default under even the smallest economic stress. This is to promote the comparability of ratings across different types of debt securities, different time, different currencies, and different regions (Standard & Poor’s Financial Services, 2009).
Beyond the likelihood of default, there are several other secondary factors that may be relevant. One of those factors is the payment priority of an obligation following a default, which measures the seniority of a debt issue. Another secondary factor is the projected recovery that an investor might expect to receive if an obligation defaults. A third secondary factor is credit stability. Some types of debt issues tend to give warnings before they default, i.e. the likelihood of default may suddenly change due to changes in the key aspects of the economic or business environment. Credit stability describes an issuer’s or issues level of sensitivity to that kind of scenarios (Standard & Poor’s Financial Services, 2009).

Creditworthiness is a complex concept and although there is no formula for combining the different factors into an overall assessment, the criteria does provide a guide in considering these factors. Payment priority and recovery apply more when rating specific debt issues than in rating an issuer. Also, the significance of payment priority and recovery increases with the likelihood of default (i.e. at lower rating levels). On the other hand, credit stability has increased significantly as the likelihood of default decreases (i.e. at higher rating levels). The relative importance of each factor may wax or wane with changes in market conditions and the economic environment. The rating criteria for different types of issuers or issues detail the specifics of how payment priority, payment recovery, and credit stability factor into the credit rating analysis of CRAs (Standard & Poor’s Financial Services, 2009).

Geography, for an example, affects the likelihood of default, and the subsequent recovery prospects, in many different ways. Sovereign governments set the ground rules for its domestic financial markets with the regulatory framework, tariffs, currency controls, taxes, political and legal risk, and fiscal and monetary policies. Important ground rules there within include disincentives against default and creditor rights in the event of a default. Other important factors that affect the creditworthiness of issuers includes the infrastructure of a country, and the quality of private and public corporate governance (Langohr & Langohr, 2008, p. 149).

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27 Seniority refers to the order of repayment of the debt of an organization in the case of a bankruptcy. Senior debt is repaid before subordinated debt.
4. Credit Rating Methodologies

4.2.2. Prior Research on Credit Rating Determinants

The research regarding what factors should be included when credit rating an issue or issuer, has mainly focused on financial ratios. The results are unequivocal in the sense that they all concur that financial ratios are relevant and provide an important input into the rating process, with ratios such as liquidity, asset quality, leverage, and interest coverage being of particular importance.

Prior academic research on credit rating determinants has largely focused on sovereign ratings. A 1996 study, explored the determinants of sovereign ratings, assigned by Moody’s and S&P, analyzed eight macroeconomic variables using the ordinary least squares method (Cantor & Packer, 1996). The results suggested that sovereign ratings are broadly consistent with macroeconomic fundamentals. Further studies expanded the scope of the Cantor & Packer (1996) study. Linden, McNamara, & Vaaler (1998) expanded the study by including all six NRSROs over the period 1987 to 1996. The results indicated that there is a difference in sovereign credit ratings across the CRAs and that there are systematic differences in ratings across regions. Trevino & Thomas (2000) further extended the analysis by including more countries, considering other CRAs, and extending the time period. The study by Trevino & Thomas (2000) found that financial balance sheet variables are significant determinants of foreign currency credit ratings, which implied that sovereign credit rating models that fail to include these variables are missing an important input.

While rating agencies emphasize that they use both quantitative and qualitative factors in establishing a rating, the academic research has primarily focused on the quantitative side by estimating the rating predictability of financial ratios. Particular attention has been paid to financial ratios that measure an organization’s ability to service debt (e.g. coverage), profitability, and leverage. In fact, empirical research indicates that these ratios can explain a significant portion of the variation in the credit rating of organizations (Gray, Mirkovic, & Ragunathan, 2006). Gray et al. (2006) used an ordered probit model to examine the impact that financial and industry variables have on credit ratings for Australian corporations by S&P. They found that interest coverage and leverage ratios have the most pronounced effect on credit ratings, while profitability variables and industry concentration measures are also important. Moreover, they found a consistent trend towards lower ratings over time, due to increased requirements from CRAs to achieve a particular rating. A 2005 paper examined
whether the bankruptcy prediction ability of financial ratios changed over time, due to the increased scope of intangible assets in the financial statement of organizations. The paper found that the robustness of the predictive models has been strong over time and that it had only decreased slightly. Furthermore, the paper found that when financial ratios and market-related variables are combined, the decline in the predictive ability of the models appears to disappear (Beaver, McNichols, & Jung-Wu, 2005).

Murcia et al. (2014) studied the determinants of credit ratings in Brazil by using a generalized estimating equations model with categorical dependent variable (credit rating) and ten independent variables: Leverage, profitability, size, financial coverage, growth, liquidity, corporate governance, control, financial market performance, and internationalization. The study covered 153 rating observations from 1997 to 2011 for 49 public corporations in Brazil. The results showed that leverage\(^{28}\) and internationalization\(^{29}\) are significant at the 1% level in explaining credit rating, while financial market performance was significant at a 5% level, and profitability and growth were also statistically significant, but at 10%.

Bissoondoyal-Bheenick & Treepongkaruna (2011) compared the determinants of commercial bank ratings, in the UK and Australia. The study found that quantitative factors that reflect asset quality (such as non-performing loans to total loans and charge-off to total loans), liquidity ratios (i.e. liquid assets to total assets), capital adequacy (i.e. total capital ratio), and a bank’s financial performance ratios (such as return on assets) are the key determinants of bank ratings. However, the analysis also found that macroeconomic variables and market risk factors did not seem to be contributing factors in explaining bank ratings in either country.

4.2.3. General Credit Rating Analysis for Corporations

Credit rating analysis is performed to determine the credit risk of an entity and it has traditionally been based on two basic components: Business risk\(^{30}\) and financial risk\(^{31}\) analysis. The determination of an entities credit rating requires a detailed analysis. The large,
or broad, scope of these two risk factors means that credit analysts need to conduct an extensive and invasive full company review. For these reasons, rated entities often view the rating process scrutiny as an expensive infringement of their privacy (Langohr & Langohr, 2008, p. 257-258; Standard & Poor’s Financial Services, 2013a).

4. Credit Rating Methodologies

4.2.3.1. Business Risk Analysis

Corporations, more often than not, compete in multiple industries and countries. The business risk of a corporation can, therefore, be viewed as a set of risk layers: The company risk within the industry risk within the country risk. The layers include: Country risk, industry risk, and company-specific risk. The three risk layers are analyzed with a blend of qualitative assessments and quantitative information. The business risk conditions the evaluation of corporations financial risk, by examining the debt capacity of an entity and how aggressive the financial policies of the entity can be (Langohr & Langohr, 2008, p. 258; Standard & Poor’s Financial Services, 2013a).

Country Risk: A corporation’s business environment is shaped by the dynamic of the country it operates in. The dynamics include the government, regulations, and etc. These dynamics determine the framework and rules that all corporations evolve under. Country risk limits the ratings that a corporation can achieve. In high-risk countries, even the best companies will be unable to achieve the highest credit rating. To arrive at an opinion of the inherent riskiness of a particular country, CRAs monitor the political and legal framework, the institutional and government effectiveness, quality of available human capital, the development of the financial system, macroeconomic factors such as inflation, interest rates, and finally the foreign exchange risk associated with operating in a particular country (Langohr & Langohr, 2008, p. 258; Standard & Poor’s Financial Services, 2013a).
**Industry Risk:** The dynamics of the industry strongly influence the current and potential performance that a corporation can achieve. An analysis of industry risk addresses the major factors that CRAs believe affect the risk that entities faces in their particular industry. The CRAs, therefore, study the broad industry structure and trends, along with new potential products and competitors. The factor studies include the industry’s revenue and profit cyclicality, entry barriers for new competitors, and industry-specific growth trends. These factors allow the CRAs to better understand the pricing power and the volatility in the performance of a corporation. Just as with country risk, industry risk is used to determine the limitation, if any, to the credit risk of the companies in an industry (Langohr & Langohr, 2008, p. 258; Standard & Poor’s Financial Services, 2013a).

<table>
<thead>
<tr>
<th>Industry risk assessment</th>
<th>Country risk assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (very low risk)</td>
<td>1 (very low risk)</td>
</tr>
<tr>
<td>2 (low risk)</td>
<td>2 (low risk)</td>
</tr>
<tr>
<td>3 (intermediate risk)</td>
<td>3 (intermediate risk)</td>
</tr>
<tr>
<td>4 (moderately high risk)</td>
<td>4 (moderately high risk)</td>
</tr>
<tr>
<td>5 (high risk)</td>
<td>5 (high risk)</td>
</tr>
<tr>
<td>6 (very high risk)</td>
<td>6 (very high risk)</td>
</tr>
</tbody>
</table>

Source: (Standard & Poor’s Financial Services, 2013a)

**Company-Specific Risk:** The final layer consists of an analysis to determine how volatile a corporation’s business performance will be. CRAs analyze how corporations compare, relatively, to its competitors. In doing so, they identify key competitive factors (e.g. price, quality, and service) of an industry and their underlying drivers (e.g. the low-cost position of a corporation if price is a key factor). These factors are then compared with the position of the corporation being evaluated. The strengths and weaknesses of the corporation are then analyzed by observed trends in market share, product and sale diversity, operating efficiency, sales growth, and the pricing power, compared to competitors. Finally, CRAs assess the management of the corporation. The CRA analysts are expected to meet and discuss with the management, evaluate their integrity, the shareholder pressure they face, and observe adopted financial policies (Langohr & Langohr, 2008, p. 259; Standard & Poor’s Financial Services, 2013a).

The combined risk of the three layers determines the level of business risk of the corporation, which is, usually, expressed in a score that classifies the business risk from low to high risk. The evaluation of the qualitative level of risk of the corporation’s business provides the basis
for the more quantitative measurement of the financial risk (Langohr & Langohr, 2008, p. 259-260; Standard & Poor’s Financial Services, 2013a).

For issuers with multiple business lines and/or operate in multiple countries, the business risk profile is, typically, based on a weighted average formula, of the lines and country that the corporation operates in, to form an overall assessment of the country, industry, and company-specific risk (Standard & Poor’s Financial Services, 2013a).

4.2.3.2. Financial Risk Analysis

Financial risk is a measure of a corporation’s ability to repay its obligations and withstand shocks (e.g. economic crises). CRAs use financial ratios to determine trends, make comparisons between competitors, and as a basis to forecast future expected performance. The calculations of the financial ratios rely on the understanding of the corporation’s that was derived, or acquired, from the business risk analysis (Langohr & Langohr, 2008, p. 259; Standard & Poor’s Financial Services, 2013a). CRAs maintain benchmark ratios for each industry, graded by credit quality to allow for comparison with other companies (see table 16 for examples of such benchmarks).

<table>
<thead>
<tr>
<th>Table 16. Example of Moody’s benchmark free cash flow ratios used in two different industries for two different years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Telecommunications Industry</strong></td>
</tr>
<tr>
<td>Aaa</td>
</tr>
<tr>
<td>2007</td>
</tr>
<tr>
<td>2005</td>
</tr>
<tr>
<td><strong>Tobacco Industry</strong></td>
</tr>
<tr>
<td>Aaa</td>
</tr>
<tr>
<td>2007</td>
</tr>
<tr>
<td>2004</td>
</tr>
</tbody>
</table>

*Source: (Langohr & Langohr, 2008, p. 269)*

The analysis of financial risks can, in general, be separated into four parts: Balance sheet, profitability, cash generation, and liquidity analysis. Each separate part then provides a distinctive conclusion regarding the corporation.

**Balance Sheet Analysis:** Allows a conclusion to be made regarding the financial risk taken by the firm. CRAs need to fully quantify the potential large number of obligations on and off the balance sheet that a corporation may have. These obligations are then compared with the assets of the corporation and allow the CRAs to calculate leverage ratios.
4. Credit Rating Methodologies

**Profitability Analysis:** Is used to evaluate the financial performance of the corporation’s assets and is characterized by profitability ratios such as return on assets, return on equity, and growth.

**Cash Generation:** The most important factor for analysts to consider is future cash generation since it is ultimately cash that is required to repay a corporation’s obligations. Therefore, CRAs focus much of their work and attention on cash flow ratios to forecast, as accurately as possible, future cash flows and to the assess volatility of the cash flow under a whole variety of scenarios.

**Liquidity Analysis:** Measures whether corporations will actually have cash when it is needed. This involves estimating future cash needs and how the corporation will be able to meet them (Langohr & Langohr, 2008, p. 260; Standard & Poor’s Financial Services, 2013a).

The financial risk analysis also results in a score. With the business and financial risk having been scored, each CRA applies its own appropriate weighting to the two scores. The scores are combined to provide an overall credit score that can be mapped to a specific credit rating, i.e. a specific letter grade.

<table>
<thead>
<tr>
<th>Financial risk</th>
<th>1 (minimal)</th>
<th>2 (modest)</th>
<th>3 (intermediate)</th>
<th>4 (significant)</th>
<th>5 (aggressive)</th>
<th>6 (highly leveraged)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (excellent)</td>
<td>AAA/AA+</td>
<td>AA</td>
<td>A+/A</td>
<td>A-</td>
<td>BBB</td>
<td>BB</td>
</tr>
<tr>
<td>2 (strong)</td>
<td>AA/AA-</td>
<td>A+/A</td>
<td>A-/BBB+</td>
<td>BBB</td>
<td>BB+</td>
<td>BB</td>
</tr>
<tr>
<td>3 (satisfactory)</td>
<td>A-</td>
<td>BBB+</td>
<td>BBB-/BBB-</td>
<td>BBB-/BBB+</td>
<td>BB</td>
<td>B+</td>
</tr>
<tr>
<td>4 (fair)</td>
<td>BBB/BB-</td>
<td>BBB</td>
<td>BBB+</td>
<td>BB</td>
<td>BB-</td>
<td>B</td>
</tr>
<tr>
<td>5 (weak)</td>
<td>BB</td>
<td>BB+</td>
<td>BB-</td>
<td>B+</td>
<td>B</td>
<td>B-</td>
</tr>
<tr>
<td>6 (vulnerable)</td>
<td>BB-</td>
<td>BB-</td>
<td>BB-/B+</td>
<td>B+</td>
<td>B</td>
<td>B</td>
</tr>
</tbody>
</table>

*Source: (Standard & Poor’s Financial Services, 2013a)*

4.2.3.3. Further Analysis that Determine Ratings

Most CRAs use business and financial risk as the building blocks for the establishment of a credit score. The rating process begins with an evaluation of the business and financial risk. Those two risk factors are then combined to establish a credit score, i.e. a grade, for an entity (see table 17). However, the final analysis performed before settling on a credit score is to consider whether any limits to the score should be applied due to the country risk or any other overriding factors.
As mentioned before, country risk can provide limits to a corporation’s credit score, e.g. corporations operating in high-risk countries are limited to lower scores. Most of the other factors that are reviewed, including the quality of management and the financial policy, are already a part of the established business and financial risk. However, overriding issues, such as poor accounting policies or weak corporate management, and governance, can lower, i.e. put limits on, the overall credit score. Once this process is completed the overall credit rating assessment is presented to the rating committee to make a final decision of which rating to assign to the corporation in question (Langohr & Langohr, 2008, p. 270-272).

4.2.3.3.1. Example of a Further Rating Analysis

In the case of S&P, the combined business and financial risk determines a corporation’s rating anchor (see figure 17). S&P analysts then build on this anchor with a further analysis into six modifiers: Diversification/portfolio effect, capital structure, financial policy, liquidity, management and governance, and comparable rating analysis (Standard & Poor’s Financial Services, 2013a).

**Diversification/Portfolio Effect:** The diversification/portfolio effect is evaluated within a corporation’s business risk profile, and is analyzed to identify the benefits of diversification across business lines. If a corporation has a moderate or significant diversification, i.e. multiple earnings streams, it can strengthen its overall business risk assessment and increase the rating grade.

**Capital Structure:** The review of a corporation’s capital structure assesses such possible risks that the previous review of leverage ratios may have missed. These risks include the currency risk of debt, debt maturity, debt maturity profile, the interest rate risk of debt, and investment sub-factors.
Financial Policy: A review of a corporation’s financial policies refines the view of a corporation’s risk beyond the conclusions, or results, arising from the standard assumptions in leverage ratios, capital structure, and liquidity analyses. Those assumptions do not always adequately capture the long-term risks of a corporation’s financial policy. This factor is, therefore, intended to measure, or capture, the degree to which managerial decisions can affect the predictability of a corporation’s financial risk profile.

Liquidity: A liquidity analysis focuses on assessing the sources and uses of cash, as cash is a key indicator of a corporation’s liquidity cushion. The assessment further addresses the potential for a corporation to breach debt covenants tests that are tied to declines in earnings before interest, taxes, depreciation, and amortization (EBITDA). The liquidity methodology incorporates a qualitative analysis into such factors as the ability to absorb high-impact, low-probability events, the nature of bank relationships, the level of standing in credit markets, and the degree of prudence of the corporation’s financial risk management.

Management and Governance: An examination of a corporation’s management and governance analysis how management’s strategic competence, organizational effectiveness, risk management, and governance practices shape the corporation’s competitiveness in the marketplace.

Comparable Rating Analysis: Comparable rating analysis is the final step in the determination of a corporation’s credit profile. It involves making a holistic review of a corporation’s credit risk profile, i.e. the different factors that combine to form an issuer’s credit rating are evaluated in aggregate. The comparable rating analysis is used to fine-tune the rating outcome, even after the use of the other modifiers. Each of the underlying sub-factors of a rating are assessed to be points within a possible range, showing the credit profile to be at the lower, upper, or mid-point, of such a range. For an example, if S&P believes, in aggregate, that a corporation’s ranking, across the sub-factors ranges, is higher than its proposed rating the corporation will receive a positive reassessment and its rating is upgraded. This analysis also considers additional factors not already covered, or fully

32 The holistic review emphasizes on a review of the whole and the interdependence of an organization’s parts, rather than an analysis of its separated parts.
captured, such as less frequently observed credit characteristics that may be unique, or uncertain risk factors, e.g. short operating track record, entities in transition, and industry or macroeconomic trends (Standard & Poor’s Financial Services, 2013a).

The assessment of each modifier may raise or lower a corporation’s grade, or have no effect. After the analysis of the last modifier, i.e. the comparable rating analysis, S&P has arrived at the final result of an issuer’s credit rating. However, if a corporation is a part of a larger group a further final step is made to estimate the potential influence and support in relation to the issuing corporation is also assessed regarding potential downgrades or upgrades of the issuer’s rating (Standard & Poor’s Financial Services, 2013a, 2013b).

Furthermore, in the case of S&P they have a special methodology for assigning “CCC” and “CC” ratings. Ratings of “CCC” and lower are more speculative and difficult to assess with any real certainty, as the issuer or issue in question is vulnerable to default and they are dependent upon favorable business, financial, and economic conditions to be capable of meeting financial obligations. To provide additional clarity to those ratings, S&P associates each rating with a distinct scenario, or set of scenarios. In fact, the criteria provided by these scenarios have priority over other sectors specific criteria when assigning a rating (Standard & Poor’s Financial Services, 2012c).

4.2.4. General Rating Analysis of a Corporate Debt Issue

The large majority of credit ratings are assigned to debt issues. These ratings do not only include an evaluation of default risk, as with an issuer’s rating, but also a recovery rating, which is the prospects of recovery from a specific debt issue in the event of a default. When rating a debt issue, CRAs first determine the issuers’ credit rating. The rating of the debt issue is then upgraded or downgraded from the issuer’s rating since the timely payments of debt is the main concern and trumps the expected recovery in the event of default. The credit analysis of specific debt issues focuses on factors that influence the expected recovery in the event of a default, as the corporate credit rating analysis already provides the default risk (Langohr & Langohr, 2008, p. 260-272).
The first step in determining the rating of a debt issue is the use of a table to score the range of risk of the potential loss in the event of a default and the associated recovery expected. With the credit rating of an issuer already established the main element in determining a debt issue’s rating is to score its recovery prospects. That involves determining the expected value of a corporation in the event of a default, i.e. its recovery value. The expected recovery of a specific debt issue will depend on its priority ranking and the recovery value of the corporation that is available to that class, or type, of debt issue.

<table>
<thead>
<tr>
<th>Risk of loss-given default</th>
<th>Recovery expectations</th>
<th>Recovery score</th>
<th>Influence on an instrument's overall credit score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very low risk</td>
<td>90–100%</td>
<td>1</td>
<td>+2</td>
</tr>
<tr>
<td>Low risk</td>
<td>70–90%</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>Moderately low risk</td>
<td>50–70%</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>Average risk</td>
<td>30–50%</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>High risk</td>
<td>10–30%</td>
<td>5</td>
<td>−1</td>
</tr>
<tr>
<td>Very high risk</td>
<td>0–10%</td>
<td>6</td>
<td>−2</td>
</tr>
</tbody>
</table>

Source: (Langohr & Langohr, 2008, p. 272)

The issues recovery score is then used in conjunction with the issuers credit score to determine the overall rating of the debt issue.

This chapter has reviewed in detail the credit rating process, methodologies, important input factors, and the related research. However, all these factors are subject to change as new and relevant information is brought to light, e.g. better methodologies or new input factors, and as financial markets evolve. The next chapter examines how the recent financial crisis brought forth changes to the rating methodologies of the CRAs.

33 Priority ranking of debt instruments determines the order of payment of claims in the event of a default.
5. The Global Financial Crisis

The global financial crisis that started in 2007 was in many ways attributed to the massive failure of CRAs to accurately credit rate structured finance securities (SFS)\textsuperscript{34} leading up to the crisis (Dreibelbis & Breazeale, 2012; McNamara, 2012; McVea, 2010). In the aftermath of the crisis, the CRAs were accused of conflicts of interest, as they simultaneously provided debt issuers with a rating for a fee and consulting or advisory services. It was argued that CRAs used inadequate quantitative models and that the rating models were missing important data or that insufficient information was used by the agencies. Regulatory authorities were criticized for lax regulatory oversight, as the widespread view was that CRAs were mostly self-regulated (McVea, 2010; Rafailov, 2011). The crisis has also been largely blamed on the overdependence of financial markets on credit ratings, as both regulators and other market participants over-relied on ratings to assess the credit risk of assets and markets (Financial Stability Forum, n.d.; Partnoy, 2009). The primary cause of the rating failure has, however, been identified to be the flawed quantitative models used by the CRAs. The key flaw in the models was the method used to determine the correlation between borrowers, i.e. the likelihood that one borrower might default in the event that another borrower defaulted (Benmelech, Dlugosz, Ashcraft, & Holmstrom, 2009; Financial Stability Forum, n.d.; McNamara, 2012).

The significant public criticism regarding CRAs, and their ratings, led regulatory authorities to respond by increasing regulations of the credit rating market, to prevent the issuance of inaccurate ratings in the future. These regulations, however, mainly consist of increased disclosure of CRAs rating processes and the information used and its reliability. Furthermore, the regulations were also intended to decrease, or curb, the influence of conflicts of interest due to the CRAs issuer-pays business model\textsuperscript{35} (Bayar, 2014; McNamara, 2012; McVea, 2010; White, 2010).

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\textsuperscript{34} Structured finance securities is a broad term used to describe securities, such as collateralized debt obligations and asset-backed securities, which assist to transfer risk using complex legal and corporate entities. These types of securities are used to increase liquidity to, for example, the housing market and permits financial institutions to remove certain assets from their balance sheets. The securities are backed by financial assets, such as mortgages and other receivables.

\textsuperscript{35} The regulatory framework is reviewed more extensively in chapter 6.
Despite the large scope of the criticism’s directed at the CRAs, little criticism was actually directed at the CRAs traditional business of rating the credit risk of debt obligations issued by corporations, municipalities, and other business and government entities. On the other hand, SFS ratings came under intense scrutiny, especially the CRAs ratings of collateralized debt obligations (CDOs) (McNamara, 2012; Rafailov, 2011).

A CDO is a type of asset-backed security that is backed by a diverse pool of debt obligations, such as domestic and foreign bank loans, other asset-backed securities, and mortgage-backed securities. In a CDO structure, a collateral manager invests in a portfolio of debt obligations that are used as the collateral and referred to as the underlying asset pool of a CDO. The cash flow of the individual underlying assets of the CDO are pooled together and sliced into tranches based on seniority. The tranches are split up into senior tranches, mezzanine tranches, and subordinate/equity tranches, allowing investors to decide which tranches they invest in. The cash flow of a CDO can be described as a waterfall, see figure 20. If some of the underlying debt obligations, in the CDOs assets pool, default and the cash flow collected is insufficient to pay all of the CDO investors, the most junior tranches suffer losses first (Fabozzi et al., 2010, p. 639-644; Lenzer & Zhao, 2012; McNamara, 2012).

![Figure 20. Distribution of the cash flow of the underlying asset pool of a CDO](Grönquist, 2012)

The safest tranche to invest in is the senior tranche, as it is the last tranche to suffer payment impairments in the case of defaults, and it, therefore, receives the highest rating from CRAs, and hence provides investors with the lowest yield and can be sold at a premium. Coupon payments of a CDO, therefore, vary by tranches with the most senior, or secure, tranche paying the lowest coupon rate and the lowest tranche, i.e. the equity tranches, paying the highest rate to compensate for the higher default risk. For senior tranches a rating of at least an “A” is sought, for a mezzanine a rating of “BBB” but no less than “B” is sought, and the
equity tranches receive the residual cash flow and, therefore, no rating is sought for those tranches (Fabozzi et al., 2010, p. 639-644; Lenzer & Zhao, 2012; McNamara, 2012).

While the aim of a CDO rating is to capture the credit risk of the securitie being issued, just as with traditional debt securities, rating a CDO differs, particularly, in two ways. One difference is that in a CDO there is no organization attempting to execute a business plan; instead it has an asset pool often concentrated in one segment of the economy, most notoriously in residential real estate. A CDO is not a dynamic organization; it simply receives payments from its underlying assets. In fact, instead of evaluating a corporation’s management and the prospects of the corporation in the economy at large, rating a CDO involves the use of complex statistical rating tools to determine the level of credit risk by taking into account several data fields relevant to each particular CDO. The second difference is that the CDO rating process is repetitive, with issuers knowing in advance the tools that will be used to rate the debt issue. The issuer of a CDO engages in a back-and-forth discussion with the analysts in charge of the rating and alters the structure and conditions of the CDO based of those discussions. Once the structure is in place the CRA analyst presents the CDO to the rating committee at the agency to determine a rating recommendation. However, the issuer of the CDO can appeal the committee’s rating if he disagrees with the conclusion (McNamara, 2012).

The mathematical rating models are a key issue within the rating process and while the models used by the Big Three agencies differed in their particulars, they all followed the same basic two-step approach. First, a loss distribution is determined for the underlying asset pool. Second, cash flow simulations are executed using loss distribution to estimate whether the securities in the proposed CDO structure merit the rating sought. The estimation of the loss distribution involves an analysis of the asset pool that is used as collateral in the CDO. Assets used as collateral include mortgages, other asset-backed securities, and corporate loans. The assets are assigned default probabilities, typically, based on historical data relevant to their performance. A key assumption in the first step of the process concerns the assets’ correlation, i.e. the likelihood that one asset will default in the event that another asset defaults. For example, in the case of S&P, if one corporate debt security defaults S&P’s CDO Evaluator assumed that another corporate debt security issued by a company in the same sector would have a 15% chance of defaulting, but the likelihood that another corporate
scurity, issued by an issuer in a different sector, defaulted was assumed to be only 5%. Many observers believe that a key factor in the flawed, or overestimated, ratings assigned to mortgage-backed CDOs is that the correlation assumptions for default on mortgage-backed securities in the asset pools were far too low. Once the default probabilities and other factors such as the recovery rates are determined, Monte Carlo simulations\(^{36}\) are run, resulting in probability distribution of losses throughout the underlying asset pool of the CDO (Benmelech et al., 2009; Financial Stability Forum, n.d.; MacKenzie & Spears, 2014; McNamara, 2012).

Having determined the loss distribution, the second step is to determine how the projected losses would affect the proposed CDO. In the CDO Evaluator model used by S&P, this is accomplished by estimating the level of default each tranche must be able to withstand in order to achieve the targeted credit rating. The CRA analyst first determines the default rate on corporate bonds with the same rating and maturity, as the targeted rating of a particular tranche and for bonds with a maturity that is equal to the weighted average maturity of the CDOs asset pool. For example, assume that corporate bonds, with a maturity of 7 years and a rating of “AA”, have a 2% chance of default. This scenarios estimated loss rate is the default rate for the particular tranche in question that has a no greater than 2% chance of being exceeded under the loss distribution calculated in the first stage. Finally, the CRA runs cash flow simulations to ensure that each tranche will meet its scheduled interest and principal payments in the event of defaults, up to the scenarios’ loss rate (McNamara, 2012).

The ratings generated by the CRAs models proved to be very unreliable as the financial crisis unfolded, with a massive amount of rating downgrades of CDO securities. Any quantitative model is of course limited by its assumptions and the quality of its inputs. Both the assumptions behind the CRA models and the accuracy of the data concerning the underlying collateral of SFS, particularly CDOs formed in 2006 to 2007, failed to produce ratings that reflected the creditworthiness of the securities being rated. The failure of the models were found to be the result of faulty data, as well as the assumptions used to interpret the data and

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\(^{36}\) A problem-solving technique used to approximate the probability of certain outcomes, by running multiple trial runs, i.e. simulations, using random variables (Brealey et al., 2014, p. 254-258).
the tranche structure of the CDOs (Benmelech et al., 2009; Lewis, 2010; MacKenzie & Spears, 2014; McNamara, 2012; McVea, 2010; Rafailov, 2011).

As there simply existed no information on the risk of default for actual mortgages, CRAs used data on the prices of credit default swaps (CDS) to proximate the risk of default for CDOs. The CDSs used were related to mortgage-backed securities (MBS) and were used as a tool by market participants to ensure against negative changes in the prices of MBSs. In theory, this might have been a plausible alternative to estimating the correlation of prices. It, however, did not correlate with the defaults to be expected in the housing market in the near future. Since the CDS data used were limited to a time of rising housing prices and a changing mortgage market, as mortgage products such as interest-only and adjustable rate had not existed during the period, the estimated correlation was not applicable to the model and stands out as perhaps the single most important flaw in the models. The models implicitly assumed that housing prices would continue to rise. CRAs did not evaluate each individual loan in a CDOs asset pool, they simply evaluated the characteristics of mortgage loan pools in general. Many hundreds and thousands of assets were in the CDOs asset pools and the assumption of the CRAs, and their models, was that this large pool would diversify the specific risk related to a single loan. However, due to the underlying assets sensitivity to a decline in real estate prices they were instead exposed to great systemic risk which they themselves created (Lewis, 2010; Matthews, 2009; McNamara, 2012).

A second informational flaw of the CDOs concerns the quality of the collaterals. Issuers of CDOs became adept at filling the underlying asset pools with the lowest quality collateral necessary to still achieve a desired rating. CDOs effectively became dumping grounds for low quality, fixed-income assets that banks could not otherwise dispose of. The flaws in the CRAs rating models, for a time, turned the low quality assets into highly rated gold. The use of subprime mortgages as collateral in CDOs in 2005 and 2006 does all but confirm this suspicion. CDOs therefore became a way to sell illiquid and low quality financial assets for financial institutions (Benmelech & Dlugosz, 2009; Keys, Mukherjee, Seru, & Vig, 2010; Lewis, 2010; McNamara, 2012).

Although the flaws in the rating models can, in many ways, explain the distorted ratings of CDOs and SFS, in general, it still does not mean that potential conflicts of interest were not to blame. The potential desire of CRAs to please their clients, i.e. the issuing organizations,
could have led analysts to turn away from a more rigorous examination of the assumptions and data used in the rating models. Conflicts of interest, in all likelihood, made the financial crisis much worse than it had to have been, as the housing bubble and SFS boom continued for perhaps two or three years longer than it otherwise would have (McNamara, 2012). A study by Barnett-Hart (2009) tested whether the CRAs fee system caused conflicts of interest that resulted in a more aggressive initial ratings from CRAs, subsequent more downgrades, and worse accuracy in rating CDOs of large issuers. It used regression analysis on 735 US CDOs issued from 1999 to 2009 and the results were equivocal. There was a striking uniformity of initial CDS credit ratings and the prediction value of the asset’s credit rating depended mainly on the quality of the issuer. The study’s conclusion was that conflicts of interest were not as much to blame for the crisis as simply a failure by the CRAs to distinguish among issuers quality. The result of the study supports the widespread claims that financial institutions learned how to mislead the CRAs to gain a better rating. Banks would, for example, create securities so non-transparent and complex that they were difficult for CRAs, and other market participants, to understand (Langohr & Langohr, 2008, p. 368; Lewis, 2010).

Regulatory authorities have enacted new legislations to decrease the chances of a similar failure by the CRAs. The new legislations are meant to decrease conflicts of interest and increase the CRAs liability for their ratings (as the new legislations have exposed the CRAs to increased litigation risk), the transparency of the rating process, and the CRAs due diligence regarding information that they acquire in the process of rating an entity (especially third party information). The next chapter addresses how international standards and regulations have evolved and changed in recent times.
6. International Standards and Regulatory Frameworks

Although the credit rating industry emerged in the 1900s there were no significant regulations, at a national or international level, on the CRAs until the 2000s. There were regulations in place in the US, but not regarding the workings of the CRAs themselves, rather that regulated institutional investors were restricted from investing in debt securities that were not rated by NRSRO certified CRAs. The NRSRO certification did not, however, place restrictions on how CRAs operated; instead it assisted in the creation of the current oligopoly market structure that exists in the present credit rating market, where three agencies control the market. Outside of the US no regulations were present regarding credit ratings and their agencies, as is expanded upon in the following sections (Bayar, 2014; McVea, 2010; OECD, 2010; Partnoy, 1999, 2009; White, 2010).

Presently Iceland has no direct rules or regulations regarding CRAs, or credit ratings. According to Ólafur Ásgeirsson (personal communication, March 16, 2015), the Financial Supervisory Authority in Iceland (FME) has been discussing whether to put in place a regulatory framework for CRAs to better align to international standards. This chapter reviews international standards and regulatory frameworks to provide a deeper frame of reference to the potential regulatory changes that may be introduced, in the foreseeable future, regarding credit ratings in the Icelandic market. These potential regulatory changes all have the same denominator in that they would put some form of restraints on domestic CRAs, such as increased oversight, demands for transparency, information quality and method reporting.

6.1. International Regulations

In 2003, the International Organization of Securities Commissions (IOSCO) issued the “Statement of Principles Regarding the Activities of Credit Rating Agencies” and the “Code of Conduct Fundamentals for Credit Rating Agencies” in 2004. These principals and code of

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37 The NRSRO was explained in more detail in sections 2.1.1. Historical Overview and 2.2.1. The Big Three.
38 IOSCO is an association of the world’s regulatory authorities that regulate securities and futures markets, its members regulate more than 95% of the world’s securities markets. The commission is recognized as the global standard-setter for the securities sector and works closely with the G20 and the Financial Stability Board on global regulatory reform agendas (International Organization of Securities Commissions, n.d.).
conduct were voluntary principals for CRAs regarding the quality and integrity of the credit rating process, independence, avoidance of conflicts of interest, and public disclosures of their own code of conduct. IOSCO has since modified the Code of Conducts Fundamentals to address issues that occurred surrounding the activities of CRAs in the rating of SFSs. Despite the criticisms surrounding ratings, following the financial crisis in 2008, the IOSCO Code still contains no specific rules regarding the rating methodologies of CRAs, it only contains considerations for the agencies when it comes to the rating process (Bayar, 2014).

In contrast, since the crisis the Financial Stability Board (FSB)\textsuperscript{39} and the Basel Committee on Banking Supervision\textsuperscript{40} have supported and proposed changes to reduce the overreliance of regulatory authorities and financial institutions on credit ratings (Bayar, 2014; European Commission, 2013).

6.2. Regulations in the United States

Regulations regarding CRAs have their longest worldwide history in the US. In 1936, the first regulation was set forth regarding CRAs to legally prohibit banks from investing in securities that were rated as speculative investment securities\textsuperscript{41} and in 1948 similar regulations were adopted for insurance companies (White, 2010). Otherwise, no significant regulations were introduced until 1975 when the SEC began to use ratings as an indicator of risk and prohibited institutional investors from investing in bonds that were not rated by NRSRO certified CRAs\textsuperscript{42}. The first regulations introduced with the desired intent of improving the quality of credit ratings, to protect investors, to promote accountability, transparency, and competition in the credit rating market was the CRA Reform Act of 2006. The new regulations came as a response to the failure of the large CRAs to effectively rate companies such as Enron and WorldCom. The main changes of the CRA Reform Act were as follows:

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\textsuperscript{39} The Financial Stability Board is an international organization that monitors and makes recommendations about the global financial system. The board's main mandate is to promote international financial stability (Financial Stability Board, n.d.).

\textsuperscript{40} The Basel Committee on Banking Supervision is a global standard-setter for the prudent regulation of banks. Members of the committee are central banks from 27 countries (The Bank for International Settlements, n.d.).

\textsuperscript{41} Nowadays, known as "junk bonds" or non-investment grade bonds.

\textsuperscript{42} See section 2.1.1 Historical Overview for further details regarding NRSRO certifications.
- The NRSRO certification process was changed in an attempt to increase the number of certified CRAs and to increase competition.
- The SEC was granted oversight authority over certified NRSROs and required to set in place specific regulations to prevent the misuse of material and non-public information and to prevent conflicts of interest related to, for example, compensations. This, however, did not entail substantive regulation of the CRAs credit rating process.
  - The SEC was not provided with the authority to criticize particular ratings from CRAs, nor the methodologies used by registered CRAs.
  - The act also provided private parties no new rights to seek legal action against CRAs. Over the years, court in the US had held that CRAs were protected from the liability of litigation from poor ratings, unless it was proven that rating publications were made with the “knowledge of falsity” or “reckless disregard for the truth”.
    (Cahill Gordon & Reindel LLP, 2006)

In light of the global financial crisis, the US enacted the Dodd-Frank Wall Street Reform and Consumer Protection Act. The act afforded the SEC more authority and guidelines regarding the oversight of CRAs. The Dodd-Frank Act addressed the markets demands to increase CRA accountability, the accuracy of ratings, and public disclosure of rating methodologies. Furthermore, the act aimed to decrease CRAs conflicts of interest and regulatory reliance on ratings. The acts main changes were as follows:

- An official department within the SEC was established, designated to oversee NRSROs and to enforce SEC regulations.
- The SEC was authorized to deregister CRAs as NRSROs for providing bad ratings over an extended period of time.
- At least once a year the SEC was required to examine the operations of certified NRSROs and publicly report key findings.
- NRSROs were required to disclose their credit rating procedures and methodologies.
- Certified NRSROs were obligated to provide information to the SEC regarding the quality of the data used to establish a rating.
- NRSROs were required to establish internal controls that would implement, enforce, and maintain regulatory policies.
- At least a half of NRSROs board of directors had to be independent of the NRSRO.
- Investors could bring legal actions against CRAs if the agencies failed to investigate facts, used in establishing a rating, in a reckless manner.
- Rating analysts were required to pass exams intended to confirm their qualifications and to maintain their education.
- The use of ratings by multiple government agencies was eliminated to reduce overreliance on rating.
    (Bayar, 2014)
6.3. Regulations in the European Union

The EU did not consider any need for legislative initiatives regarding the credit rating market or CRAs until it noticed serious weaknesses in the existing EU regulations following the financial crisis in 2008 and the Eurozone sovereign debt crisis. Until that point, the EU considered the IOSCO Code of Conduct to be sufficient. Since that time, the EU has enacted three new regulations relating to the credit rating market (Bayar, 2014).

The first regulation, CRA I, was enacted in 2009 and made it compulsory for CRAs to register their operations. In 2011, the European Securities and Markets Authority (ESMA) was established as an independent EU authority to contribute to the safeguarding of the stability of the financial system. ESMA is responsible for supervising CRAs and enforcing registration requirements (European Securities and Markets Authority, 2012).

The second regulation, CRA II, was enacted in 2011. The regulation was intended to clarify ESMA's role and responsibilities. In addition, ESMA was authorized to investigate the operations and rating processes of CRAs. Furthermore, ESMA was granted the power to force CRAs to comply with regulations in the CRA I. The regulation also required issuers of SFSs to provide pertinent information to all interested CRAs, in an attempt to encourage new CRAs to establish a base of unsolicited ratings with the desire to increase competition in the credit rating market (Bayar, 2014).

The third regulation, CRA III, was enacted in 2013 to address regulatory concerns regarding investors and financial institutions overreliance on ratings, conflicts of interest, and entry barriers in the credit rating market. However, the regulation did not only impose regulations on CRAs, but also on issuers, originators, and sponsors related to SFSs (Regulation (EU) No. 462/2013 of the European Parliament and of the Council of 21 May 2013 amending Regulation (EC) No 1060/2009 on credit rating agencies).

Overall, this chapter shows that the financial crisis in 2008 led governments and regulatory authorities to review their legislations and supervision over CRAs with the aim of reducing overreliance on ratings, to increase the quality of ratings, and to increase the accountability of the agencies. This has placed extra burdens and costs on CRAs as the agencies have greater obligations to report their rating methodologies, what information is used, and the reliability
of the information. The agencies have also been, to a larger degree, exposed to potential litigation for issuing bad or ill-conceived ratings.

Up to this point, a detailed review of credit ratings has been established to evaluate how ratings positively and negatively affect financial markets and market participants. Prior chapters have analyzed the status of credit ratings in today's financial markets, along with its history and evolution. The chapters have addressed such subjects as the methodologies and processes underlying ratings, regulations of the industry, criticisms, and the interpretations of ratings. The Icelandic market was reviewed in chapter three, by analyzing the bond market and its investors, along with discussing the capital controls and risk in small economies. An important subject that has, however, not been addressed is the extent to which the Icelandic market and its participants, use and view credit ratings in general. The next chapter deals with this subject by reviewing the findings of interviews that were conducted with Icelandic market participants.
7. Interviews with Market Participants in Iceland

The interviews were intended to shine a light on how the domestic market views and uses credit ratings. Interviews were conducted with domestic market participants from different parts of the market, the goal being to obtain a wide range of opinions on the subject. All interviewed market participants had a significant experience and know-how of the Icelandic financial market.

This chapter is divided into three sections. The first section accounts the main findings of the interviews. Section two describes the individuals interviewed and the last section details the interviews in a deeper and more significant way.

7.1. Main Findings from the Interviews

Market conditions have altered since the beginning of the financial crisis, potentially making it more beneficial, than before, for domestic organizations to issue bonds. Today, the banks' competitive ability has been reduced, for an example, because their borrowing costs are higher. The credit ratings of the Icelandic banks have been downgraded, in a significant manner, and their equity requirements increased. Banks can also only offer fixed interest rates for up to five years.

The domestic bond market is expected to maintain its recent upturn, i.e. bond issuance is expected to increase even further. However, the domestic bond market is very small and illiquid, and is expected to remain that way for the foreseeable future, even if ratings are further introduced and used in the market.

Credit ratings are not highly established in the domestic market. CRAs have not established a broad rating base or marketed ratings and their potential value to the market. Market participants, in turn, have not started applying or using domestic ratings in their work procedures in any significant fashion, although there are some exceptions.

Domestic credit rating procedures are very similar to those of the larger international CRAs, to ensure comparability. In addition, Iceland does not possess a long history of defaults to use as the foundation when credit rating a domestic organization, except for one big and abrupt sequence of defaults that occurred as the financial crisis unfolded.
A few potential upsides to domestic credit ratings were identified: Increased comparability between investments, ratings assist with the assessment of risk, reduced risk, lower borrowing costs, organizations may be able to gain a higher grade than otherwise possible, and ratings assist investors to keep track, or surveillance, of negative changes surrounding their investments.

For domestic CRAs to be trusted, they need to employ rating analysts who are experts in their field and find ways to assure market participants that their ratings are fully independent, despite the small size and interdependence of the Icelandic market.

It will take time to establish credit ratings in Iceland, but their usage has been increasing, although slowly, and is expected to maintain that upward trend. The market is so small that in many instances investors' belief is that they, themselves, have enough information to better assess the risk related to an organization than a domestic CRA.

The listed bond market is much smaller than its private counter partner, which decreases the potential benefits and the need for organizations to acquire a rating. On the other hand, if 70-80% of listed bonds were rated then it is expected to become standard practice and that with time investors would demand that all bonds issued, public and private, be rated.

Regarding institutional investors, concerns were raised regarding the limited resources of pension funds to keep track of their investments and the qualifications of Icelandic bond fund managers, increasing the potential value of credit rating to those funds.

It is highly probable that regulations surrounding credit ratings will be enhanced in the near future in Iceland, with the FME looking into potential regulatory changes, e.g. establishing a regulatory entity to supervise CRAs.

7.2. Short Description of the Interviewees

One interview was conducted, in unison, with two employees of the domestic CRA Reitun, Ólaf Ásgeirsson, the manager of Reitun and IFS43, and Hreiðar Már Hermannsson, a credit rating analyst at Reitun. The agency has rating agreements with five domestic entities: Arion

43 Reitun is a subsidiary of IFS. IFS is an independent firm that offers financial analysis and consulting services. The firm’s main tasks are research services, treasury management services, and consulting projects (IFS, n.d.).
Bank, the municipals Kópavogur and Hafnarfjörður, the National Power Company of Iceland, and Reykjavik Energy. The agency publishes regular credit rating reports on these organizations and/or on their issued bonds (Reitun, n.d.-b). In addition, Reitun publishes unsolicited credit ratings on bonds issued by 29 corporations, municipalities, investment funds, and financial institutions in Iceland (Reitun, n.d.-c).

Ísak S. Hauksson, a corporate advisor at ALM Finance (ALM), was also interviewed. ALM is an independent Icelandic financial service firm that provides consulting services, risk management, asset management, and corporate finance advice to corporations and investors. The firm possesses extensive experience in working with companies, institutions, high net worth investors, and funds. Its projects range from assisting in the definition and implementation of risk and investment policies, and active and passive management of assets and liabilities of clients. Since 2012, ALM has also credit rated nine domestic companies and 20 of the largest municipalities in Iceland, which it updates twice a year, and investors can subscribe to the unsolicited rating reports (ALM Fjármál, 2012, 2013, n.d.).

Further interviews were held with financial analysts and advisors that work closely with institutional investors to obtain their views on the subject at hand, but they asked not to be mentioned by name and are thus referred to as market participants in the following sections.

7.3. A More Detailed Account of the Interviews
This section is meant to further detail the opinions and views acquired from the interviews. The information acquired is reviewed separately in relations to the bond market, credit ratings in Iceland, Icelandic institutional investors and financial institutions, and regulations surrounding credit ratings in Iceland.

7.3.1. View on the Bond Market
The change in the ratings and regulations of Icelandic banks has decreased their ability to compete in the Icelandic loan market. Today, Icelandic banks do not have access to “cheap” financing, as they did before the financial crisis in 2008, i.e. their cost of borrowing has increased. Before the crisis, Icelandic banks had strong credit ratings, which in part were inherited from the Treasury (Hilmarsson, 2013). Another change for the Icelandic banks is that their equity requirements have been increased by regulatory authorities, which means that they cannot loan out as much as they could before the crisis (Brynjólfsdóttir, 2013).
Consequently, the banks are financing themselves at higher rates than before the crisis. In light of these changes, and others, it has become more viable and possibly cheaper for many Icelandic organizations to finance themselves through the issuance of bonds (Ó. Ásgeirsson, personal communication, March 16, 2015).

A factor that a market participant pointed out, is the fact that Icelandic banks can only offer fixed interest rates for up to 5 years, and are very much competitive until that level of bond maturity. On the other hand, if organizations are looking to fix their interest rates to longer maturities, e.g. 30 years, they need to issue bonds.

These are among the reasons why market participants have, since the crises, expected more activities in the Icelandic bond market than has been the reality. The growth of the bond market may have been hindered by the prolonged settlement of domestic corporate debt, as many corporations defaulted following the crisis or entered into negotiations to write down some of their debt to remain operationally viable. Interviewed participants were, however, all in an agreement that they expect the recent upturn in corporate bond issuance, see figure 8, to continue into the foreseeable future.

One input from Ísak, at ALM, was that the private bond market in Iceland is much larger in scale than the public one and there is not necessarily a large correlation between investors required rate of return on a bond and the bond’s credit rating. However, it is not because market participants are mispricing the bonds, but rather that the market is very small and illiquid.

7.3.2. View on Credit Ratings in Iceland

According to market participants, domestic credit ratings are not highly established or used among Icelandic investors. The domestic CRA, Reitun, acknowledges this and according to them they have not marketed their ratings in a significant way or tried to educate investor on their ratings, the methods used, how their ratings are intended to be used, and how they can assist investors and analysts. Since Reitun began to credit rate Icelandic firms, the agency has been more focused on developing its rating methodologies and NRS for the Icelandic market, than growing the number of rated organizations or market the rating reports. Reitun claims that it is now in a position to expand the domestic credit rating market, by growing the number of ratings issued and by educating investors on ratings. The CRA firmly believes
that there is a real opportunity to introduce credit ratings better and in a more significant way to the Icelandic market.

According to Ísak, at ALM, banks, insurance companies, credit card companies, and other market participants conduct their own unsolicited rating analyses, of sorts, as they analyze the financial ratios of the organizations that they purchase debt securities from. Since 2012, ALM has been producing its own unsolicited ratings as it is considered an important and valuable part of analyzing bonds, and for larger financial service firms, overseas, it is considered a standard work procedure. Unlike Reitun, ALM did not experience any demand or pressure from investors to introduce and use ratings in the firm’s work. ALM uses the unsolicited ratings as a part of the introductory material for investors when reviewing bond issuers’ finances, and it is something that investors appreciate. In addition, the firm uses the ratings as a part of their criteria when investing, for their clients, in corporate bonds, as bonds below a certain grade are automatically disqualified. Furthermore, when ALM presents financing packages, i.e. corporate bond issues, to institutional investors (such as pension funds) the firm conducts, and presents, unsolicited ratings on every bond, as it increases the information available to the investors and can be used a surveillance tool. Finally, ALM has been looking into publishing their own credit rating index on listed debt securities to assist with the promotion of the firm’s unsolicited rating reports and to introduce the market to ratings.

According to the interview conducted with staff members of the domestic CRA Reitun, the agency’s rating methodologies are very similar to that of the large international CRAs. The reason being that the larger agencies control the global rating market. The Big Three CRAs control over 90% of the market and are, as a result, the benchmark for the rating process and determine how ratings are interpreted. Therefore, Reitun essentially uses a very similar criteria framework as the Big Three agencies to ensure the comparability of their credit ratings to that of the Big Three.

Ísak, at ALM, had the same view and further added that there should not be a big difference in models that are driven by financial ratios, as the most relevant ratios in one country are, more often than not, also the most relevant ratios in another country. He also commented that Iceland does not have a long history of default to use as a foundation when rating an Icelandic organization. According to Ólafur, at Reitun, for different CRAs the initial rating result from
the underlying credit rating models are usually not that far apart. But the ratings can differ slightly from one CRA to another, as the agencies have different views on potential economic and industry factors, or trends.

There are several possible upsides for Icelandic organizations to gain a rating by a domestic CRA, according to market participants:

- By obtaining a credit rating, organizations are in a better position to compare the cost of issuing bonds (by looking at the yields of bonds issued by similar entities with the same rating) or acquiring a loan from a bank. A rating would make it easier for organizations to evaluate and decide on how to raise new capital or whether to re-finance current outstanding debt.
- Credit ratings assist investors in assessing the risk of their bond holdings and portfolios.
- Rating can reduce risk and, therefore, also the cost of borrowing. There are few analysts tracking domestic organizations directly and by gaining a rating, domestic firms could decrease the informational asymmetry between investors and issuers. It is also of value to investors not having to perform their own analyzes of publicly issued data and to acquire an independent, and an insider’s, view of issuers.
- International CRAs have a negative experience with Iceland, as they sorely overrated the Icelandic banks in the lead-up to the financial crisis. This has infected the CRAs current view of Iceland, with Icelandic organizations receiving lower ratings than the rating models and forecasts suggest. In light of that, Icelandic organizations may, currently, acquire a more reasonable rating, i.e. a better rating, from a domestic CRA than an international CRA, with the resulting lower cost of borrowing.

According to Ólafur, at Reitun, it is rather unlikely that domestic organizations or financial institutions would approach the Big Three agencies or other larger CRAs to rate domestic bond issues unless external regulation would require it. The reason being that it would simply be too expensive for, comparatively, small domestic organizations and bond issues. It would be more realistic and cheaper to make use of domestic CRAs, who also possibly possess a deeper knowledge of the market in general.

Nevertheless, one interviewed market participant remarked that in order for credit ratings to be seen as trustworthy and reliable by analysts, domestic CRAs would need the credit rating reports to be compiled by trusted and experienced experts in the field. In addition, another interviewee expressed concerns whether it is possible to conduct a fully independent domestic credit rating, as the market and its number of participants is so small and tied together.
When asked whether medium and larger corporations in Iceland could lower their cost of borrowing by receiving a rating, an interviewees’ view was, that since the rating would assist investors in the long-run to keep track of the developments of the corporation and its likely default, i.e. limit investors risk regarding future developments, then yes it would lower the borrowing costs. Not only would the risk decrease, but in his opinion the liquidity might also increase as a result. With a rating more institutional investors would be interested in participating in any potential bond issuance as it would cost the investors less to keep track of the corporation and any potential negative developments, i.e. ratings would reduce risk.

One market participant did not see a lot of value for listed corporations in Iceland acquiring ratings, as investors already receive quarterly data regarding the corporations’ performances. When asked whether he saw the value in the extra insider information that CRAs have access to at rated entities, the interviewee said that he himself saw value in the insider information, but that market participants currently did not and that the overall investor belief is that they have enough information to better estimate the credit risk for listed corporations and their issued bonds on their own.

However, the same market participant saw substantial value for medium sized corporations and municipalities in Iceland to receive a rating. In his opinion, there is, for an example, a lot of information to analyze when it comes to municipalities, there is extensive “junk” news coverage surrounding local politics and political developments that would increase the value of the CRAs insider information. Publicly available information regarding medium sized corporations in Iceland is also small in scale and might make insider information more valuable. Another potential value is that if these entities were rated, the investors would also be better apprised of their likely recovery in the case of a default.

When it came to the future outlook for domestic credit ratings, Ísak at ALM had the following opinion. Despite the current conditions in Iceland (e.g. capital controls and banks borrowing at higher rates than before), he does not expect corporations in Iceland to look more towards publicly issuing bonds for financing rather than financing through bank loans. The reason being that most corporations in Iceland are small, they need certain flexibility, and want to keep a low profile. These corporations would rather issue bonds privately as there is a lot of capital available in that marketplace for financing, making it an unnecessary harassment to enter the public market. However, he further commented that if 70-80% of listed bonds had
a formal credit rating then it was likely that it would become standard practice for bonds to have a rating. In that case investors and other market participants would gradually demand that every bond issued, whether it was listed or not, would be rated.

7.3.3. View on Icelandic Institutional Investors and Financial Institutions

All interviewed market participants agreed that domestic investors and analysts have not begun to use domestic credit ratings in any significant form and that it would take time for ratings to obtain a foothold among investors in Iceland. The consenting view was that investors and analysts are not used to using ratings or applying them in their work procedures and that investors would need to grow used to ratings and be better informed, or educated, regarding their value. Presently, there are certain analysts that use issued rating reports to assist them in tracking developments surrounding their rated bond assets. However, there are few institutional investors using the ratings in any significant manner. Ísak, at ALM, also pointed out that there are so few organizations that have a formal rating that comparability in the Icelandic market is missing. Without a proper and large credit rating base to compare ratings to it is difficult to use the current domestic ratings in any significant way, e.g. to make a comparison between investments. Furthermore, market participants are not used to paying for these types of information and it will take time for them to see the inherent value of credit rating, before they are willing or able to pay.

Regarding the Icelandic pension funds, one interviewee implied that the Icelandic pension funds spend too little money on their operations to properly manage their investments (see figure 21 for a comparison of the operating expenses for pension funds in Iceland and other countries).

![Figure 21. Pension funds' operating expenses as a share of total investments in selected OECD countries in 2013](Source: (OECD, n.d.)
He further stated that the pension funds asset management teams are, as a result, too small and understaffed to have the time to adequately research and track the development of the funds large asset base. This is where credit ratings could be very valuable in the interviewees’ opinion. The credit ratings could assist the pension funds to research potential investments and track changes in the environment or operations of the funds’ assets. This is a contrasting view to a report compiled by the Icelandic research firm Capacent Ráðgjöf (2009), which inferred that the relatively low operating expenses of Icelandic pension funds were a sign of their operational efficiency.

A market participant also commented that bond ratings might be valuable to bond funds. According to him, bond funds have grown significantly recently, figure 13 supports this, with “almost every shop in town establishing a bond fund”. In his opinion, there are questions surrounding the qualifications of the bond funds managers. The bond funds are mostly managed by former stockbrokers, most of which may have limited knowledge of the bond market. For these funds it might, therefore, be of value to be able to demonstrate to investors that, for an example, 70% of the funds’ assets are in rated bonds, in order to gain their trust and, subsequently, capital. This would likely reduce investors’ uncertainty, i.e. risk, regarding the bond funds management and increase their interest in investing in the funds, i.e. it would increase the liquidity of the bond funds. For example, ALM manages certain corporate bond funds for institutional investors and they provide unsolicited ratings to every bond under management and the portfolio as a whole. According to ALM, this is something that investors really appreciate and is something which will be used much more in the near future.

7.3.4. View on the Regulations Surrounding Credit Ratings

While there are not extensive regulations regarding the credit rating market in Iceland, there have been discussions, since 2010, of increasing the regulations in light of the financial crisis. The FME has been discussing potential financial market regulatory changes in Iceland, with domestic CRAs likely to become regulated. It still remains to be seen whether domestic CRAs would be regulated and certified by the FME or the EU’s regulatory agency ESMA. If, however, domestic CRAs would need to be regulated and certified by ESMA it is probable that it would prove too costly, as domestic CRA are very small relative to other CRAs in the European market. Domestic CRAs might then be forced to enter into a collaboration with a
certified CRA in Europe to remain in the credit rating market in Iceland as a licensed CRA (Ó. Ásgeirsson, personal communication, March 16, 2015).

The market participants all agreed that institutional investors, e.g. pension funds, trust of domestic CRAs would increase if they were regulated and certified by an official regulatory authority. However, there were differences in opinions regarding how much the trust would grow. Still most believed it would assist domestic CRAs to gain footing in the market.

The interviewees agreed that investors and analysts would eventually accept the inherent value of credit ratings, either with time or if regulations were changed to force the use of ratings. If regulations were put in place that only allowed institutional investors to buy bonds of a certain grade (e.g. of “BBB” or higher) then investors and analyst would have to start using ratings and domestic CRAs would benefit greatly. However, the overall view was still that using credit ratings would decrease the uncertainty and the risk of the domestic bond market, and that good companies would be expected to lower their costs of borrowing.
8. Results and Conclusions

This thesis set out to analyze and explore the nature and value of credit ratings in today’s financial markets, both globally and in Iceland. The ultimate goal of the thesis is to identify any potential value that the Icelandic market could gain from a further, or increased, introduction or usage of credit ratings domestically. The thesis also seeks to examine whether international credit rating methodologies are valid methods of choice for CRAs when rating an entity within Iceland and to analyze how credit rating methodologies changed, or were affected, due the global financial crisis and its effects, or potential effects, on ratings in Iceland.

Credit ratings have a short history in Iceland and are not highly established among market participants. However, the thesis has identified various valuable attributes that ratings could provide for the domestic market, along with a few steps to assist them to come to fruition. While it is clear that credit ratings and their agencies came under intense scrutiny and criticism in recent times (Bayar, 2014; Partnoy, 2009), ratings still play a vital and important role in today’s financial markets (Langohr & Langohr, 2008, p. 158; Moody’s Investor Service, 2014; Standard & Poor’s Financial Services, 2011; The U.S. Securities and Exchange Commission, 2014b). Credit ratings have been shown to create value for financial market participants by decreasing uncertainty, as ratings provide the market with valuable information, thereby reducing credit risk, assisting organization to lower their cost of capital and to increase their access to capital markets (Choy et al., 2006; Dreibelbis & Breazeale, 2012; Ederington & Goh, 1998).

Credit rating reports are, or at least should be, provided by experts in their field who collect and analyze a large amount of public and private, i.e. insider information, data. CRAs do not necessarily report new or unavailable information to market participants. Nevertheless, CRAs track macro- and microeconomic trends in regions, industries and etc., and combine it with information from and about a specific organization to report comprehensive and detailed information of that organization’s long-term creditworthiness, ability, and willingness to service and pay back current debt obligations. This information is then reported and made available to all market participants in the market which, consequently, assists to harmonize the knowledge that these market participant use to make decisions in their respective field, i.e. reduce asymmetric information, whether it be asset or portfolio management or equity.
valuation, to name a few (Bissoondoyal-Bheenick & Treepongkaruna, 2011; Dreibelbis & Breazeale, 2012; Langohr & Langohr, 2008; McDaniel, 2002). If financial markets were fully efficient on their own, e.g. if no asymmetrical informational gaps existed, then the need for ratings would not exist and governments would not find themselves forced to set regulations to increase market efficiency (Fabozzi et al., 2010, p. 12-13).

The following sections separately discuss the different findings and results of the thesis in relations to the questions that it sought answers to. The first section reviews the potential value that credit ratings could provide for the domestic market. The second section discusses whether international rating methods and criteria are applicable to the Icelandic marketplace. The third section briefly discusses the effects that the financial crisis had on credit ratings and the fourth section considers the way forward for the credit rating market in Iceland, by discussing its present state, opportunities present, and potential steps to take. The chapter then finishes with a few final remarks regarding the thesis and its significance.

8.1. Can Credit Ratings Create Value for the Domestic Market?

The potential value attainable is discussed from two viewpoints: The value that academic research has identified and the value that domestic market participants see as conceivable in the market.

8.1.1. The Potential Value According to the Academic Research

Ratings create value by decreasing the uncertainty or volatility surrounding an organization’s credit risk. This value is attained by decreasing asymmetric information in financial markets, whereby assisting to enhance market transparency, market efficiency, and investor protection. In so doing, ratings reduce the aggregated cost for all involved, whether it be for investors, financial intermediaries, debt security issuers, and business and financial institutions (Dreibelbis & Breazeale, 2012; Langohr & Langohr, 2008, p. 89-90). For example, a higher rating should, all else being equal, increase the liquidity of an issue, as the base of interested investors will grow, and decrease the default risk of an issue. Both factors should lead to a lower borrowing cost for the issuing entity. Credit ratings also provide a common standard of language for market participants, and provide a way to compare the credit risk and borrowing cost of different entities and debt issues (Langohr & Langohr, 2008, p. 89-90).
However, research regarding the potential benefits of credit ratings has almost exclusively been directed at larger markets. The Icelandic market is very small, something all the interviewees’ mention, which alters the value that ratings could provide. Elayan et al. (2003) study in New Zealand and Han et al. (2009) study of emerging market, suggest that the effect and/or value of ratings is even more profound in smaller economies. That is, unlike in larger economies where the effects of rating changes are mostly felt when ratings are downgraded (Choy et al., 2006; Fatnassi et al., 2014; Hite & Warga, 1997; Jorion et al., 2005), in smaller economies both up- and downgrades are shown to contain price relevant information. Volatility is also higher in smaller economies, as they are more sensitive to global changes in key import and export industries (Handel, 1990; Hreinsson, Benediktsdóttir, et al., 2010; Katzenstein, 1985; Kautto et al., 2005; Thorhallsson, 2011). This implies that domestic credit ratings could create value for the Icelandic financial market if used properly.

8.1.2. The Potential Value According to the Domestic Market Participants

The market participants disagreed, in part, on the potential upsides that credit ratings could create for the domestic market. Doubts were, for an example, cast over the liquidity increase that a good grade might entail for a debt issue. The view being that the Icelandic market is so small and illiquid that the potential increase in liquidity would be miniscule at best. Nevertheless, the participants agreed that credit ratings could, potentially, have the following upsides for the market:

- **Increase Comparability:** Corporations would be better equipped to assess whether it is better, i.e. cheaper, to seek financing by issuing bonds or by approaching a bank. By looking at the yield on bonds issued by other corporation, a corporation could quickly discover its expected borrowing cost of issuing debt securities. Investors could also make easy risk comparisons between two or more bond issues.

- **The Quality of Risk Assessments:** Investors risk management would be expected to improve as they would be better informed to the overall risk of their portfolios. Ratings could also provide an important independent input into a market that has been accused of being too interdependent (Hreinsson, Benediktsdóttir, et al., 2010).

- **Reduce Risk:** Risk in the market could be reduced by reducing asymmetric information between investors and issuers.

- **Lower Costs:** Ratings assist investors to keep track, or surveillance, of potential negative changes related to their bond holdings. Costs decrease as each investor does not have to spend time or money on tracking the developments themselves. All these factors create value for investors which in turn should decrease the expected borrowing cost of the issuer.
Overall, there are potential valuable upsides for the Icelandic market to increase its usage of credit ratings.

8.2. Are International Rating Models and Criteria Applicable to the Icelandic Market

The domestic CRA Reitun and the financial service firm ALM, both use similar credit rating models and methods as the Big Three CRAs. Both parties cite the importance of not deviating too far from the Big Three to maintain comparability between their ratings and those of the Big Three since they control the rating market. In fact, in 2014 Reitun changed its NRS to better align its ratings to the scales of the Big Three due to pressure from domestic debt issuers and investors (Reitun, 2014).

The credit rating market is considered a natural oligopoly where the Big Three agencies control over 90% of the global credit rating market (OECD, 2010; The U.S. Securities and Exchange Commission, 2014b). Consequentially, other CRAs, whether they operate internationally or domestically only, are forced to follow their lead and maintain comparability to the Big Three to stay in the market. Without this comparability investors and issuers alike would, in all probability, take their business elsewhere, as everything is evaluated compared to the ratings of the Big Three (Standard & Poor’s Financial Services, 2009).

Domestic CRAs, therefore, cannot deviate too much from the methods and models used by the Big Three. However, there are always small modifications needed to adapt the methods and models to the different conditions and workings of the Icelandic market, e.g. capital controls, taxes, regulatory framework and the political and legal risk, to name a few (Fitch Ratings, 2006; Langohr & Langohr, 2008; Reitun, 2011; Standard & Poor’s Financial Services, 2013a).

Another point which supports this view is that, according to research, many of the underlying factors, e.g. financial ratios, that affect the credit quality of an organization in the US also affect the credit quality of a similar organizations in other countries (Beaver et al., 2005; Bissoondoyal-Bheenick & Treepongkaruna, 2011; Gray et al., 2006; Murcia et al., 2014).

The usage of international methods and criteria does still undermine, a bit, the quality of credit ratings for Icelandic entities. Iceland is a small economy and that adds some potential transferability issues relative to credit ratings in larger economies. It is difficult to base a
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credit rating, for an Icelandic organization, on the domestic default and rating history, as it is very short relative to other larger markets. Therefore, the criteria for domestic ratings are, more often than not, based on foreign databases rather than a more relevant domestic one. Furthermore, once the capital controls are removed investors will compare Icelandic and foreign bonds, weighing the foreign exchange risk premium against the need to diversify internationally.

8.3. Effects of the Financial Crisis on Credit Ratings

The events of the financial crisis led governments and regulatory authorities to comprehensively review the rating industry and the inner workings of CRAs. The review resulted in changes to the regulatory framework that CRAs comply to, to increase the transparency of the methods and data used by the CRAs, to enhance the reliability of the information used in the rating process, decrease conflicts of interest due to the CRAs issuer-pays business model, and to ensure the independence and objectivity of the CRAs and their analysts. Surveillance authorities were also put in place to monitor the agencies (Bayar, 2014; Dreibelbis & Breazeale, 2012; McNamara, 2012; McVea, 2010; White, 2010).

CRAs role in the financial crisis in 2008 demonstrated to authorities the danger of letting the credit rating market be self-regulated. The reliance of market participants and regulatory authorities on ratings still remains large despite the actions taken to reduce the reliance on ratings since the crisis. Financial markets overreliance on ratings and the CRAs alleged conflicts of interest due to their issuer-pays business model lead authorities to make changes to regulations and the oversight of the market. Although the poor rating quality was largely blamed on the CRAs business model, it is yet to be proven that the potential conflicts of interest did indeed cause the rating quality to be reduced. On the other hand, regulation changes related to the rating methodologies of the CRAs were small in scale (Bayar, 2014; McNamara, 2012; McVea, 2010; Partnoy, 2009; White, 2010).

No direct rules or regulations exist in Iceland regarding CRAs. It is, however, probable that regulations surrounding credit ratings will be enhanced in the near future, with the FME already looking into potential regulatory changes, e.g. establishing a regulatory entity to supervise CRAs. According to Reitun, these changes could significantly affect the market, since the only current CRA, Reitun, and potential entrants would have to register, i.e. be officially certified as CRAs, to be allowed to credit rate organizations.
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Market participants had different opinions on whether the fact that domestic CRAs would be certified and regulated would increase investors trust towards the agencies. Reitun’s belief was that it would assist to increase the trust of the market, but other market participants thought the effects would be minimal at best.

8.4. Things to Consider for the Way Forward

This section discusses the way forward for the credit rating market in Iceland and its agencies, by separately reviewing the present state of the market, the opportunities in the market, and steps to consider in creating a viable future in the domestic field of CRAs.

8.4.1. Present State of the Domestic Credit Rating Market

The credit rating market in Iceland is young and small. Ratings were, for an example, only introduced to the market in 1989 as the government sought access to international capital markets (The Central Bank of Iceland, n.d.-f) and the first domestic CRA was not established until 2010 (Reitun, n.d.-a). It then, perhaps, comes as no surprise that market participants in Iceland have not begun using ratings to any real degree in their work. Other reasons acquired from the interviews include the fact that the base of organizations in Iceland with a rating is small, with only five organizations carrying an official domestic rating, making comparability difficult. Furthermore, investors are not used to paying for this type of information and it will take time for them to see the value that ratings offer.

Presently, the fact remains that there has not been established a large enough base of domestic organizations with a credit rating and ratings, in general, and their potential value have not been introduced or presented to market participants in a sufficient manner. It will take time to establish credit ratings in Iceland, but their usage has been increasing, although slowly, and is expected to maintain that upwards trend. Market participants also still have reservations regarding the value that ratings could offer to the Icelandic marketplace. The market is so small that in many instances investor belief is that they, themselves, have enough information to better assess the risk related to an organization than a domestic CRA.44

44 See further in section 7.3.2. View on Credit Ratings in Iceland.
8.4.2. Opportunities for Domestic Credit Rating Agencies

The bond market in Iceland has grown in recent years, especially the issuance of corporate bonds, as figure 8 demonstrated. Furthermore, the main bond investors in Iceland, i.e. institutional investor funds, pension funds and bond funds, have all increased their presence in the domestic bond market, particularly in corporate bonds, and could still increase it further\(^{45}\). The interviewees, unanimously, expect the domestic bond market to maintain its recent upturn, i.e. its increased bond issuance. Nevertheless, they still consider the bond market to be very small and illiquid, and expect it to remain that way for the foreseeable future.

Additionally, the limited resources of pension funds to keep surveillance of their investments and concerns raised regarding the qualifications of Icelandic bond fund managers, increase the potential value of credit rating to these segments\(^{46}\).

The Icelandic debt market is small and, therefore, the first CRAs in the market are likely to gain a competitive advantage and create entry barriers into the domestic rating market, as there is no room, i.e. enough sustainable revenues, for the existence of many CRAs in the marketplace. On the other hand, the CRAs are limited in their potential growth as the market is small and they cannot be expected to compete with large international agencies when it comes to rating bonds issued in international capital markets. Icelandic CRAs should, therefore, focus their attention, exclusively, on building the domestic rating market.

8.4.3. Steps to Take

This thesis has identified the following steps that should be taken to assist with the proper establishment of credit ratings in the Icelandic financial market: Increase the base of rated entities, enhance the reputation of agencies and ensure independence, and education of the market.

8.4.3.1. Increase the Base of Rated Entities

It been discussed over and over again in this thesis that comparability is an important and valuable factor for issuers and investor, and it is one of the potential upsides of credit ratings

\(^{45}\) See a further review in section 3.2. Bond Investors.

\(^{46}\) See further in section 7.3.3. View on Icelandic Institutional Investors and Financial Institutions.
that the domestic market participants identified. CRAs, therefore, need to increase the number of rated organizations and debt issues. As one interviewee commented, the listed bond market in Iceland is much smaller than its private counter partner, which decreases the benefits and need of gaining a rating. He further stated, however, that if 70-80% of listed bonds were to be rated then he expected it to become standard practice and that with time investors would demand that all bonds issued, public and private, be rated\(^47\).

Nevertheless, it will take time to persuade organizations to seek official ratings and build this base, as it is time-consuming, intrusive, and an expensive process\(^48\) (Langohr & Langohr, 2008, p 257-258; Standard & Poor’s Financial Services, 2013a). Therefore, to begin with, CRAs should focus on providing unsolicited ratings for these organizations and their debt issues. It has been shown that CRAs can build up demand for their ratings by issuing unsolicited ratings that are well researched and reduce information asymmetry (Bayar, 2014; Langohr & Langohr, 2008, p. 416-417).

8.4.3.2. Enhance Reputation of Agencies and Ensure Independence

For CRAs their reputation is everything (Dreibelbis & Breazeale, 2012; Partnoy, 1999; White, 2010), therefore, domestic CRAs will be short lived if investors do not trust credit rating reports. In fact, the revenues of CRAs have been shown to stem directly from their reputations\(^49\) (Langohr & Langohr, 2008, p. 416-417). The reputation of a CRA comprises investors, and other market participants, beliefs concerning the quality of the agency’s ratings. Agencies, therefore, need to build up a track record of quality ratings that are considered trustworthy, independent, and objective. Again, the establishment of unsolicited ratings can be used to build up this track record (Bayar, 2014; Dreibelbis & Breazeale, 2012; Langohr & Langohr, 2008, p. 416-417; Partnoy, 1999; White, 2010).

Market participants interviewed expressed concerns regarding domestic CRAs potential ability to maintain an independent and objective rating process in such a small and interdependent market. Furthermore, concerns were raised regarding the potential qualifications and experience of the domestic CRAs rating analysts. These concerns need to

\(^{47}\) See section 7.3.2 View on Credit Ratings in Iceland.

\(^{48}\) Further detailed in section 4.2.3. General Credit Rating Analysis for Corporations.

\(^{49}\) See in section 2.2.5.1. Revenues.
be addressed and alleviated, by the agencies as they seek to gain the trust of market participants. Steps that could assist include the following:

- CRAs put in place clear procedures to minimize the potential connection or conflicts of interest that rating analysts might have to an entity being rated.
- The agencies hire analysts that the market can trust and who are experts in their field.
- Authorities put in place legislation regarding CRAs that is aimed at decreasing conflicts of interest and to increase the transparency of the rating process and agencies due diligence regarding the information used to establish a rating.

8.4.3.3. Education of the Market

Although the heading suggests otherwise, this step does not exactly address the education of the market, i.e. in the sense that market participants do not have the education to be able to use credit rating in their work. Rather, this step is more related to the promotion of credit rating and their inherent value. For example, this thesis identified several attributes of credit ratings that can create value for the Icelandic market. These attributes include, for an example, the reduction of risk and a decrease in the aggregated cost of all market participants (Dreibelbis & Breazeale, 2012). CRAs need to promote these potential values to the market and the quality of their processes and rating reports, in order to stimulate the usage of ratings by market participants.

The promotion of these values should be accompanied with a clear discussion of how ratings should be interpreted and how they should not, to promote the right usage of ratings and to increase the efficiency of the domestic financial market.

8.5. Concluding Remarks

The thesis has analyzed credit ratings both globally and in Iceland, by examining prior literature and research and by interviewing experienced and knowledgeable market participants in Iceland when it comes to the bond and rating market. Several potential upsides for the domestic market are identified. International rating methods have been shown to be applicable to the market, even though they come with shortcomings. Furthermore, it has been demonstrated that the financial crisis initiated a string of legal and regulatory changes surrounding credit rating and their agencies across markets, and despite the fact that no such regulatory changes have been introduced in Iceland yet, it is still likely to lead to similar changes in Iceland in the foreseeable future. The thesis ended by putting forth a few
recommendations regarding the next steps to take in the rating market in Iceland, to assist to grow the usage level of ratings in Iceland.

This thesis has demonstrated that while credit ratings can supply value to the market, it must still be remembered that the market is small and has a young history. There is a lack of experience in the functions and operations of the market, resulting in small and unreliable data regarding factors in the rating process. Consequently, credit ratings and their significance and value to the market have to be further examined as the market’s experience and usage of ratings increase over time. Therefore, future research should, for an example, construct a default history table for Iceland and research whether the use of that table, when credit rating a domestic entity, would increase the overall reliability of ratings in Iceland.

The study is also limited to the fact that research related to credit ratings in smaller economies is small in scale. Furthermore, interviews with domestic market participants were hard to come by, possibly resulting in less reliable information regarding the market, its views, prospects, and inner workings.

Nevertheless, this thesis provides input and research into an otherwise largely unexamined subject matter within the Icelandic financial market. Credit ratings are tools to decrease asymmetric information in financial markets and, consequently, to increase the efficiency of those markets. For a market that has since its inception sought to minimize its comparatively large exposure to risk and interdependence, credit ratings could be a tool that assists market participants to achieve, or come as close as possible, to those aspirations.
### Table 19. Developments in S&P’s sovereign credit rating of Iceland

<table>
<thead>
<tr>
<th>Standard &amp; Poor’s</th>
<th>Foreign Currency</th>
<th>Domestic Currency</th>
<th>Change from previous year in bold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affirmed(date)</td>
<td>Long-term</td>
<td>Short-term</td>
<td>Long-term</td>
</tr>
<tr>
<td>‘89</td>
<td>Ai</td>
<td>A-1</td>
<td>…</td>
</tr>
<tr>
<td>‘94</td>
<td>A (new)</td>
<td>A-1</td>
<td>AA+</td>
</tr>
<tr>
<td>‘96</td>
<td>A+</td>
<td>A-1+</td>
<td>AA+ (new)</td>
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<tr>
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<td>AA+</td>
</tr>
<tr>
<td>March ’01</td>
<td>A+</td>
<td>A-1+</td>
<td>AA+</td>
</tr>
<tr>
<td>Oct ’01</td>
<td>A+</td>
<td>A-1+</td>
<td>AA+</td>
</tr>
<tr>
<td>Nov. ’02</td>
<td>A+</td>
<td>A-1+</td>
<td>AA+</td>
</tr>
<tr>
<td>Dec. ’03</td>
<td>A+</td>
<td>A-1+</td>
<td>AA+</td>
</tr>
<tr>
<td>Feb. ’05</td>
<td>AA-</td>
<td>A-1+</td>
<td>AA+</td>
</tr>
<tr>
<td>June ’06</td>
<td>AA-</td>
<td>A-1+</td>
<td>AA+</td>
</tr>
<tr>
<td>Dec. ’06</td>
<td>A+</td>
<td>A-1</td>
<td>AA</td>
</tr>
<tr>
<td>Nov. ’07</td>
<td>A+</td>
<td>A-1</td>
<td>AA</td>
</tr>
<tr>
<td>Apr. ’08</td>
<td>A+</td>
<td>A-1</td>
<td>AA</td>
</tr>
<tr>
<td>Apr. ’08</td>
<td>A</td>
<td>A-1</td>
<td>AA-</td>
</tr>
<tr>
<td>Sept. ’08</td>
<td>A-</td>
<td>A-2</td>
<td>A+</td>
</tr>
<tr>
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<td>BBB</td>
<td>A-3</td>
<td>BBB+</td>
</tr>
<tr>
<td>Nov. ’08</td>
<td>BBB-</td>
<td>A-3</td>
<td>BBB+</td>
</tr>
<tr>
<td>Dec. ’09</td>
<td>BBB-</td>
<td>A-3</td>
<td>BBB+</td>
</tr>
<tr>
<td>Jan. ’10</td>
<td>BBB-</td>
<td>A-3</td>
<td>BBB+</td>
</tr>
<tr>
<td>March ’10</td>
<td>BBB-</td>
<td>A-3</td>
<td>BBB</td>
</tr>
<tr>
<td>May ’11</td>
<td>BBB-</td>
<td>A-3</td>
<td>BBB-</td>
</tr>
<tr>
<td>Nov. ’11</td>
<td>BBB-</td>
<td>A-3</td>
<td>BBB-</td>
</tr>
<tr>
<td>Oct. ’12</td>
<td>BBB-</td>
<td>A-3</td>
<td>BBB-</td>
</tr>
<tr>
<td>Jul. ’13</td>
<td>BBB-</td>
<td>A-3</td>
<td>BBB-</td>
</tr>
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</table>

Source: (The Central Bank of Iceland, n.d.-f)
### Table 20. Developments in Moody’s sovereign credit rating of Iceland

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<tr>
<th>Moody’s Affirmed (date)</th>
<th>Foreign Currency</th>
<th>Domestic Currency</th>
<th>Outlook</th>
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</thead>
<tbody>
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<td>Long-term</td>
<td>Short-term</td>
<td>Long-term</td>
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<td>A2</td>
<td>…</td>
<td>…</td>
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<tr>
<td>Oct. ’90</td>
<td>A2</td>
<td>P-1 (new)</td>
<td>…</td>
</tr>
<tr>
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<td>A1</td>
<td>P-1</td>
<td>…</td>
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<tr>
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<td>A1</td>
<td>P-1</td>
<td>…</td>
</tr>
<tr>
<td>July ’97</td>
<td>Aa3</td>
<td>P-1</td>
<td>Aaa (ný)</td>
</tr>
<tr>
<td>Oct. ’02</td>
<td>Aaa</td>
<td>P-1</td>
<td>Aaa</td>
</tr>
<tr>
<td>March ’08</td>
<td>Aaa</td>
<td>P-1</td>
<td>Aaa</td>
</tr>
<tr>
<td>May ’08</td>
<td>Aa1</td>
<td>P-1</td>
<td>Aa1</td>
</tr>
<tr>
<td>Sept. ’08</td>
<td>Aa1</td>
<td>P-1</td>
<td>Aa1</td>
</tr>
<tr>
<td>Oct. ’08</td>
<td>A1</td>
<td>P-1</td>
<td>A1</td>
</tr>
<tr>
<td>Dec. ’08</td>
<td>Baa1</td>
<td>P-2</td>
<td>Baa1</td>
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<tr>
<td>Nov. ’09</td>
<td>Baa3</td>
<td>P-3</td>
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<tr>
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<td>P-3</td>
<td>Baa3</td>
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<tr>
<td>July ’10</td>
<td>Baa3</td>
<td>P-3</td>
<td>Baa3</td>
</tr>
<tr>
<td>April ’11</td>
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<td>P-3</td>
<td>Baa3</td>
</tr>
<tr>
<td>Nov. ’12</td>
<td>Baa3</td>
<td>P-3</td>
<td>Baa3</td>
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<tr>
<td>Feb. ’13</td>
<td>Baa3</td>
<td>P-3</td>
<td>Baa3</td>
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</table>

*Change from previous year in **bold**

Source: (The Central Bank of Iceland, n.d.:f)
### Table 21. Developments in Fitch’s sovereign credit rating of Iceland

<table>
<thead>
<tr>
<th>Fitch</th>
<th>Foreign Currency</th>
<th>Domestic Currency</th>
<th>Outlook</th>
</tr>
</thead>
<tbody>
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<td>Affirmed (date)</td>
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<td></td>
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<tr>
<td>Feb. '00</td>
<td>AA-</td>
<td>F1+</td>
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</tr>
<tr>
<td>Sept. '00</td>
<td>AA-</td>
<td>F1+</td>
<td>AAA</td>
</tr>
<tr>
<td>Feb. '02</td>
<td>AA-</td>
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<td>March '03</td>
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<td>AAA</td>
</tr>
<tr>
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<td>F1</td>
<td>AA+</td>
</tr>
<tr>
<td>Apr. '08</td>
<td>A+</td>
<td>F1</td>
<td>AA+</td>
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<tr>
<td>Sept. '08</td>
<td>A-</td>
<td>F2</td>
<td>AA</td>
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<td>Oct. '08</td>
<td>BBB-</td>
<td>F3</td>
<td>A-</td>
</tr>
<tr>
<td>Dec. '09</td>
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<td>F3</td>
<td>A-</td>
</tr>
<tr>
<td>Jan. '10</td>
<td>BB+</td>
<td>B</td>
<td>BBB+</td>
</tr>
<tr>
<td>May '11</td>
<td>BB+</td>
<td>B</td>
<td>BBB+</td>
</tr>
<tr>
<td>Feb. '12</td>
<td>BBB-</td>
<td>B</td>
<td>BBB+</td>
</tr>
<tr>
<td>Feb. '13</td>
<td>BBB</td>
<td>F3</td>
<td>BBB+</td>
</tr>
<tr>
<td>Jul. '14</td>
<td>BBB</td>
<td>F3</td>
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<td>BBB</td>
<td>F3</td>
<td>BBB+</td>
</tr>
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</table>

*Change from previous year in **bold**

*Source: (The Central Bank of Iceland, n.d.-f)*
10. References

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Act on mutual funds, investment funds and institutional investor’s funds no. 128/2011.


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Reykjavik University

June, 2015
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