

Debt, Defaults and Crises: A Historical Perspective

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Abstract

The financial crisis that has been wreaking havoc in markets across the world since August 2007 had its origins in an asset price bubble that interacted with new kinds of financial innovations that masked risk; with companies that failed to follow their own risk management procedures; and with regulators and supervisors that failed to restrain excessive risk taking [BLJ 08].

A bubble formed in the U.S. housing markets as home prices across the country increased each year from the mid 1990s to 2006, moving out of line with fundamentals like household income. Like traditional asset price bubbles, expectations of future price increases developed and were a significant factor in inflating house prices. As individuals witnessed rising prices in their neighborhood and across the country, they began to expect those prices to continue to rise, even in the late years of the bubble when it had nearly peaked.

When the 2008 crisis hit, governments, corporations and individuals defaulted on interest payments. However, government debt defaults are a recurring feature of public finance. These defaults have typically involved low-income and emerging-market economies, although recent cases include advanced-economy sovereigns.

Sovereign states have borrowed money for hundreds of years. Sovereign debt was one of the first financial assets ever traded, and continues to comprise a significant fraction of global financial assets. Unlike private debt, sovereign debt is especially difficult to enforce. For centuries, the legal doctrine of sovereign immunity limited suit against defaulting sovereigns, while few government assets are available for attachment in foreign jurisdictions [TW 13].

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1. Introduction

*Reading maketh a full man;
conference a ready man and
writing an exact man.*

Francis Bacon (1561-1626)

Since August 2008 the news headlines are dominated by the 2008 financial crisis paragraphs like the following one, from The Economist, are common [Eco 13]

“The collapse of Lehman Brothers, a sprawling global bank, in September 2008 almost brought down the world’s financial system. It took huge taxpayer-financed bail-outs to shore up the industry. Even so, the ensuing credit crunch turned what was already a nasty downturn into the worst recession in 80 years. Massive monetary and fiscal stimulus prevented a buddy-can-you-spare-a-dime depression, but the recovery remains feeble compared with previous post-war upturns .”

It is now nearly seven years after the 2008 financial crisis and the aftermath is still with us. On 2 December 2014 Bloomberg¹ carried this article

“Losses in emerging market distressed debt have mounted to the worst since the global financial crisis led by Indonesian coal miner PT Bumi Resources and ZAO Russian Standard Bank. Bank of America Merrill Lynch’s distressed emerging markets corporate index tumbled 2.7 percent yesterday after a 5.6 percent drop in November. The gauge, which tracks 108 dollar-and euro-denominated debentures from Russia to China and Brazil, has retreated 9.8 percent this year, the most since a 36.8 percent slide in 2008. A glut in coal and iron ore, plunging oil prices and sanctions against Russia are pushing more companies to the brink of default. Hedge funds are shutting at a rate not seen since the credit crunch amid disappointing returns while the International Monetary Fund forecasts the global economy will expand 3.8 percent in 2015, below the boom years of 2004 to 2007, when growth was 4.9 percent or more.”

Further to this the oil price tumbled from \$110 per barrel in June 2014 to below \$50 during February 2015 — Brent is now trading in a range between \$50 and \$60 per barrel. This led to many corporate debt issues by shale gas companies in USA being downgraded to junk. Some of the headlines following this were

- Falling oil price hits junk energy bonds — ft.com 10 Nov 2014
- What Blows Up First? Part 5: Shale Oil Junk Bonds — dollarcollapse.com 18 Nov 2014

¹<http://www.bloomberg.com/news/articles/2014-12-02/distressed-debt-losses-mount-to-worst-since-global-crisis>

- Junk Bonds Backing Shale Boom Facing \$11.6 Billion Loss — Bloomberg 2 Dec 2014
- Oil price collapse roils U.S. junk bond funds — Reuters 2 Dec 2014
- U.S. shale junk debt tumbles amid oil crunch — fuelfix.com 15 Dec 2014
- Some companies won't survive the oil meltdown — CNN Money 16 Dec 2014
- Great Unwind of Oil-and-Gas Junk Bonds to Defund Fracking? — wolfstreet.com 16 Dec 2014
- Shale Oil 2015 = Subprime Mortgages 2008 — goldseek.com 1 Dec 2014
- Oil's collapse may fuel the next financial crisis — bdlive.co.za 1 Feb 2015

A lower oil price is a small bright light for all Europeans, but, Europe is still reeling under a mountain of debt problems as was again highlighted by the Greek elections 25 January 2015. The new government wants debt relief and is threatening to default on parts of its government debt. The Greek government-debt crisis is part of the ongoing European debt predicament that was triggered by the 2008 financial crisis. The European debt crisis led to the PIIGS acronym. These countries are: Portugal, Italy, Ireland, Greece and Spain. They are on everyone's watch list as having the greatest risk of sovereign default.

2. Emerging and Frontier Economies

Those who are alarmed at the many financial crises in emerging economies over the last couple of decades would have noticed two things. First, there has been a high concentration of financial crises in Latin America. Second, debt problems have been at the heart of these crises, including the prominent ones in Argentina, Brazil, Turkey and Uruguay. On 30 June 2014, Argentina failed to make a scheduled \$539 million payment to bondholders. A new development is the rise of “vulture funds” that was brought to the fore by Argentina's debt issues.

However, a pattern is emerging. For instance, on 14 November 2002 Argentina defaulted on a \$726 million payment due to the World Bank, the largest such default in World Bank History. Latin America unfortunately has a history of non-payments and defaults. Some these are shown in Figure² 1.

But this tale is never ending. Let's assess the following news story:

On a Friday, a certain Finance Minister, examined the nation's treasury and found only \$100 million in foreign exchange. On Monday, his country was due to pay \$280 million on its vast foreign debt, and more was owed in the days, months and years to follow.

²<http://www.zerohedge.com/news/2014-08-01/illustrated-guide-20-years-latin-american-debt-crises>

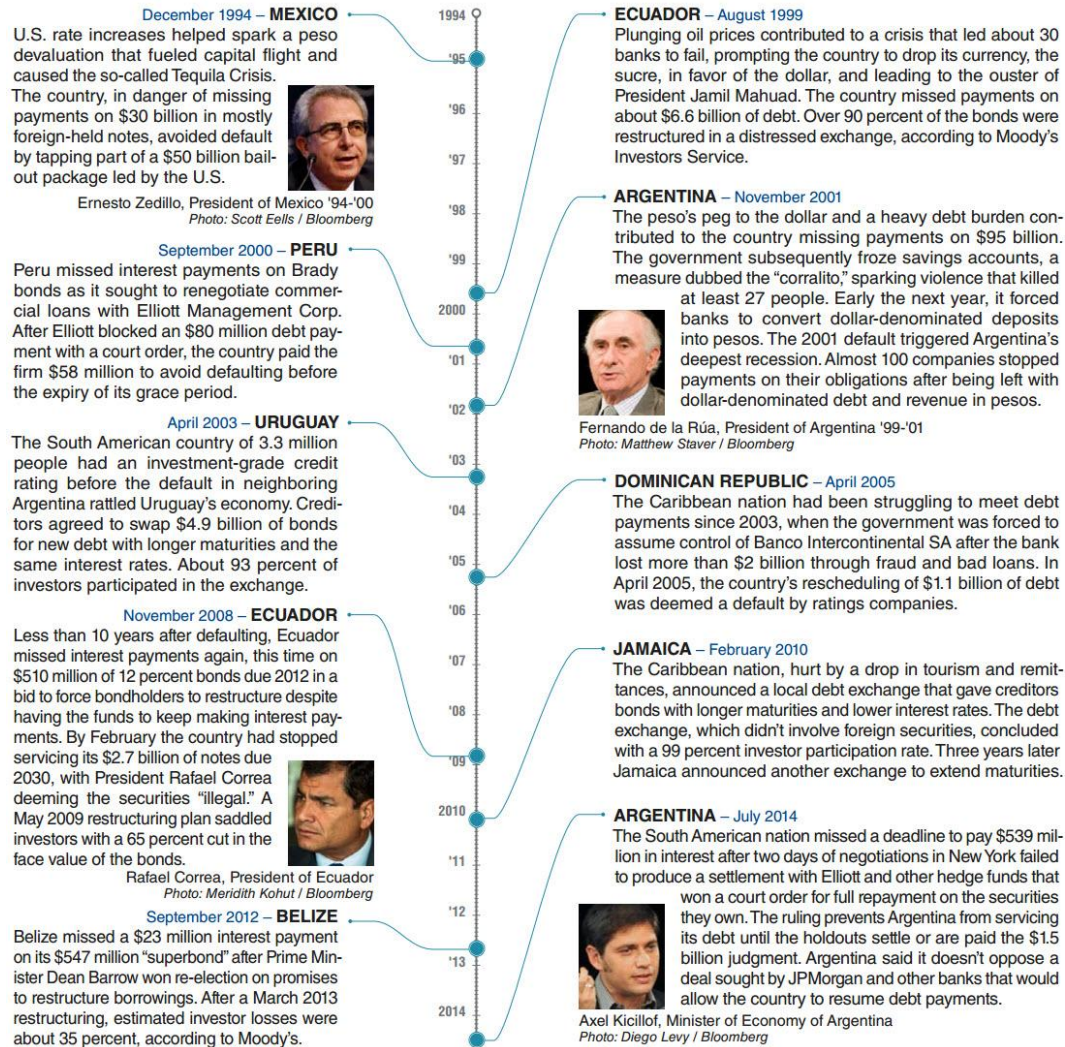


Figure 1: Major defaults in Latin America over the last 20 years.

This country was in default and the repercussions threatened the financial system of the entire developed world³. The dignitary quickly placed calls to the secretary of the US Treasury, the chairman of the Federal reserve (FED) and the managing director of the International Monetary Fund (IMF), the three guardians of the developed world's finances. The US secretary and FED chairman quickly arranged a bridging loan of \$1.5 billion from the Bank of International Settlements⁴. A Band-Aid had been put in place.

In the months to come the IMF would loan this country and 29 other countries billions of dollars just to pay interest charges on old loans. Under

³This is known as systemic risk.

⁴The BIS is seated in Basel and serves the central banks of the developed world.

pressure, these countries had to restructure their debt.

When did this happen? Everyone would think it was just after the 2008 financial crisis when some European countries were going to default. This, however, took place in 1982 and the country was Mexico. The finance minister of Mexico was Silva Herzog, the FED chairman was Paul Volcker, the secretary of the US Treasury was Donald Regan and the president of the USA was Ronald Reagan! The above mentioned phone call was placed on 12 August 1982. Some of the 29 countries that received bail outs in 1982 and 1983 were Brazil, Argentina and Venezuela.

3. Financial Crises

The financial crisis that has been wreaking havoc in markets across the world since August 2007 had its origins in an asset price bubble that interacted with new kinds of financial innovations that masked risk; with companies that failed to follow their own risk management procedures; and with regulators and supervisors that failed to restrain excessive risk taking [BLJ 08].

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Sovereign states have borrowed money for hundreds of years. Sovereign debt was one of the first financial assets ever traded, and continues to comprise a significant fraction of global financial assets. Unlike private debt, sovereign debt is especially difficult to enforce. For centuries, the legal doctrine of sovereign immunity limited suit against defaulting sovereigns, while few government assets are available for attachment in foreign jurisdictions [TW 13].

4. A History of Sovereign Defaults

Debt crises and defaults by sovereigns-city-states, kingdoms, and empires are as old as sovereign borrowing itself. The first recorded default goes back at least to the fourth century B.C., when ten out of thirteen Greek municipalities in the Attic Maritime Association defaulted on loans from the Delos Temple [Wi 33].

The “modern” era of defaults started nearly two millennia later — 12th to 13th centuries AD. Wealthy families and private bankers advanced loans to municipalities and the governments of Spain, Italy and South Germany. As collateral they frequently demanded some positive assignment of public revenue to ensure repayment of the loan.

However, the moment they started to borrow, that moment they started to default. What is a sovereign default: A sovereign default is the failure or refusal of the government of a sovereign state to pay back its debt in full. This definition is very narrow. We can extend it to read: default occurs when the debtor violates the legal terms of the debt contract. For example, the debtor might fail to pay interest or principal within the specified grace period, or might breach some other contractual provision. However, this is still a narrow definition that overlooks situations in which the sovereign threatens to default and creditors respond by “voluntarily” revising the contract [TW 13].

In recognition of this problem, credit ratings agencies like Standard and Poor’s (S&P) define a default as beginning either when the sovereign breaks the contract, or when the sovereign “tenders an exchange offer of new debt with less favorable terms than the original issue” [BC 06, HMS 07]. We prefer this broader definition.

The first major sovereign default was the bankruptcy of the British Crown (namely Edward III), which brought about the downfall of the Florentine (Italy) banking house of Baldi in 1345. The succession of bankruptcies of the Spanish Crown (1557, 1560, 1576, 1596, 1606 and 1627) brought the High German bankers to a fall. The banking supremacy of Amsterdam came to an abrupt end after the bankruptcy of the French state in 1789. Figure 2 shows all sovereign defaults since 1800 [RR 11].

From Figure 2 we see that Ecuador and Venezuela have both reneged on their debts ten times; four other countries have defaulted nine times in total, according to data from Reinhart and Rogoff, two experts on sovereign debt [RR 11]. Nine of the top ten defaulters are from Latin America, although many have shown no trace of the debt-default disease for decades. That, alas, is plainly not the case for Argentina. In Figure 3 we show this differently. Here we look at the number of countries that defaulted since 1820 and we include the proportion of total borrowers that was actually in default. This shows that from 1830 to 1860 and again during the late 1980s, more than 40% of all borrowers were defaulting [TW 13].

Another excellent example of governments in crises is the Russian and Asian crisis during 1997/98. This Russian default is actually rooted in the break-up of the USSR which occurred in 1991. The dissolution of the USSR was the largest dissolution of any socialist state and resulted in 15 sovereign states. Russia was the surviving state formerly known as the USSR and the burden that accompanied this was extraordinary. In 1996 Russian officials began negotiations to reschedule payment of foreign debt inherited from the former Soviet Union. In September 1997 Russia rescheduled the payment of over \$60 billion in old Soviet debt to other governments and in October 1997 another agreement for a 23-year debt repayment of \$33 billion was signed. The Asian crisis started to unfold during May 1997 but shocked the world in July of that year⁵. This preempted the default of Russia during August 1998 which led to the downfall of the hedge fund Long Term Capital Management (LTCM) [DFGM 02, DFGM 11, Ed 99].

The biggest sovereign default in history did not disappoint. The gold medal is

⁵<http://www.pbs.org/wgbh/pages/frontline/shows/crash/etc/cron.html>

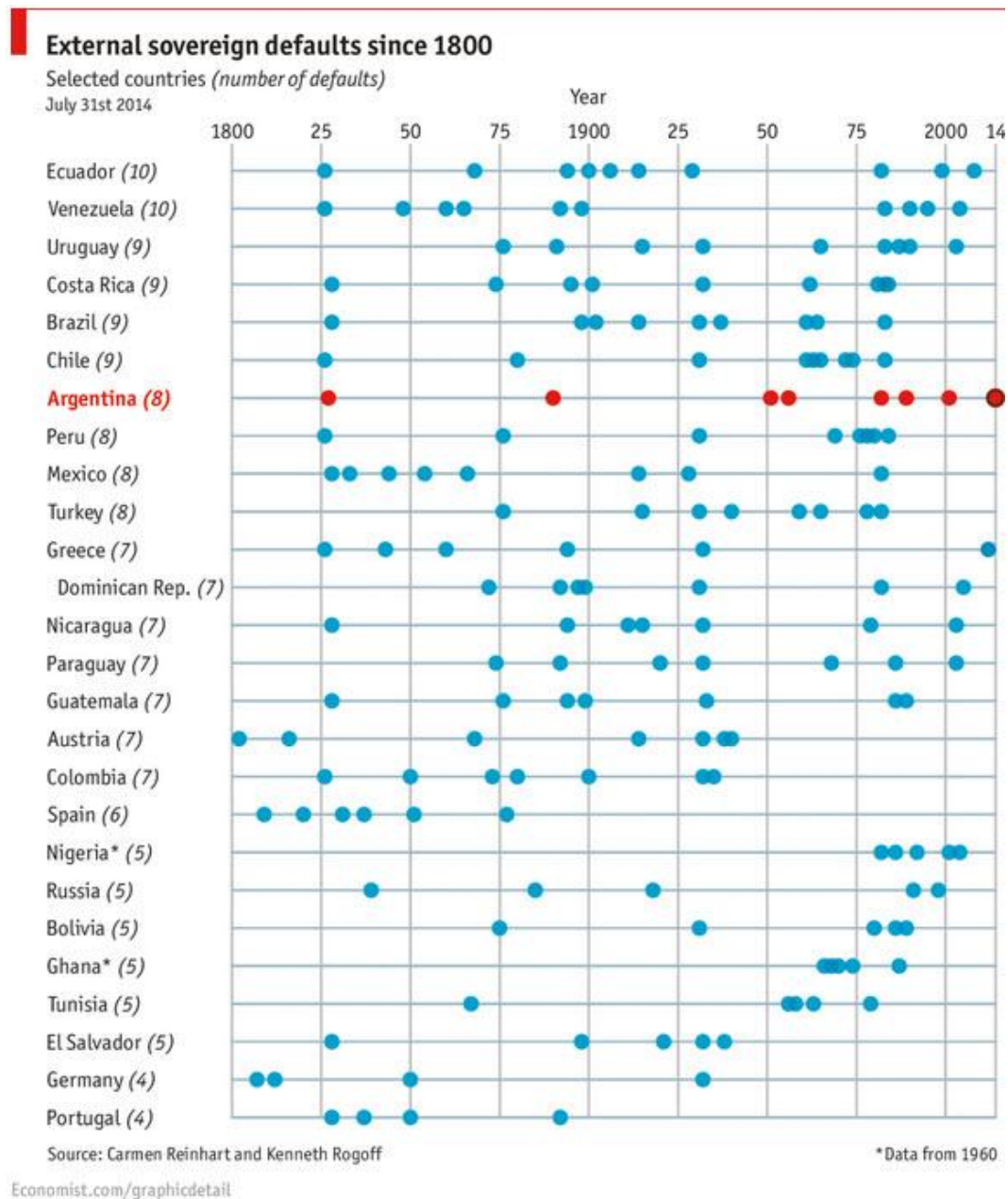


Figure 2: Sovereign defaults since 1800.

held by Greece at the moment. Its March 2012 default amounted to \$138 billion.

There are, however, a number of countries that have pristine record of paying on sovereign debt obligations and have never defaulted. These nations include Canada, Denmark, Belgium, Finland, Malaysia, Mauritius, New Zealand, Norway, Singapore, Switzerland and England (if we discard the first one in 1345). The USA is not on this list. The USA defaulted in the 1930s and the last one was in 1979 — These payments were later made to holders with back interest though [BS 14]. South Africa is not on this list, however, we defaulted in 1985, 1989 and 1993.

It is not just governments that default on its debt. Private companies do so as

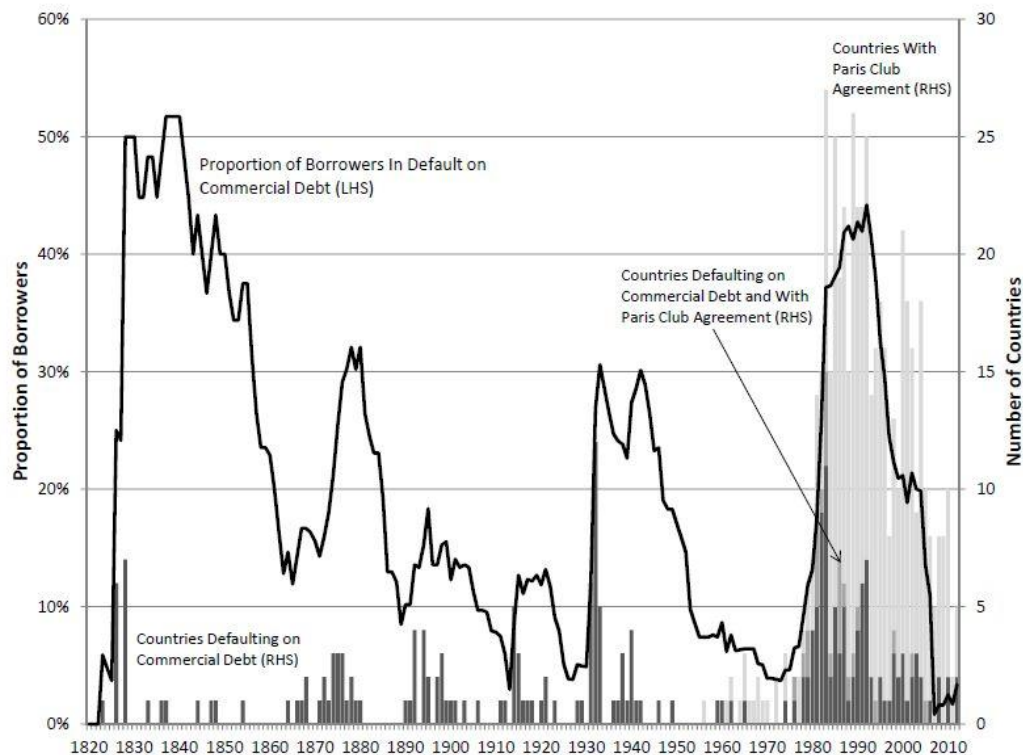


Figure 3: Number of countries that defaulted since 1820.

well. In South Africa we had our own African Bank that defaulted on international bonds when it was placed under curatorship on 10 August 2014.

Seven years after the 2008 financial crisis and the world is still in turmoil.

5. The 2008 Financial Crisis in Perspective

Much has been said about the 2008 crisis. Let's just recap and summarise it. In 2008 the world economy faced its most dangerous crisis since the Great Depression of the 1930s. The contagion, which began in 2007 when sky-high home prices in the United States finally turned decisively downward, spread quickly, first to the entire U.S. financial sector and then to financial markets overseas. The casualties in the United States included

1. the entire investment banking industry,
2. the biggest insurance company,
3. the two enterprises chartered by the government to facilitate mortgage lending,
4. the largest mortgage lender,
5. the largest savings and loan, and
6. two of the largest commercial banks.

The carnage was not limited to the financial sector, however, as companies that normally rely on credit suffered heavily. The American auto industry, which pleaded

for a federal bailout, found itself at the edge of an abyss. Still more ominously, banks, trusting no one to pay them back, simply stopped making the loans that most businesses need to regulate their cash flows and without which they cannot do business. Share prices plunged throughout the worldthe Dow Jones Industrial Average in the U.S. lost 33.8% of its value in 2008 — and by the end of the year, a deep recession had enveloped most of the globe. In December the National Bureau of Economic Research, the private group recognized as the official arbiter of such things, determined that a recession had begun in the United States in December 2007, which made this already the third longest recession in the U.S. since World War II⁶ Catastrophe was averted by massive bailouts of banks and other companies by national governments.

Lets look at the time line of how this crisis unfolded. It all started many years before 2008. Like all previous cycles of booms and busts, the seeds of the subprime meltdown were sown during the Clinton era.

5.1. Introduction

As economies become more advanced and global, the financial system becomes more complex, adaptive, innovative, and interconnected, both domestically and globally. This vast financial network depends upon good information, transparency, trust, and confidence.

What is a financial crisis? It is what occurs when part of the financial system breaks down, causing borrowers - especially savers and investors - to lose faith in the financial institutions and markets. In this environment, creditworthy borrowers can't borrow (what we call a credit or funding crisis) and investors can't sell financial assets quickly and easily (liquidity crisis).

Sometimes only part of the financial system is affected, but in the extreme case, the crisis becomes systemic and the whole financial system is affected.

5.2. The Origins

In 1998 the Glass-Steagall legislation, which separated regular banks and investment banks was repealed in the USA. This allowed banks, whose deposits were guaranteed by the Federal Deposit Insurance Corporation (FDIC), i.e. the government, to engage in highly risky business. During September 1999 the New York Times reported that Fannie Mae⁷ and Freddie Mac⁸ were under pressure from the Clinton

⁶<http://www.britannica.com/EBchecked/topic/1484264/The-Financial-Crisis-of-2008-Year-In-Review-2008>

⁷The Federal National Mortgage Association (FNMA), commonly known as Fannie Mae, was founded in 1938 during the Great Depression. It is a government-sponsored enterprise (GSE) and has been a publicly traded company since 1968. Its purpose is to expand the secondary mortgage market by securitizing mortgages in the form of mortgage-backed securities (MBS), i.e., its aim is to increase home ownership in the USA.

⁸The Federal Home Loan Mortgage Corporation (FHLMC), known as Freddie Mac, is a public government-sponsored enterprise. It was was created in 1970 to expand the secondary market for mortgages in the US. Along with Fannie Mae, Freddie Mac buys mortgages on the secondary market, pools them, and sells them as a mortgage-backed security to investors on the open market.

Administration to increase lending to minorities and low-income home buyers — a policy that necessarily entailed higher risks⁹. Fannie Mae and Freddie Mac began to operate as social welfare agencies instead of financial institutions. The insurance premiums on subprime mortgages were too low for the risks involved.

During these times the Asian crisis of 1997/98 played out, the dotcom bubble (Y2K) burst in 2000 and 911 happened. At the end of 2001 the U.S. economy experienced a mild, short-lived recession. The fear of recession preoccupied everybody's minds.

To keep recession away, the Federal Reserve lowered the Federal funds rate 11 times; from 6.5% in May 2000 to 1.75% in December 2001 — creating a flood of liquidity in the economy. Cheap money, once out of the bottle, always looks to be taken for a ride. It found easy prey in restless bankers — and even more restless borrowers who had no income, no job and no assets. These subprime borrowers wanted to realize their life's dream of acquiring a home. For them, holding the hands of a willing banker was a new ray of hope. More home loans, more home buyers, more appreciation in home prices. It wasn't long before things started to move just as the cheap money wanted them to¹⁰.

Then, in 2004 the SEC¹¹ loosened capital requirements. They changed the leverage rules for just five Wall Street banks. This allowed unlimited leverage for Goldman Sachs [GS], Morgan Stanley, Merrill Lynch (now part of Bank of America), Lehman Brothers and Bear Stearns (now part of JPMorganChase). These banks ramped leverage to 20-, 30-, even 40-to-1. Extreme leverage left little room for error. Everybody was on a sugar high, feeling as if the cavities were never going to come [Sw 09].

The rest is now history and by 2008, only two of the five banks had survived, and those two did so with the help of the bailout.

In summary we can state: The financial crisis was preceded by a period of abundant liquidity worldwide, in a setting of exceptional macroeconomic stability (also known as the “Great Moderation”). That helped to bring interest rates down to historically very low levels and to diminish all players' perception of risk. Both factors encouraged investors to increasingly seek out higher-return, albeit riskier, investment opportunities. This quest could not be satisfied by traditional investment opportunities. The consequence was growing financial innovation on debt and structured finance markets, where segments such as asset-backed securities (ABSs), collateralised debt obligations (CDOs) and other new financial instruments were developed. A substantial portion of these was linked directly or indirectly to the US mortgage markets, which expanded considerably in parallel with the housing boom there [RG 10].

This secondary mortgage market increases the supply of money available for mortgage lending and increases the money available for new home purchases.

⁹<http://www.sjsu.edu/faculty/watkins/subprime.htm>

¹⁰<http://www.investopedia.com/articles/economics/09/financial-crisis-review.asp>

¹¹Securities and Exchange Commission — it enforces the federal securities laws, proposing securities rules, and regulating the securities industry, the nation's stock and options exchanges, and other activities and organizations, including the electronic securities markets in the USA. It basically regulates the stock markets

5.3. The Landslide Begins: a Time Line

It became apparent in August 2007 that the financial market could not solve the subprime crisis on its own and the problems spread beyond the UnitedState’s borders. The interbank market froze completely, largely due to prevailing fear of the unknown amidst banks. The history of the crisis from 2007 to 2010 is shown in Figure¹² 4. Here we plot the S&P500 index together with the Consumer Sentiment Index¹³.

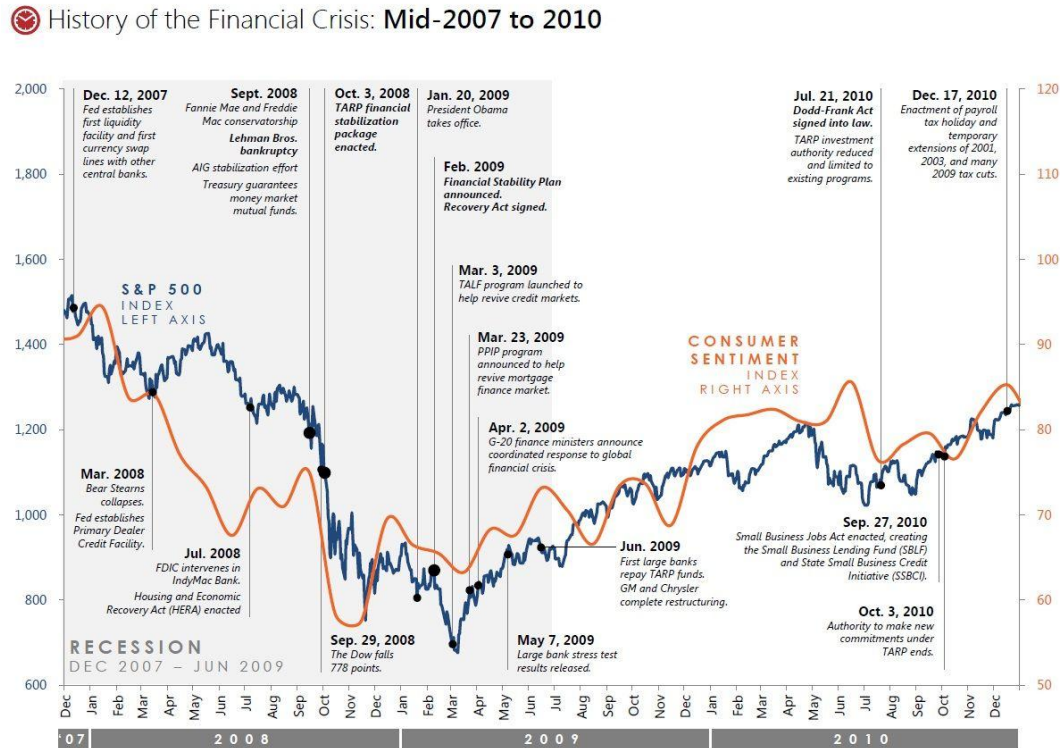


Figure 4: The crisis from 2007 to 2010.

Further to Figure 4 we also list and discuss a few major occurrences¹⁴. Irwin lists and discusses the whole time line [Ir 13].

5.3.1. 2007

- 9 August — BNP Paribas announces it is unable to value mortgage-related assets on the books of 3 fund managers. This sparked a freeze-up in money

¹²<http://www.ritholtz.com/blog/2013/09/history-of-the-financial-crisis-mid-2007-to-2010/>

¹³The University of Michigan Consumer Sentiment Index is a consumer confidence index published monthly by the University of Michigan and Thomson Reuters. its aim is to assess near-time consumer attitudes on the business climate, personal finance, and spending; to promote an understanding of, and to forecast changes in, the national economy; to provide a means of incorporating empirical measures of consumer expectations into models of spending and saving behavior; to gauge the economic expectations and probable future spending behavior of the consumer and to judge the consumer’s level of optimism/pessimism.

¹⁴A full time line on what the FED did can be found at <https://www.stlouisfed.org/financial-crisis/full-timeline>

markets and a \$95 billion intervention by the ECB.

- 14 September — Northern Rock, a British bank, had to approach the Bank of England for emergency funding due to a liquidity problem.
- 12 December — The Federal Reserve, Bank of England, ECB and the Central Banks of Canada and Switzerland announce “liquidity swap lines” to provide up to \$24 billion to help ease a freeze-up of the banking system.

5.3.2. 2008

- 14 March — The Fed rescues investment bank Bear Stearns by putting up \$30 billion toward its acquisition by J.P. Morgan. It is the first bailout by the Fed in the crisis.
- 15 September — Lehman Brothers files for bankruptcy.
- 17 September — Lehman derivatives book on Safex revalued ensuring a smooth transfer to their clearing member Standard Bank. Done and dusted within 48 hours. R140 million of initial margin transferred to curators.
- 16 September — The Fed rescues insurer AIG with an \$85 billion emergency loan.
- 18 September — The Fed, ECB, and central banks of Britain, Canada, Japan, and Switzerland expand swap lines by \$180 billion, a move that enables the global central banks to lend dollars into their domestic banking systems.
- 23 September — South African brokerage Dealstream defaults. Safex book revalued and transferred to RMB, its clearing member.
- 24 September — Fed swap lines are extended to the central banks of Australia, Sweden, Denmark, and Norway.
- 29 September — Swap lines are expanded by another \$330 billion.
- 30 September — The Irish government announces it is guaranteeing the liabilities of the nation’s major banks, sparking a run on banks in European nations without such guarantees.
- 7 October — The Fed announces the “Commercial Paper Funding Facility” to backstop the multitrillion-dollar market for short-term corporate lending.
- 8 October — In the first ever globally coordinated monetary policy action, the central banks of the United States, Eurozone, Britain, Canada, Sweden, and Switzerland announce that they are all cutting interest rates.
- 29 October 29 — Fed swap lines are extended to the central banks of Brazil, Mexico, South Korea, and Singapore.
- 6 November — Bank of England cuts target interest rate by 150 basis points.

- 16 December — The Fed cuts its target interest rate to near zero and says it expects conditions will warrant “exceptionally low” rates for “some time.”

5.3.3. 2009

- 5 March — The Bank of England slashes its target interest rate to 0.5 percent and announces £75 billion of bond purchases, or quantitative easing.
- 9 March — Global stock markets reach their lowest levels in over a decade, with the S&P500 index off 57 percent from its 2007 peak.
- 18 March — The Fed expands its own quantitative easing, to a total of \$1.75 trillion in purchases of a variety of securities.
- 13 May — The ECB cuts its main interest rate to a record low 1 percent.
- 4 October — The socialist PASOK party prevails in Greek elections, bringing Prime Minister George Papandreou to power. His government encounters massive deficits.

5.3.4. 2010

- 7 February — Finance ministers and central bankers of the Group of Seven leading industrialized powers meet in the Iqaluit, Canada. In the frigid Arctic air, a consensus emerges toward austerity and tighter money.
- 11 February — European leaders hold an emergency summit on Greece and pledge to aid the cash-strapped nation.
- 23 April — Papandreou asks for a €45 billion bailout from European nations and the IMF.
- 2 May — European leaders agree to a €110 billion Greek aid package, which markets quickly decide is inadequate.
- 9 May — Eurozone finance ministers negotiate in Brussels to create a €750 billion rescue fund, known as the European Financial Stability Facility, as ECB officials in Basel, Frankfurt, and elsewhere agree to begin buying bonds to allay pressure from the bond markets.
- 21 July — Obama signs the Dodd-Frank Act¹⁵ into law, increasing the powers of the Fed.

¹⁵The Dodd-Frank Act (fully known as the Dodd-Frank Wall Street Reform and Consumer Protection Act) is a United States federal law that places regulation of the financial industry in the hands of the government. It aims to prevent another significant financial crisis by creating new financial regulatory processes that enforce transparency and accountability while implementing rules for consumer protection. One of the main goals of the act is to reduce federal dependence on the banks by subjecting them to a myriad of regulations and breaking up any companies that are “too big to fail.”

- 3 November — The Fed announces it will buy \$600 billion in Treasury bonds in a second round of quantitative easing that will be widely known as QE2. It draws intensive criticism from American conservatives and the German, Chinese, and Brazilian governments.
- 21 November — Ireland requests a bailout.

5.3.5. 2011

- 6 April — Portugal requests a bailout, becoming the third European country to do so.
- 6 May 6 — Trichet (ECB president) leaves a secret meeting of European officials in Luxembourg where the possibility of Greece leaving the Eurozone is to be discussed, angry that the existence of the meeting has leaked to the press.
- 30 June 30 — Papandreou narrowly clings to power in Greece as he wins passage of a €78 billion package of austerity measures. Violence continues in the streets as the Greek economy falls into depression.
- 21 July — After lengthy negotiations, a group representing banks and other Greek bondholders agrees to take a loss.
- 5 August — With borrowing costs spiking for the Italian and Spanish governments amid a loss of confidence in European resolve, Trichet sends letters to the Italian and Spanish finance ministers outlining the steps they must take to receive help from the ECB.
- 21 September — Responding to another wave of weakness in the U.S. economy, the Fed announces its Maturity Extension Program, known as Operation Twist, aimed at replacing \$400 billion in shorter-term bonds the Fed owned with a comparable amount of longer-term bonds, achieving some of the effects of new QE with less political blowback.
- 6 October — Concerned about the ripple effects of the eurozone crisis on the British economy, the Bank of England policy committee unanimously agrees to an additional £75 billion of quantitative easing.
- 31 October 31 — Papandreou calls for a referendum on the Greek bailout agreement, creating a situation in which a no vote would mean his nation's leaving the Eurozone.
- 3 November — The ECB cuts its interest rate target a quarter percent at Draghi's first policy meeting as president, and follows suit the next month, reversing the Trichet rate hikes from the spring of 2011 and reacting to a rapidly deteriorating European economy.
- 30 November — The Fed, ECB, and other leading central banks again announce swap lines to try to funnel dollars toward ailing European banks.

- 21 December — The ECB institutes a “long-term refinancing operation” (LTRO), which pumps €489 billion into European banks for a three-year term.

5.3.6. 2012

- 28 February — The ECB holds a second LTRO, pumping an additional €529 billion into European banks.
- 26 July — In a speech in London, Draghi pledges that the ECB will do “whatever it takes to preserve the euro.”
- 6 September — The ECB announces a new program of Outright Monetary Transactions, a pledge to buy bonds in unlimited amounts to combat market bets against the survival of the eurozone.
- 13 September — The Fed announces a resumption of quantitative easing, pledging to continue buying bonds indefinitely unless the outlook for the job market in the United States improves or inflation becomes a threat.
- 12 December — The Fed announces it expects to keep low-interest-rate policies in place until either the U.S. unemployment rate falls to 6.5 percent or inflation is poised to exceed 2.5 percent.

At the beginning of 2015, the FED stated that it is still keeping interest rates low for as long as it takes.....

6. The European Debt Crisis

It all started with the Maastricht treaty that was signed on 10 December 1991. This started the official unification of Europe. The first major milestone was the creation of the European Central Bank (ECB) on 1 June 1998. This led to the creation of the Euro (€) that was launched on 1 January 1999. This meant that the Euro area has a single currency and one unified monetary policy enforced by the ECB. They, however still have different fiscal policies. A key reason for the current crisis: monetary versus fiscal policies and the failure of the Euro.

Now remember, monetary policy controls the money supply or how much money is available in the economy. An important part of this is the management of interest rates. Fiscal policy on the other hand controls how much money a government collects in taxes and how much it spends. If it spends more than is collected through taxes, a government has to borrow — this is called deficit spending.

Before the Euro the PIIGS countries paid high interest on their debt. This reflected their country risk which effectively placed a ceiling on how much lenders were prepared to lend them. However, after the Euro all of the countries in the Euro Area effectively had the same country risk and sovereign credit rating¹⁶ which was

¹⁶Country risk refers to the risk of investing in a country, dependent on changes in the business environment that may adversely affect operating profits or the value of assets in a specific country. Sovereign credit ratings give investors insight into the level of risk associated with investing in a particular country and also include political risks.

essentially Germany's rating. S&P is rating Germany as AAA and the Netherlands is AA+ and France is AA. Lending rates for the PIIGS dropped from about 18% to 3% and all of a sudden they had access to cheap credit like never before. Due to Maastricht and a common currency, lenders assumed that Germany, France and the other strong economies will step in in times of a crisis.

Cheap money always leads to more loans and the PIIGS borrowed and promised their citizens more jobs and better pension and health plans. Everyone went on a spending spree like never before. If they couldn't pay the interest on their debt, they just borrowed more and paid the interest with borrowed money. Ireland and Spain had huge housing bubbles because banks lend out this cheap money.

This all halted during 2008 when the USA house market collapsed. This brought borrowing to a halt and interest rates soared. Investors started to differentiate between the different risks of the different Euro Area countries. These rates are shown in Figure 5. Greece's rate spike to nearly 30% and has a credit rating of B-¹⁷. The PIIGS could not borrow to repay old debts anymore. Greece could not function anymore and the PIIGS countries were (and some still are) on the brink of collapse. But, like with any debt, someone has to pick up the tab. All of Europe looked to Germany.

The crisis was brought to heel by the financial guarantees by the ECB (spear-headed by Germany who feared the collapse of the euro and financial contagion), the European Commission and by the International Monetary Fund (IMF) — these three were nicknamed “the Troika”. Ratings agencies downgraded the debt of several eurozone countries, with Greek debt at one point being moved to junk status. As part of these loan agreements, countries receiving bailout funds were required to meet austerity measures designed to slow down the growth of public sector debt. The bailouts are nicely explained if one looks at the TARGET2 data series. This is shown in Figure 6. TARGET2 stands for Trans-European Automated Real-time Gross settlement Express Transfer. Essentially, this is a European Union payment system used by large institutions — mostly banks — to make large, cross-border euro-denominated payments throughout the course of the day. In 2012, roughly €2.5 trillion worth of transactions were made on the TARGET2 system every day. However, during the crisis the system worked more as a transfer system between countries that were seeing capital flow into or out of the country. Figure 6 shows the outflow of money from Germany and the Netherlands to the PIIGS countries.

Is all of this austerity working? It seems to have positive results for Italy and Spain. Overall the Euro Area's economies are starting to grow. This is shown in Figure 7. During Q4 of 2014 Germany grew by 0.7%, Portugal grew by 0.5% and the whole of the Eurozone grew at 0.3%. Germany is expected to grow even faster in 2015 due to the weak Euro.

Greece is still a problem though. Greece's economy has suffered a contraction, with GDP falling by 0.2% quarter-on-quarter in the last three months of 2014. On 25 January 2015 voters elected a radical government that stated they do not like the

¹⁷South Africa stand at a BBB+.

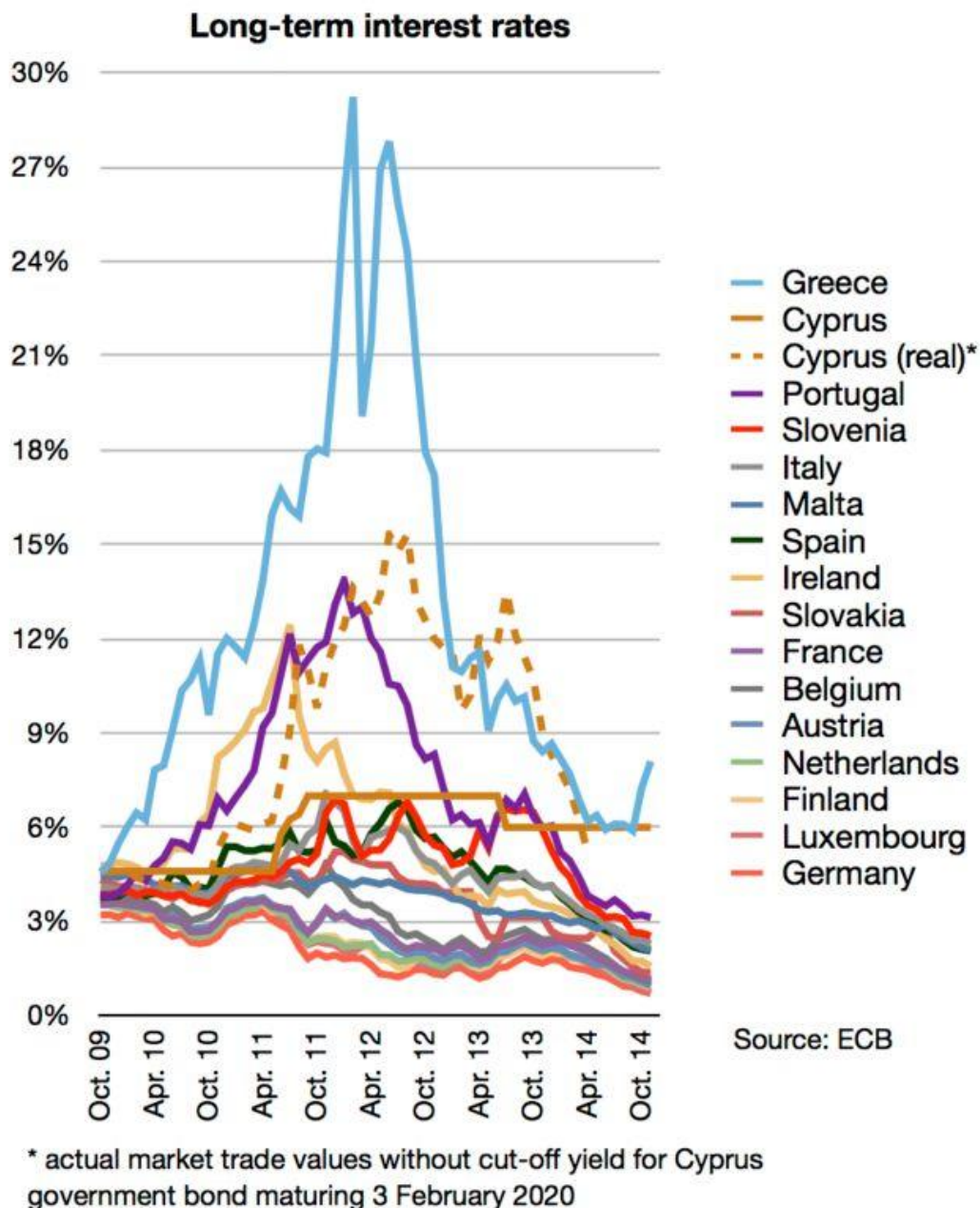


Figure 5: Long term (10 yr) interest rates in Europe from October 2009.

austerity measures and will default on loans if they are pressured. Greece's gross government debt as a percentage of GDP is skyrocketing. This is shown in Figure 8. It currently is at its highest ever: 175.55% of GDP. We also show this for a few other countries. Japan is leading the pack. This shows that South Africa's debt is slowly on the rise.

Bloomberg created an impressive video explaining this visually and graphically: <http://www.bloomberg.com/news/videos/b/88f037f8-06ec-4861-bcf4-b38692477e44>.

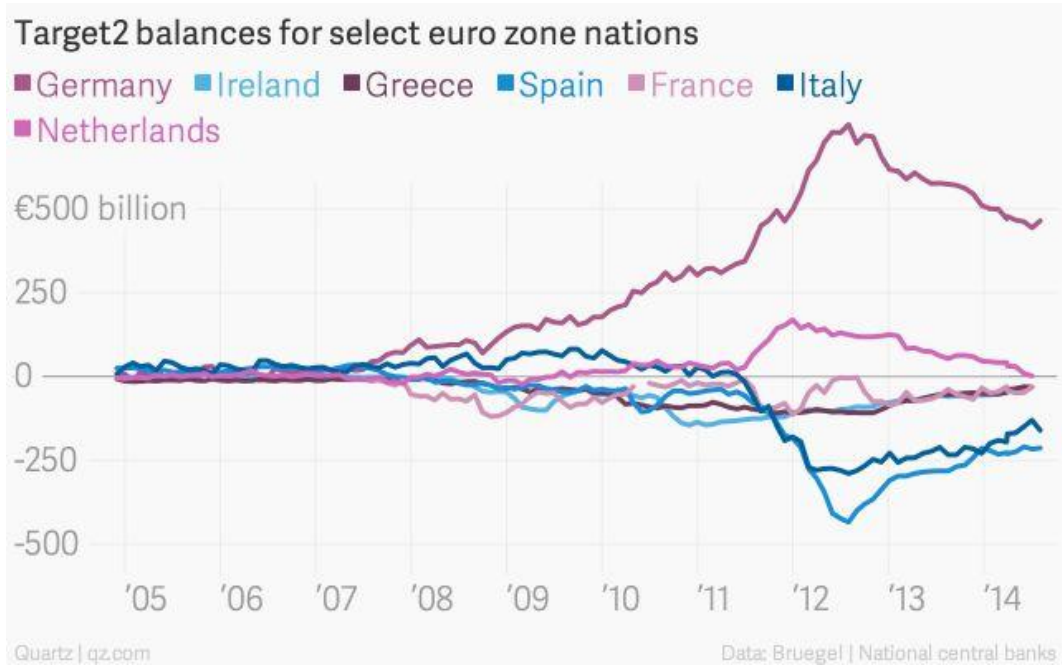


Figure 6: Europe’s TARGET2 showing money flows between different countries.



Figure 7: Euro Area and USA quarter-on-quarter GDP growth rates since 2005.

7. Structure of Debt

In the previous sections we discussed “bail-outs” and “debt restructuring” and “distressed debt.” The main instrument used for all of this was the bond? Bonds

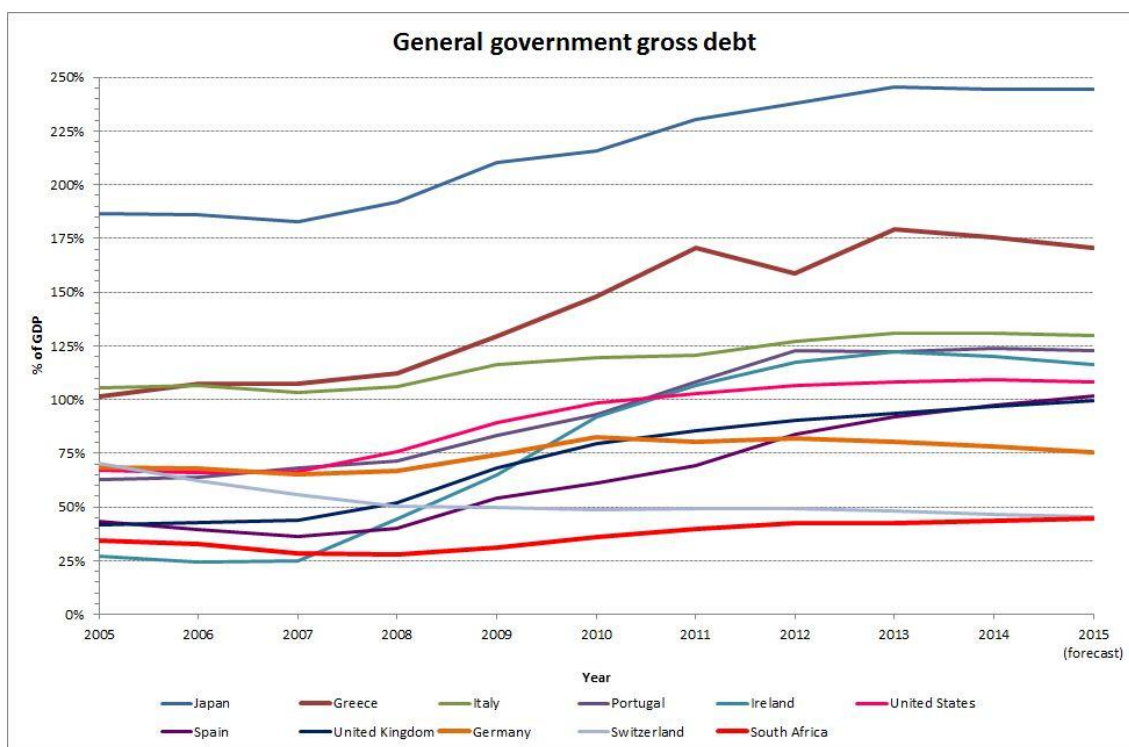


Figure 8: General government gross debt as a percentage of GDP.

were bought and sold. What is a bond? A bond is a debt instrument, an I.O.U. If an investor buys a bond, he/she invests in some fund or company or country. The investee then has a contractual agreement to either pay the investor periodic interest or not and to pay the original investment amount back as some future date. These periodic interest payments are called coupons and the size of the coupon can be fixed (called a fixed rate bond) or it can be linked to a floating interest rate (called a floating rate bond or note). Most government and corporate bonds are fixed rate bonds.

How is this debt generally structured? Usually what happens is that a rich country or foreign bank, buys bonds issued by the distressed country's government and so they invest in that country — i.e., they lend money to a country in need. The distressed country pays interest in the form of annual or biannual coupons and the principle must be paid back at some date in the future.

One has to remember that there is nothing inherently unsound in borrowing or lending. A developing country should tap the capital of rich nations to advance from a poor, largely agricultural society into a wealthier, industrial economy. Without loans or foreign investments, a developing nation is limited to its own resources, its own savings; it must pay for imports of oil exclusively from the cars, gold, platinum and other commodities it can export.

The extra inflow of hard currency serves another vital function. It can add to the stock of local savings that pay for investment in roads, power, port improvements and other vast projects that may yield faster growth. To escape from dependence

on raw materials, to become an exporter of steel, textiles, electronic products, and more, a nation must accumulate more hard currency, more Dollars and Euros, than its exports will earn. Aid from governments, credits from foreign suppliers, loans from international institutions can all help, provided, these are not misdirected by suppliers or misused by recipients.

So, what went wrong with these loans? A country needs to earn hard currency from exports of services and goods to enable it to repay a foreign loan — it is very difficult for a country with a weak currency to finance a loan from of its own resources and local currency. If a currency weakens against the Dollar, the government must use more local currency to repay the Dollar loan. Think about the effect of the Rand weakening from 6 to more than 11 against the Dollar. In most cases, the banks that advanced the loans to the developing countries did not understand what the loans would be used for. Their risk management practises let them down and they lent more than what they should have. The borrowers also borrowed more than what they could repay.

7.1. Useful Debt Ratios

A useful rule of thumb holds that a borrowing nation should limit its debt so that the payments due in any one year are one fifth of its earnings from the export of goods and services. This is called the *debt-service ratio*. it is defined as: In economics and government finance, debt service ratio is the ratio of debt service payments (principal + interest) of a country to that country's export earnings. A country's international finances are healthier when this ratio is low. The ratio is between 0 and 20% for most countries. Thailand, for example, has enacted this 20% rule into law, limiting the foreign debt it can amass. This law has helped Thailand tremendously during the past four decades. As a matter of fact, this rule has helped most of the Asian "tigers" to grow at enormous rates during the past four decades. Such a rule tells a country there is a day of reckoning, that earnings from trade should cover its debt repayment costs five times.

Europe, of course is different. Most loans or debt was in Euros and the countries must repay in Euros as well. There are no currency risk. The main issue was that these countries just borrowed too much. They did not and still do not have the tax base to repay these loans.

In 1973, Mexico's debt service ratio was 25%, Argentina's 21% and Brazil's 36%. By 1982 Mexico's ratio jumped to 58%, Brazil's to 87% and Argentina's to 103%. In other words, everything Argentina earned abroad would be eaten up by the debt payments and it would still fall short of its bill. In Figure 9 we show some newer statistics: the debt service ratios since 1990 for a few developing countries¹⁸. Currently Hungary has highest ratio of 97.4% while South Africa's is just more than 8%.

Currently economists also look at the public debt to gross domestic product (GDP) ratio. This indicates how much the total internal outstanding debt of a country is,

¹⁸World Bank statistics at <http://data.worldbank.org/indicator/DT.TDS.DECT.EX.ZS>

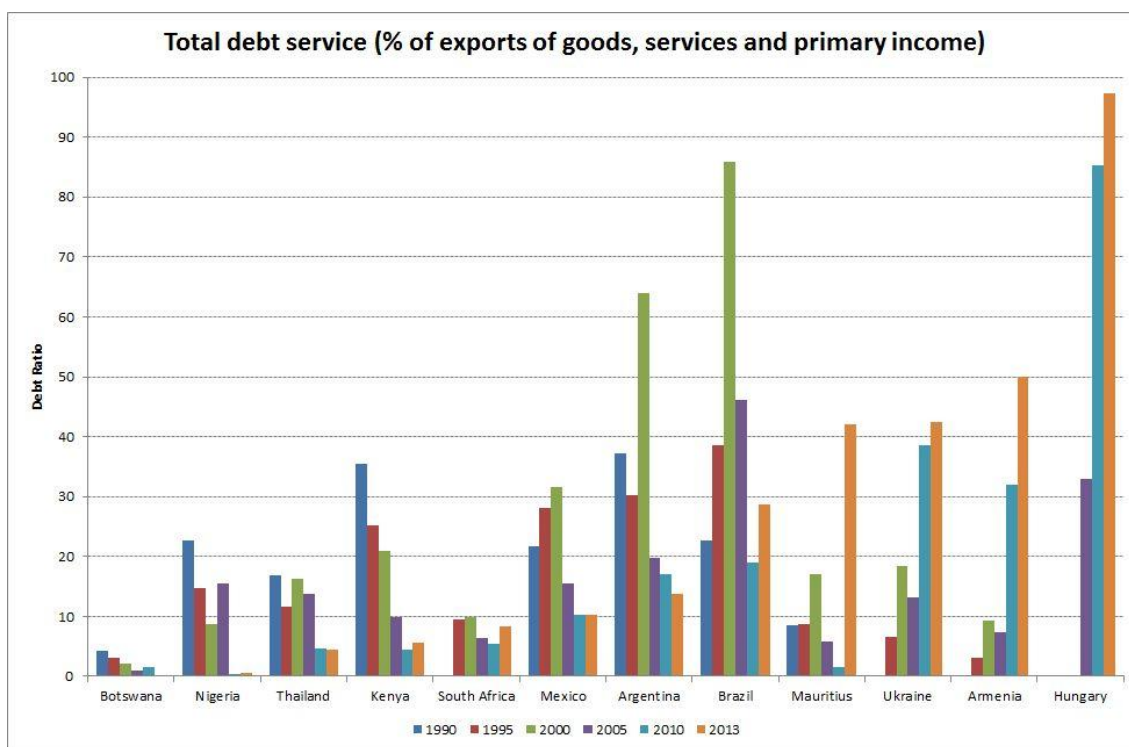


Figure 9: General government gross debt as a percentage of GDP.

relative to its GDP. Governments borrow to finance its budget deficits — the debt to GDP ratio is cumulative of all of the deficits over the years. The current worry in international markets is the pace at which this ratio for some countries are spiraling out of control. This was shown for the PIIGS and a few other countries in Figure 8. The average for all major advanced economies for 2014 is a whopping 124.16%. We show the same for a few developing countries in Figure 10.

The ratios for most developing countries are a lot less than those for the developed ones. Rising debt ratios are only sustainable if *growth remains healthy and interest rates remain low*, as financing requirements rise. The IMF has recommended that a debt-to-GDP ratio of 30% was the highest that should be sustained in emerging markets. South Africa is above this level and our ratio is busy rising. Developed countries can sustain higher ratios but for how long? The European Union has set the ratio at 60% as a target for countries to be included in the Union — most countries are above this level. The Euro Area’s average ratio is 95% while the USA is at 109%. Japan’s ratio is a whopping 244% of GDP, alarming indeed because there has been zero growth in Japan since 1990! This of course is also the problem with the PIIGS countries: high debt to GDP ratios with little and even negative growth.

In 2002 the USA had a fiscal surplus but its deficit has been growing since the “war on terror” started. Economists are very worried about these high ratios together with slow growth. Fortunately interest rates are very low and it seems they will be kept low for the foreseeable future to try and stimulate growth.

These numbers change dramatically if we take household debt into account as

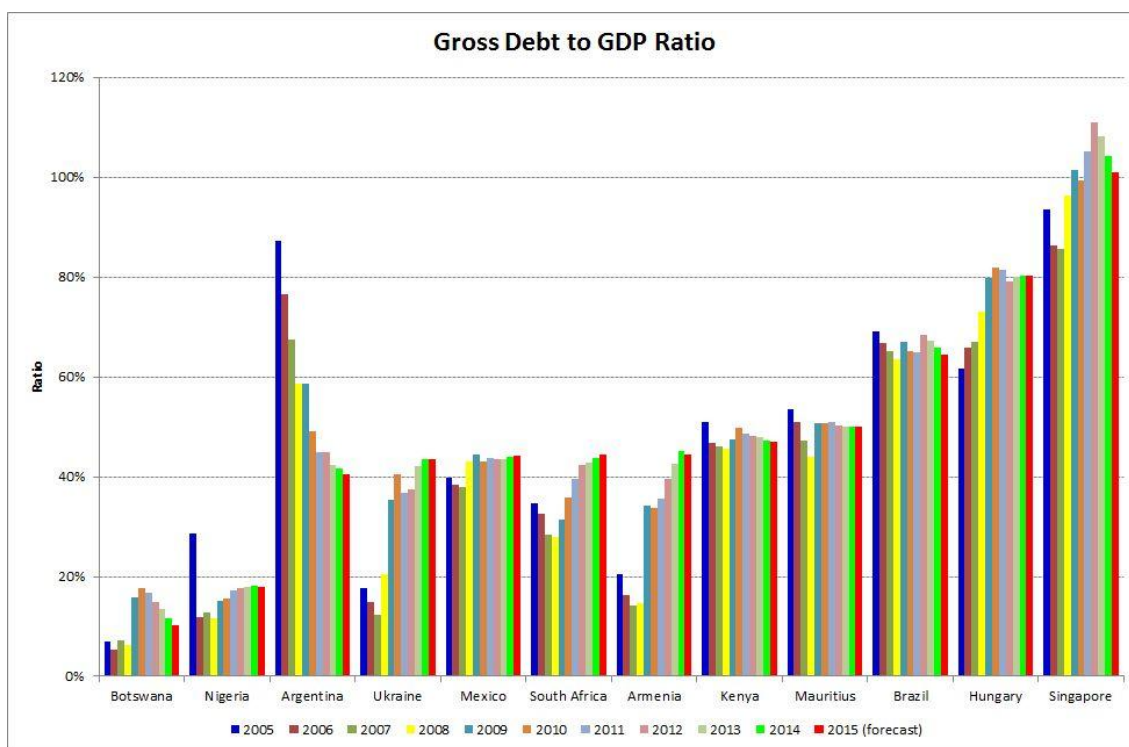


Figure 10: General government gross debt as a percentage of GDP for a few developing countries.

well. in Figure 11 we show total debt to GDP ratio graphically. South Africa’s ratio is 133% whilst Japan’s is 400% and that of the USA 240%.

This all shows that governments always borrow to meet their expenditure requirements. This borrowing can be short-term by using instruments like Treasury Bills, however, the bulk is usually done through long-term instruments. Such borrowings are structured as debt instruments called bonds. This is what we are going to concern ourselves at this workshop.

Understanding the bond market is very important because of its size. At the end of 2014 it stood at US\$100 trillion — this include government debt and financial institutions’ debt. This has exploded by 47% in just 7 short years from 2007 to 2014, from “only” \$70 trillion to over \$103 trillion, according to the BIS’ just-released quarterly review. This growth in the size and structure of the world bond market is shown in Figure 12. We actually include here corporate and household debt. This shows that total debt has grown from \$142 trillion in 2007 to \$199 trillion in 2014 — that is 40% in 7 years¹⁹!

We can extend these figures by including the share market capitalisation and loans. This is shown in Figure 13. Total global financial assets grew from \$242 trillion in 2007 to \$294 trillion in 2014; a 21.5% growth.

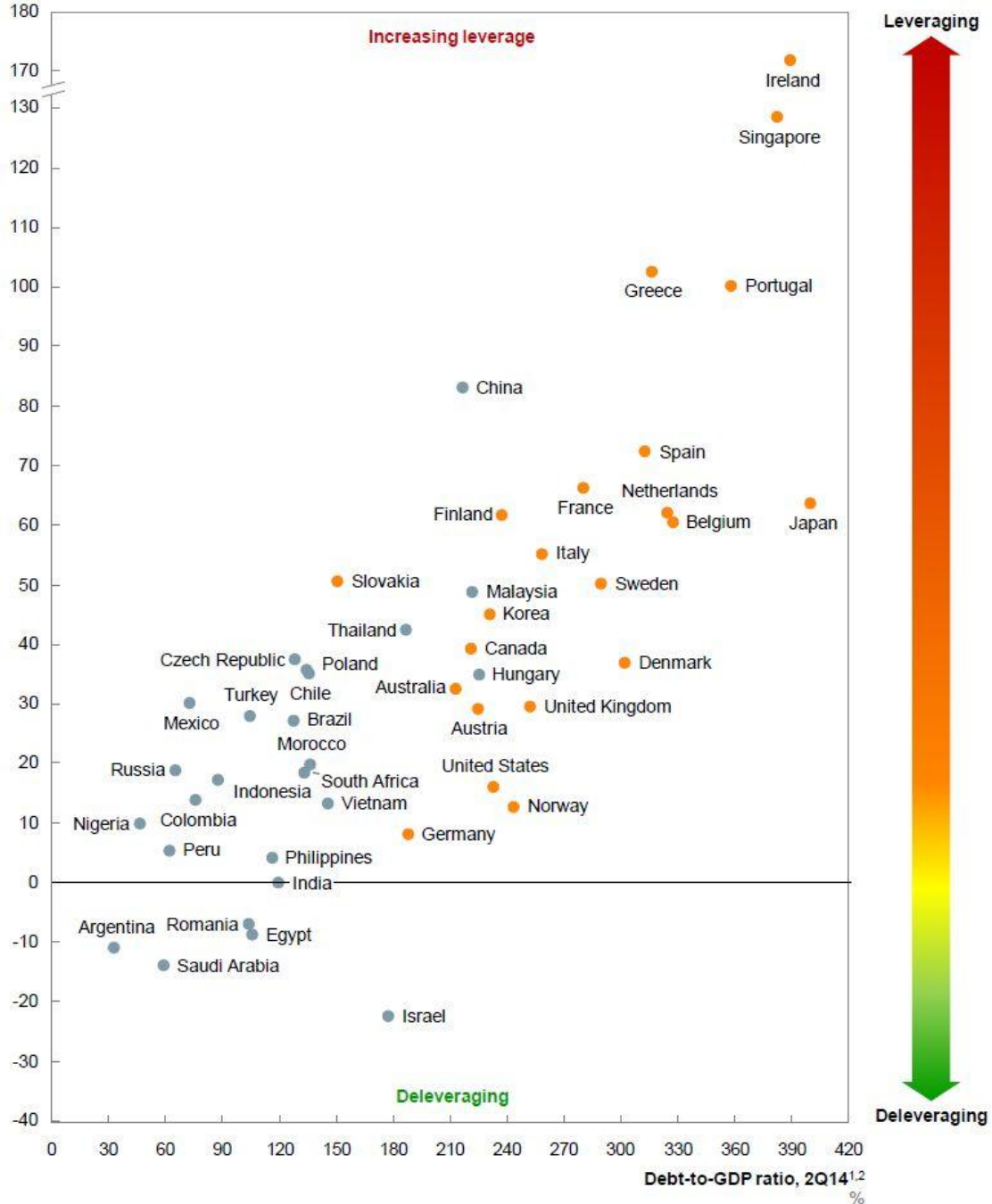
Figures 12 and 13 further shows that the composition of the debt is not changing

¹⁹http://www.mckinsey.com/insights/global_capital_markets/debt_and_deleveraging_the_global_credit_bubble_update

The ratio of debt to GDP has increased in all advanced economies since 2007

Change in debt-to-GDP ratio,¹ 2007–14
Percentage points

● Advanced ● Developing



¹ Debt owed by households, non-financial corporates, and governments.
² 2Q14 data for advanced economies and China; 4Q13 data for other developing economies.

SOURCE: Haver Analytics; national sources; McKinsey Global Institute analysis

Figure 11: Total debt as a percentage of GDP for a few countries.

Global debt has increased by \$57 trillion since 2007, outpacing world GDP growth

Global stock of debt outstanding by type¹
\$ trillion, constant 2013 exchange rates

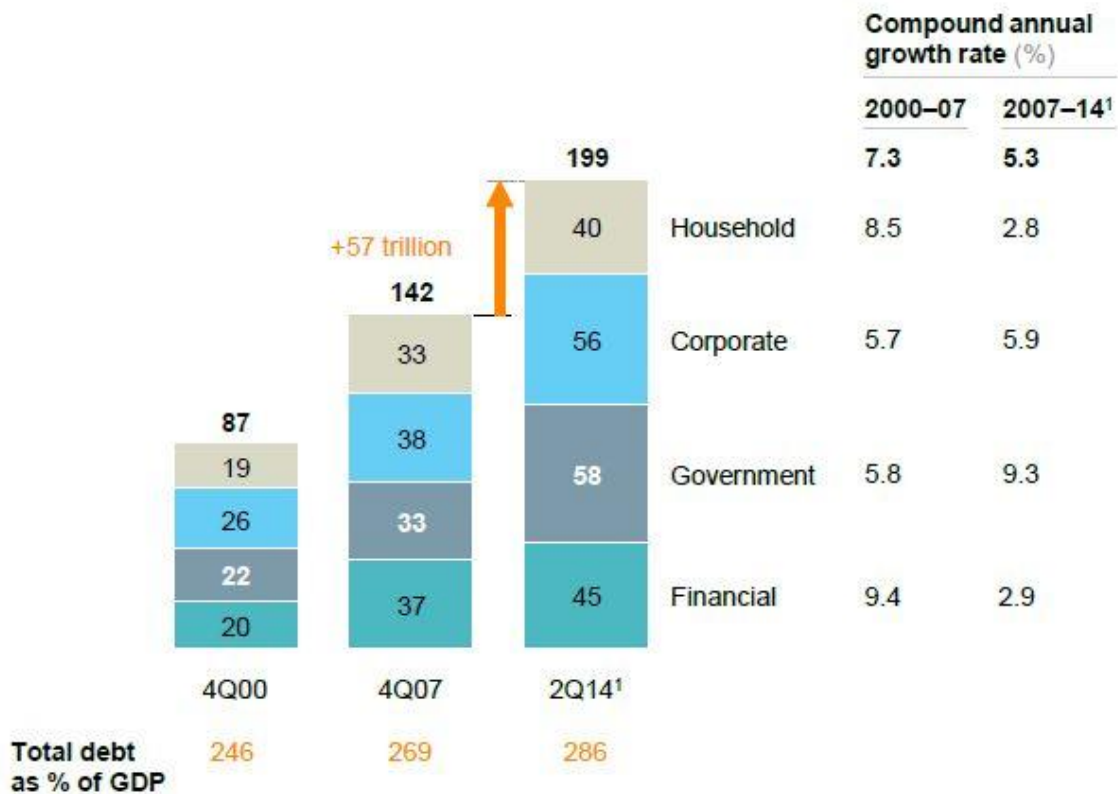


Figure 12: World Debt Outstanding.

much as every sector is growing at the same pace.

Another feature of the current world bond market is that emerging markets are growing. In Figure 14 we show 4 graphs. Graph 1 shows that EMs share in global GDP is on the rise. This is also reflected in graph 2 showing EMs share in global stock market indices. Graph 3 shows the growing EMs bond markets and graph 4 shows the growing credit quality of these bonds [Sources: IMF April 2014. Global financial stability report]. Figure 15, however, shows that debt in EMs are growing quicker than in advanced economies. But, Africa’s portion of EM debt is still small. This is shown in Figure 16.

In Figure 17 we show the growth in world GDP (including a few selected countries) since 1960. At the end of 2014 it stood at \$77.6 trillion. This means that global debt markets were 256% of global GDP in 2014, slightly up from 247% in 2007 but still below the 261% of 2000. The growth is nearly exponential and the 2008 crises a mere

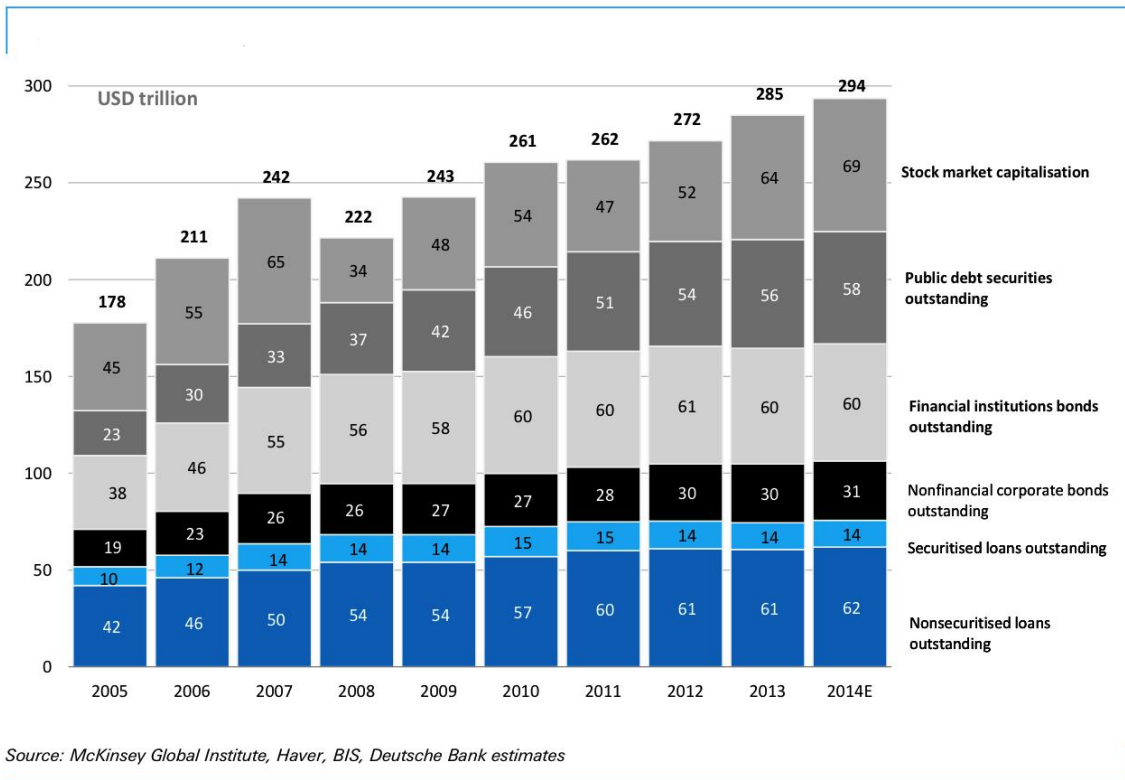


Figure 13: Growth in global financial assets.

small aberration except for Europe — they’ve been trotting along the 2007 level.

7.2. Global Debt in Perspective

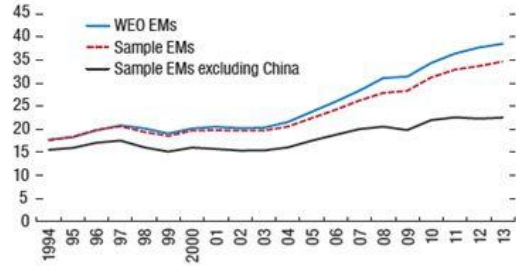
Ever since the 2008 crises we here central banks whispering about deflation. Deflation, of course, is a decrease in the general price level of goods and services. It occurs when the inflation rate falls below 0% (a negative inflation rate). We all know that inflation reduces the real value of money over time; conversely, deflation increases the real value of money i.e., the currency of an economy. This allows one to buy more goods with the same amount of money over time. If SA had deflation, the Rand should strengthen over time assuming the USA and Europe has an inflationary environment.

One might now ask why global central banks are in such a rush to create inflation (but only controlled inflation, not runaway hyperinflation? The USA Fed, ECB and Japan’s central bank are the main culprits. Together they have printed over \$12 trillion in credit-money since Lehman defaulted²⁰. The bulk of this printed money has ended up in the stock market. The answer is simple, and can be seen in Figure 18 below.

²⁰<http://www.zerohedge.com/news/2015-02-23/biggest-problem-facing-world-today-9-countries-have-debt-gdp-over-300>

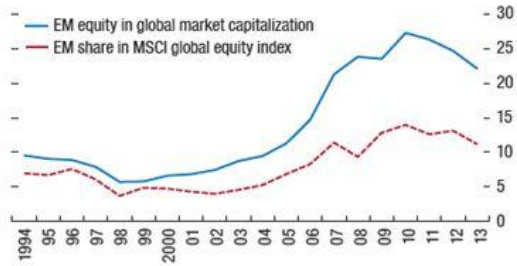
Emerging markets' share in world GDP has grown...

1. Share in Global GDP (Percent of global GDP)



...and their share in global indices has risen, though less than their share in market capitalization would suggest.

2. Share in Global Equity Market Capitalization and Index (Percent)



Emerging markets' share in bond market capitalization has grown, and their share in global high-yield index has caught up recently...

3. Share in Global Bond Market Capitalization and Index (Percent)



...helped, in part, by a narrower rating gap with advanced economies.

4. Sovereign Ratings Distribution (Cumulative distribution; percent)

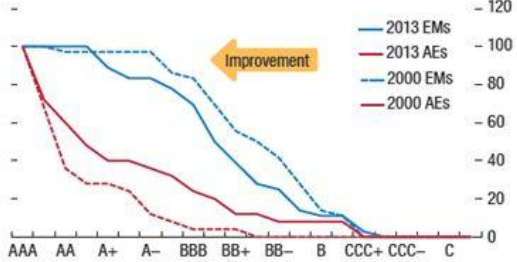
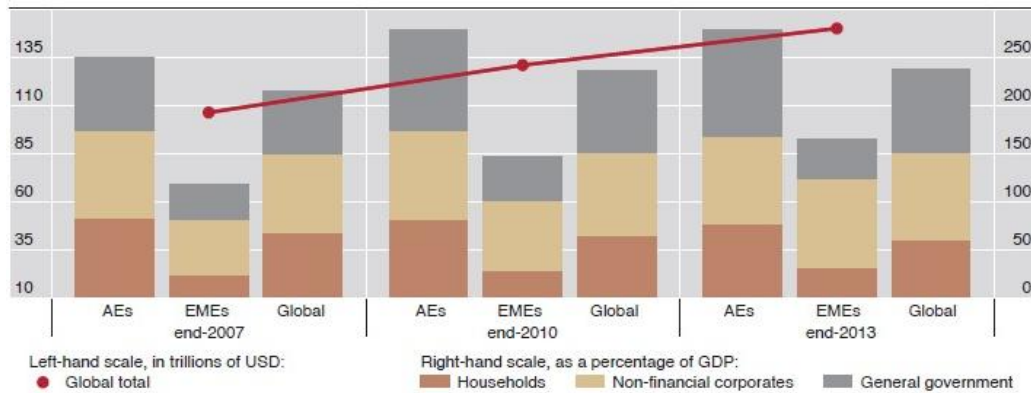


Figure 14: Emerging markets are growing.

Debt levels continue to rise



The global sample of countries includes: Argentina, Australia, Brazil, Canada, China, the Czech Republic, the euro area, Hong Kong SAR, Hungary, India, Indonesia, Japan, Korea, Malaysia, Mexico, Poland, Russia, Saudi Arabia, Singapore, South Africa, Turkey, the United Kingdom and the United States. AEs = advanced economies; EMEs = emerging market economies.

Sources: IMF; national data; BIS estimates.

Figure 15: Growing world wide debt.

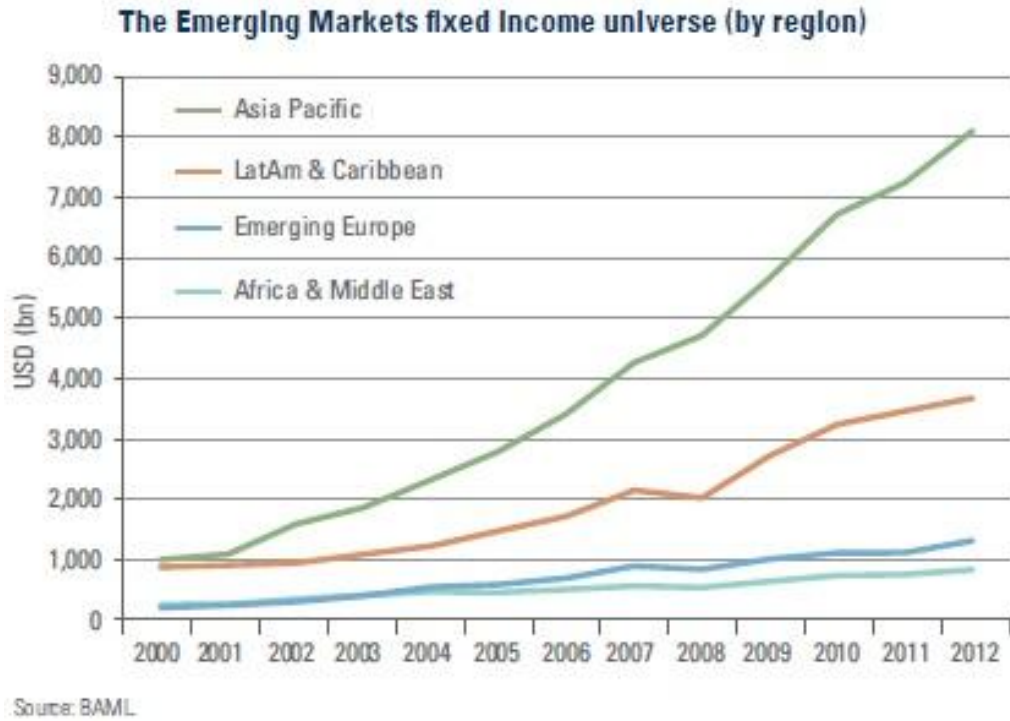


Figure 16: Emerging market debt by region.

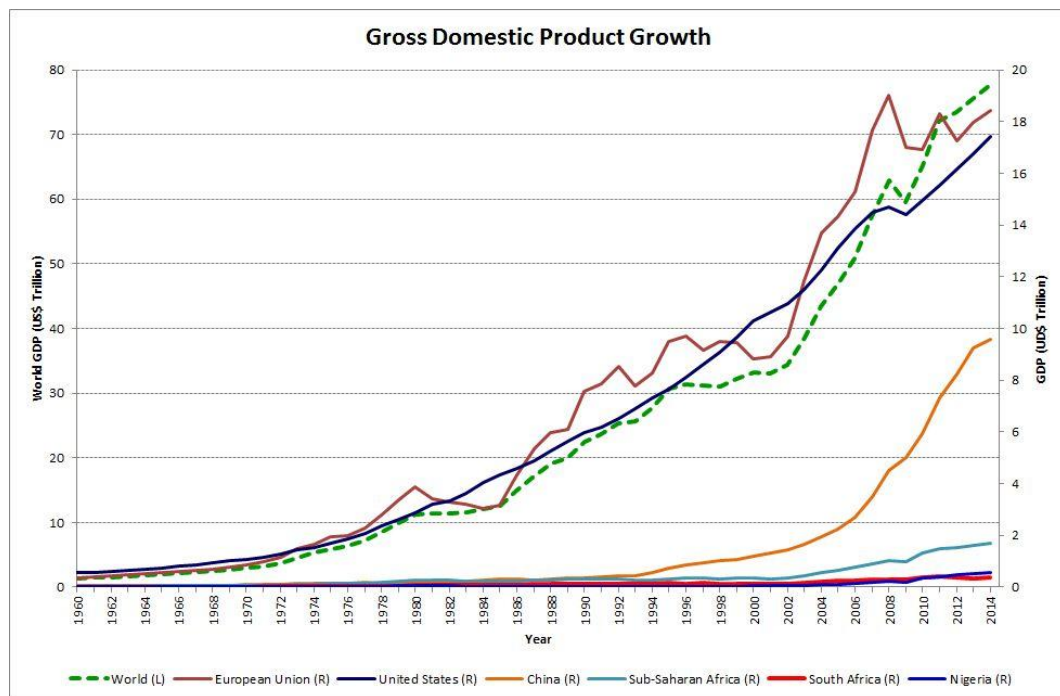


Figure 17: A growing world. GDP rises exponentially.

Rank	Country	Debt-To-GDP Ratio %
1	Japan	400%
2	Ireland	390%
3	Singapore	382%
4	Portugal	358%
5	Belgium	327%
6	Netherlands	325%
7	Greece	317%
8	Spain	313%
9	Denmark	302%
10	Sweden	290%
11	France	280%
12	Italy	259%
13	United Kingdom	252%
14	Norway	244%
15	Finland	238%
16	United States	233%
17	South Korea	231%
18	Hungary	225%
19	Austria	225%
20	Malaysia	222%
21	Canada	221%
22	China	217%
23	Australia	213%
24	Germany	188%
25	Thailand	187%
26	Israel	178%
27	Slovakia	151%
28	Vietnam	146%
29	Morocco	136%
30	Chile	136%
31	Poland	134%
32	South Africa	133%
33	Czech Republic	128%
34	Brazil	128%
35	India	120%
36	Philippines	116%
37	Egypt	106%
38	Turkey	104%
39	Romania	104%
40	Indonesia	88%

Source: McKinsey, Zero Hedge

Figure 18: Global debt becoming a problem?

This list in Figure 18 shows the biggest problem facing the world today, namely that at least 9 countries have debt/GDP above 300%, and that a whopping 39% countries have debt-to-GDP of over 100%! Is this sustainable?

Debt at these levels can only lead to two scenarios:

- Either the Fed inflates this debt away, or
- one can kiss any hope of economic growth goodbye, even if that means even more central bank rate cuts and more QEs everywhere.

Finally, those curious to find out just how the world got to this unprecedented and sorry state, the breakdown in Figure 19 should answer all questions²¹. Here we show the growth in debt since 2007 by country. Government debt in advanced economies increased by \$19 trillion between 2007 and the second quarter of 2014 and by \$6 trillion in developing countries. South Africa's debt increased by 19% over this period. Fortunately it is still small compared to the 172%, 129% and 103% growth rates for Ireland, Singapore and Greece respectively.

²¹http://www.mckinsey.com/insights/global_capital_markets/debt_and_deleveraging_the_global_credit_bubble_update

Change in debt-to-GDP ratio since 2007 by country

Ranked by real economy debt-to-GDP ratio, 2Q14¹

Advanced economy Leveraging
 Developing economy Deleveraging

Rank	Country	Debt-to-GDP ratio ¹ %	Real economy debt change, 2007–14 Percentage points				Financial sector debt change
			Total	Government	Corporate	Household	
1	Japan	400	64	63	2	-1	6
2	Ireland	390	172	93	90	-11	-25
3	Singapore	382	129	22	92	15	23
4	Portugal	358	100	83	19	-2	38
5	Belgium	327	61	34	15	11	4
6	Netherlands	325	62	38	17	7	38
7	Greece	317	103	70	13	20	1
8	Spain	313	72	92	-14	-6	-2
9	Denmark	302	37	22	7	8	37
10	Sweden	290	50	1	31	18	37
11	France	280	66	38	19	10	15
12	Italy	259	55	47	3	5	14
13	United Kingdom	252	30	50	-12	-8	2
14	Norway	244	13	-16	16	13	16
15	Finland	238	62	29	17	15	24
16	United States	233	16	35	-2	-18	-24
17	South Korea	231	45	15	19	12	2
18	Hungary	225	35	15	21	-1	10
19	Austria	225	29	23	6	0	-21
20	Malaysia	222	49	17	16	16	6
21	Canada	221	39	18	6	15	-6
22	China	217	83	13	52	18	41
23	Australia	213	33	23	-1	10	-8
24	Germany	188	8	17	-2	-6	-16
25	Thailand	187	43	11	6	26	21
26	Israel	178	-22	-4	-21	3	-2
27	Slovakia	151	51	28	8	14	-5
28	Vietnam	146	13	10	-1	5	2
29	Morocco	136	20	8	7	5	3
30	Chile	136	35	6	20	9	9
31	Poland	134	36	14	9	13	9
32	South Africa	133	19	18	2	-2	-3
33	Czech Republic	128	37	19	9	9	4
34	Brazil	128	27	3	15	9	13
35	India	120	0	-5	6	-1	5
36	Philippines	116	4	-3	9	-2	-5
37	Egypt	106	-9	9	-18	0	-8
38	Turkey	104	28	-4	22	10	11
39	Romania	104	-7	26	-35	1	-4
40	Indonesia	88	17	-5	17	6	-2
41	Colombia	76	14	1	8	5	3
42	Mexico	73	30	19	10	1	-1
43	Russia	65	19	3	9	7	-4
44	Peru	62	5	-10	11	5	2
45	Saudi Arabia	59	-14	-15	2	-1	-8
46	Nigeria	46	10	7	1	2	-1
47	Argentina	33	-11	-14	1	2	-5

¹ Includes debt of households, non-financial corporations, and government; 2Q14 data for advanced economies and China; 2013 data for other developing economies.

NOTE: Numbers may not sum due to rounding.

SOURCE: *World economic outlook*, IMF; BIS; Haver Analytics; national central banks; McKinsey Global Institute analysis

Figure 19: Global debt growth since 2007.

8. Conclusion

The world is stepping into unprecedented territory with so much debt. Record low interest rates will create asset bubbles of some sorts. Only the future will tell where and how these will be deflated or popped.

9. References

- [BC 06] D. Beers and J. Chambers, “Sovereign Defaults at 26-Year Low, To Show Little Change in 2007”, Standard & Poor’s Commentary, September 18 (2006)
- [BLJ 08] M. N. Baily, R. E. Litan and M. S. Johnson, *The Origins of the Financial Crisis*, The Initiative on Business and Public Policy, Fixing Finance Series - Paper 3 (2008)
- [BS 14] D. T. Beers and Jean-Sébastien Nadeau, *Introducing a New Database of Sovereign Defaults*, Bank of Canada, Technical Report No. 101 (2014)
- [DFGM 02] M. Dungey, R. Fry, B. Gonzalez-Hermosillo and V.L. Martin, *International contagion effects from the Russian crisis and the LTCM near-collapse*, IMF Working Paper, WP/02/74 (2002)
- [DFGM 11] M. Dungey, R. Fry, B. Gonzalez-Hermosillo and V.L. Martin, *Transmission of Financial Crises and Contagion: A Latent Factor Approach*, The CERF Monographs on Finance and the Economy, Oxford University Press (2011)
- [Eco 13] *The origins of the financial crisis: Crash course*, The Economist, 7 September (2013); <http://www.economist.com/news/schoolsbrief/21584534-effects-financial-crisis-are-still-being-felt-five-years-article>
- [Ed 99] F.R. Edwards, *Hedge Funds and teh Collapse of Longterm Capital Management*, Journal of Economic Perspectives, **13**, 2, pp189-210 (1999)
- [HMS 07] J.C. Hatchondo, L. Martinez and H. Sapriza, *The Economics of Sovereign Defaults*, Federal Reserve Bank of Richmond Economic Quarterly, **93** Number 2, pp163-187 (2007)
- [Ir 13] N. Irwin, *The Alchemists - Inside the Secret World of Central Bankers*, Headline Publishing Group (2013)
- [RG 10] A. van Rixtel and L.R. González, *International Debt Markets after the Crisis*, Banco de España, Economic Bulletin, January (2010)
- [RR 11] C. M. Reinhart and K.S. Rogoff, *The Forgotten History of Domestic Debt*, The Economic Journal, **121**, Issue 552, pp319350 (2011)
- [Sw 09] A.J. Schwartz, *Origins of the Financial Market Crisis of 2008*, Cato Journal, **29**, 1 (2009)
- [TW 13] M. Tomz and M. L. J. Wright, *Empirical Research on Sovereign Debt and Default*, Annual Review of Economics, **5**, pp247-2723 (2013)
- [Wi 33] M. Winkler, *Foreign Bonds. An Autopsy: A Study of Defaults and Repudiations of Government Obligations*, Philadelphia, Roland Swain (1933)

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