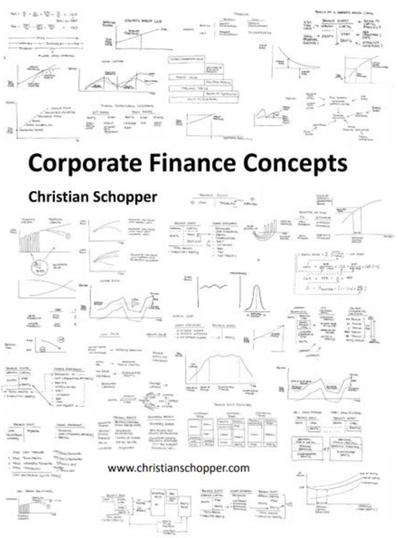
BONDS AND CREDIT RATING

2017

For more concepts click on:



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Typical Bond Features

- The *indenture* - a written agreement between the borrower and a trust company - usually lists
  - Amount of Issue, Date of Issue, Maturity
  - Denomination (Par value)
  - Annual Coupon, Dates of Coupon Payments
  - Security
  - Sinking Funds
  - Call Provisions
  - Covenants

- Features that may change over time
  - Rating
  - Yield-to-Maturity
  - Market price

- The general issuance procedure is similar to that of a stock
  - … whereby indentures and covenants are not relevant to a stock issuance

Bond Term Sheet

Issue amount	$20 million	Bond issue total face value is $20 million
Issue date	12/15/98	Bonds offered to the public in December 1998
Maturity date	12/31/18	Remaining principal is due December 31, 2018
Face value	$1,000	Face value denomination is $1,000 per bond
Coupon interest	$100 per annum	Annual coupons are $100 per bond
Coupon dates	6/30, 12/31	Coupons are paid semiannually
Offering price	100	Offer price is 100% of face value
Yield to maturity	10%	Based on stated offer price
Call provision	Callable after 12/31/03	Bonds are call protected for 5 years after issuance
Call price	110 before 12/31/08, 100 thereafter	Callable at 110 percent of par value through 2008. Thereafter callable at par.
Trustee	United Bank of Florida	Trustee is appointed to represent bondholders
Security	None	Bonds are unsecured debenture
Rating	Moody's A1, S&P A+	Bond credit quality rated upper medium grade by Moody's and S&P's rating

Protective Covenants

- Agreements to protect bondholders

- Negative covenant: Thou shalt not:
  - pay dividends beyond specified amount
  - sell more senior debt & amount of new debt is limited
  - refund existing bond issue with new bonds paying lower interest rate
  - buy another company's bonds

- Positive covenant: Thou shalt:
  - use proceeds from sale of assets for other assets
  - allow redemption in event of merger or spinoff
  - maintain good condition of assets
  - provide audited financial information

The Sinking Fund

- There are many different kinds of sinking-fund arrangements:
  - Most start between 5 and 10 years after initial issuance
  - Some establish equal payments over the life of the bond
  - Most high-quality bond issues establish payments to the sinking fund that are not sufficient to redeem the entire issue

- Sinking funs provide extra protection to bondholders

- Sinking funs provide the firm with an option

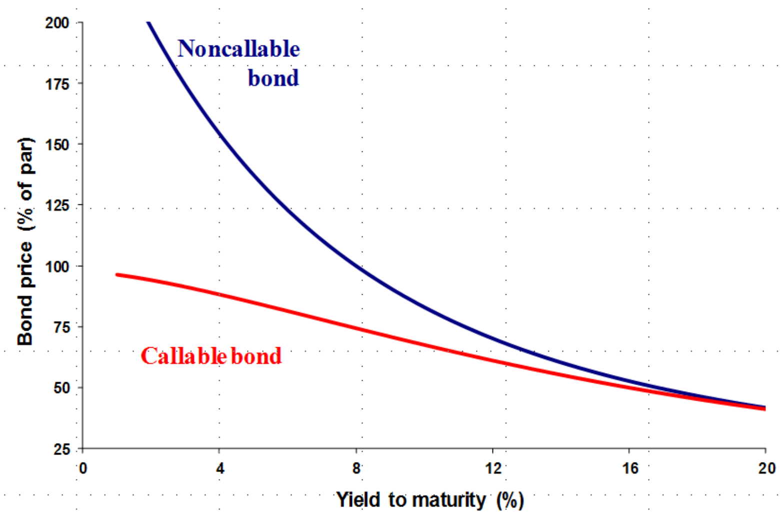
Bond Refunding

- Replacing all or part of a bond issue is called *refunding*

- Bond refunding raises two questions:
  1. Should firms issue callable bonds?
  2. Given that callable bonds have been issued, when should the bonds be called?

Callable vs Non-Callable Bonds

- Most bonds are callable
  - Some – for the issuer - sensible reasons for call provisions include: Taxes, managerial flexibility and the fact that callable bonds have less interest rate risk



- If the issuer issues a callable bond then a higher yield has to be paid on it
  - A bond's interest rate is guaranteed only for investors of non-callable bonds until it matures
  - An investor can count on a callable bond's interest rate only until a call date arrives

- Issuing a callable bonds gives the issuer the right to refinance the debt if either interest rates drop or the credit quality of the issuer improves

Bond Ratings

- What is rated:
  - The likelihood that the firm will default
  - The protection afforded by the loan contract in the event of default
- Who pays for ratings:
  - Firms pay to have their bonds rated
  - The ratings are constructed from the financial statements supplied by the firm
- Ratings can change
- Rating agencies can disagree

Bond Ratings – Investment Grade

Moody's	Duff & Phelps	S&P's	Credit Rating Description
Aaa	1	AAA	Highest credit rating, maximum safety
Aa1	2	AA+	
Aa2	3	AA	High credit quality, investment-grade bonds
Aa3	4	AA-	
A1	5	A+	
A2	6	A	Upper-medium quality, investment grade bonds
A3	7	A-	
Baa1	8	BBB +	
Baa2	9	BBB	Lower-medium quality, investment grade bonds
Baa3	10	BBB-	

Bond Ratings – Non-Investment Grade

Moody's	Duff & Phelps	S&P's	Credit Rating Description
			Speculative-Grade Bond Ratings
Ba1	11	BB+	Low credit quality, speculative-grade bonds
Ba2	12	BB	
Ba3	13	BB-	
B1	14	B+	Very low credit quality, speculative-grade bonds
B2	15	B	
B3	16	B-	
			Extremely Speculative-Grade Bond Ratings
Caa	17	CCC+	Extremely low credit standing, high-risk bonds
		CCC	
		CCC-	
Ca		CC	Extremely speculative
C		C	
		D	Bonds in default

„Junk“ Bonds

- Anything less than an S&P “BB” or a Moody’s “Ba” is a junk bond
- A polite euphemism for junk is *high-yield bond*
- There are two types of junk bonds:
  - Original issue junk: possibly not rated
  - Fallen angels: rated
- Current status of junk bond market
  - Private placement
- Yield premiums versus default risk

Different Types of Bonds

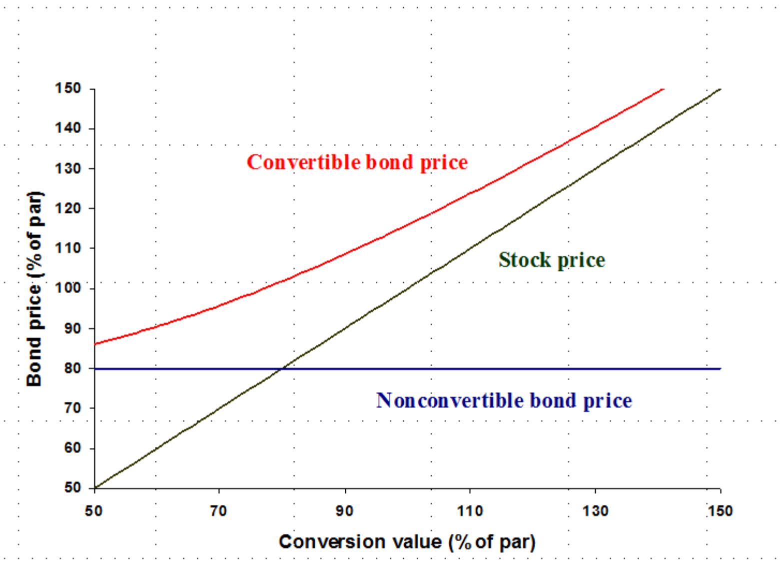
- Callable Bonds
- Puttable Bonds
- Convertible Bonds
- Deep Discount Bonds
- Income Bonds
- Floating-Rate Bonds

Puttable Bonds

- Put provisions
  - Put price
  - Put date
  - Put deferment
- Extendible bonds
- Value of the put feature
- Cost of the put feature

Convertible Bonds

- Why are they issued?
- Why are they purchased?
- Conversion ratio:
  – Number of shares of stock acquired by conversion
- Conversion price:
  – Bond par value / Conversion ratio
- Conversion value:
  – Price per share of stock x Conversion ratio
- In-the-money versus out-the-money



Example of a Convertible Bond

$517,500,000

AMD

Advanced Micro Devices, Inc.

6% Convertible Subordinated Notes due 2005

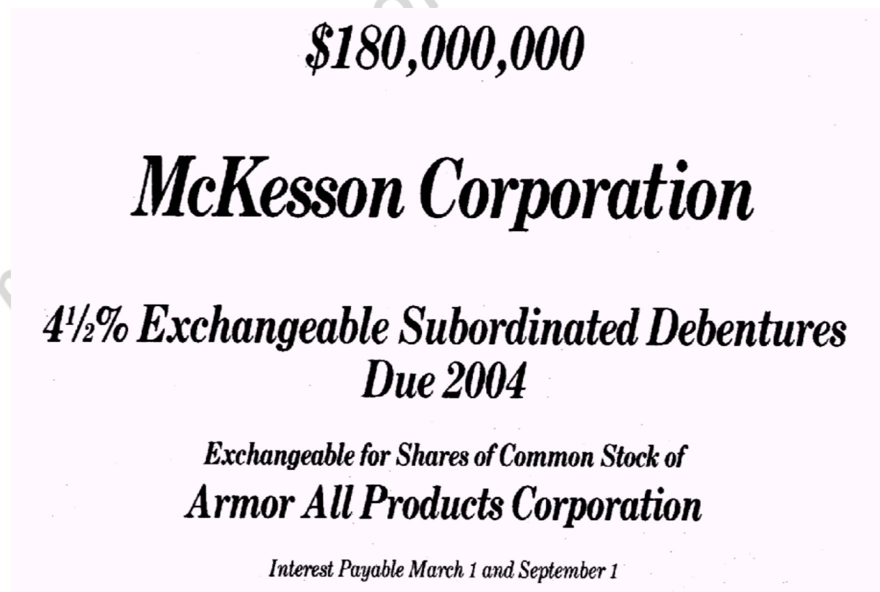
The 6% Convertible Subordinated Notes due 2005 (the "Notes") will be convertible at the option of the holder into shares of common stock, par value $.01 per share (the "Common Stock"), of Advanced Micro Devices, Inc. (the "Company") at any time at or prior to maturity, unless previously redeemed or repurchased, at a conversion price of $37.00 per share (equivalent to a conversion rate of 27.027 shares per $1,000 principal amount of Notes), subject to adjustment in certain events.

Exchangeables

- Exchangeable bonds
  - Convertible into a set number of shares of a third company's common stock

- Minimum (floor) value of convertible is the *greater of*
  - Straight or "intrinsic" bond value
  - Conversion value

- Conversion option value
  - Bondholders pay for the conversion option by accepting a lower coupon rate on convertible bonds versus otherwise- identical nonconvertible bonds


$180,000,000

McKesson Corporation

4½% Exchangeable Subordinated Debentures
Due 2004

Exchangeable for Shares of Common Stock of
Armor All Products Corporation

Interest Payable March 1 and September 1

Direct Placement vs Public Offering

- A direct long-term loan avoids the cost of registration with the SEC
- Direct placement is likely to have more restrictive covenants
- In the event of default, it is easier to “work out” a private placement

Summary and Conclusions

- The details of the long-term debt contract are contained in the *indenture*. The main provisions are: security, repayment, protective covenants and call provisions
- Protective covenants are designed to protect bondholders from management decisions that favor stockholders at bondholders' expense
- Most public industrial bonds are *unsecured*—they are general claims on the company's value
- Most utility bonds are secured. If the firm defaults on secured bonds, the trustee can repossess the asset
- Long-term bonds usually provide for repayment of principal before maturity. This is usually accomplished with a *sinking fund* whereby a firm retires a certain number of bonds each year
- Most publicly issued bonds are *callable*. There is no single reason for call provisions. Some sensible reasons include taxes, greater flexibility, and the fact that callable bonds are less sensitive to interest-rate changes
- There are many different types of bonds, including floating-rate bonds, deep-discount bonds, and income bonds

Credit Rating

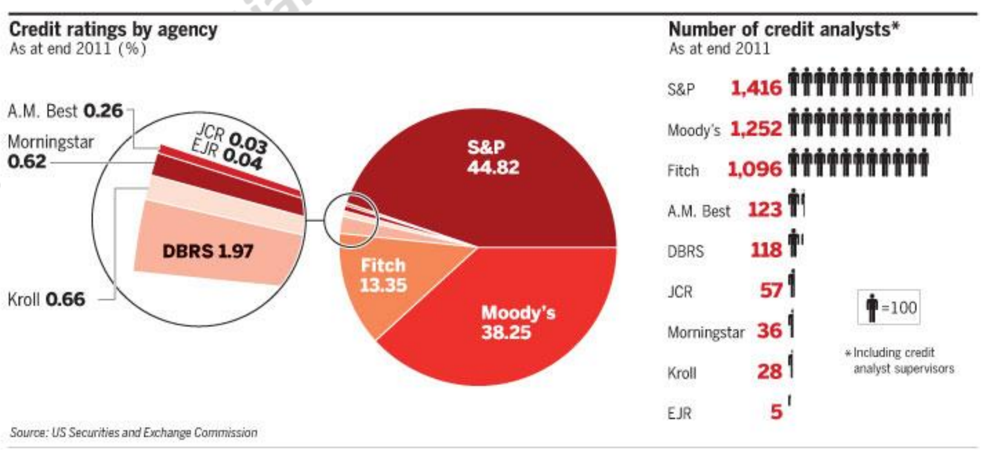
Intro

- There is **no industry definition** or standard to describe credit ratings, and no trade association of Credit Ratings Agencies (CRAs) …
- The US Securities and Exchange Commission (**SEC**) defines a Credit Rating Agency as "**a firm that provides its opinion on the creditworthiness** of an entity and the financial obligations … issued by an entity. Generally, credit ratings distinguish between investment grade and non-investment grade …
- In the Official Journal of the **EU** in 2006 European Commission (EC) states that CRAs issue opinions on the creditworthiness of a particular issuer or financial instrument. They assess the likelihood that an issuer will default either on its financial obligations generally or on a particular debt or fixed income security

The Big Three

- The largest three rating agencies are **Standard & Poor's, Moody's and Fitch**, they cover approximately **95% of the world market**
  - Smaller rating agencies make up the remaining part

- Many studies have concluded, that this market is a natural oligopoly as the nature of the CRA market makes it complicated for new CRAs to succeed and for existing CRAs to conquer a larger market share
  - Issuers prefer ratings from reputable CRAs, while investors respect CRAs with a history of accurate and timely ratings – thus it results in a lack of competition



The Rise of the CRA Era

- Credit rating as a profession dates back to the beginning of the 20th century in the USA
  - Three types of businesses emerged in the 19th century: the specialized financial press, credit reporting agencies and investment bankers

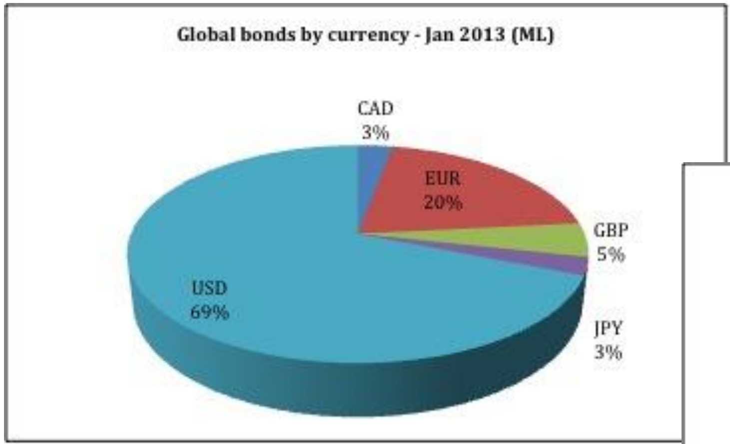
- One of the first publications was **The American Railroad Journal**, started in 1832, which was **transformed** in 1949 into a publication **for investors in railroads** by Henry **Poor**
  - In the meantime Poor set up his own firm, collecting statistics on US railroad companies. The company published the results annually as the Manual of the Railroads of the US
  - One of the first credit reporting agencies, founded in 1841, was The Mercantile Agency, selling its service to subscribers

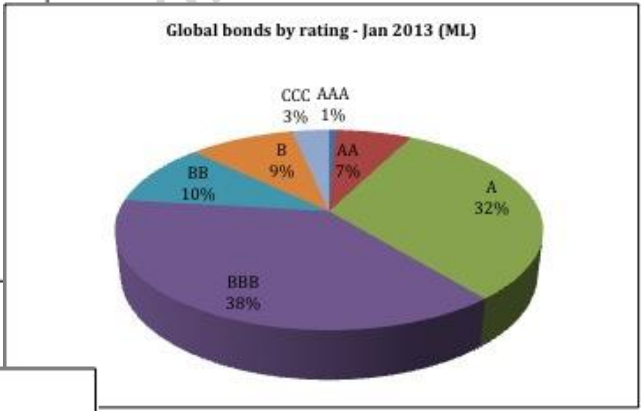
- In 1909, John **Moody** initiated agency bond ratings in the US, which was a pioneer to include credit risk analysis for rating purposes
  - Originally, this only covered the bonded debt of the US railroad companies

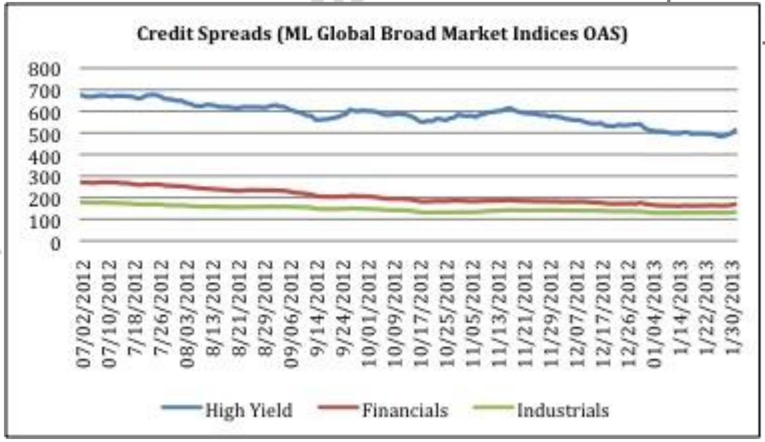
The Rise of the CRA Era (cont´d)

- Post war prosperity of 1960s, made CRAs relatively unimportant
- CRAs **expanded rapidly** again during the **1970s** as the Bretton Woods System collapsed …
- … and a new era of financial globalisation emerged together with **liberalisation of capital flows** and redistribution of OPEC wealth, resulting in a greater number of sovereign states and private corporations, issuing bonds
- However, the agencies **shifted to issuer-pays model**
- This was the point when SEC in 1973 designated certain CRAs as Nationally Recognised Statistical Ratings Organisations (NRSROs), raising further concerns of NRSROs “abusing” their power for regulatory purposes

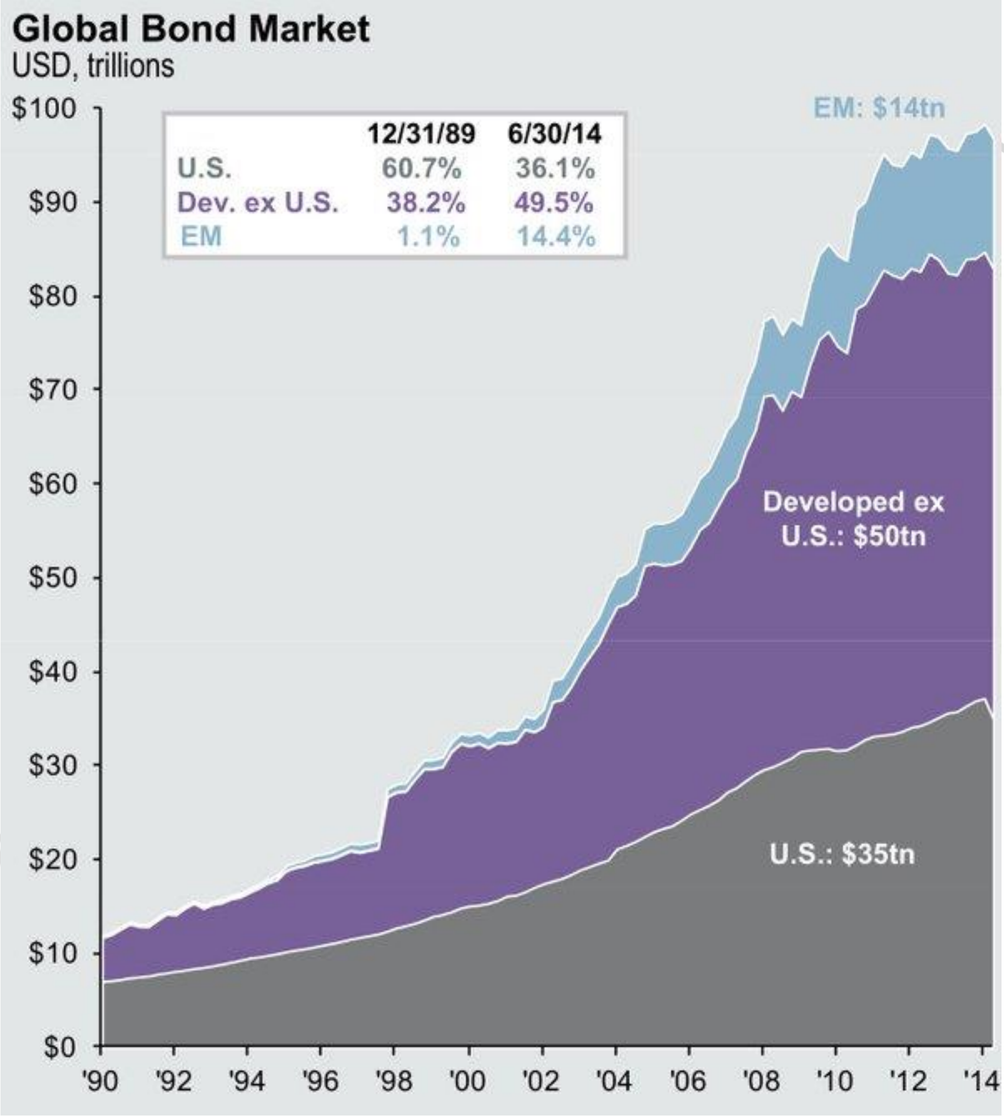
The Global Bond Markets



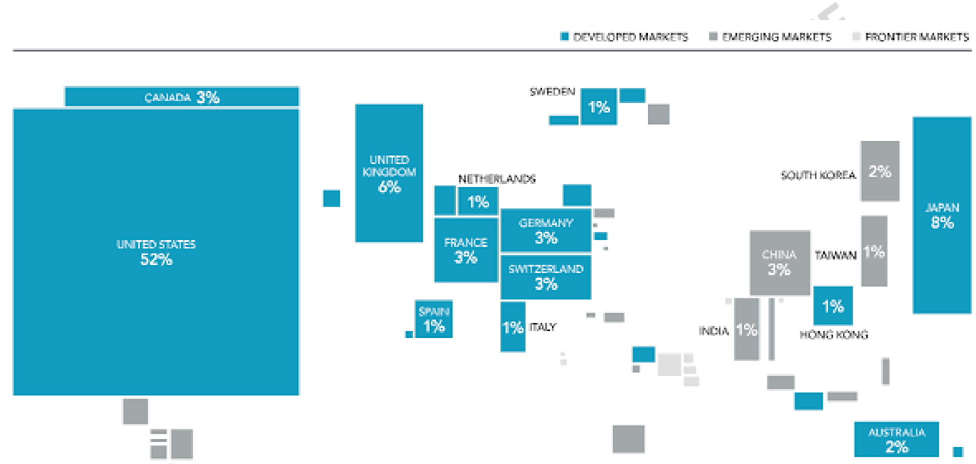




The Global Bond Markets (cont´d)



Global Stock and Bond Markets – Relative Size



Market cap data is free-float adjusted from Bloomberg securities data. Many nations not displayed. Total may not equal 100% due to rounding. For educational purposes; should not be used as investment advice.
China market capitalization excludes A-shares, which are generally only available to mainland China investors.

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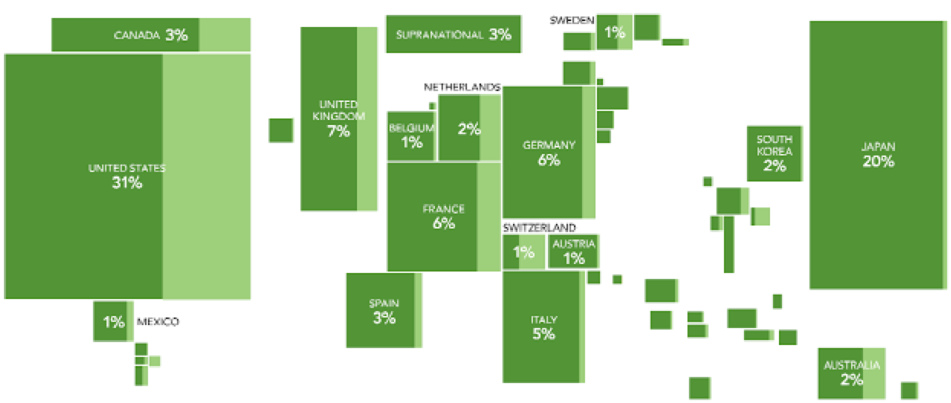

Data is from Barclays Global Aggregate Ex-Securitized Bond Index. Many nations not displayed. Total may not equal 100% due to rounding.
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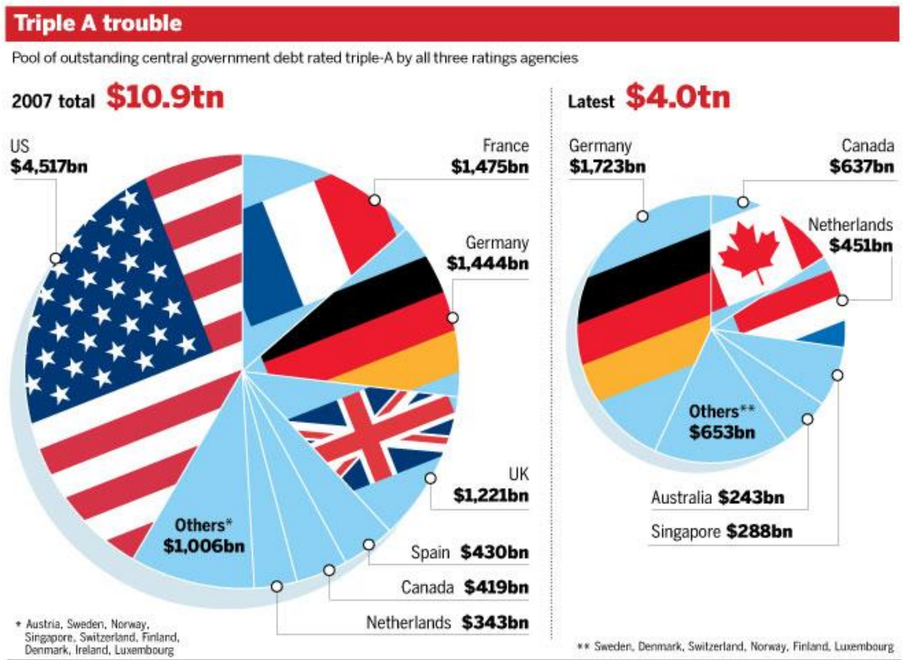
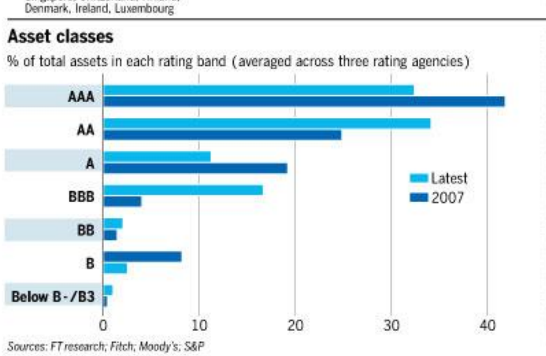
The Triple A Trouble

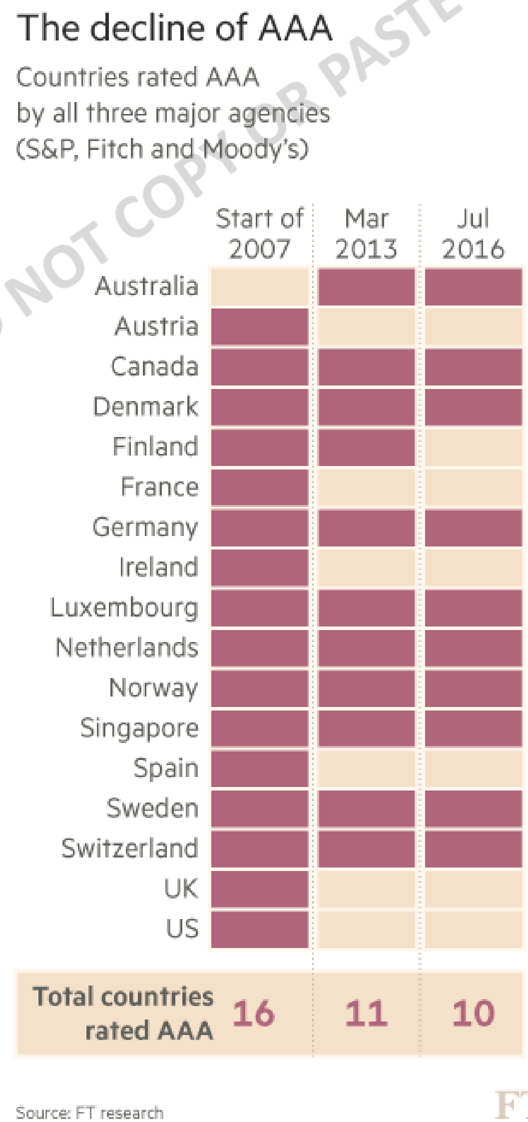




Top/bottom upgrades and downgrades

Average change in rating (notches) from start of 2007

Upgrades		Downgrades	
Uruguay	3.7	Greece	-11.0
Bolivia	3.0	Cyprus	-10.7
Brazil	3.0	Spain	-8.7
Indonesia	3.0	Portugal	-8.7
Peru	2.7	Ireland	-8.0
Panama	2.3	Iceland	-6.3
Colombia	2.0	Egypt	-4.7
Hong Kong	2.0	Slovenia	-4.3
Philippines	2.0	Italy	-4.3
Turkey	2.0	Hungary	-4.0



The Triple A Trouble (cont´d)

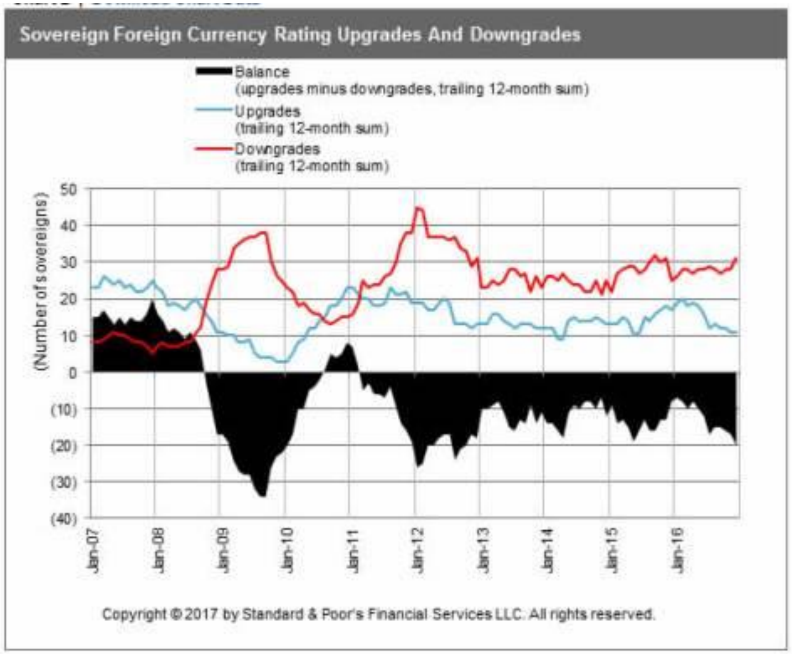
Standard & Poor´s

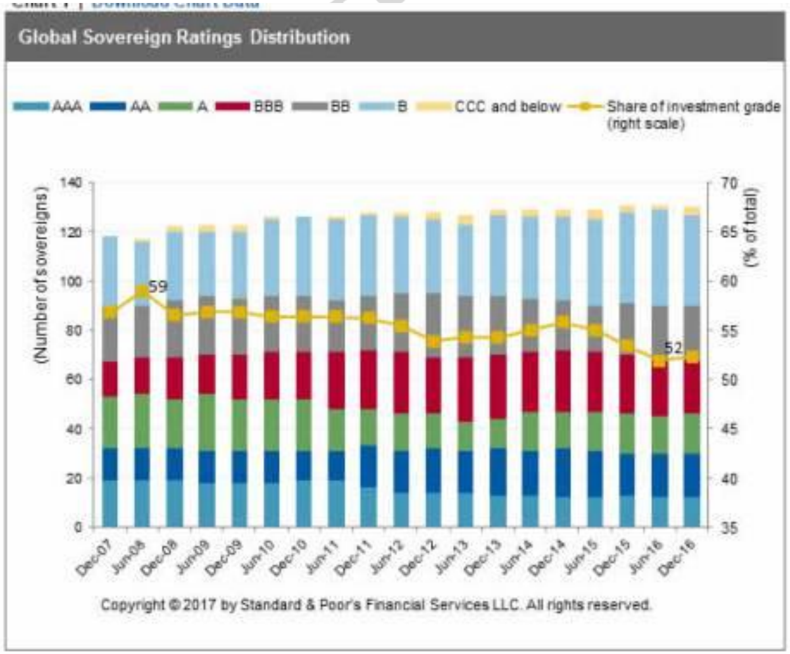
Australia	AAA	Negative	2016-07-06
Canada	AAA	Stable	2002-07-29
Denmark	AAA	Stable	2001-02-27
Germany	AAA	Stable	2012-01-13
Hong Kong	AAA	Negative	2016-03-31
Liechtenstein	AAA	Stable	2016-02-26
Luxembourg	AAA	Stable	2013-01-14
Netherlands	AAA	Stable	2015-11-20
Norway	AAA	Stable	1990-11-08
Singapore	AAA	Stable	1995-03-06
Sweden	AAA	Stable	2004-02-16
Switzerland	AAA	Stable	1989-06-26

Moody´s

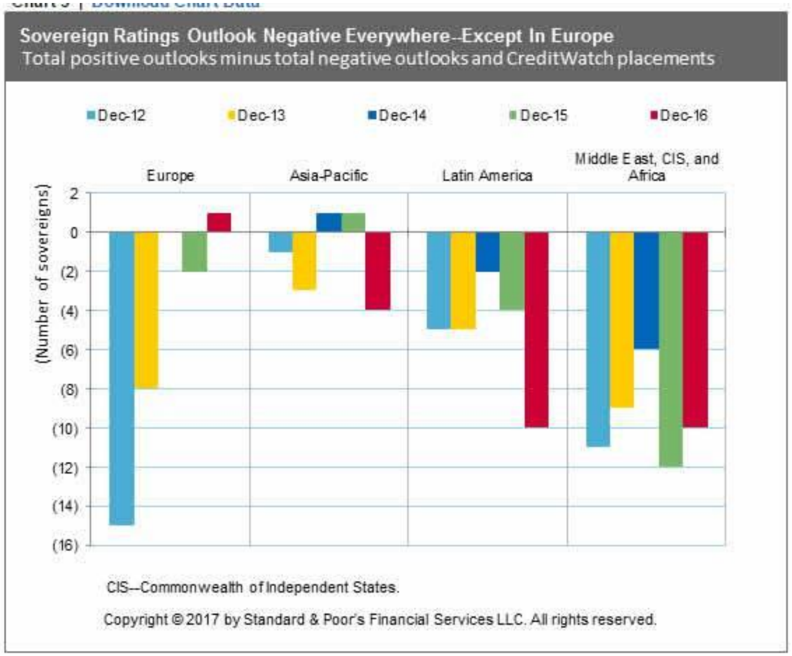
Australia	Aaa	Stable	2011-08-05
Canada	Aaa	Stable	2011-08-05
Denmark	Aaa	Stable	2011-08-05
Germany	Aaa	Stable	2013-09-06
Luxembourg	Aaa	Stable	2014-02-28
Netherlands	Aaa	Stable	2014-03-07
New Zealand	Aaa	Stable	2011-08-05
Norway	Aaa	Stable	2011-08-05
Singapore	Aaa	Stable	2011-08-05
Sweden	Aaa	Stable	2011-08-05
Switzerland	Aaa	Stable	2011-08-05
United States	Aaa	Stable	2013-07-18

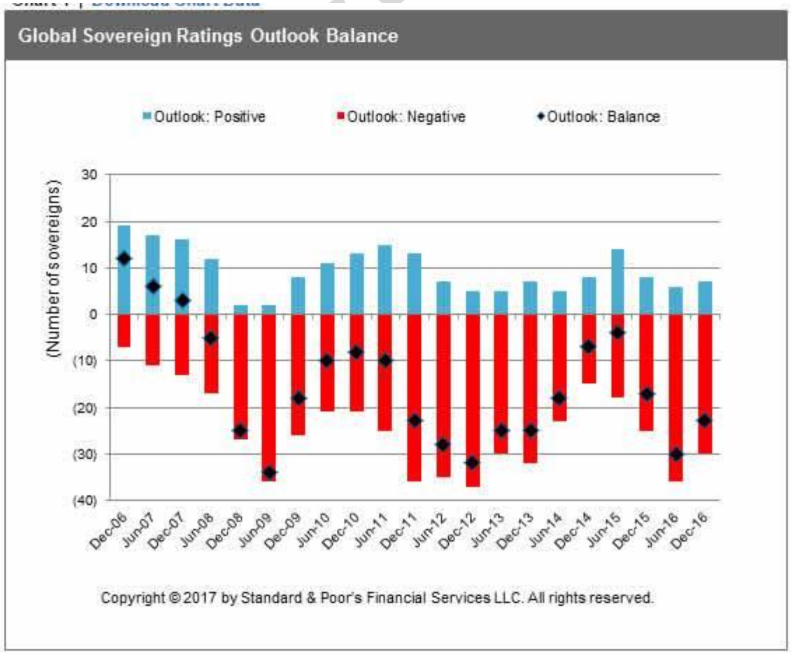
Credit Rating - Dynamics



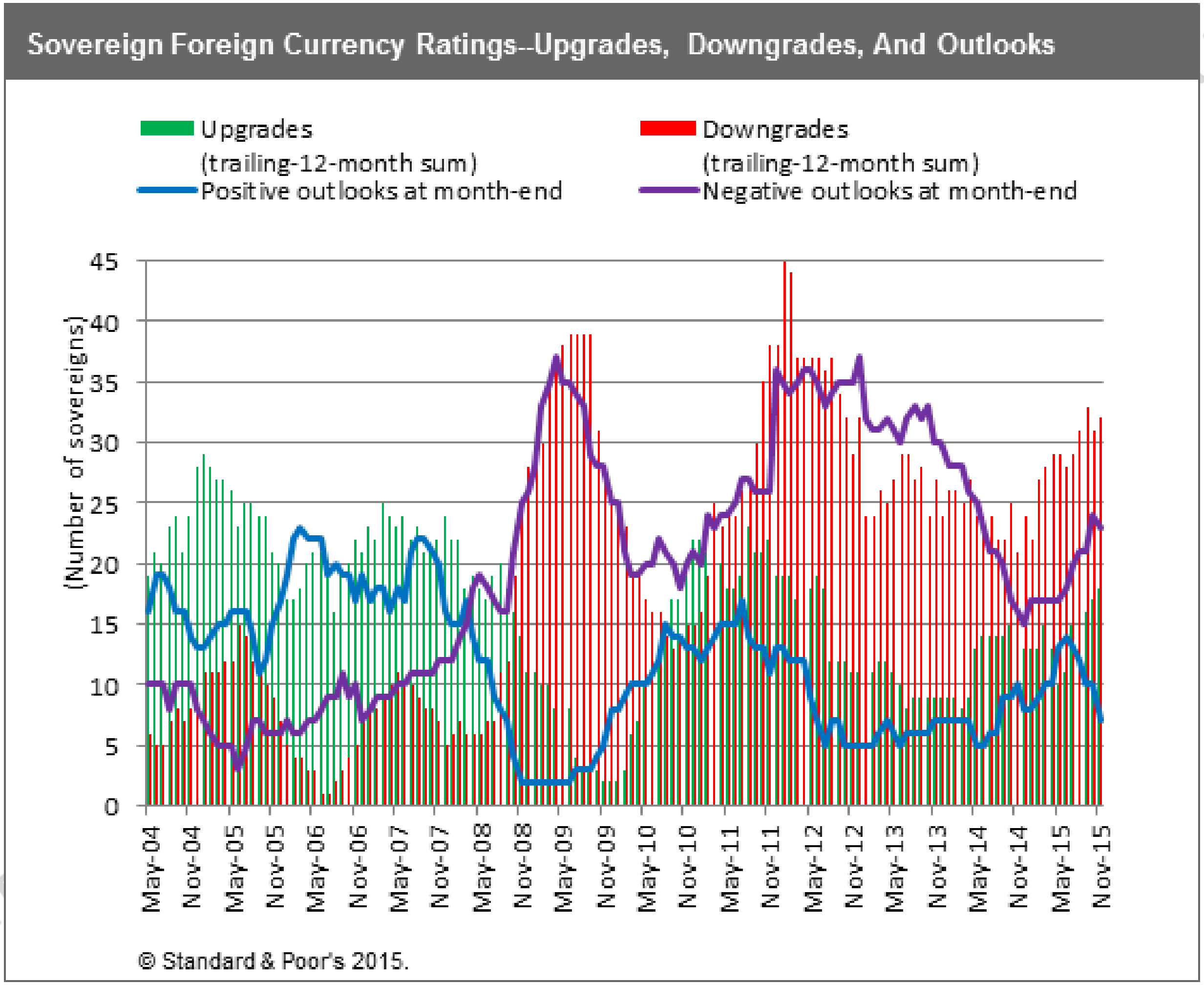


Credit Rating Outlook - Dynamics

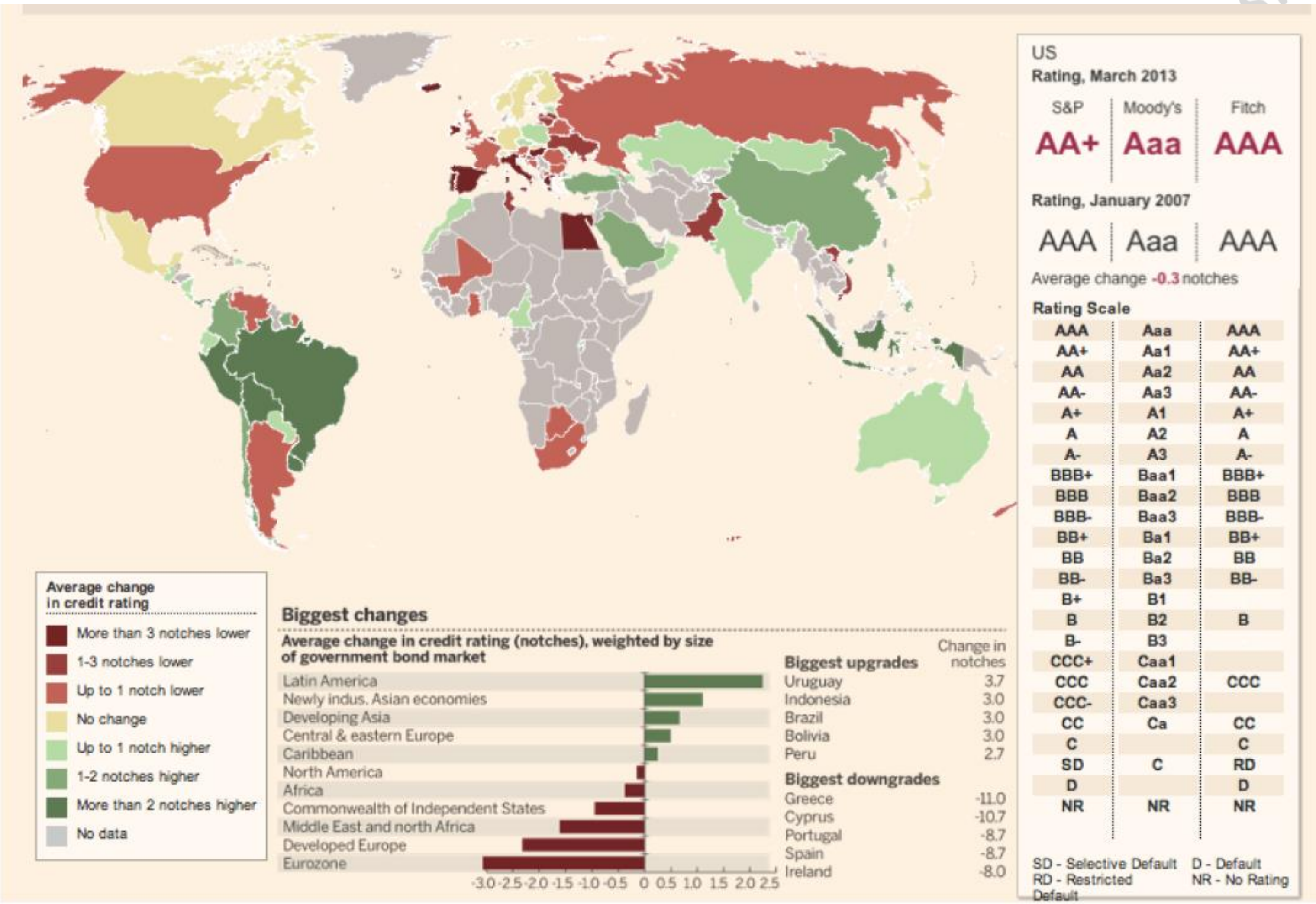




Credit Rating Outlook – Dynamics (cont´d)



The Financial Crisis Effect on World's Creditworthiness



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Credit Rating Definition by the Big Three

Fitch Ratings Definition	Moody's Ratings Definition	Standard & Poor Ratings Definition
"Fitch Ratings' credit ratings provide an *opinion* on the *relative* ability of an entity to meet financial commitments… Credit ratings, as opinions on *relative* ranking of vulnerability to *default*, do not imply or convey a specific statistical *probability of default*, notwithstanding the agency's published *default* histories that may be measured against ratings at the time of *default*. Credit ratings are opinions on *relative* credit quality and not a predictive measure of specific *default probability*." (Fitch, 2013).	Moody's rates and publishes *independent credit opinions* on fixed-income securities, issuers of securities and other credit obligations… Investors use Moody's ratings to help price the credit *risk* of fixed-income securities or debts they may buy, sell or lend." (Moody's 2013).	"A credit rating is Standard & Poor's *opinion* on the general *creditworthiness* of an obligor, or the *creditworthiness* of an obligor with respect to a particular debt security or other financial obligation." (Standard & Poor's 2013a).

Rating Categories

	Credit rating agency		
Credit quality	Moody's	S&P	Fitch
		Investment grade	
Highest credit quality	Aaa	AAA	AAA
High credit quality	Aa1 to Aa3	AA+ to AA-	AA+ to AA-
Strong payment capacity	A1 to A3	A+ to A-	A+ to A-
Adequate payment capacity	Baa1 to Baa3	BBB+ to BBB-	BBB+ to BBB-
		Speculative grade	
Possibility of credit risk	Ba1 to Ba3	BB+ to BB-	BB+ to BB-
Significant credit risk	B1 to B3	B+ to B-	B+ to B-
High credit risk	Caa1 to Caa3	CCC+ to CCC-	CCC+ to CCC-
Default is likely	Ca	CC	CC
Default is imminent	C	C	C
In Default	-	D, SD	DDD, DD, D

Source: Basel Committee on Banking Supervision (2000) and website of the three credit rating agencies

Rating Types

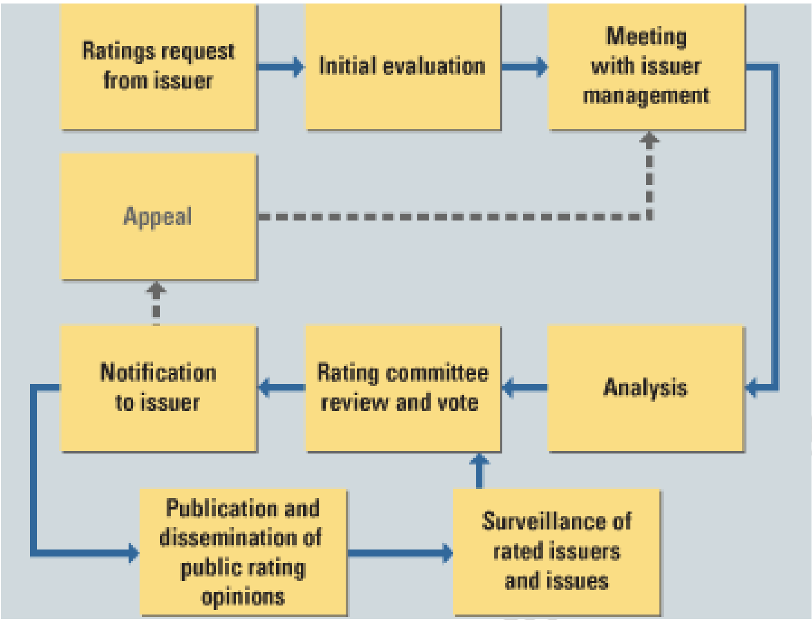
ESMA (European Securities and Markets Agency) has defined three broad categories of rating types that have been broken down into the following segments:

- **Corporate ratings**: financial institutions – including banks, brokers, and dealers – insurances, other corporate issuers;
- **Structured finance ratings**: asset-backed securities (ABS), residential mortgage-backed securities (RMBS), commercial mortgage-backed securities (CMBS), collateralized debt obligations (CDO), asset-backed commercial papers (ABCP);
- **Sovereign and public finance ratings**: sovereign, other local governments, municipalities, supranational organizations, and public entities

Rating Types (cont´d)

Ratings Type	Principal Analytical Considerations
Issuer Ratings ▪ Current opinion of an entity's overall creditworthiness—its ability and willingness to repay its financial obligations ▪ Credit risk assessment of issuer as a whole, but not of a specific debt issue	**For Corporate Issuers** ▪ Business risk profile: Country risk, industry condition, competitive position, business and geographic diversification, management, regulatory environment and strategy ▪ Financial risk profile: Capitalization, leverage, earnings, funding, liquidity, cash flow, risk management, and accounting ▪ Other factors specific to the type of entity or its industry sector **For Government Issuers** ▪ Political stability and pressures ▪ Economic structure and growth prospects ▪ Wealth and demographics ▪ Budgetary performance ▪ Debt burden and management
Issue Ratings ▪ Opinion of the credit quality of a specific financial obligation and issuer's willingness and capacity to pay in accordance with term	**For Corporate and Government Issues** ▪ Credit risk of the issuer ▪ The terms and conditions of the debt security and, if relevant, its legal structure ▪ The relative seniority of the issue with regard to the issuer's other debt issues and priority of repayment in the event of default ▪ The existence of external support or credit enhancements, such as letters of credit, guarantees, insurance, and collateral. These protections can provide a cushion that limits the potential credit risks associated with a particular issue

Rating Methodologies / Approaches



Analyst-Driven Credit Ratings

- The Big 3 Credit rating agencies that use the analyst-driven approach employ **analysts to evaluate and express an opinion** on the relative creditworthiness of issuers and the relative credit quality of debt issues

Model-Driven Credit Ratings

- A small number of rating agencies use the model-driven approach, focusing more exclusively on **quantitative data** that they incorporate into a **mathematical model** to produce their ratings, which are generally point-in-time assessments

Typical Process For a New Corporate or Government Rating

- **Contract.** The issuer requests a rating and signs an engagement letter.
- **Pre evaluation.** CRA assembles a team of analysts to review pertinent information.
- **Management meeting.** Analysts meet with management team to review and discuss information.
- **Analysis.** Analysts evaluate information and propose the rating to a rating committee.
- **Rating committee.** The committee meets to review and discuss the lead analyst's rating recommendation and presentation, including the full analysis and rating rationale, and then votes on the credit rating.
- **Notification.** CRA generally provides the issuer with a pre-publication rationale for its credit rating for fact-checking and accuracy purposes. Standard & Poor's may allow for an appeal only if the issuer can provide new and significant information to support a potentially different rating conclusion.
- **Publication.** CRA typically publishes a press release announcing the rating and posts the public rating on

How Agencies Are Paid For Their Services

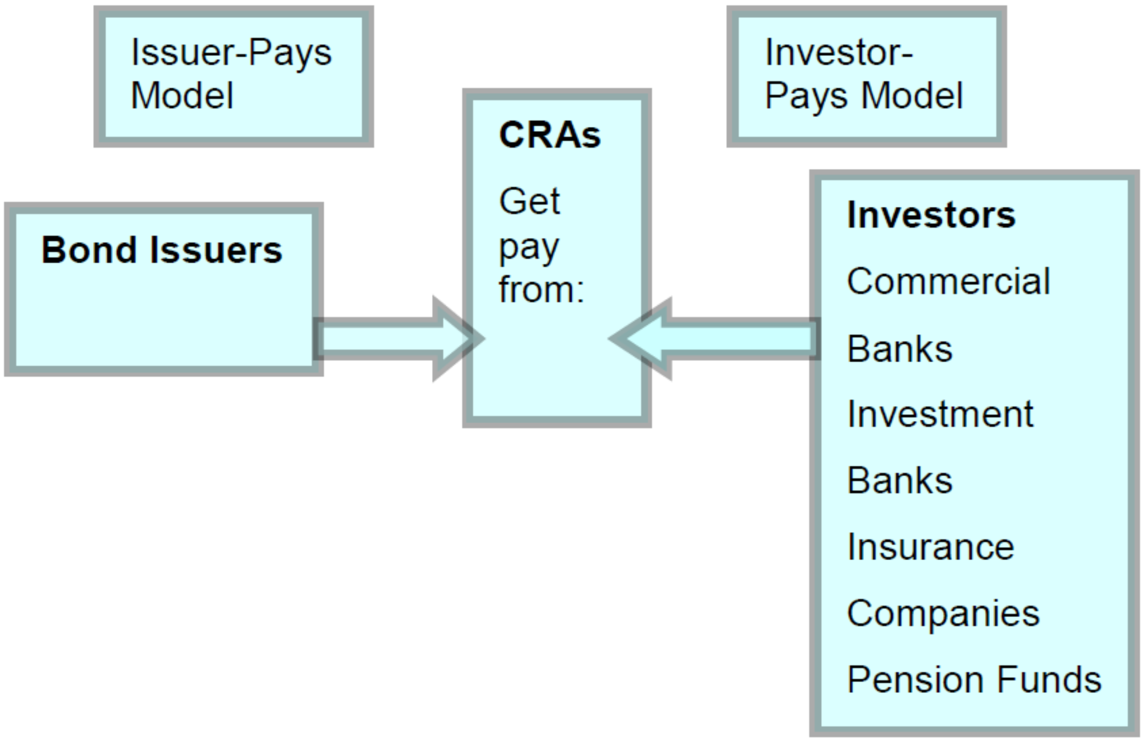
Issuer-Pay Model

- Under the issuer-pay model, which is the business model used by the Big 3 rating agencies charge **issuers** and structured finance arrangers a fee for providing credit ratings
- Critics of the issuer-pay model maintain there is a potential conflict of interest when rating agencies receive payment from the issuers whose securities they are evaluating

Subscription Model

- Some credit ratings agencies use a subscription model and charge **investors** and other market participants a fee for access to their agencies' ratings
- Critics of this model, however, point out that large investors who subscribe to a rating service, especially sizable investors such as hedge funds who have long and short positions in a variety of securities, may exert an undue influence on the agency's rating results since it is in the investors' interest to have the ratings support their investment strategy

How Agencies Are Paid For Their Services (cont´d)



Unsolicited Credit Ratings

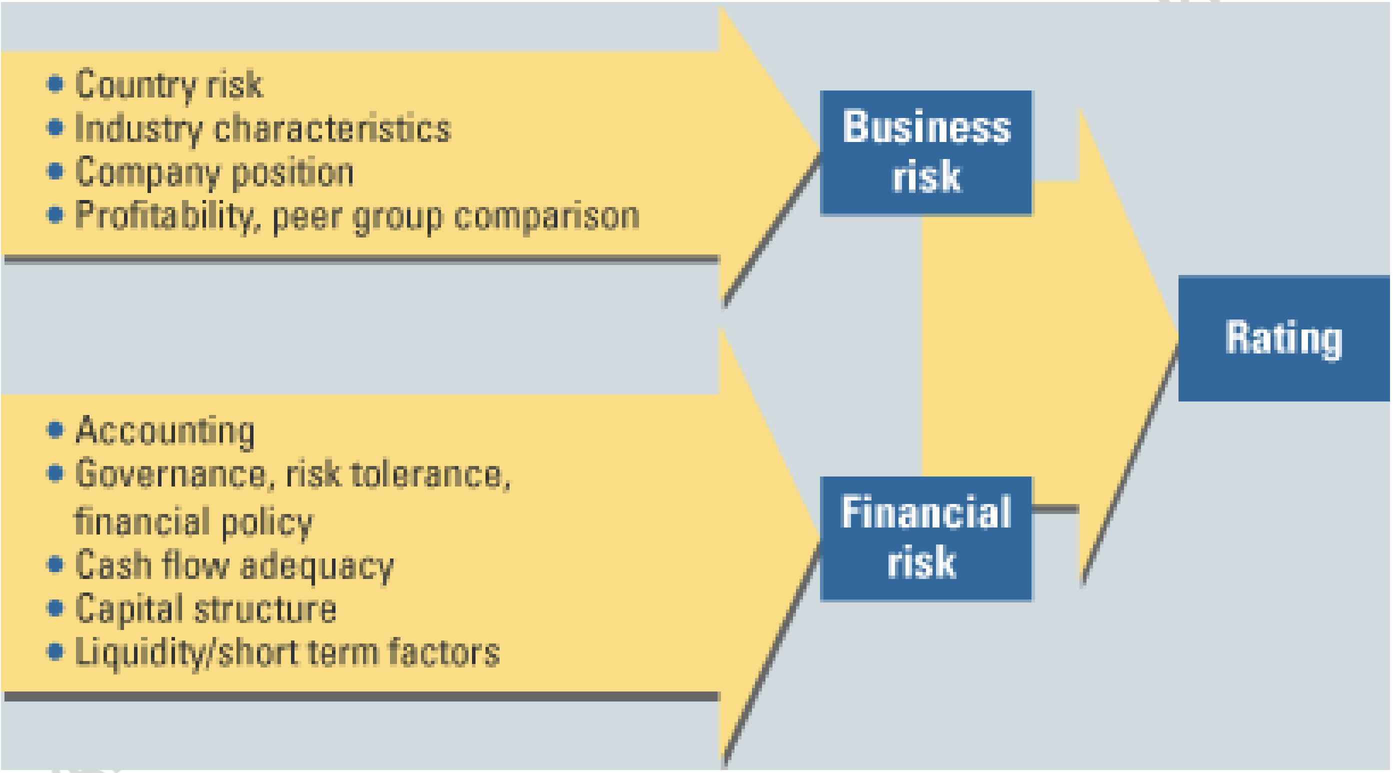
- An unsolicited credit rating is the assessment of a borrower's creditworthiness without any involvement of the borrower itself

- In particular, the borrower does not pay for the rating assessment.

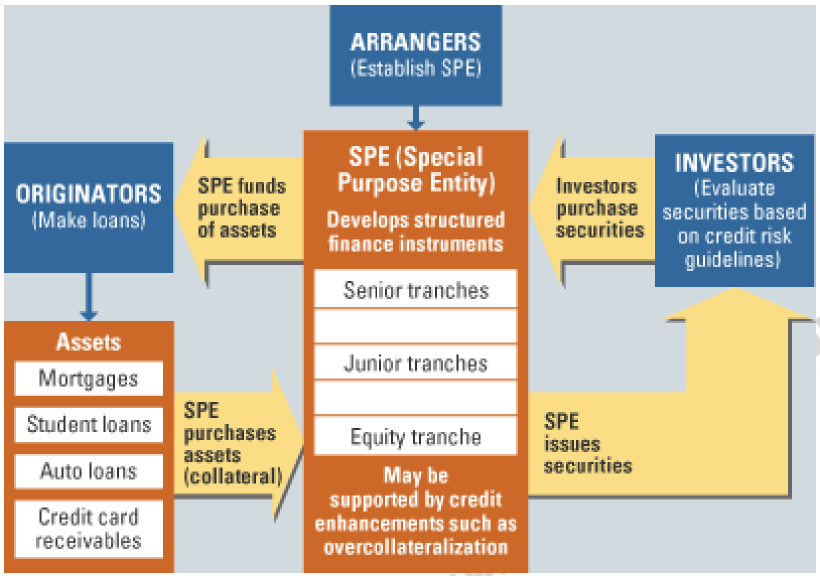
- Unsolicited ratings are usually based only on publicly available information about a borrower's credit quality
  - Rating agencies may have an interest in announcing unsolicited ratings to complete their coverage of a specific market or to create access to a market where the agency has not been present before.

- The observation that unsolicited ratings are often lowly graded has led to the accusation that agencies use this instrument to blackmail borrowers into soliciting (and paying for) a rating assessment
  - Research has shown, however, that low-quality issuers are less willing to pay for a credit rating, receiving instead unsolicited ratings that are low-graded

Risk Assessment



Rating of Structured Instruments



Structured Finance Instruments or Securitization

- Bundling or **pooling of individual financial assets** into a structured vehicle and the sale of separate debt instruments
  - Often with distinct priorities or cash flow allocations, to investors
- Investors in typical securitized debt instruments have **rights to a portion of the cash flows generated** by the pool of underlying assets
  - A bond – on the other hand - depends on a corporation or government for payment

Rating of Structured Instruments (cont´d)

Ratings Type	Principal Analytical Considerations
Structured Finance Ratings (on Cash Flow Securities) ▪ Opinion of credit quality of a structured finance instrument ▪ Issuer is typically a limited or special-purpose entity (SPE) ▪ Creditworthiness is limited to the capacity to repay securities from the cash flow generated by or liquidation of the underlying assets and committed sources ▪ Also considers guarantors, insurers, or other forms of credit enhancement ▪ Ratings are typically provided for each tranche issued in a transaction, depending on overall structure of the transaction	▪ Cash flow expected to be generated by the underlying assets ▪ Variability of the future performance of the underlying assets ▪ Additionally committed resources that can make up for, or cushion, shortfalls in principal and interest receipts on the underlying assets, typically in the form of external support and/or internal credit enhancements, such as insurance or over collateralization ▪ Practices, policies, and procedures of originators and servicers ▪ Legal structure of the securities issued, including payment and servicing structure, and documentation related to creation of the issuing special purpose entity (SPE)

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