



LXVIII
SIXTY-EIGHTH SESSION



FINANCIAL STABILITY BOARD

BERKELEY MODEL UNITED NATIONS

WELCOME LETTER

Hello Everyone! My name is Vikas Sharma and I will be your head chair for BMUN 68. I'm a junior majoring in Computer Science and Economics. I'm originally from Michigan so in my free time, I like to travel across as much of California as I can. Aside from traveling through the area, I love football, dancing, and finding new places to eat. I'm really interested in advanced technology's ability to impact urban life and finance (you may have guessed). I'm excited to meet you all and wish you the best of luck as you research.

Calvin Price is a senior at Berkeley studying Economics and Data Science. This is his 4th year in BMUN and 12th overall participating in Model UN. He previously served as Head Chair for the Special Political and Decolonization committee and a specialized constant-crisis committee. At heart, Calvin is an economics nerd and loves how this committee addresses the most imperative element of the global financial system: crisis. Outside of MUN, Calvin enjoys foreign languages, aeronautics, and deadlifting.

Andrew Reynoso is a freshman at Berkeley studying physics. He is from the Central Valley and is excited to begin his four years at Cal. He strives to play an active role in the implementation of civic education and is proud to be a part of BMUN. In his free time, he likes to read, write, and watch movies. He has academic interests in political science, world history, and quantum gravity.

See you all in March!

Vikas Sharma



Head Chair, Financial Stability Board

INTRO

The first topic we will be discussing is the Global Financial Crisis of 2007-2009. The first topic will be set 6 months after the fall of Lehman Brothers Holdings, and as delegates, you will be tasked with creating a policy that will curtail the spread and damage in the middle of the global financial crisis. This will require you to look into the past and see what went wrong and what you would do better. We chose this topic because the lessons learned from understanding the roots of the financial crisis and the difficulty in curtailing and preventing recessions are critical throughout the course of anyone's lifetime. The second topic we will be discussing is the potential and implications of a Tech Bubble in 2022. We will be working in the present time and endeavor to understand and debate the source of a potential bubble and recession in the coming years. Once we establish the potential for an economic downturn, we will use what we learned from the first topic to craft an economic and fiscal response to mitigate the impact of the upcoming downturn. We chose this topic because learning the implications and working on methods to curtail the implications will provide crucial knowledge for anyone that is highly reusable.

TOPIC A: (GLOBAL FINANCIAL CRISIS OF 2007-2009)

TOPIC BACKGROUND

The global financial crisis had two parts, both originating from the 2007 -2009 housing crisis. The first part was the Financial crisis of 2007-2008 and the second was the European debt crisis. To understand why both occurred, we must first understand the reasons behind the housing crisis and the influence of globalization.

The financial crisis of 2007-2008

The financial crisis was a direct result of the crash of the housing bubble. A bubble occurs when there is a pronounced and unsustainable market rise, meaning an increase in activity in a specific market segment such as technology, oil, housing, etc., that is attributed to increased speculation in a particular industry or segment of the economy. In this case, the housing bubble represented an

unsustainable market rise with increased speculation and exuberance regarding an increase in **housing prices**.

The crisis itself can be dated back to 2002, when, “the Federal Reserve pushed the federal funds rate down to historically low levels in an attempt to strengthen the recovery from the 2001 recession” (Holt). A logical move at the time that would soon kick off a chain of unforeseeable events. We will examine a few reasons that are critical to understanding what led to the onslaught of the housing crisis.

1. Subprime Mortgages & Asset-Backed Securities

To truly understand why the housing crisis had such a large global impact we need to understand the financial ecosystem surrounding the housing market. For that, there are a couple of technical terms that are critical to understanding.

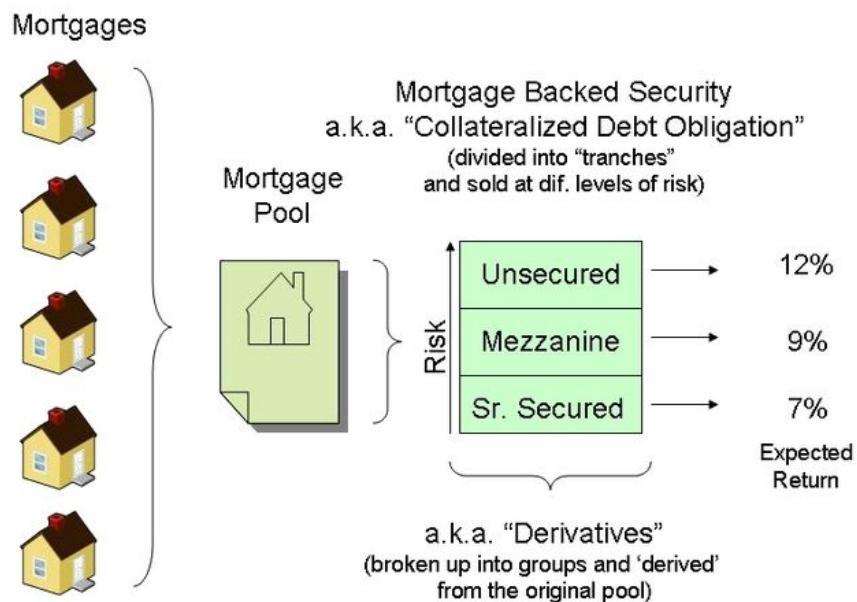


Figure 1: Mortgage-Backed Securities (Mortgage-Backed-Security)

Let's start with an example. Hubert is a new graduate and wants to purchase a house. In order to do so, he'll take out a loan from a bank, essentially borrowing money from the bank and paying them later with interest. The bank will then sell some of those mortgages to Government-sponsored entities (GSE). The two biggest GSE's are Fannie Mae and Freddie Mac. These GSE's act as intermediaries between banks/lenders, government, and private investors. Their goal is to provide liquidity by purchasing loans from banks and freeing capital for these banks to loan more money, which helps

grow the economy (Holt).

These GSE's and banks would package these loans into a **mortgage-backed security** (MBS) and sell its related cash flows to investors, who would essentially profit when the homeowner paid off part of his loan. Since the housing market was viewed as incredibly stable everyone thought that this was a brilliant idea, as housing prices rose so would the value of MBS's. The question now becomes how do investors know which MBS's are good and which are bad? That's where rating agencies such as Moodys and Standard & Poor's come in. These rating agencies would assign a score assessing the safety of an MBS based upon its underlying mortgages, the highest of which was AAA. Since the housing market was viewed as the most stable market in the world, it was taken for a fact that homeowners would pay off their mortgages, which meant that the MBS would always be paid out (Holt). Thus traditional mortgage-backed securities always got an AAA rating. The MBS's were typically comprised of the Sr. Secured Risk level loans as depicted in the image above, as it had the safest payouts.

Subprime mortgages were mortgages given to borrowers who had really low credit, which implies that the borrower has a greater than average chance of defaulting on their loan. For having higher risk lenders often charge more interest on subprime loans, and these loans were often **Adjustable Rate Mortgages (ARMS)**, which means that the interest rate could change at different times. The biggest issue with ARMS was something called the teaser rate. The Teaser rate was lower interest rates for the first couple of years, and higher interest rates kicking in after that (Adjustable-Rate Mortgages). Borrowers often took the loans even though they knew they could only pay off the lower interest. The buyers hoped they could refinance their loan and get a better loan with lower interest in a few years when the housing prices rose and the economy continued to grow. However, this only would work IF the housing market continued to grow (Holt).

When banks tried to package subprime mortgages into an MBS and sell them they got lower ratings from the rating agencies, so they decided to bundle up the subprime mortgages with mezzanine and unsecured risk level prime mortgages into something called a **credit default option (CDO)**. They put the low-interest payments from the first three years of subprime mortgages in with the low-interest payments of conventional loans. High-interest payments were bundled into **tranches**, a component of an MBS or CDO, that appeared to be riskier because they were high yield (Mort-

gage-Backed Security). The CDO would receive a AAA rating because it was more diversified and thus had less risk.

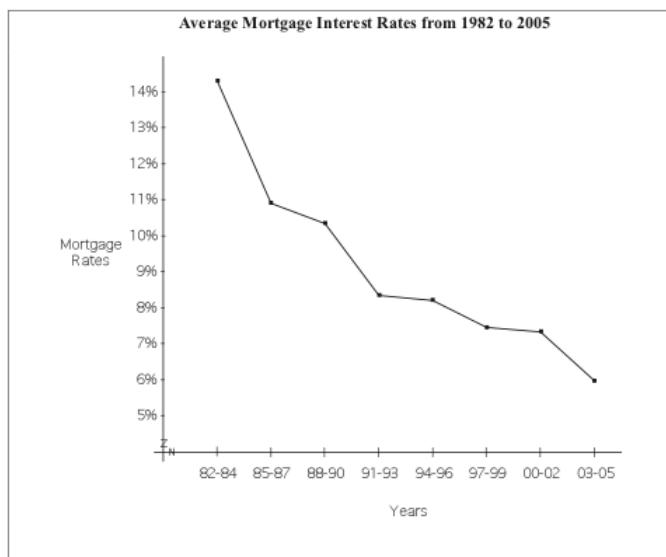
Banks would sell CDOs to investors so they could remove themselves from the risk of the loan; the risk is the borrower (the person who took out the loan) can't pay off the loan(defaults). The positives were that when banks sold CDO's they now had more money to invest, which helped boost the economy. However, because banks were selling the CDO's and no longer bore the risk, they became less disciplined on their lending standards and started loaning to investors who were not creditworthy, which would come back to hurt the nation.

Finally, the banks decided to take insurance against a default, essentially guaranteeing that if the MBSs or CDO's aren't paid off the bank would still get their money. The banks then decided to sell off this insurance and called it a **credit default swap (CDS)**, also known as a synthetic CDO. If the CDO defaulted investors would lose their investment but would be paid out as insurance. This ended up multiplying the effect if a loan defaulted as there were numerous financial instruments involved. Thus if a group of home purchases with subprime loans numerous MBSs, CDOs, and CDSs was created and spread amongst the market

2. Relaxed Standards for Mortgages & Low Mortgage Interest Rates

From 2002 to 2004, the Federal Reserve pushed the federal funds rate down to historically low levels in an attempt to strengthen the recovery from the 2001 recession (Holt). The federal funds rate is the interest rate at which institutions such as banks and credit unions lend reserves to each other overnight. The Federal Reserve, the central banking system of the US, sets the minimum balance for depository institutions (banks and such). Say for example a bank we'll call The Bank of Vikas, issues a loan to help a new couple buy a house. Unfortunately, they gave out too much money and now their balance is lower than the legal balance! The Bank of Vikas decides to borrow the requisite funds from the Bank of Calvin, and the Bank of Calvin charges interest on the sum borrowed. That interest rate is the federal funds rate. When the Fed pushed the federal funds rate it encouraged lending, because interest rates are lower and led to a growing economy.

Figure 1:



Investors in these countries sought investments providing low risk and good returns. Initially, they focused on U.S. government securities. Seeking better returns, they branched out into mortgage-backed securities issued by Fannie Mae and Freddie Mac, two enormous government-sponsored enterprises (GSEs). Foreign investors assumed that these securities were low-risk because, if trouble arose, the federal government would step in to bail out Fannie and Freddie.

Eventually, the foreign investors grew bolder, investing in mortgage-backed securities issued by Wall Street firms. These mortgage-backed securities appeared to be

low-risk because they had received favorable ratings issued by highly respected credit rating agencies such as Moody's and Standard & Poor's. The low mortgage interest rates contributed to the housing bubble by keeping monthly mortgage payments affordable for more buyers even as home prices rose.

(ii) Low short-term interest rates. From 2002 to 2004, the Federal Reserve pushed the federal funds rate down to historically low levels in an attempt to strengthen the recovery from the 2001 recession. The U.S. economy entered into a recession in March of 2001. Over the course

Figure 2: Average Mortgage Interest Rate(Summary of primary causes of housing bubble)

The low short term interest rates contributed to a rapid increase in house prices. This would go on to have two major effects:

1. Mortgage lenders (institutions or individuals who lend money to purchase homes) began to create something called the option adjustable-rate mortgage, or option ARM, exactly like the one detailed above. As housing prices rapidly rose many could not afford a traditional mortgage, and ARMs allowed many borrowers to afford a house in the short term. Because the short term interest rates were so low borrowers saw the opportunity to buy a house at a much more affordable price, which led to more buyers and rising home prices. When the higher interest rates kicked in many homeowners would be unable to pay off their loans.
2. The second way this hurt was leveraging. Consider this situation. Say an investor buys 1

million dollars worth of MBS's paying 7% interest. If the same investor takes out a loan for another 1 million dollars paying 4% interest to the bank to buy another 1 million dollars worth of Mortgage-Backed Securities -- that's a good deal! The investor will pay 4% interest but make 7% interest essentially guaranteeing a 3% interest in profit. This sequence of borrowing to invest and reap profits is known as leveraging. Per a research study, "The practice of leveraging increased the financing available for mortgage lending and thus contributed to rising home prices." Thus leveraging would go on to increase the number of mortgages, MBSs, CDOs, and CDSs, amplifying the impact of the housing bubble.

3. Fraudulent Underwriting & Ratings

Underwriting is the process a lender uses in determining the risk in offering a loan to a borrower based upon certain parameters (Mortgage underwriting in the United States). Banks and lenders typically create guidelines to help assess risk. Automated guidelines are critical to determining the price and interest of a mortgage, but at the end of the day, the underwriter decides whether to approve the loan or not. As the housing market continued to rise, some mortgage lenders decided to reduce the prepayment fees and offered much more flexibility regarding loan terms. Furthermore, with a high degree of competition from other banks offering loans, the banks reduced their underwriting standards to compete and earn profits (Underwriting Standards). This weakening in underwritings standards allowed borrowers who shouldn't have qualified for a loan to get a loan, and inevitably default on their loan.

Credit rating agencies are designed to provide investors with an informed analysis of the risk associated with debt securities. The credit raters such as Standard & Poors and Moodys ran on an "issuer pays" model, where a bond issuer pays rating agencies to get a rating on their security, in this case, MBS or CDO. Then the public and investors can see this rating for free and decide whether to purchase the security.

As housing prices rose "The credit rating agencies evaluated an issuance of mortgage-backed securities not based on the quality of each individual mortgage but based on historical mortgage default rates for similar mortgage pool" (Holt). Thus the rating agencies themselves changed the standard on which they rated silently, and left the investors believing the evaluations were strong when in reality they were entirely inaccurate

This resulted in virtually every MBS and CDO receiving AAA ratings whether or not they deserved it. When one credit rating agency decided not to give a security an AAA rating, the issuer would just go to a different rater and get the AAA rating. This competition incentivized the big 3 credit rating agencies to always give out AAA ratings. Furthermore, many critics claim that “The agencies” inflated ratings also failed to account for the greater systemic risks associated with structured products, and they were accused of sacrificing quality ratings to win a bigger share of the lucrative sector” (Credit Rating Controversy).

All in all, the relaxed and borderline fraudulent underwriting coupled with the fraudulent credit rating process helped grow the housing bubble and only exacerbate its problems. These 3 factors combined led to the global financial crisis, but the one essential cause that mentioned through numerous research papers was irrational exuberance. The bubble could not have occurred without the widespread belief that housing prices would continue to rise as they had for decades (Holt).

Localized Impact

Starting in 2005 housing prices started to slow down, and by 2007 they were plummeting. The falling housing rates meant many borrowers who had hoped to refinance their loans, could no longer do that because the value of their homes had fallen. This, in turn, led to many mortgage defaults, which meant that millions of mortgage-backed securities failed. At the time The Lehman Brothers were a prominent investment banking firm with global reach. An investment bank is a financial services company that engages in financial transactions on behalf of individuals and corporations. The Lehman Brothers had invested heavily in the mortgage market and had many subsidiary companies that performed underwriting. Thus Lehman’s portfolio consisted of a large portion of MBSs and CDOs. When the market went south these MBS and CDOs went from gold to dirt as the mortgages they were comprised of defaulted. On Sept. 15, 2008, Lehman Brothers filed for bankruptcy (Collapse of the Lehman Brothers). At the time they had \$639 billion in assets and \$619 billion in debt, Lehman’s bankruptcy filing was the largest in history, and with hundreds of thousands of employees laid off, their impact was massive.

When the housing crisis hit, and millions of MBSs and CDOs defaulted the Credit Default Swaps were activated and holders of these CDSs were expected to get large payouts of insurance. These insurance payouts were issued by the global insurance company American International

Group (AIG). One day after Lehman's Collapse, the Federal Reserve Bank of New York lent \$85 Billion to AIG, whose assets could not cover the CDS contracts they were paying out. Because AIG provided insurance to so many companies if they crashed the world economy would have been demolished, and the government stepped in (Global impact of Lehman brothers collapse). On April 30 and June 1st Chrysler and GM respectively filed for bankruptcy. Being two of the largest auto manufacturers in the US, this only fueled the economic downturn, and the Government had to step in again to bail both companies out.

European Debt Crisis

Tracing the largest root cause of the European Debt Crisis is incredibly difficult, but there are three key causes that are critical to understanding its progression. Added to all these causes were the weak and slow measures the EU took in order to stabilize the government.

Firstly the structure of the Euro. The Euro, at its core, eliminated national currencies and that meant that national fiscal policies took on additional importance to counter macroeconomic policy (European Sovereign debt crisis). The euro is a largely adapted currency meant that the national government had the ability to borrow a common currency, and thus had the potential to borrow excessively, and would be bailed out regardless. This flaw in the design of the Euro allowed countries to borrow, go in debt, and be bailed out with few consequences.

The second huge factor was public debt. Traditionally, "a key predictor of a banking crisis is the scale of the preceding domestic credit boom" (European Sovereign Debt crisis), as cited by numerous research papers. Below is a graph depicted the state of public debt at the time, public debt is directly related to credit usage. The interesting part is that private government debt was not the key issue, rather public debt was the issue. The sovereign debt crisis was actually deeply intertwined with the banking and housing crisis. The property boom fueling debt accumulation in both countries, as households tended to be the primary borrowers and those were the groups that fueled the credit boom. In a research paper detailing the primary causes of the European Debt crisis it's declared that "the simultaneous timing with the securitization boom in international financial markets, the U.S. subprime episode, and the decline in financial risk indices suggest that the answer may be found in the underlying dynamics of the global financial system and the unusually low long-term interest rates

prevailing during this period." (European sovereign debt crisis). The answer referring to the answer behind the rapid credit boom from 2003-2007.

The third factor stems from the fall of the Lehman brothers. Many international investors and banks had invested in MBSs, and when the housing bubble popped these investors and banks lost large sums of money, and when Lehman brothers collapsed the Debt crisis reached its tipping point. A decrease in consumer spending and exports in the US dramatically affected the flow of goods and job growth internationally (Global impact of Lehman). At first, there was little concern, with the expectation being that the European central bank would address the financial shock (The European Sovereign Debt Crisis). They quickly cut short term interest rates in an effort to prevent the crisis from spreading. Unfortunately, the financial crisis had asymmetric effects throughout. "Cross-border financial flows dried up in late 2008, with investors repatriating funds to home markets and reassessing their international exposure levels." (The European Sovereign Debt Crisis) This meant that countries disproportionately affected, which were those that relied on external funding, saw their funding source vanish. This held particularly true for countries like Ireland and Greece.

GLOBAL EFFECTS

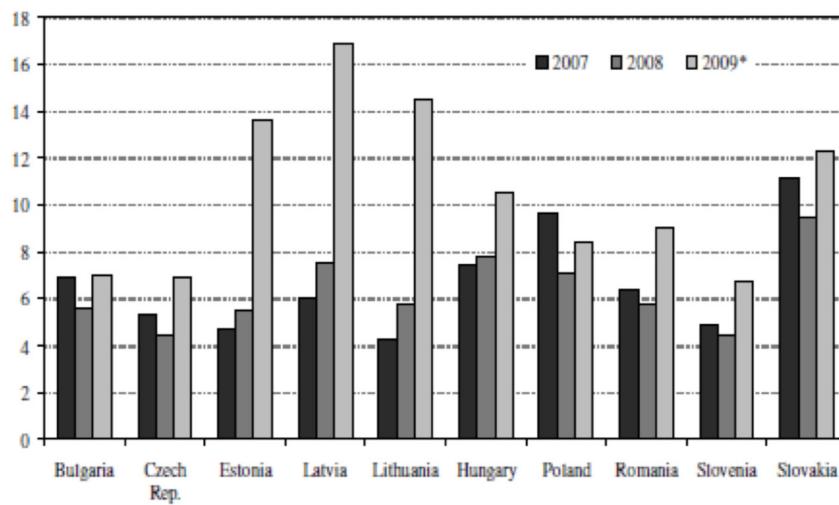


Figure 3: Unemployment Rate (Terazi and Senel)

There was a drastic downturn in consumer spending in countries where citizens lost money through their investment and the housing market. This, in turn, led to less spending on exports which hurt the economies of countries that had escaped the housing crisis, such as African countries and

Asian countries. The international financial crisis hit Central Europe in October 2008, with Hungary being the first and the worst affected (The Impact of the Financial Crisis on Euro-Adoption Strategies in Central Europe). The hit in central Europe varied greatly due to differing financial situations and policies enacted. The greatest impact stemmed from public debt.

Prior to the housing bubble, investors internationally were looking for somewhere to invest that had low risk and high returns. These foreign investors decided to buy mortgage-backed securities. Because everyone assumed the housing market was low-risk, and at the time most of the MBSs we're issued by GSE's. Investors assumed that if there was trouble the government would step in and bail the GSE's out. However, they soon grew overconfident and began investing in MBSs that were issued by Wall Street firms like Lehman Brothers. These securities appeared to be low risk because they had received AAA ratings from credit agencies, who ended up misleading everyone in their pursuit of profit (Summary of primary causes of housing bubble). Thus when Lehman collapsed, they defaulted on all the MBSs they issued and it ended up costing these international investors millions. These investors would then go on to cut back discretionary spending and further hurt their home country's economy.

The whole reason the crisis was able to take on the steam that it did was due to globalization. With investors having the capability of investing internationally at greater spans than ever before, coupled with the global reach of financial institutions and the interconnectedness of the world economies, the housing bubble was able to drastically affect almost all parts of the world. As time as gone on the world has only become increasingly globalized, making it highly likely that a devastating economic collapse in one region could set off a global crisis (Huwart Jean-Yves).

Key Actors

The primary actors in the global financial crisis were the US, European countries, specifically eurozone countries that fell into immediate debt and were hit hard such as Spain and Greece. The crisis really hit Europe in 2008-2009, and the eurozone countries felt the most impact. No governments were particularly good at responding with fiscal stimulus packages. Each government underestimated the true cause and potential impact of the crisis, and thus were late to supply fiscal stimulus packages, and by the time it did it was too late. The eurozone countries quickly fell into

debt, with numerous individuals defaulting on their loans and cutting spending. Groups like the IMF and European central banks were critical in helping to restore financial stability in the region. For our committee timeline, the IMF and ECB would have not yet implemented their financial stimulus packages (Holt).

PAST UN ACTIONS/INTERGOVERNMENTAL ORGANIZATION RESPONSE

Key Resolutions

Because of how interconnected the global economy is, financial crises are very likely to spread between countries; at the outset of the crisis in 2007, the global community reacted quickly to protect themselves and a fight arose over jurisdiction. Coordinated economic action is achieved via G7, G8, or G20 summits. These meetings (attended by delegates from the world's seven, eight, and twenty largest economies, respectively) are typically closed-door sessions where economic powerhouses set the pace for the rest of the world. Since their collective actions are so important and economically impactful, it usually determines the course for the rest of the world, too. These nations also like these restricted summits as it concentrates power in their hands to better tackle crises. On a global level, however, it is also somewhat undemocratic. As the financial crisis was so severe, there was a resulting fight over jurisdiction and the global community attempted to assert its authority. It failed.

When the UN convened in 2008, it asserted its right to weigh-in on economic issues typically reserved for restricted and specialized bodies. The president of the General Assembly in its 63rd session commissioned a study on the causes and underlying structural issues of the global economy that allowed the crisis to happen. The blue-ribbon report was chaired by Nobel Prize-winner Joseph Stiglitz and involved notable academics from around the world. The 140-page results saw the financial crisis as being one dimension of concurrent crises in food, water, energy, and sustainability—the 2007 crash was not just a failure of the system, the system itself was the failure!

The Stiglitz Report, as it became known, was an immediate champion for reimagining the global economy. It questioned everything from the short-term housing policies that led to a bubble in American markets to the underlying philosophical principles of the modern political economy. It advocated specifically for changes geared towards long-term development, that support demo-

cruic, equitable, stable, and sustainable growth. The Stiglitz Report was a hit in academic circles, prompting numerous studies and counter-reports, including a prolonged debate over the potential overuse of GDP as an economic statistic. Politically, the Stiglitz Report was a non-starter.

The report and General Assembly attempt to include itself failed for two reasons: aggressive reform reports by international bodies are usually ignored by countries because they are unpalatable, and the primary countries involved in the crisis simply preferred to handle the problem directly themselves. Economic issues are not like war, where regional consensus is demanded and damages are clear but are more subtle with unclear solutions and end goals. In the eyes of those most involved in the financial crisis, concentrating the decision-making in their hands was smart and efficient. The international community's attempt to involve itself delayed the process and could produce worse solutions. The US, in particular, was reluctant to let the G193 (as the General Assembly attempted to restyle its caucus) set the tone for fear of sovereignty infringement. It allowed the Stiglitz Report to be commissioned but hamstrung its budget and severely limited the following debate.

The international response to the crisis came from three places: multilateral agreements stemming from the G7 and G8 summits, liquidity interventions by the World Bank and IMF, and policy proposals from specialized international bodies like the International Labor Organization (ILO).

Economic summits are usually geared towards specific trade and financial interchange regulation. The 2007-08 crisis, for example, sprung out of poor conditions in the housing market and financial engineering. Intelligently constructed economic exchanges between major countries can work to reduce the risk of a country importing the crisis and lessen the impact of that crisis on the country where it started. These agreements can be massively complex and founder on the smallest of details in negotiation.

The World Bank and IMF were the main and most effective leaders in crafting a global response. The key problem with the financial crisis was a lack of liquidity to pay off debts. As financial obligations rose and everyone's assets lost value, investors were increasingly unable to pay off what they had borrowed or lost. To counteract this, the IMF mustered a sheer wall of cash, extending it primarily to impacted European nations as the debt crisis spread to Portugal, Ireland, Italy, Greece, Spain, and others. These loans enabled the countries to remain solvent, restructuring their internal economic structure to allow them to pay off their debts over a more convenient timeline. The World

Bank took a different approach with the same tactics: it extended cheap loans and expert-advised policy suggestions to developing economies with the intent of stopping the crisis from ever spreading to them. Developing economies have less financial infrastructure; this is normally a major barrier to development, but in this crisis, it was an advantage as it slowed the spread of debt and spurred the World Bank on to a more aggressively preventative agenda.

Topic-specific organizations, like the ILO, weighed in with concrete policy proposals for impacted nations. The ILO, in particular, had one of the most 'successful' reports insofar as international adoption. In its 2009 Global Jobs Pact, the organization outlined key proposals such as increased investment in small and medium-sized enterprises, ideas to tackle wage deflation, an extension of social security programs, investment in employment-intensive industries, and plans to develop human capital. Although not universally agreed on, these proposals introduced ideas for countries to follow, adapt, and debate, effectively framing the global discussion.

INTERNATIONAL ACTIONS AND RESPONSE

Governmental Organizations

The largest and only truly successful response to the financial crisis was enacted by China. Asia was hit by the financial crisis, through the large scale impact of banks as well as investors who had purchased MBSs. Through the early days of the crisis, there was a clear shift in China's growth but it spiked after the Financial crisis. "That's been a steady phenomenon, and if anything the global financial crisis accelerated that. It probably also accelerated the rise of China - which was going to happen anyhow - but now we see China playing on the global stage as big a role - arguably a bigger role - than even the US." (Aswani). The financial crisis originating in Europe reduced trust in the US's ability and incentivized investors and banks to look elsewhere, and China was the country on the rise. The critical step in helping the economy recover was to quickly identify the problem and devise a fiscal solution to it. "The Chinese government "took action swiftly" and introduced a massive stimulus package that didn't just help to stabilize and revive China's economy - it became the lifeline for the rest of Asia." (Aswani) China's rapid reaction allowed them to burst past the financial crisis and grow their country while nations elsewhere tried to not fall into a deep depression. Notable failures included central European countries that neglected to enact financial stimulus packages in an effective and

timely manner.

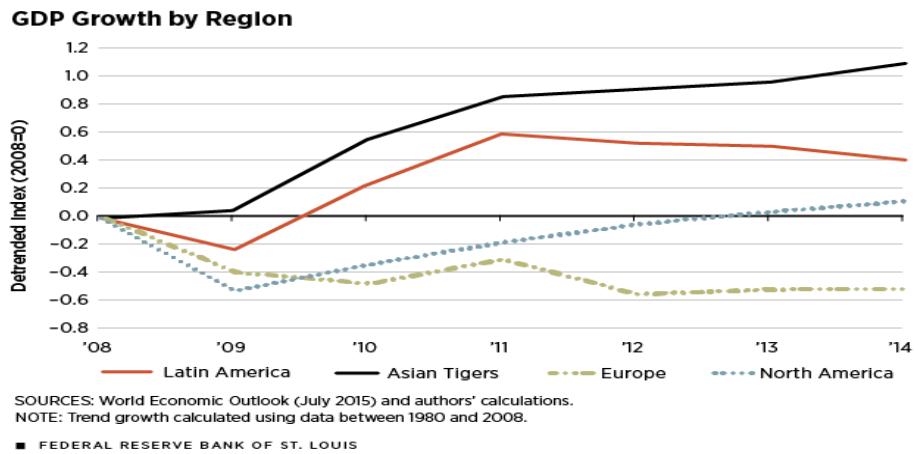


Figure 4: GDP growth by region (Recovery from the Great Recession)

Non Governmental Organizations

NGOs were affected severely by the crisis, as their source of funding started to vanish as discretionary spending dwindled. Thus NGOs were unable to help much during the Global financial crisis. However, while NGOs were not able to offer much aid, the G20, IMF, and ECB were able to help with fiscal packages and bailing out indebted nations (European Debt Crisis).

CASE STUDIES

Case 1: The Grace of AIG

The Great Recession was the worst global financial crisis since the Great Depression. It wasn't as bad as the Great Depression, but it almost was. The US was saved from suffering the same fate twice perhaps only by the grace of the American International Group (AIG). AIG didn't collapse in the Great Recession, it escaped the fate of Lehman Brothers and Bear Stearns, and the fact that it *didn't* collapse is likely all that kept the US from falling back into another Great Depression.

AIG is an insurance company, one of the largest in the world. It provides a range of familiar consumer products like life insurance, retirement, and personal insurance. Many major corporations rely on AIG to provide insurance to their employees and also to ensure the company itself against some risk. According to the SEC, by 2016 AIG insured almost 90% of the Fortune Global 500 companies and 83% of the Fortune Global 2000. In the 2000s, most major Wall Street and European banks relied on AIG for their insurance, too.

Corporations use AIG for insurance for the same reasons any average person would want insurance: in case of some large accident or business failure, insurance would be used to guarantee the ongoing success of the business. Sometimes, this would even include things like bankruptcy insurance, where the insurer guarantees payment of debts in the case of bankruptcy.

In 2005, AIG began insuring a huge amount of financial assets (primarily derivatives) and the underlying security they were based upon (usually mortgages). By 2008, the company insured more than \$441 billion worth of securities against default. Almost \$60 billion of that was directly backing subprime mortgage assets. It's still a contentious point as to whether or not this was intentionally risky business behavior or merely a sign of bad regulatory legislation. On top of insuring those individual assets, AIG was also complexly intertwined with the various investment banks of Wall Street and some in Europe, including Lehman Brothers and Bear Stearns. When those two banks failed, and subprime mortgage default rates skyrocketed, AIG was very quickly left with large debts to pay.

An insurance company only pays out in the event of an actual crisis, in this case, the crises were the banks failing and the mortgages losing value beyond some agreed-upon insurance point. When these losses accumulated enough, there was enough capital that AIG had to pay out that it owed more money than it had on hand. In other words, it was about to go bankrupt because it could not pay out all of its insurance.

Business failure is a normal problem in capitalism, but AIG faced a more difficult situation. Because it was such a big insurance company, other institutions broadly trusted them as a robust, stable institution, so a huge portion of Wall Street used AIG as their insurance. Once there was a credible threat that AIG would go bankrupt, it's insurance of other companies, that stabilizing element that magically creates value through de-risking the very nature of their business, suddenly was called into question. If AIG failed, it seemed to the whole market, there was nothing that would stop other banks from failing.

In the absence of a robust insurance system, all banks seemed suddenly on the brink of a death spiral since there was no other party to stop them from bleeding capital to investors. To the eyes of virtually all parties, if AIG failed, the rest of the major investment banks—the basis of America's financial system—would come crashing down.

So the government and the Federal Reserve did the only thing they thought made sense:

they made an emergency loan to AIG of \$85 billion at very favorable terms. The bailout saved AIG, allowed them to withstand the pressure of Bear Stearns's and Lehman Brothers' bankruptcies, and likely stopped the fall of the American financial system's heftiest domino. It was also extremely unpopular.

Aside from the political difficulties of having the government actively intervene in an independent corporation, there was also the issue that the government spent hundreds of billions of dollars to save a corporation in the midst of a major recession. Although the Great Recession started with a financial crisis that threatened the whole system, it was also a genuine economically tough time. People lost their homes; people lost their jobs; opportunity seemed to dry up. And, while the bailout was used to prop up the system, AIG executives still received massive bonuses (in spite of almost going out of business!).

Although the bailout may have been a necessary short-term step, it called painfully to attention the concept of 'too big to fail' and the dangers such institutions posed. The moment a company became so critical that it was too big to fail, as AIG had been, it became an active threat to the system. Effective regulation to govern this economic grey zone has still not been formulated.

Case 2: Financial Crisis Decisionmaking

Under normal circumstances, taking time to consider options and make a carefully calculated decision is a smart thing to do; in times of crisis, it's often an impossible luxury. At the outbreak of the financial crisis in 2007, events moved at such a pace that time was an impossible luxury. When the housing bubble burst, it was immediately evident a recession would follow and the government realized it would need to move quickly to stop the bleeding. This was also in the midst of a presidential campaign, increasing concerns of partisan posturing and economics.

The key figures in the government involved in the decision-making process were Treasury Secretary Hank Paulson, Chairman of the Federal Reserve Ben Bernanke, and Chairman of the New York Federal Reserve Timothy Geithner. Paulson came to the Fed from the helm of Goldman Sachs and was widely trusted on Wall Street. Geithner was a career Foreign Service Officer who had advised nations around the world on handling economic crises. Bernanke was an academic, a professor of economics at MIT.

It's hard to make fast decisions when dealing with economic problems. First, economics is an imperfect science, somewhere between math, psychology, and sociology. Despite all the economic theory developed over the past two hundred years, there are still many key questions that are not well understood. Second, economic policy is slow and requires time to take effect. It is thus very hard to time and measure the weight any proposal should have even if the problem is theoretically well understood.

There were two key parts in the government's response to the 2007-08 crisis that developed gradually over time. The first was the response to the collapse of Bear Stearns. The second was the government's takeover of the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac). Both of these represented a radical departure from previous economic policy and, in the modern era, an unprecedented scale of government intervention in the financial system. And they paved the way for further major legislature like the Troubled Asset Relief Program (TARP). These legislative and governance acts resonate throughout the US economy to this day.

Bear Stearns's failure was the first systemic shock demonstrating how fatally overconnected the market was. Typically, when a major investment bank fails, it does so because it holds a large number of assets that rapidly lose value. As other investors lose confidence in the fund, the bank will be unable to get any credit to pay off its debts in the short term and will thus collapse. In the case of Bear Stearns, their losses from the shrinking housing market were so great that no bank wanted to purchase them. On top of that, Bear Stearns was such a large institution that their failure was guaranteed to impact other firms.

Paulson, Geithner, and Bernanke moved quickly. The only way to preserve the system was to have Bear Stearns be bought by another large bank and guarantee its failing assets. One bank, JP Morgan Chase, was interested in buying the company but was still concerned about the toxicity of Bear Stearns's assets. To prevent a failure of the bank, Paulson struck a deal with JP Morgan for them to buy the majority of Bear Stearns's while the government took on the financing of the additional obligations too degraded for the bank to hold. Behind the scenes, Bernanke led a complication deal structure that allowed the Fed to provide funds for the guarantee. This type of financing is called Quantitative Easing and is usually done to fight deflation, but was repurposed to provide an emer-

gency injection of capital into the market.

This steely-eyed dedication allowed the government to act quickly later when dealing with Fannie Mae and Freddie Mac, two major mortgage lenders who were implicitly government-sponsored. Both companies were founded during the Great Depression as a way to encourage and enable homeownership. Mortgages are one of the most stable types of loans and significantly increase the amount of credit normally available to average consumers. The government implicitly guaranteed their assets in order to make them early success. Although unofficial, that guarantee allowed them to take on riskier assets and were thus more exposed during the crisis. If Fannie and Freddie failed, it would initiate a chain of failures of financial assets that all lay on top of mortgage loans.

On September 7th, Fannie Mae and Freddie Mac were placed into conservatorship of the US Treasury Department; the US government effectively nationalized a major chunk of the financial industry. Placing the two companies into a conservatorship, the Treasury did guarantee their loans, preventing those asset failures from spreading to the rest of the economy. The executives and boards of directors of both companies were replaced and new operating policy around risk was installed.

More so than a bailout, the takeover of Fannie and Freddie was the closest the US government has come to nationalizing an industry in decades. It was extremely controversial, but ultimately there was no agreed-upon alternative that could have functioned as well. The expansion of the federal government into the ownership of financial assets, guaranteeing securities from failure in the name of stopping the spread of toxic assets, and companies were aggressive, unpopular, and potentially the saving grace of the American financial system.

There are a few trends of decision making in times of crisis that are helpful here to highlight. One is the resistance to public pressure. Although a valuable barometer on performance and democratic satisfaction, governance decisions made at the whims of an angry crowd are always destined to fail. Although the housing market (and the economy as a whole) rebounded, Paulson and Bernanke were widely unpopular for the decisions they made. They knew they would be and made them anyway.

Prioritization is always a tenant of leadership but becomes a central mantra in crisis. Knowing which things to deal with first by order of importance, impact, ability to improve the situation,

and urgency is a key skill in being able to propose solutions. Government regulators were acutely aware that, regardless of what they did, a recession was coming, but they also knew that the financial system did not necessarily have to collapse. They took action that repurposed needed money away from preparing for a recession to instead prevent a catastrophe.

Finally, Paulson, Geithner, and Bernanke all kept a sharp focus on the second-degree effects of their decisions and policy. Any action they took would not only affect the system but would affect how actors in that system behaved. They had to think about, not just what are the immediate effects, but how they will change behavior and mentalities in the long-term. And then they had to work backward, too, to determine what actions they could take that would produce needed changes in behavior.

Making the right choice in a moment of crisis is never easy and it's always possible to look back in hindsight and imagine different ideas that could work better. However, keeping calm, making intelligent decisions and reaching independent dispassionate conclusions, knowing the priorities and objectives, and considering the second-degree impacts will all help you in making the best of a tough situation.

QUESTIONS TO CONSIDER

Question 1: What subset of global policy can be enacted to curtail a financial and economic downturn?

Question 2: Is it possible to separate nations economies and financial interdependence to isolate financial crises?

Question 3: Were the underlying causes of the global financial crisis preventable? If so, how, and if not why?

Question 4: Would it be more effective to implement a policy that slows the financial crisis or works to entirely reverse it?

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TOPIC B: (TECH BUBBLE 2022)

TOPIC BACKGROUND

The Dot-Com Bubble

The first most important thing to grasp is the definition of a tech bubble. Investopedia defines a tech bubble as a pronounced and unsustainable market rise attributed to increased speculation in technology stocks. This essentially means rapid growth in the overall economy due to the increased assumptions and speculations made about technology stocks, such as Google, Apple and such.

In 1993 the Mosaic web browser, the first successful version of public utilization of the internet, was created. The common access to the Web significantly reduced the technology gap between individuals (the digital divide in its simplest form). This created a huge uptick in the use of the internet and a new market. Furthermore, at the time interest rates were at a record low following the soaring inflation rates of the '80s, which increased the availability of capital (Dot-com bubble). These two factors along with critical small events such as lower taxes on returns from stock gains (capital gains) and federal hyping up of stocks created a huge uptick in investors looking to break into internet companies. From 1995-1997 Numerous companies including Yahoo and Netscape had their Initial Price Offering (IPO), which is where a company goes public, essentially offering shares of their company to any investor at a specific price. Their IPOs were so successful that it encouraged more investors to invest in internet stocks (Dot-com bubble).

The internet helped foster a sense of euphoria toward business and helped to inspire hopes for e-commerce. Thus numerous "dot-com" or internet companies were launched and investors soon fell into the trap of euphoria. Anytime they saw the "dot-com" they assumed the company would be worth millions and poured their money into it, as with the blockchain investments made in 2017-2018. (History of the Dot-Com Bubble). Most of these companies were actually incredibly overvalued due to their attitude and had no profits to show. Thus, these companies crashed and left investors with huge losses.

There were two predominant factors of the dot-com bubble. Firstly, the use of metrics that ignored cash flow. During the dot-com bubble, companies were rapidly scaling to amass as many customers as they could, and thus spent millions on sales, employee perks, and lavish events. This leads to the second factor, which is significantly overvalued stocks (History of the Dot-Com Bubble).

These companies showed such tremendous growth that investors started looking at growth to assess company valuation instead of profits, and thus began to give higher and higher company valuations for companies that didn't even have strong business models and instead spent lavishly to acquire customers. When these companies ran out of funds they quickly tanked and investors lost millions.

A look at overvalued IPOs and the changing industry

Looking back at the 2000s, the average time for a company to go public was a few years, with many of these companies being lauded as groundbreaking. Pets.com was a dot-com company that sold pet supplies that started in 1998 and ended in 2000. Thanks to a high profile marketing campaign it had a huge public presence and even had an advertisement in the Superbowl. Pets.com was a dot-com company that focused on selling pet supplies. Amazon was involved in the first round of funding and added validity to the company. Unfortunately, the market they were targeting was not as large as they thought. They went public with their IPO in February of 2000. The company's stock fell from the \$11 IPO to \$0.19 on the day that they liquidated the company (Pets.com). A company that was once lauded and had powerful investors ultimately failed to have a solid business plan and market and inevitably failed. In another example, LinkedIn was a well-known company that took its time and filed for its IPO in January 2011. When it went public, shares rose by 171% on the first day of trading. Since then, LinkedIn has gone on to become an extremely successful company and was later bought out by Microsoft.

At a closer look at these two companies, the key differences lie in a clear business plan and proper execution. While pets.com was so laser-focused on growth they failed to consider the sustainability of their business model, LinkedIn focused on growing their product and through their product accumulating customers and fostering growth. While these are just two simple cases the lessons stand.

When Spotify went public in 2018 it chose to go public and issue its stock through a direct listing. There are two ways to go public, meaning a company sells shares in the open: IPO and direct listing. The biggest difference is that, in a DL, there is no offering of stock from the company and the current owners of stock sell their shares to the public. The large benefit here is companies save money from the costs that would normally go into an IPO. This is a broad simplification of the whole

process but it will serve for a base understanding. On April 26th, Slack filed for its direct listing and followed Spotify. More and more tech companies are following suit with Airbnb expected to be the newest direct listing, and as a whole threatening the Wall Street IPO market. While Slack and Spotify had great success when they went public, with their stock rising within minutes of opening, companies like Uber and Lyft were not as successful. An interesting difference between the companies in the direct listing vs the IPO, and that's something to keep an eye on.

Bubble Fear

Nasdaq is approaching 2000 peak relative to the market

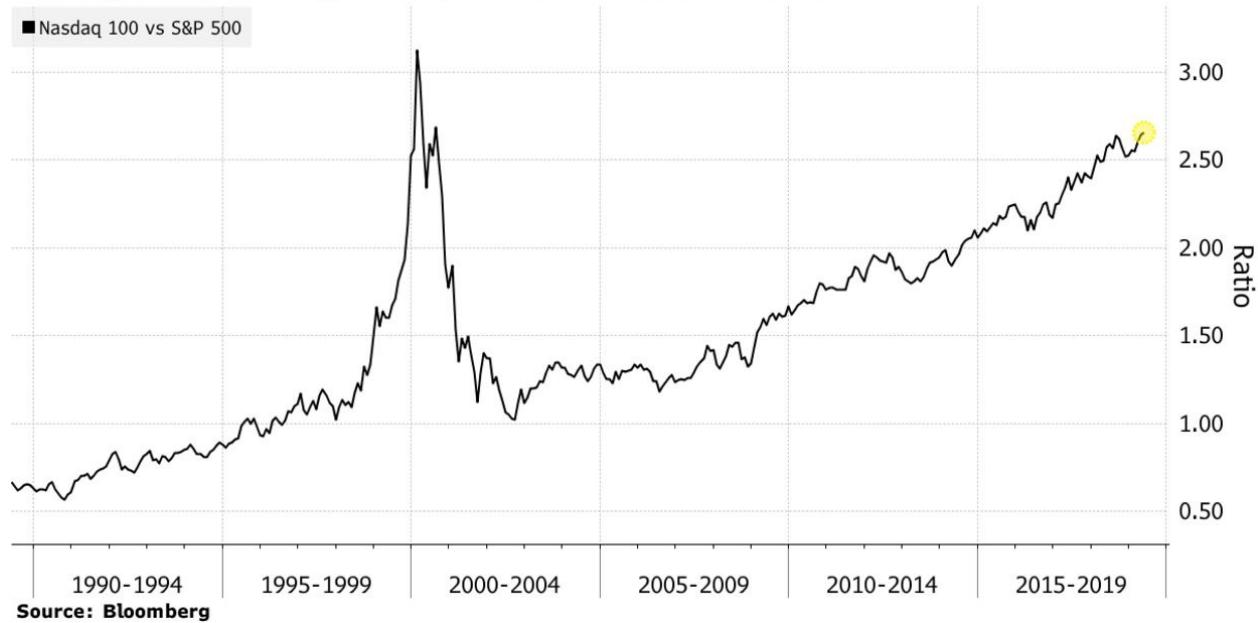


Figure 5: Nasdaq growth (If This Is a Tech Bubble in Stocks, It's the Expansionary Phase)

Uber and Lyft are both companies that were predicted to have enormously successful IPOs but that was not the reality. These two unicorns fell below their IPO prices, the worst thing during an IPO event, and were classified as flops. The lesson to be taken from these two seemingly titans of the tech world is that profit still matters. Even though there are many parallels to the dot-com bubble in terms of companies focusing on growth, investors care about profits at the end of the day. Even Slack, who had a great first day on the market, fell in the following weeks. All three of these companies are historically unprofitable but still have solid business models.

The rise of international technology companies and globalization

More international large tech companies than ever before are global intertwined.

In the last 20 years, globalization has taken off, connecting the world like never before. This has helped companies like Amazon, Google, and Facebook expand at a pace that we've never seen. However, this also means that countries' economies are more connected than ever. The dot-com bubble had ripple effects throughout European companies, and the housing bubble helped kick off the European debt crisis and led to a global financial crisis. 13 years after the housing crisis, globalization is stronger than ever. Technology companies, in particular, are woven through nations from Spotify to Huawei to Elastic,

We'll first take a look at a few prominent Chinese companies that are globally intertwined.

Huawei is a Chinese multinational technology company that provides telecommunications equipment and has been the source of huge trade disputes and reduced profit margins, with numerous companies depending on them. Alibaba is a Chinese multinational holding company specializing in e-commerce, retail, and technology. Alibaba is a publicly-traded company and is a powerfully connected global internet company. Tencent Holdings Limited is a Chinese multinational investment holding company, with numerous subsidiaries specializing in various Internet-related services and products, entertainment, and technology. These three companies are depended on globally and are companies that either exist or had a very little global impact as little as 10 years ago.

Outside of China, International companies have seeped into the fabric of technology companies, especially through SaaS (Software as a service). Elastic is a widely used software that's based in the Netherlands and is a search company that helps companies manage data. Spotify is one of the service providers and is used globally and based in Sweden. Adyen is a payment processing company very similar to stripe that is traded publicly in Europe and based in the Netherland. Adyen also services hundreds of companies globally. These companies are just a few of the growing number of technology companies that have connected the world, presenting larger risks than ever of a tech-bubble. A crash would have global ramifications.

Key Actors

The primary players involved in an upcoming tech bubble are traditionally developed countries. Developing countries face the key barrier of a lack of innovation (Low Innovation is a critical barrier) that prevents them from fostering companies that go on to reach massive valuations and go

public. A sharing of innovation would help these countries grow more companies. While developing countries aren't as involved yet, developed countries such as Sweden, Netherlands, UK, China, and the United States have been home to numerous high growth, and some would say overvalued, companies that have intertwined themselves into the national and global economy.

FOR & AGAINST A TECH BUBBLE

A tech bubble itself is currently not much more than speculation, albeit logically based. Below are the two schools of thought presented, and it will be your job to read this, do research, and determine your belief on the matter. It is also important to keep in mind that regardless of a tech bubble striking or not, an economic downturn is inevitable.

Reasons For

The primary reasons for concern over an impending tech bubble are stagnating growth, the overvaluation of companies similar to the dot-com bubble, and the hype surrounding tech companies in particular. Billion-dollar start-up valuations are not an indicator of safety. They represent a huge danger of widespread overvaluation. Companies burning more than what they raised will not be able to return to the well for more. The "get big fast" strategy that many investors and venture capital firms adopted will fail (Wright). This a primary concern of numerous investors and citizens across the world. As these companies grow rapidly and get massive valuations, their inflated value is often noticed by the market. When that happens the company's and funding soon vanish, and the lack of profits finally brings the company down. The stagnation of growth is another large concern. "Growth is deteriorating as products such as smartphones have entered a maturing phase and parts makers like semiconductor companies have seen weak demand from a range of end markets including data centers" (If there's a tech bubble in stocks). As growth slows the strategy that once propelled these unicorns will vanish and with little profits to show these companies will slowly die out.

Reasons against

The key reasons why there would not be a tech bubble stem from a higher saturation of technology, greater infrastructure, and advanced market analytics that don't mimic the dot-com bubble.

As of 2017, only 48% of the world had access to technology, a vastly larger number from 10 years ago but still has room to grow. This is something technology companies point to as a factor in their valuations, as the market (Global Internet Usage). Furthermore, there is infrastructure in place today that didn't exist 20 years ago. During the dot-com bubble when tech companies started appearing the internet saturation was incredibly low, lower than 15% (Global Internet Usage). Thus the global market for the time was hard capped and the technology to allow greater internet usage exist. However, today that technology does exist, with the internet spreading everywhere, and expanding potential users of technology. Investors remain confident in tech stocks. In an article published by Bloomberg interviewing multiple investors, it was discovered that "Bubble or not, investors refuse to fall out of love with tech. With \$2 trillion added since Christmas, the Nasdaq 100 has a shot at beating the market for the 10th time in 11 years. Only three American companies have ever been valued at \$1 trillion and they're all in the index: Microsoft, Apple, and Amazon.com." (If there's a tech bubble in stocks) was among one of the companies hurt greatly during the tech bubble. However, later they have revived their company and never stopped expanding. Innovation has driven the progress of companies and continues to do so.

INTERNATIONAL FINANCIAL ACTORS

When an economic downturn starts to snowball, especially the global economic downturn, it is critical to understand how governmental organizations help stabilize and maintain the global market. The crucial organizations, ones that roles are often confused, are elaborated below

The modern world is very well connected; the modern world economy is very very well connected. This interconnectedness is an asset: having a broader community to trade and engage with benefits all parties greatly. There are some drawbacks, however. Whereas financial problems could once be contained to a single country or even region (sort of), nowadays a national recession or crisis will almost certainly spread to other countries. That interconnectedness also implies intertwined success—all else being equal, when one country improves economically, other countries will improve, too. Because of these reasons, and for a few others, the global community organized a few different international bodies to help the world's economy. Besides the United Nations, which does act upon economic issues, there are three main international financial actors: the International Monetary Fund

(IMF), the World Bank, and the European Central Bank (ECB).

IMF and World Bank

By July 1944, the European-front of World War II was looking more and more decisive. The Allies had withstood the blitz of Germany's assault and only a month earlier had splashed down onto the shores of Normandy in the massive D-Day invasion. The tide had fully turned towards the Allied powers. And the economists, as usual, were worried. World War I had ended on a sour note as the victors saddled Germany with massive debts, and economic constraint that led to WWII only twenty years later. If WWIII was to be avoided, and the Western world to be rebuilt following years of *blitzkrieg*, an international economic community was needed. So over the course of July, 730 delegates, the heavyweights of economic theory and political influence, descended upon the sleepy town of Bretton Woods, New Hampshire and forged a new economic system.

The IMF and World Bank were created in that month, primarily the construction of legendary British economist John Maynard Keynes and American Treasury Department representative Harry Dexter White. Although related, the two institutions were built to tackle different goals. The IMF was designed to reconstruct the international payment system, whereas the World Bank was tasked with providing affordable loans to countries for the purpose of reconstruction or development. With some exceptions, these are still the roles played by each organization.

The IMF and World Bank are each composed of 189 member states with voting power proportional to economic size or contribution. Each has a large internal fund that is primarily used in the form of loans to countries in need. These loans are designed to be cheap for countries to accept and eventually payback.

The IMF's role is to smooth the rough edges that trade imbalances cause. A country's balance of payments is the difference between imports and exports. The balance of payments is an important figure for three reasons: it provides important information on the supply and demand of the country's currency, it is a telltale sign of a nation's economic competitiveness, and it signifies the openness of a country's trade policies. In short, if the balance of payments is positive, that country exports more than it imports, meaning that its currency is demanded internationally and will likely gain value. The country is also likely to have open trade policies and be economically competitive. The opposite of

these is true if the balance of payments is negative. Since the balance of payments is an actual dollar value, and because it is so important for each country, the IMF exists to loan funds to countries experiencing a deficit balance to compensate for their shortcomings.

Over time, the IMF has also evolved to be the world's foremost financial crisis fighter. Since the balance of payment issues are particularly pronounced in times of recession, the IMF's mission has slowly grown to include preventing and ending these crises. Typically, the IMF steps in to help countries who took on too much debt, are unable to repay and are considering defaulting. At the national level, defaulting on loans is truly a crisis for the international community. To prevent this, the IMF will usually lend the troubled nation a huge sum, conditional on international oversight and the implementation of strict government savings programs, something usually called 'austerity'. The IMF's loan reduces the risk of a country defaulting and preserves international stability, so long as the nation in crisis can recover.

The World Bank is primarily focused on international economic development. It provides loans with low, sometimes 0%, interest rates primarily to developing nations that are structured to be easy to pay off. The idea: cash loaned to a government will be spent in its economy, increasing the country's GDP and leading to higher growth rates. Those higher growth rates will generate more cash for the government that will then be used to repay the loans. Theoretically, the global community can kickstart a nation's economy with \$0 of net expenditures.

The World Bank is also more closely tied to the UN than the IMF is. The World Bank frequently coordinates with the UN to achieve specific goals, gearing its loans to impact those goals. For example, the World Bank was a key actor in the Millennium Development Goals. Its loans were supposed to be one of the main mechanisms that would lead to the achievement of those goals.

Both the IMF and the World Bank are imperfect institutions. Both have been criticized for being significantly influenced by Western powers, a convincing argument since Western powers hold a significant majority of voting power in each institution. Although they are designed to improve the global economy, both have also been accused of being focused on developing Western economies even at the expense of developing ones. Finally, as all international political institutions are, both have experienced their fair share of scandals and inefficiencies.

European Central Bank

Sometimes, international financial actors aren't truly global, but regional; the European Central Bank is one of the most important economic actors in Europe.

In almost all modern economies there exists a central bank. The role of that bank is to regulate interest rates and the supply of a country's currency. Both of these things have major implications for an economy and are incredibly important. Interest rates determine how expensive it is to take on a loan. When interest rates are low, there will be high rates of borrowing (and spending), because the credit is relatively cheap. The opposite is true for high-interest rates. And the currency supply is a crucial factor in inflation rates. Because both of these things are critical for a country's economy, the central bank of any given state is a key actor.

Europe plays by different rules. When the European Union (EU) was created in 1993, the goal was to foster greater coordination between European powers and tie the continent closer together. Today, 19 out of the 28 EU member states are a part of the Eurozone, the monetary union of EU nations. Members of the Eurozone all rely on the European Central Bank as their central bank.

Since the central bank is such an important institution, to surrender complete national control to a multilateral entity is a huge abdication of power, but there was a good incentive. European nations are very closely intertwined in terms of trade and customs. Having a shared central bank would harmonize their economic policies and spread the economic success of the region across all its members. The Eurozone would remove incessant infighting over combative interest rates and currency manipulate and unite the European nations in one true economic front.

The ECB has had limited success. Although all of the above has come true—economics is more coordinated, trade has been streamlined, monetary policy is consistent—there are other problems in sharing a central bank. A central bank really only becomes important in times of crisis. It exists as a way to increase growth during recessions and calm down volatile markets. It is also a macroeconomic actor, meaning that its actions affect the entire economy, rather than some specific subsection. This can create issues when economic problems in some countries are not present in others because the bank cannot target only a single country, but the entire economic union.

For example, during the Great Recession in 2007-09, some countries in the Eurozone were heavily hit, notably Greece, whereas others, like Germany, were more stable. The economic policies needed in each country were almost the opposite, but there was only one central bank to act. This

reduced the effectiveness of the ECB in tackling the crisis as they could not draft a policy to help those in crisis without impacting those who weren't.

Despite problems, the ECB has been successful in its elevation of the economic power of the EU. Although separate nations with their own trade standards and industry specializations, Eurozone countries have benefitted from their monetary union due to their collective bargaining power. By operating as a 'combined economy', the member states have formed a bloc and increased their importance. Nowadays, ECB policy directly affects economic outlook across the world.

The Eurozone is particularly effective in dealing with things that affect the EU identically (e.g. negotiating trade agreements) but is ineffective at resolving more irregular problems. Since their policies will equally affect all member states, any disparity between those nations in economic health can be magnified.

International Actors

Altogether, the international financial actors exist and act on behalf of the entire system, working in coordination to prevent and improve crisis situations in the name of shared progress. Although each of the institutions has its own flaws, its continued operation works to ensure the stability of the common good.

CASE STUDIES

Case 1: History of Bubbles

Bubbles are the frightening edge of finance where optimism escapes from reality and almost all parties end up hurt. Bubbles are periods of significant overconfidence in some sectors or industries wherein that overconfidence causes prices to rise dramatically above their real value. The key thing about bubbles is that they pop; although they may build up gradually over time, eventually there is some mass realization of error as the market corrects dramatically. Fluctuations in price are a regular feature of markets, but bubbles are different because of their size. In addition, bubbles tend to affect all assets equally, causing large sections of a market to be improperly priced by a lot.

Bubbles are usually created by rampant speculation rather than an underlying economic problem. Once some asset is determined to likely have high profits in the future, it attracts high prices in the present. If this persists broadly across investors for some time, huge bubbles can form across in-

dustries. Sometimes, like during the 2007 housing crisis, bubbles are formed systematically to affect consumers and the whole economy, but most often they're driven by irrational investors over shorter periods of time.

The classic example of a bubble happened in 1636-37 in the Netherlands and it was over tulips. Tulips were introduced in Amsterdam via trade with Turkey and, with their intense coloration, were unlike almost any other European breed of a flower. The 1600s were the Golden Age of the Dutch empire and saw the rise of the East Indies trade. Merchants from Amsterdam were all but guaranteed incredible profits from their voyages and tulips were one type of commodity that commanded common attention.

Tulips grow from bulbs and trading bulbs began to take off in the 1630s as the wealth of the region grew to support such luxuries and as a virus began to affect certain tulip breeds, producing an attractive striped appearance. In 1634, speculators began structuring various financial instruments around the tulips. These instruments were economic obligations around the price of tulips and the valuation they might have in the future but were not actually to purchase and own tulips. Speculators, seeing the crazy success of merchants selling the tulips, bet that the price would continue to rise, as it had done for years.

As a result of rampant speculation, tulip prices skyrocketed and caused some fairly ridiculous sales. By late January of 1637, a single tulip bulb was exchanged for 12 acres of land. In the same period, a tulip was offered for sale between 3,000 and 4,200 guilders (for context, a trained craftsman might earn around 300 guilders per year). Even worse: one bulb of the tulip strain called Viceroy was exchanged for almost 4,000 kilograms of wheat, 6,500 kilograms of rye, four oxen, eight pigs, twelve sheep, two hogsheads of wine, four tons of beer, two tons of butter, 1,000 pounds of cheese, a complete bed, a suit of clothes, and a silver drinking cup.

In February of 1637, the Dutch market rapidly changed course and the market for tulips collapsed to pre-speculative levels of price. Tulips, the market realized, were not worth ten times more than a high-paying wage. Fortunately, the Dutch economy was such that the majority of participants in tulip speculation were wealthy and limited, so the crash didn't spread into other industries or even cause a recession.

Bubbles are not just events of antiquity, but also modern occurrences. In fact, they tend to

be worse in the present era because markets are so interconnected that issues in one industry tend to spread to others. In 2000, the technology bubble burst. Tech was a hot industry throughout the 1990s, particularly in the later years. As computers shrank rapidly in size and more and more Americans gained internet access, the rate of offerings and services available online grew quickly. It was a paradigmatic shift in global technology and investors knew it.

In 1993, the Mosaic browser made widespread access to the World Wide Web possible.

Between 1990 and 1997, the percentage of households that owned a personal computer grew from 15% to 35%. There was a sudden rush to snap up the best website addresses and companies struggled to understand how their business could adapt to the modern age of information and data.

Two things led to the rapid overvaluation of the industry. One was a national lowering of interest rates as the government wanted to encourage business. Interest rates had been relatively high throughout the '70s and 80's due to concerns over inflation, but this changed under Federal Reserve Chairman Alan Greenspan. The low-interest rates made borrowing money comparatively cheap and flushed the economy with capital searching for a good investment. The other trend was the relatively immature business analysis being done on tech companies. This was a completely new industry that investors did not fully understand. Things like price to earnings ratios, a standard, and well-understood financial metric, no longer seemed to apply to technology companies. New metrics were created to measure the performance of companies, but those metrics were based around things like page views (to measure how many visitors a website had) rather than profit (to measure how well a company is actually doing). This allowed many investors to have lots of capital to invest in an exciting new industry that the market did not understand or really know how to measure, a classic bubble scenario.

These market conditions created some fairly shocking growth. Between 1995 and 2000, the Nasdaq, a stock index composed mostly of technology companies, rose more than 400%. In 1999, the Nasdaq was up 85.6%, whereas the S&P 500, a different index that is less concentrated, only grew by 19.5%. 19.5% is quite a good growth rate but is very small when compared with the Nasdaq's rise. The irrational exuberance of the markets was compounded by the growth in individual investors, day trading, and the continuing evolution of mass media.

In March of 2000, the bubble burst. It had several main causes: geopolitical, economic, and

psychological. Japan officially entered a recession that month. As one of the nations that had driven production and creation of the new tech era, this was shocking. In the same month, concerns grew rapidly as a large number of companies began declaring bankruptcy. They were simply running out of cash trying to pioneer new businesses that were not based around profit. At the beginning of April, the US government officially ruled on its antitrust case against Microsoft, finding the tech giant in violation of the Sherman Antitrust Act. Microsoft's valuation fell 15% that day; the Nasdaq dropped 8%. On Friday, April 14, the Nasdaq dropped 9%, ending a week in which it fell 25%. By November of that year, many tech companies had gone out of business. On average, internet stocks declined 75% from their peaks, wiping out \$1.7 trillion in global value.

The tech recession lasted and the market kept dropping through 2002. Other tragedies like the 9/11 terrorist attacks and the accounting scandal that brought down energy company Enron shook investor confidence. Venture capital funding dried up and tech companies were forced to go lean, reducing their cash burn rate, and find some—any—path to profit. It took the economy years to recover.

There are several lessons to take away from these cases. In each example, the crash was prompted by a gradual and then sudden change in expectations. As the irrational optimism builds, there will be slowly growing opposition concerned about prices. Once that group reaches a critical mass, it has enough size and importance to change public perception. Then the bubble of expectations pops. There is no sudden shift, in reality, just a realization that expectations and assumptions are no longer applicable.

Bubbles tend to form over good ideas (e.g. noticing that tulip prices are rising steadily) taken to the extreme. Rampant speculation and investment frenzy are centered around areas of high profit. Tulips were rapidly gaining value; the South Sea Company would have been an incredible corporation if it ever sailed to South America; Tech was a good industry that was on track to change the world, but all of these were improperly valued as investors lost a sense of how to measure their investments.

In the old world, investors were extremely rich and represented a small portion of the population; nowadays investment is a common strategy for all consumers and investments are a tightly interwoven section of the economy. If a bubble forms in the wrong place, it can set off a chain reac-

tion that forces an economy into recession. Bubbles demonstrate clearly why panic and excess are the cornerstones of economic catastrophe.

Case 2: Lyft/Uber in-depth business and IPO analysis

2019 has been a popular year for tech companies to initiate their own Initial Public Offerings (IPOs). An IPO is the first listing of stock in a company on a public exchange, as opposed to the company remaining within private control. An IPO is an immense source of wealth generation for the private owners of stock as many of them are realizing long-term gains on a risky investment. For many tech startups, an IPO is the 'end game' goal. IPOs are a complicated financial and legal process and result in intense public scrutiny over a company's performance in order to properly value it. This year's impressive slate of Silicon Valley tech firms planning to hold their IPOs has many analysts questioning the sudden glut of tech supply and whether all of these companies are as stable as their private investors thought.

Two of the most contentious IPOs have been those of ride-sharing companies Lyft and Uber. Long-time darlings of the tech community, Lyft and Uber pioneered an intensely competitive industry—the gig economy. Their disruption of the transportation industry is legendary, but neither company has ever turned a profit despite a massive winner-take-all opportunity. Both have survived on successive rounds of private investment. The question everyone wants to know the answer to what are these companies actually worth?

Before diving into Uber and Lyft, here's a bit more about IPOs: by selling off their stock, a company stands to gain lots of cash from an IPO. The price they sell their stock at is thus crucial as that limits how much a company can get from its listing. Bankers and analysts consider what price to list a stock at for months, anticipating market reaction and investor psychology before putting a value to it. Investors similarly do their own research, considering whether they think the company is actually worth the price it sells for. The intensity of these calculations make the day of the IPO, and the few weeks after it, a crucial bellwether of a stock's health as the market comes to consensus.

The price is also a notable sign of market conditions. Since an IPO is something a company can only easily do once, they will want to gain the maximum value from their listing. For private, well-funded companies like Lyft and Uber, this means they will likely aim for peak market conditions

before holding their IPO. So many tech companies simultaneously pursuing an IPO suggests they all believe they can get their maximum valuation now and that the market is doing the best it will be for the near future.

So how were the Uber and Lyft IPOs?

Uber

Uber completed its IPO in early May, listing its stock at an initial price of \$45. It closed the day down 7.6%, a significant drop for an IPO. It ended the week with a market capitalization of \$76.5 billion; private investors had valued the company at \$76 billion almost a year earlier in Uber's August 2018 fundraising round. The largest shareholders are the Japanese tech banking giant SoftBank, venture capital firm Benchmark Capital, and Uber co-founders Travis Kalanick and Garret Camp.

Uber raised \$8.1 billion in cash from the IPO.

A 7.6% drop is a major blow to what was a very carefully calculated price and is a public embarrassment to the company. Uber Chief Executive Officer, Dara Khosrowshahi, was hired partly to guide the company through a successful IPO following the dramatic ousting of former-CEO Travis Kalanick. Even a year before the IPO, bankers were optimistically aiming for a valuation near \$120 billion. The drop in stock price has since been explained by the enthusiasm of bankers handling the IPO and by Uber's inability to improve the unit economics of its business in the intervening year since announcing its IPO intent. Uber operates in a notoriously competitive market against near-identical offerings from rivals. It has yet to turn a profit. In 2018, the company reported an operating loss of \$3 billion.

"This is going to cause some more caution in the IPO market," according to Matt Kennedy, a market strategist at Renaissance Capital, speaking to the New York Times. "Silicon Valley's mantra of growth at all costs just does not fly on Wall Street." Indeed, to the bankers that consider cash king, a business that is willing to fight to the death to win a winner-take-all market may actually die in that fight.

Lyft

Lyft's IPO started better than Uber's but ultimately fared similarly. Lyft listed its IPO at the end of March at an initial price of \$72 per share. The IPO was oversubscribed—more investors committed to purchasing shares than Lyft actually issued, leading to an immediate market correction as the

stock price jumped to a high of \$88, netting it a market capitalization of \$22 billion. The next day of trading (Lyft listed their shares on a Friday, the next business day was Monday), shares sunk down to \$69, a 12% fall. Lyft's market capitalization was reduced to \$19.8 billion.

Lyft had none of the pre-IPO drama that Uber experienced. Lyft cultivated a much more positive, driver-friendly, worker-friendly, customer-friendly brand image and managed to crawl back from the brink of extermination to own almost a quarter of the ridesharing industry market share. Like Uber, Lyft has also yet to turn a profit. In 2018, it reported operating losses of \$900 million.

The main difference between the Lyft and Uber IPOs is timing. Ridesharing is a completely new industry for public markets, meaning there is no precedent for valuation. Of course, the precedent for Uber's IPO was minimal, but investors had some understanding by then of the stock's movement. On the other hand, Lyft was a complete unknown. That, and being oversubscribed, is likely the reason Lyft's price jumped initially before sharing the fate of Uber's stocks.

Takeaways

Uber and Lyft are the two behemoths of this year's tech IPOs. The most scrutinized and probably the least well understood, they set the tone for uncertainty in tech stocks. And their market landings were splashy and messy, far from their ideal offerings.

Not all other technology IPOs have fared as badly this year. The enterprise IT company Pager-Duty, videoconferencing firm Zoom, and internal communications tool builder Slack all had very successful IPOs with markets reacting well to their sales and performance. Pinterest, a hobbyist website that also was unprofitable and turned an operating loss of \$63 million in 2018, similarly had a well-received IPO. Lyft and Uber seemed to bear the brunt of investor doubt.

The problem behind Uber and Lyft is that both command massive valuations despite not making money. Both companies are massively unprofitable but exist in a market state where that is comfortably ignored. As seen in their devaluations upon IPO, public markets are not fully taken by these models as private investors were. Nonetheless, economic juggernauts were just created on Wall Street that has dim financial standing. And any time valuation runs rampant from value, a bubble is in the making.

QUESTIONS TO CONSIDER

Question 1: Would a tech bubble crashing have the same global impact as the global financial crisis?

Question 2: What are the biggest differences between the dot-com bubble and the current tech environment?

Question 3: What type of proactive policy can be enacted to counteract any effects from a global tech bubble?

Question 4: What kind of impact can NGO's and intergovernmental organizations have in helping to curtail a tech bubble fall?

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