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Participants and Incentives

The adage that sailing and war are characterized by long periods of relative calm punctuated by moments of sheer terror could be applied to the global economy. The main difference is that in places the terror can stretch into years, and even during periods of calm much is happening to set the stage for the next upset. In the midst of this mix of volatility, shifting incentives, often vague rules, competition, and risk are the participants who help shape and make their living from the global economy. They struggle in real time to make money, manage risk, position themselves, and maintain structure and order.

Participants in the global economy are a highly diverse group with varying characteristics, capabilities, and incentives. Escaping easy categorization, the main ones are nonetheless the subject of this chapter, along with mini–case studies illustrating their effects on global money flows. For organizational purposes, these participants are divided into those who move money and those who shape the rules of the global economic system. The edges around those categories will blur, but it is a reasonable taxonomical starting point.

At the foundation of the money-moving group are billions of individuals making billions of daily decisions that direct the flow of money around the planet. Sometimes they move money themselves, but more often their decisions aggregate up to an intermediate, institutional level. They invest money in certain investment vehicles, companies, or real estate; vote the management of public companies in or out; import and buy particular products from companies in some countries and not from others; choose to move to another country to improve their lives; travel and spend money abroad; and/or vote in ways that affect the structure and incentives of the global economy.

At the intermediate level are the managers who run the different trading and manufacturing companies, investment and pension funds, banks, and all the other institutions that move most of the money in the world. The managers who run these institutions have their own incentives, which incidentally may or may not be the same as those of the billions of people whose money they are managing and moving. The potential incentive conflicts are called **principal-agent** problems in economics and will appear throughout the book.[1]

During periods of calm the individuals, or principals, may stay in the background letting the managers, or agents, do their business (whether that is a good idea or not). During periods of uncertainty individuals can get back in the game, sidelining their agents and amplifying trends. This book concentrates mainly on participants at the intermediate level, but the incentives and potential behavior of the herds of individuals is always in the background. The decisions made by the multitude of participants at the individual and intermediate levels aggregate up to drive the events that define the global economy.

Most of the rule makers in the global economy are national and multinational public or semipublic institutions and political processes that are influenced through votes, money, lobbying, self-preservation, and power politics in states and groups of states. Sometimes these institutions move money, but primarily they set or at least influence the rules and incentives that in turn influence the money-moving participants. The term "public" is used loosely. Generally, this means not privately owned, though some of the rule-making institutions are largely private in some sense or another. Rather than try to precisely define public or private up-front, the individual descriptions below will help make this clearer.

Rule-making institutions are a varied group, established for a multiplicity of reasons to carry out a range of tasks. Consequently, they may respond to quite different incentives from each other and even be in open conflict, creating struggles for power in the global economy and adding to uncertainty. Some of them are set up to serve a narrow base of interests or to solve a particular regulatory or coordination problem. Some are set up to serve a broader base and the "public interest," at least in the country or region they are in. Adding to the chaos, what constitutes the "public interest" may be as varied as the groups purportedly defending it.

Sometimes public institutions get at least partially "captured" by private interests. **Institutional capture** is when institutions end up serving other, usually more powerful, participants than the ones they are created and mandated to serve, such as when Japanese utilities provided much of the key expertise used by nuclear regulators.[2] Some public institutions might keep the broad public interests in mind some, most, or even all of the time, but again because the public is such a diverse group, it can be challenging to identify what the "interest" is. The behavior of these institutions depends on a mix of financial and power incentives, oversight, and the political process and rhetoric. The ambiguity can make analyzing their behavior tricky, but it is better to accept, confront, and try to sort through this reality than ignore it.

How rule-making institutions end up serving different interests is all fascinating, but the ethical questions and nuances of right or wrong are not a key part of analyzing global economic events. The focus is on the institutions, their authority and capabilities, their incentives to act under different circumstances, and finally the outcomes of those actions.

As a starting point, what follows is a brief categorization and description of most of the main institutions that set the rules and move the money. Throughout the book, with analysis of different events in the global economy, these institutions and their actions will be brought out in more or less detail as needed.

RULE AND INCENTIVE MAKERS I: STATE AND QUASI-STATE INSTITUTIONS

In an open international economy, domestic institutions and their actions can drive major global economic events. Domestically based institutions are frequently more important than many purely international ones, setting the rules and incentives for the flow of global capital more than they are given credit for. Below is a short summary of the main domestically based institutions, how they can influence the global economy, and their broad incentives. The overview will be expanded and clarified as needed when analyzing events throughout the book.

The two most important of these domestic institutions, central banks and domestic law-making and regulatory bodies, have their own chapters.

Central Banks

Central banks manage the banking and monetary systems within countries. They use various tools to manage the supply of money, interest rates, and inflation, all three of which are related to each other. Some central banks have a sometimes-conflicting dual mandate to control inflation and promote economic growth. The latter is achieved mainly through maintaining monetary stability and helping sustain a flow of credit to the economy.

Most central banks are nominally “independent” of the political process, while paradoxically governors of central banks are also normally appointed by politicians. Mandates differ in different countries, but central banks usually also act as a lender to the commercial banks in the country, often of “last resort” or when the commercial markets cannot fulfill their needs. In many if not most countries, central banks also play a part in regulating commercial banks. Chapter 3 of this book is reserved for central banks, the tools they use, and their real and perceived impacts on the domestic and global economy.

Main Global Economic Influence

- Successfully increasing key interest rates, all other things equal, leads to increased demand for the home currency and an increase in the exchange rate (i.e., the number of USD you get for a euro, or yen for a Swiss franc) as money enters a country to take advantage of the higher rates.
- Interest rate increases in major market economies (i.e., United States, European Union, Japan, China) that lead to capital inflows can lead to a decreased demand for other currencies, even to the point of destabilizing the countries using those other currencies.
- Increased money supply in an economy, all other things equal, causes inflation and a decreased demand for the currency and a falling exchange rate. Since in most economies commercial banks create the majority of

the money, it is often easier for a central bank to slow money supply growth than to increase it.

- Central banks may hold and actively buy and sell reserves in foreign currencies to provide funds for foreign exchange transactions, and frequently to influence the country's inflation and exchange rates.
- Bad decisions by central banks can cause harm to an economy. It is less clear if good decisions are as influential and can do much more than just keep an economy on track.

Incentives

Usually public or quasi-public, central banks are normally established to be independent from the political process, at least in theory. In practice, central banks often choose a route that is politically popular at the time, and/or serves the local banks and financial system.[3] Because they are political and *ex ante* proof of crises is hard to come by, they may err on the side of not intervening early when crises are forming. They tend to be strongly reactive and weakly proactive. Incentives are more aligned to take credit for solving a problem *ex post*, than to take the blame for making a mistake by acting too quickly to head off a problem. This may be changing, however.[4]

Mini Cases

US central bank. In May 2013 the US central bank (or Federal Reserve or Fed) signaled that it would likely start to cut back on its quantitative easing program.[5] That led investors to believe that US interest rates and the value of the US dollar might start to rise. In a rush to get out of riskier investments and prepare to invest in higher-yielding US bonds, many investors simultaneously liquidated their emerging market positions. Within a week, currencies had dropped in many markets, including 15 percent in Argentina. Whether the flight was justified solely in terms of the risk-return trade-offs is questionable. Most importantly, not wanting to be the last ones out of a falling currency, investors reacted strongly to the Fed announcement.

Swiss central bank. Because of its role as a "safe haven" or low-risk currency as well as the popularity of Swiss franc loans in Europe, the Swiss franc had been appreciating after the great recession as investors sought safety and low borrowing rates. To keep the currency from rising too much and harming Swiss exporters, the Swiss central bank tried to steady the exchange rate by selling Swiss francs for other currencies to counter demand from outside. In January 2015 the bank stopped this activity and let the market prevail. The value of the Swiss franc subsequently increased over 20 percent against the euro in a single day. The increase upset currency markets, causing the bankruptcy of a number of currency trading firms, and sharply inflated loan service costs in Central European countries where Swiss franc–based loans were popular.[6]

Legislative and Executive Branches of Domestic Governments

The legislative and executive functions of government make an economy's tax, spending, and regulatory decisions. Different systems have different degrees of overlap and separation of legislative (lawmaking) and executive (enforcement) function, though they all have some version of them. Laws are often passed as broader guidelines, with the executive side given discretion in interpretation and drafting of regulations.[7] Legislative and executive/regulatory bodies are at their best when supporting each other. If they are at odds, regulatory changes by executive mandate alone can be possible, but may have less stability or influence if not supported by the legislature. Similarly, executive branch leadership that does not agree with a law may cause confusion by stalling implementation. Conflicts can create uncertainty and instability in an economy, affecting incentives to move money in and out.

The full range of domestic spending, taxation, and regulatory decisions can change economic incentives in the global economy, leading to inflows and outflows of money. Chapter 4 is dedicated to the influence of domestic spending and regulatory policies on the global economy.

Main Global Economic Influence

- Subsidies or tax incentives to certain industries or regions can draw money into or away from countries, regions, and/or industries. Spending and regulatory decisions can shift the profitability of whole industries, nationally and internationally, by changing real prices, the cost of investments, and returns.
- Regulations can impose or relieve costs on companies and consumers, shifting the relative prices of different resources and activities, making some more/less expensive and/or risky than they would have been and others relatively lower/higher cost and less/more risky.
- Trade and investment policies can change the cost of goods and investment capital, shifting trade and investment money flows.
- Through allocations to foreign assistance programs, money can flow into developing countries.

Incentives

Governments are normally mandated to draft and implement laws to benefit voters/citizens in the country. Laws and regulations may conflict with the interests of citizens in other countries, or blocs in their own countries. Political power and job preservation are major incentives bearing on government officials, and may conflict with broader citizen interests. Both legislators and regulators are often under the influence of strong lobbying and/or elite interest groups that seek to gain or maintain power. Lawmakers and regulators may leave government to join industry groups later in their careers, so may make decisions while in office with their future employment in mind. Difficulty ascertaining the results of policy initiatives either *ex ante* or *ex post* clouds assessment of government performance, further confusing incentives.

Mini Cases

US legislature. Building on previous legislation, the United States in 2005 started phasing in a policy of subsidizing and mandating the production and use of ethanol as a fuel. This was done partly for energy security reasons, partly for environmental reasons, and largely resulting from farm industry lobbying. In the United States, ethanol is mainly made from corn. The policy led to an increase in the price of corn and subsequent increases in the prices of farmland. As corn prices rose, the price of grain-fed livestock also rose. Land that previously had been used to grow food was diverted to ethanol production, contributing to worldwide increases in food commodity prices. The recession of 2008 helped bring food prices back down, but a number of emerging markets countries were on the brink of riots from high food costs, at least partially driven by US ethanol subsidies.

Irish legislature and executive branch. For many decades in the middle of the twentieth century, Ireland was considered the hopeless basket case of Europe, with GDP growth and per capita GDP lagging EU averages. In the late 1980s, Ireland cut taxes and deregulated much of its economy. PM Garrett Fitzgerald took the reins from Charles Haughey in 1981 and built upon his predecessor's early policies promoting foreign investment. Fitzgerald further increased spending on infrastructure and education, ensuring that goods had easy access to domestic and foreign markets, and that business had a supply of skilled labor. Together these policy measures drove productivity and profits higher. As a low-tax haven with open access to the EU markets and a stable legal and regulatory regime, Ireland became a magnet for investment. Many companies, particularly US tech companies like Apple, Dell, and Intel, based their European operations there. By 2005, Ireland had one of the highest rates of per capita GDP in the European Union.

Chinese state banking system. Government credibility is strongly rooted in economic conditions, and perhaps nowhere more so than in China. In the decade leading up to 2017, signs of crisis have come and gone in the Chinese economy. Rising wages, losses of manufacturing jobs, crashes in property markets, and ever-increasing debts of all kinds have been heralded as signs of a coming Chinese crash. At the same time, government motivation coupled with huge reserves and a strong hand have kept the doomsayers at bay for far longer than would have been possible with a less focused government with fewer resources. Most imbalances cannot grow forever, but strong political will and power can perhaps push China through the transition it needs, while financing the costs of past decisions.

Departments/Ministries of Foreign Affairs/State/Defense

These institutions carry out official foreign and defense policy. They may have a role in setting that policy as well, since they frequently control the information used in decision making. They may also be involved in trade negotiations and foreign assistance decisions when matters of “national security interest” are involved.

Main Global Economic Influence

- Can wage wars directly or by proxy, harming or destroying some economies and improving others. Sometimes economies on the periphery of conflict can benefit depending on logistics, rebuilding, and refugee situations. As Brecht’s Mother Courage can attest, in war there is often money to be made and lost on both sides of the battlefield and in periphery countries.
- Implement sanctions on countries, causing economic harm and altering the flows of money in the global economy. This can create both new risks and new opportunities.
- Allocate financial and military assistance to “friendly” countries.

Incentives

Difficult to determine, frequently erratic and public relations driven. Many if not most members of these organizations seek preservation or enhancement of job and status; others seek to make a name for themselves with bold moves.

Mini Case

In the spring of 2014, Russia annexed the Crimea and supported pro-Russian rebels in Eastern Ukraine. A fairly serious set of Western sanctions aimed at hurting Russian banking interests “caused” the Russian stock market to drop 40 percent in the nine months thereafter. The sanctions are also likely to have a negative effect on other, and especially German, firms that do a lot of business in Russia. In the words of a Russian investment banker encountered in Central and Eastern Europe eight months after the annexation of the Crimea: “We never expected that it would be so expensive to invade the Crimea.”[8]

RULE AND INCENTIVE MAKERS II: MULTILATERAL INSTITUTIONS

Multilateral institutions help set, and monitor compliance with, rules governing interactions between other institutions, companies, and governments. They vary widely in scope and influence, with their influence often believed to be greater than it is. In reality, most major decisions that affect the global economy are still made by the domestic institutions in the first group above. The institutions in this second category all exist by virtue of some kind of voluntary, multilateral agreement between countries. Most of them are not directly influenced by special interests, but by the dominant nations among their members. As such, they are probably influenced by the special interests in those nations.

Their influence is directly tied to the power of the nations that support them. Not surprisingly, history has shown that the weaker nations run a greater risk of punishment (usually sanctions of some kind) for breaking rules set by multilateral agreements, than do more powerful countries.

These organizations are characterized by a desire to survive and reinvent themselves however necessary, even when their initial mandate has been fulfilled or rendered moot. Satisfying the wishes of the more powerful members that are normally the larger financial contributors is one way to do this. Despite some shortcomings, much of these institutions' work has with little doubt led to greater growth and stability in the global economy.

World Trade Organization, WTO

The World Trade Organization has been the main negotiator and to a lesser degree enforcer of freer trade among countries since its predecessor institution (GATT) was formed as part of the Bretton Woods agreements at the end of the Second World War. As of 2017 it had 160 members, comprising substantially all of the major economies in the world.[9]

Though begun with a mandate for tariff reduction, the WTO over the years has also concluded a series of agreements on services trade, intellectual property protection, and investment protection. As its membership has increased, its ability to gather the consensus needed to continue to negotiate and see major agreements enacted has diminished greatly. Its relative influence has also decreased in recent decades with many individual countries bypassing it to sign more limited agreements among themselves. To some degree it is a victim of its own success, with many of the "easier" tasks such as broad tariff reduction largely achieved.

Main Global Economic Influence

- With 160 members as of 2017, including all of the major economies in the world, the WTO represents the largest trading bloc in the world.
- The WTO is one of the few places where members can go with trade disputes with other countries. Though the WTO cannot force any county to comply with its rules, it can allow member countries to increase tariffs on countries that are found at fault. However, many bi- and multilateral agreements outside the WTO have more effective conflict resolution mechanisms.
- In addition to presiding over major drops in tariffs, the WTO has been able to secure agreements on a range of other issues such as investment

protections, trade-in services, antidumping, state subsidization of industries, and copyright protections.

- The WTO has become both a victim and a symbol of differences between developed and emerging economies' interests. In sum, developed nations seek better access to services in emerging markets, and emerging markets want richer countries to give up their agricultural subsidies, while leaving their own protections intact.

Incentives

The WTO has not completed a major round of negotiations since 1992. The main incentive now is to complete any deal at all, good or bad, to justify its existence. The organization's expensive, Geneva-based infrastructure is at risk.

Mini Cases

Boeing and Airbus have since 2005 been the subject of a series of complaints filed by the United States and European Union under the WTO dispute resolution mechanism. Both sides accuse the other of receiving government assistance that distorts free trade in aircraft and harms the other company. In 2012, the WTO ruled against Boeing, opening the way for punitive tariffs against US goods entering the European Union. Boeing appealed, as did Airbus in previous rulings where it was found at fault, leading to decisions in 2016 against both Boeing *and* Airbus. Many millions of dollars have been spent both on prosecution and defense. Though both companies benefit from state assistance, it is possible that it would have been greater and competition more unfair without the intervention of the WTO.[10]

Multilateral Special Purpose Entities

This is a broad category with institutions varying in scope, purpose, and influence. At times and in places, their influence may be great, and in other cases many years may go by with little evidence of their existence. Most of these were established by international agreements between nations, and are financed by signatories to that agreement.

Main Global Economic Influence

- *International Bank for Reconstruction and Development (IBRD) or World Bank*. A Bretton Woods institution like the WTO, the bank lends at often concessionary terms (low interest rates, long repayment periods, grace periods, etc.) to low-income-country governments for development purposes. World Bank loans are usually expected to be repaid, but frequently are rescheduled and forgiven. Most lending is for health, infrastructure, and education. The World Bank's research arm actively studies economic issues facing the developing world. The World Bank also collects and publishes data on member economies.

- *International Monetary Fund, IMF.* The third of the **Bretton Woods institutions** after the WTO and World Bank, the IMF was established to assist countries with short-term balance of payments problems. IMF staff often establish "conditionality," or reforms that countries must make to qualify for funds. An IMF agreement with a country has sometimes signaled that it is safe for private investors to reenter the country. The IMF has a well-regarded, fairly independent research arm that often publishes conclusions that may disagree with the institution's official policies.
- *Bank for International Settlements, BIS*. Often called the central bank for central banks, the BIS actually conducts minimal banking activity—mainly money transfers between central banks. The BIS makes influential recommendations on bank regulation, most notably the Basel Accords, and conducts well-regarded analyses of global financial risk.
- *OECD*, *Organization of Economic Cooperation and Development*. Established after the Second World War, the OECD consists of the main industrial countries and Mexico and Turkey. The OECD conducts studies on important events and collects data, and is a good source of both. Their reports tend to be scholarly, fairly politically neutral, and data intensive.
- *European Bank for Reconstruction and Development, EBRD, and European Investment Bank, EIB.* These were created to invest, respectively, in companies and governments for the purpose of increasing economic growth in the broader European region. Much of their activity has been in the former centrally planned states of Central and Eastern Europe.
- *United Nations, UN*. The UN is not normally considered an economic institution, but it has some influence, especially in some of the special conventions related to legal issues between countries and in setting standards that allow countries to trade more easily. It is also a good source of global economic data.
- *Organization of Petroleum Exporting Countries, OPEC.* OPEC is a cartel of countries established to collude in setting world oil prices. For decades, OPEC succeeded in restricting supply among members to keep prices high. As more oil is produced outside of OPEC member states, their power has decreased, though prices are likely still higher than they would be without their efforts. The increase in unconventional oil and gas production in the United States in the 2010s ("fracking") is undermining OPEC's historical ability to influence global oil prices.

Incentives

The main incentive that most of these organizations have is to maintain and increase their influence and funding. Whether they are relevant at any given time or not, they will seek to regain influence.

Mini Cases

International Monetary Fund. Throughout its history, the IMF has worked to assist countries with their balance of payments problems. A program with the IMF is meant to signal that a country is on a more stable path, so that private capital would return to or stop fleeing the country. In late 1999, Turkey signed an agreement with the IMF to help reduce inflation and stabilize public debt. It was believed that this would help to slow inflation, which had been running at 50 to 70 percent a year for over a decade. Investors returned, buying government bonds betting that interest rates would drop, leading to a boom in bond prices. This did happen and fortunes were made. The IMF agreement collapsed, however, around a year after inception of the program, leading to much higher interest rates and a devaluation of the currency. Fortunes were lost and Turkey entered into one of its worst recessions since its founding. The IMF was not at fault for the recession, but its actions had a significant impact on global capital flows into and out of Turkey at that time.[11]

Bank for International Settlements. The BIS hosts the Basel Committee on Banking Supervision, which makes regulatory recommendations for the banking industry known as the Basel Accords. These are not mandatory for member banks, but provisions are often widely adopted by bank supervisors (regulators) around the world. The second accord, Basel II, was widely implemented at the time of the 2008 financial crisis. The accord, which sets guidelines for determining if banks have adequate capital to maintain stability in times of crisis, has been widely criticized for leaving too much up to the discretion of the banks and allowing them to “game” the system and appear to have a lower-risk balance sheet than they actually did. The crisis revealed a number of weaknesses in banks’ operations and the newer Basel III Accords were developed to address this problem.[12]

THE MONEY MOVERS: PRIVATE ENTITIES

The first two groups largely set the rules of the game. The groups in this section are the ones that move money around the globe. They work within, outside of, on the fringes of, and are constantly trying to change, the rules as they respond to varying incentives.

Large Commercial Banks

At their core, large commercial banks lend to companies and individuals and provide a range of services such as money transfers, deposit taking, check clearing, and credit card issuance. It is normal for commercial banks to make up to half of their profits on fees for services, rather than on loans. The banks included here are the ones with global reach, usually with branches abroad and that make loans across borders to other institutions.

Main Global Economic Influence

- Lenders to businesses and consumers all over the world, including providing leverage to investment funds and credit to foreign banks. The latter is an important source of funding especially in emerging markets.
- The large banks lend to their own branches and the branches of foreign banks. Others may operate only in their home countries, but still borrow on international credit markets. Lending and borrowing across currencies can cause exchange rates to shift, affecting entire economies.
- In taking deposits, clearing with other banks, lending, and borrowing, commercial banks directly and indirectly contribute to the supply and demand conditions that drive many of the main interest rates, both domestically and internationally.[13]
- They are investors of their own capital as well as depositors of funds in global assets, though this is the subject of varying regulatory limitations after many banks had to be rescued after the great recession.
- Commercial banks create much of the money in the world by making loans (more in chapter 3). They can be a force behind inflation and bubbles, as they expand credit during boom times and stymie recovery as they hesitate to lend during slow periods.
- They are the institutions that actually, physically move much of the money around the world through transfers.
- Commercial banks, through their lobbying efforts, also are influential in how the global financial system is structured and seek to protect their roles in the system.

Incentives

Commercial banks exist to profit on both loans and fees, to protect their positions, and primarily to make money for shareholders. Often the incentives of the individual managers are not the same as the shareholders or the taxpayers that guarantee deposits. Since deposits are guaranteed, managers may be incentivized to take greater than prudent risks with funds, knowing the government will ultimately reimburse depositors for any losses. This **moral hazard** problem is at the core of bank regulation policy. Following the great recession, policy makers have been addressing the question of a bank’s being “too big to fail,” or when its failure would threaten the health of the entire financial system. Moral hazard and the incentive to act imprudently may increase if bank managers believe they are too big to fail and can count on a bailout.

Mini Case

Latin American debt crisis. The role of commercial banks in the great recession of 2008 is debatable, since most subprime mortgages were originated by nonbank entities. Their role in the Latin American debt crisis of 1982 is clearer. From 1975 until 1982, US-based commercial banks received large amounts of deposits from oil-rich countries, as oil prices jumped. They invested much of this in Latin American sovereign debt, believing at the time that countries did not default. Lending increased 400 percent over that period, with countries largely borrowing to finance current consumption or to invest in state-owned companies. In the late 1970s, global interest rates increased to combat the inflation that followed the jump in oil prices, leading to higher borrowing costs for Latin American governments. At the same time, the global economy slumped, drying up demand for exports. In 1982, Mexico defaulted on its commercial bank debt, setting off a crisis in the region and around the world as banks stopped lending and called in loans.[14]

Investment Banking Firms

Investment banking firms' core business is creating and selling new securities. Securities are normally sold either alone or in a consortium with other investment banks or distributors with a wholesale or retail network. Sometimes the securities are the standard ones (stocks, bonds), but investment banks also develop new securities like asset-backed securities and derivatives (like CDOs) whenever they can find or create a market. Investment banks also engage in wealth management, corporate finance advisory, such as merger and acquisition advisory and financing, and trading and making markets in different securities.

Main Global Economic Influence

- Create and also trade almost all of the securities that are traded within and across borders: stocks, bonds, loans, derivatives, and so on. Derivative contracts may be between small numbers of parties, while the sale of other securities may involve many thousands of buyers. New securities can involve the movement of billions of dollars across borders, as investors in one group of countries buy investments in another. While the infamous mortgage bonds pre-2008 are one of the most notorious examples, investment banks also facilitate the investment by, for example, US-based pension funds in remittance-backed bonds issued by EU banks, or a Chinese sovereign wealth fund in bonds from a Greek shipping company.
- *Ratings agencies* assess and rate the risk of many of the securities that investment banks create, as well as sovereign and other debt. Since many investors are limited by mandate to invest in "investment grade" rated securities, getting a good rating can be imperative. Controversially, ratings agencies are paid by the investment banks, not by the end buyers

of the securities. Resolving this conflict of interest between investment banks and ratings agencies continues to be a matter of policy debate.

- Through lobbying efforts, investment banks have been able to influence economic and financial policy and regulations. For example, they have been criticized for influencing and hiding from regulators the true risks of mortgage-backed securities leading up to the great recession. In an apparent, but difficult to control, conflict of interest, regulators often end up working for investment banks after they leave their positions and vice versa.[15]
- Investment banks can be active traders, both for their own account and for money they manage for wealthy clients and institutions. For investment banks that hold official banking licenses, the amounts they can trade on their own account has been limited by post-2008 regulation.

Incentives

Investment banks seek to make money and increase their influence. Securities issuance and trading are still profitable, and investment banks work to keep it that way. The securities and investment industry regularly ranks in the top ten in spending for political influence. In a now famous bit of seriously hyperbolic, though somewhat elegant, writing *Rolling Stone* magazine's Matt Taibbi described leading investment banking firm Goldman Sachs as a "great vampire squid wrapped around the face of humanity, relentlessly jamming its blood funnel into anything that smells like money."[16]

Mini Cases

Cross-border securitization. **Securitization** is the pooling by investment banks of a group of smaller, cash-flow-generating assets into a larger and more diversified single security of a much higher face value. Almost any pool of cash-generating assets can be securitized, including mortgages, credit card payment receipts, auto loans, and remittances. Cross-border deals are common, with securitization being a popular way for local banks and companies to raise money, and with the securitized instruments in demand from large, international institutional investors. Hundreds of billions of dollars cross borders each year in securitization deals arranged by investment banks.[17]

Greek debt. In the years leading up to Greece's joining the eurozone in 2001, one of the largest and most prestigious investment banks, Goldman Sachs, helped the Greek and other Southern European governments take on more debt and structure that debt in a way that it was not readily visible to EU regulators. By structuring loans as currency trades and securitizations rather than straight loans, they were kept off national balance sheets. Greece was consequently able to enter the eurozone at a more advantageous exchange rate than would have been the case. Greek citizens and the government felt wealthier, but the de facto overvaluation may well have contributed to the longer-term competitive problems that finally came to the fore after the great recession. The adjustment after the fact may well prove to be more painful than a less-advantageous entry into the euro would have been.[18]

Investment Funds with a Global Reach

This is a broad group and includes exchange-traded funds (ETFs) and mutual, commodity trading, and hedge funds. These are quite different entities in some ways, but similar in others. They all exist to attract and manage people's money, are all vehicles for moving money around the globe, and their management and strategies all reflect the goals and psychology of their investors, manager, and mandates. Key differences between them are the types of investors they can accept, their strategies, and the kinds of investments they make.

Hedge funds. This is the most varied of the group. There is no single definition of a "hedge fund," and many do not even use hedging as part of their strategy. Investment targets and strategies are effectively unlimited, though in practice are usually defined by the fund manager and mandate. Some are fully opportunistic and broad based. Others have strategies that are more clearly defined and may invest in any number of vehicles such as listed domestic and foreign equities, private equities, government and corporate bonds, derivatives, arbitrage opportunities, commodities and futures, energy, global currencies, high-frequency trading strategies, and any number of others. Most hedge funds are leveraged, borrowing to increase returns to equity. Main investors are wealthy individuals known as "qualified investors" who have a high proven net worth, sovereign wealth funds, large institutional investors, and university and foundation endowments.

Private equity (PE) funds specialize in investment in nonlisted companies, or in listed companies that the fund intends to take private (off an exchange). Mandates vary, but are commonly to gain a controlling interest in medium-to-large-size companies and hold them for four to seven years, increasing their value during that time. Companies may use money from PE funds to expand their international operations or help finance their international growth through joint ventures. Investors are mainly institutional investors, sovereign wealth funds, and wealthy individuals. They often receive loans from commercial banks to make acquisitions and/or to leverage up their investment returns. Private equity funds were initially mainly active in the United States, but in the past decades have expanded overseas with many of the same US- and London-based companies both making investments in overseas assets and taking on international investors.

Wealth managers manage the money of the usually very wealthy. It is more accurate to see them as gatekeepers to the many other funds and investment vehicles in the world, rather than as funds themselves. Most of the money they receive ends up in another vehicle. However, their beliefs and actions determine which vehicles receive funds and when. They may engage in what is referred to as **portfolio rebalancing** for their clients, or carefully watching and reacting to changes in both investor goals and the global marketplace, responding by moving money in and out of broad instruments and locations.

Mutual funds. Mutual fund investment is open to ordinary (nonqualified) investors through their brokerage accounts or the mutual fund company. Consequently, mutual funds are highly regulated and subject to extensive reporting, transparency, and investment protection provisions. They usually have fairly strict investment mandates defined by legally binding submittals to the securities authorities. Normally fund managers buy and hold securities and cannot use shorts, derivative instruments, or leverage. There are mutual funds with mandates to invest in most global markets, developed and emerging. Before ETFs, this was how most people diversified their portfolios and got exposure to foreign securities.

Exchange-traded funds, *ETFs*. These funds are open to any investor and normally are passive, i.e., without investment managers directing the money. Money put into a passive ETF is automatically, directly, and proportionally invested in other securities according to a fixed set of rules. In most cases, ETFs invest in previously established indices. They are characterized by low fees and reasonable liquidity under "normal" circumstances. According to some they are not true funds but derivatives, since they are "derived" from their underlying securities. There are currently ETFs for almost any known market, including government and corporate bonds, domestic and foreign equities, and very specific sectors and markets. ETFs can give investors exposure to even exotic foreign emerging markets at a low cost. In addition to individual investors, ETFs are widely used by hedge funds and institutional investors. ETFs are traded on major exchanges in the same way that stocks are. At the end of 2015, about $2.9 trillion was invested in ETFs worldwide.[19]

These categories of funds are not mutually exclusive (i.e., hedge and mutual funds may invest in ETFs).

Main Global Economic Influence

- Big movers of mainly portfolio investments, or **hot money** around the world, seeking profits in global exchanges, global public and private debt markets, currencies, and in commodities of all kinds. These funds collectively move global bond, equity, and currency markets.
- ETFs and mutual funds are the vehicles that individuals most often use to invest their money. They consolidate often smallish investments from millions of people into huge, diversified investment vehicles.
- Simply because they are popular, low cost, and easy to invest in, ETFs have the potential to drive asset prices all by themselves, especially when entering otherwise illiquid or difficult-to-access markets. They have also been criticized for distorting markets, by driving up the value of the securities in the indices they track and leaving others behind.

- Hedge funds are like private investment funds for wealthy investors, often managed using particular, well-defined strategies. Their ability to borrow considerable amounts of money can make both their influence and their risk to the global economy greater than the amount of money invested in them.[20]
- Private equity funds both bring significant medium- to long-term investment capital across borders and provide investment capital that helps investee companies themselves expand across borders.

Incentives

To make money for management/ownership and then investors by receiving a percentage of assets under managements, profits, or both. Fund managers are known for benchmarking against other managers, rather than total returns. Consequently, many tend to follow the market up and down "herding" with other investors, rather than trying to buck trends. In most funds, managers do well if the fund does well but have little downside risk other than losing their job.[21] This arrangement has been criticized for contributing to excessive risk taking.

Mini Cases

Breaking the bank. Leading up to the 1990s, the Bank of England had been trying to peg the value of the British pound to the German mark. However, since the United Kingdom at the time had greater inflation than Germany, this became increasingly difficult as the real exchange rate increased. The Bank of England continued to use reserves to buy pounds, to keep the value up and help the currency markets clear at the fixed rate. Sensing weakness, hedge fund manager George Soros shorted the pound, forcing the Bank of England to spend even more. Eventually, the bank gave in, the pound dropped, and Soros walked away with $1 billion in a single trade.[22]

Breaking Argentina. After Argentina defaulted on its debt in 2001, most of it creditors negotiated terms for partial payment of around thirty cents on the dollar, rather than risk losing it all. Approximately 7 percent of the defaulted debt, however, was bought up by hedge funds seeking full repayment on it. Due to the legal language in the debt agreements and a series of court decisions, in 2014 Argentina was neither able to offer the holdouts a better deal than was negotiated with the bulk of its creditors, nor able to pay installments to main creditors unless they paid off the hedge funds. This put Argentina in the position of "selectively" defaulting on their debts for the eighth time in their history. The full case is rather complex, but illustrates how investors can both suffer and benefit from differences in financial and legal regimes across countries.[23]

Institutional Investors

These are usually large companies or institutions that invest money with clearly stated reasons, methods, and parameters. The main types of institutional investors are pension funds, insurance companies, investment arms of commercial banks, endowments, and sovereign wealth funds. Many institutional investors are not just trying to make money now, but to ensure that there is enough later to meet future obligations like pension and insurance payouts. Many are highly regulated and are investing for the so-called public trust. They are also often referred to as “real money” investors, since they invest large amounts of real, or unleveraged capital.

Main Global Economic Influence

- They are the guardians of trillions of dollars, euros, yen, and other currencies that need to be invested, often across borders. Pension assets in the 22 largest economies alone were estimated at $36.4 trillion at the end of 2016.[24]
- Because preservation of capital is central to their mandates, normally they are required to invest the vast majority of their funds in “safe” assets. They are huge consumers of highly rated sovereign and corporate debt and developed economy equities, as these are considered “safe.” Within their operating and risk parameters, managers are as aggressive as possible. Their investment targets are often unrealistic and set by outside board members or political forces. Managers seek investments that can meet their tough mandates, which leading up to the great recession included AAA-rated securitized mortgages.
- They can often allocate small parts of their portfolio to investments that are considered more risky. These may include emerging markets bonds and equities, and hedge funds that in turn invest in foreign assets. Though these amounts may be small as a percentage of their total assets under management, the actual amounts can be large and sufficient to help move global markets. In 2015 it was estimated that institutional investors made up 65 percent of hedge funds’ capital, with public pension funds contributing 20 percent of the total.[25]

Incentives

- Managers make money for their funds within given parameters. Because of the need to preserve and grow money to meet future obligations, forecasts are important for institutional investors. Managers are under pressure to make sometimes unrealistic assumptions about future growth in order to keep their jobs.
- To meet or beat the benchmarks. Since investment managers are normally benchmarked against peers, they cannot make less or lose more money than the other funds in their investment category. This can lead to crowd behavior and swings of risk-seeking and risk-averse behavior.

- Most institutional investors also have liquidity requirements. In addition to investment returns, they need to provide cash for the budget of the institution. This is partially for administration, but more importantly to satisfy claims such as pension withdrawals or insurance payouts.
- To perpetuate their and their investment managers' existence. Like with any bureaucracy, this reality is forgotten at one's peril. It is one reason for the herd behavior that may accentuate booms and busts.

Mini Cases

The 2008 mortgage crisis. Institutional investors seek the highest-yielding safe assets, with safe being defined by their rating from a ratings agency. In the 2000s, they found a good deal with AAA-rated CDOs such as collateralized mortgages and bought trillions of dollars' worth. The high demand from these investors, in turn, triggered a supply response to originate more mortgages. This led to a drop in quality, which was not reflected in the ratings. Eventually, many institutional investors lost billions of dollars. It is not entirely clear which institutional investors have been able to fully repair their balance sheets, or whether they may yet run into trouble and come up short on pension or insurance obligations.

Sovereign Wealth Funds

Sovereign wealth funds are pools of money controlled by governments, usually held in trust for the populace of that country. Their capital normally consists of foreign currency earnings (usually from net exports) that have accumulated outside the country. Though exact sizes are often kept secret, especially in nondemocratic states, the countries believed to have the largest sovereign wealth funds are Norway, the United Arab Emirates, Saudi Arabia, China, Kuwait, Singapore, and Qatar. Investment strategies usually include investment in countries other than the owner of the fund, though this can vary.

Main Global Economic Influence

- A large pool of capital that can move quickly into and out of investments. Though they are responsible for large amounts of global capital flows, often their identities are hidden in other vehicles. They are commonly investors in global ETFs, private equity, and hedge funds and may have considerable funds managed by global investment banks' wealth management divisions.
- May be willing to take longer-term and riskier bets than other sources of capital. They often make direct investments outside of capital markets, such as in factories, mines, and real estate.
- Often highly liquid and unleveraged, so funds can be available when other sources of capital are not (e.g., during the early years of the great recession).

- There are likely over $6 trillion in sovereign wealth fund assets under management, though many countries keep the exact amounts secret.[26]

Incentives

Main incentives are to maximize return for the citizens (or sometimes royalty) of the country, and sometimes to increase that country's influence abroad while increasing national pride at home.[27]

Mini Case

The government of Singapore fund GIC invested over $24 billion to help keep the bank UBS afloat at the beginning of the 2008 financial crisis, and was rumored to have lost around $7.4 billion of that amount as of 2011 before subsequently partially recovering.[28] Sovereign wealth funds are able to take a longer-term view than many other types of vehicles.

Manufacturing, Service, and Retail Companies

It is optimistic to consolidate so many of the companies of the world into one category. This is done more to complete a taxonomy than to provide any insight. Consider this category as a placeholder for now. In the exposition to come, as company actions are relevant to global economic events, more specifics will be brought out.

Companies form the diverse core of the global corporate sector, manufacturing and selling goods and services all over the planet. They not only sell but invest widely and employ many of the workers who then in turn make decisions that affect the global economy with their buying and investing. They compete aggressively, both responding to incentives and using their influence to change the rules of the game.

Though dynamic and responsible for significant stocks and flows of money, companies tend to move money on a more permanent basis than some other private-sector participants. Changes in company-level investment and employment can certainly drive booms and busts around the world. However, the cycles would tend to be longer than those driven by shorter-term investors.

National companies' success and governments' ability to attract investment from companies around the world (including domestically) is a factor in determining success or failure of entire economies. If companies decide China or Mexico is a better place to invest and employ than the United States or Italy, whole economies are affected. When economists talk about "structural shifts" in an economy, more often than not they are referring to the results of shifts in how companies invest and employ.

Main Global Economic Influence

- Companies are the main drivers of foreign direct investment (FDI), when an investor directly invests in a factory or company in another country. These are normally longer-term investments, as they cannot be sold on exchanges like short-term portfolio investments. Total FDI flows in 2016 were around $1.52 trillion, down 13 percent from 2015.[29] FDI inflows are considered to be more stabilizing to an economy than portfolio inflows that can be quickly liquidated.
- FDI may be in new plants and equipment, acquisitions of existing foreign rivals or partners, opening a service provider like a bank branch, opening a retail outlet, or investing in the development of natural resources like mines, depending on the sector of the company.
- Seeking investments from companies, governments will specifically change rules to attract investment and related jobs. Just as companies are incentivized by profits, governments can be incentivized by the investment and jobs that companies bring, and so change the rules and incentives to attract them.
- Companies trade in goods, buying and selling to increase their profits. Companies are a dominant force behind global trade, with both large and small companies participating at all levels and across primary (commodity), intermediate, capital, and finished goods, and often simultaneously.
- Buying investment goods from abroad. When companies buy equipment to grow, they can buy from the entire global marketplace, stimulating trade and additional investment in the companies that make the purchased equipment.
- Logistics and service companies facilitate global trade with fast and low-cost delivery, as well as through efficient handling of paperwork and customs clearance.
- They are major producers and consumers of globally traded commodities, intermediate goods, and final products for resale. In the modern global market economy, companies trade globally in commodities and intermediate goods as much as in final goods.
- Property and real estate investment companies are frequently at the leading edge of booms in markets. Though in theory they should be responding to unmet demand, in practice they can be drivers of economic activity, at least for a time. Huge costs may require capital and loans from many of the different funds listed previously, including institutional investors, private equity, and sovereign wealth funds.
- Old modes of company structure and organization are changing as companies increase global outsourcing. Frequently outsourced roles include marketing, IT, accounting, design, distribution, and manufacturing. This alters global trade patterns in goods and services, as different corporate functions may be scattered across the world.

Incentives

To make money for investors and owners, and help their management benefit and maintain their positions. Companies often make long-term strategic bets on markets, making investments that lead to short-term cash outflows with the goal of longer-term gain. Principal (management) agent (investor) conflicts are common.

Mini Cases

Auto industry. By the 1980s, it was clear that the big three US automobile manufacturers were in trouble, under threat from Japanese competitors with better vehicles at lower prices. To avoid official trade sanctions, the Japanese manufacturers imposed “voluntary” import restrictions, limiting the number of vehicles sold into the United States. At the same time, they began to invest in and build factories in the United States, mainly in the South, which had not historically been a vehicle-manufacturing hub and where unions were not active. Soon the Japanese manufacturers were turning out cars with the same quality as those made in Japan, increasingly using US management and suppliers. These investments in many ways marked a turning point, allowing the United States to preserve a critical mass of auto manufacturers, thereby maintaining the industry and its skill and supplier base.

Chemical industry. US-based Union Carbide Corporation (now part of Dow Chemical) was a major global supplier of pesticides. They built a large plant in Bhopal, India, to supply the then-booming Indian agriculture sector, which was realizing the benefits of adopting hybrid seeds and the increasing use of fertilizers and pesticides. In 1984, an accident at the plant exposed five hundred thousand people to toxic chemicals, killing and injuring thousands. The Bhopal disaster has since been held up as an example of the potential negative impacts of powerful foreign companies investing in developing countries that lack adequate regulatory systems. The case arguably acted both as a shorter-term barrier to additional foreign investment in developing countries, and as a longer-term catalyst to improve regulation.[30]

Changing rules. Company investment into a country or region can bring growth, employment, and tax revenues. As such, both national and regional governments compete with each other to attract companies. At times this may take the form of entire country–level reforms, improving the business environment. Other times, governments may offer tax incentives, giving companies long tax holidays in exchange for investment. One such case by Costa Rica in 1997 attracted semiconductor manufacturer Intel and is credited by some for changing the orientation of that country’s economy. Intel accounted for over 10 percent of foreign investment and 20 percent of exports until the plant closed in 2014.[31] Critics look at this and other cases, and claim that the competition for investment creates a “race to the bottom” of corporate giveaways and few sustainable benefits. Others note the significant job and export gains and often domestic "satellite" companies that emerge around large investments such as Intel's.

Commodity Producers and Own Account Commodity Traders

Commodities are the basic building blocks of the global economy and include the foods, energy sources, and metals and minerals that go into global supply chains. A subgroup of often large companies produces and does primary processing of these products. They sell to traders, speculators, and final end users.

Main Global Economic Influence

- Significant investors, especially in emerging and frontier markets where many remaining, untapped reserves are located. Many African countries and Mongolia saw massive commodity-related investment booms in the 2000s (that were followed by equally precipitous busts). Despite volatile prices, commodities remain the almost exclusive source of wealth (and power) for a group of oil-rich Middle Eastern states and a major source for a wide range of countries from Chile (metals); Australia (metals, coal); Indonesia (petroleum products, mining, and palm oil); Norway and Canada (fuels); and New Zealand (agriculture).
- Commodities are critical inputs for a wide range of industries. Price swings influence the profitability of companies, the budgets of countries, and national price levels and/or inflation rates. They can drive global capital flows both directly and indirectly as the overall economies and capital markets of commodity-dependent countries rise and fall with prices.
- Many governments control the extraction, use, and export of commodities within and from their borders, trying to maximize domestic royalties and benefits by encouraging processing and downstream industries, rather than just the export of raw materials. Policies can lead to greater levels of development, but also price distortions and inefficiency that make otherwise unprofitable industries appear profitable.
- When prices are high and shortages feared, state and quasi-state commodities companies may "ring fence," or maintain for exclusive national use, even commodities produced in other countries. For some time, wealthy Gulf State governments have been buying farmland in foreign countries, with unlimited rights to export home.[32] Similarly, Chinese commodity companies have extracted abroad and stockpiled in China. The behavior can increase price volatility on global markets, as traded markets are thinned out and supply and demand become less transparent.

Incentives

- To make money for their shareholders by managing and reacting to supply and demand conditions through investments, trading, and stockpiling.
- For state-run or -influenced suppliers, to ensure that national companies have an adequate supply of key commodities.
- For state-run or -influenced suppliers, often to provide, especially energy, commodities to the companies and citizens of a country at below world market prices.
- To profit by providing contracts to customers that help them hedge against large price swings.

Mini Case

African growth. Chinese investment in Africa represents one of the biggest FDI booms in the 2000s. Most investment has gone into natural resource extraction, mainly metals, minerals, and fuels. The subsequent exports from Africa fed China's economic boom and were processed by Chinese companies to sell into other countries. China became the largest trade partner for the African continent. Total investment is hard to estimate accurately but is likely near $28 billion as of 2015, a significant sum in an economically depressed continent. Some observers believe the investment was a major contributor to record growth rates in many African countries in the first decade of the 2000s. Investments in infrastructure and human resources may continue to fuel growth, even as direct investment slows.[33]

Individuals

Behind every institution, company, bank, or government are people. They buy, invest, manage, push for greater returns as shareholders, shop for life insurance, vote for change and for things to stay the same, and so on. Like the proles in Orwell's *1984*, if roused to act together, they can change the world. Fortunately or unfortunately, that rarely happens.[34] However, individuals, like any group of decision makers, can be prone to herd mentalities, fueling trends, bubbles, and busts. They also may not be fully tuned to the nuances of policy and may push for changes that are not necessarily in their economic interests, as the 2016 vote for the United Kingdom to leave the European Union and perhaps the Trump presidency in the United States can attest.

Main Global Economic Influence

- As consumers, individuals may buy lower-cost and/or higher-quality (or just preferred) goods from other countries, driving trade deficits in one country and surpluses in another.

- As consumers, you can feel their wrath when they get behind a cause. Informal or formal boycotts of products from other nations have caused changes in global money flows and policies. These may be for causes like labor or the environment, or because of dislike of a country's politics.
- Behind most companies, banks, investment banks, and institutional investors in the global marketplace are many, many people making individual decisions that in the aggregate are significant. They put their money in and can take it out.
- As voters, individuals influence trade treaties, subsidies, and taxes and support wars, economic sanctions, and any number of other factors that may change the incentives and flows in the global economy.
- Individuals, as both consumers and managers, can be prone to cognitive biases in the way that they react to events and may act as much on the basis of emotion as raw analysis.[35]

Incentives

Highly dependent on circumstances, making summary difficult, but some combination of money, personal pride, status, and national pride.[36]

Mini Cases

US homeowners. A driving force behind the global financial crisis of 2008 that got less attention than the banks and mortgage brokers were the millions of individuals that got into the frenzy and bought houses, some of which they could afford, then increasingly ones they could not. Individuals took out home equity lines of credit, decreasing their equity and increasing their debt, and added to global economic risk. Even in places with stricter mortgage standards than the United States, Spaniards, Irish, and Italians all made decisions that increased risk in the global market. Then, when the property bubble burst and their houses were worth less than the debt on them, many people walked away, again increasing risk and real losses.

Japanese "housewives." The Japanese have traditionally had an unusually high savings rate, leading over time to massive pools of savings that were historically invested in Japanese government bonds. When Japanese interest rates plummeted in the 1990s, primarily women head-of-households opened individual trading accounts and sought higher returns in foreign markets. The movement of this huge pool of savings abroad frequently made up 20 percent of all global foreign exchange activity at the times when the Tokyo market was open. Often household savings were invested unleveraged, but some of the trading accounts gave households the ability to borrow additional funds, increasing both returns and risk. Given the fragmented nature of this investment pool, it is hard to predict its behavior, even as it moves global markets.[37]

That ends the short summary of the main participants in the global economy, keeping in mind caveats about mutual exclusivity of categories, exhaustiveness, and fairness and accuracy of characteristics. It is merely a taxonomical starting point.

There are a lot of categories even in this summary, but sometimes it takes a wide variety of participants to make global economic events happen. To see how many of them worked together to wreak havoc, let's have a closer look at the global financial crisis of 2008.

CRISIS IN 2008! AND THE ROLES THEY PLAYED

A short exposition of the great recession of 2008 illustrates how multiple participants and their incentives combined to create a major global economic event. Figure 2.1 summarizes the main players and the links between them. A major theme is that nearly everyone did pretty much what they were supposed to do. By "supposed to do," they did their jobs and followed their incentives. Economists say there was an "incentive-aligned" set of conditions leading to the crisis. That most failed to notice the system was heading for breakdown is perhaps less of a problem than that they were not incentivized to notice. For those whose job it was to notice, the incentives were still mixed whether to ignore the signals or not.

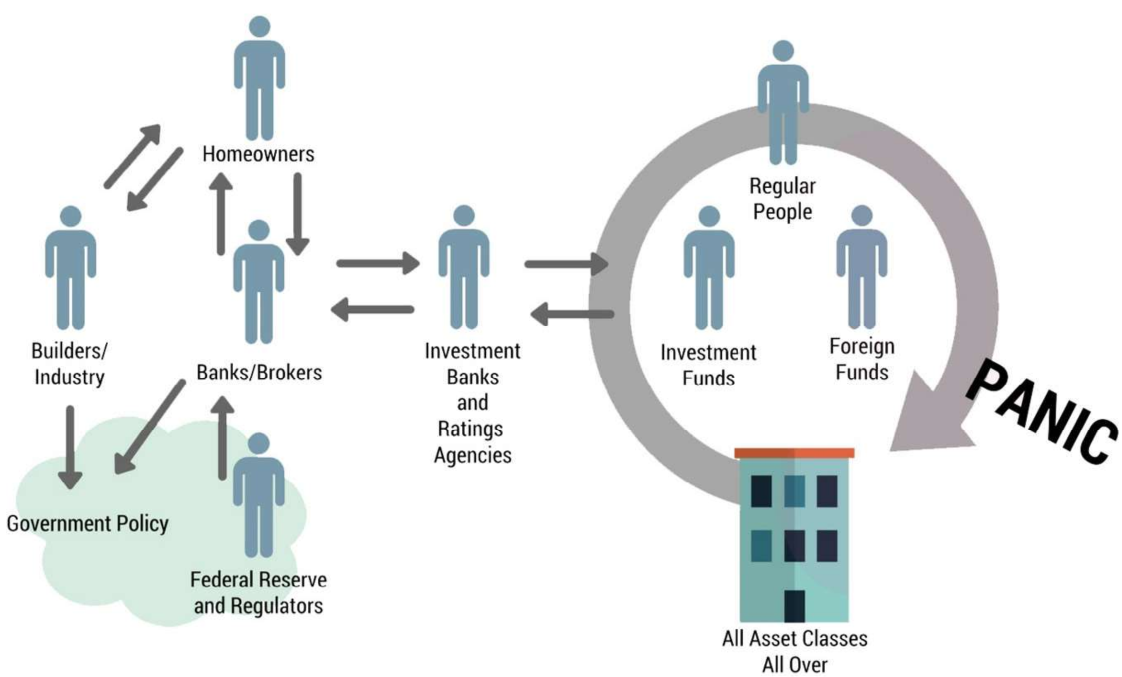

Figure 2.1. Linkages in the 2008 Crisis

The buildup to the crisis started in the early 2000s. Some would say it followed directly from the bursting of the .com Internet bubble in 2001. The US Fed at the time followed its incentives and kept interest rates low to help the economy recover from the crash. Interest rates on home loans were also low, so people were incentivized to buy homes, which they did. As more homes were bought, prices started to go up, so builders stepped in and did what they were incentivized to do. They built more homes. Since home prices were going up, investors were happy to support the whole effort and finance the purchase of more homes by buying up securities backed by mortgages. Mortgages were considered safe and paid better than the main alternative safe asset, government bonds.

The US government helped out and followed its incentives to support homeownership by guaranteeing many of the mortgages, essentially taking the risk out of them. The usual "experts" on TV needed airtime, and they grabbed on to the fact that things seemed to be going pretty well and repeated that point again and again. They claimed that home prices never go down and the global economy was in the middle of a "great moderation" that had tamed the boom-and-bust business cycle. With the smart people saying there was no risk, mortgage-backed securities became even more enticing to investors, who wanted more. Returns were good and risks were low.

The investment banks did what they were supposed to do and came up with some creative new ways to package the mortgages into marketable securities, so they could sell them to investors. They also helped expand the market by selling these securities to investors abroad, especially in Europe, where returns on other "safe" assets were lower. They also sold mortgage-backed securities to the Chinese and other emerging markets investors, who had accumulated large amounts of USD reserves from all of their exports. Many of the investors whom the investment banks were selling to could only buy highly rated securities, so the investment banks went to the ratings agencies to get a AAA rating for them. At first, this was easy to do, because the mortgages were taken out by people who could afford the homes, and in any case, they were perceived to be government backed.

So far, so good. But people kept doing what they were incentivized to do, and the market grew. People wanted more, bigger, and second and third houses, and to refinance and take money out of homes they had for new homes. Home prices kept going up with high demand fueling more building. At the same time, investment banks had created a voracious global appetite for their products, with institutional investors everywhere wanting more of these AAA-rated, low-risk, high-return securities. Investment managers were under a lot of pressure to generate returns for their clients, and these were a perfect fit. Builders were making a lot of money building new houses, and politicians were happy with all the employment and homeownership created by the boom.

There was demand for houses and for the mortgage-backed securities that went to finance the houses. So to generate more loans, the mortgage brokers and investment banks started to accept looser standards on the mortgages. Brokers stopped asking for money down and verifying income. They "innovated" and offered low "starter" rates for a limited time, and mortgages worth more than 100 percent of the house value. People still wanted houses, and now you could get one with no money down and no job, and even get cash in your pocket. Lots of people thought that was a good deal and took advantage of it. Since the experts said house prices never go down, mortgages were still risk free. There was no reason for consumers not to keep buying houses, and investment banks to keep packaging the mortgages into securities and selling them.

When the government-backed guarantee companies refused to guarantee the loans based on looser standards, some private players stepped in. AIG, a large American insurance company, started to guarantee the securities with instruments called credit default swaps, which paid off if mortgage bonds didn't. In one year 40 percent of AIG's profits came from premiums on these guarantees, all from a division of fewer than two hundred people in a company with tens of thousands of employees. No reason to stop that; they were making good money with no risk. If investors were worried, they need not be, because the securities were still rated AAA because AIG had a AAA rating.

The investment banks paid for the ratings, and if they didn't like the one they got, they would shop the security around to another rating agency more amenable to issuing a higher rating. Eventually the ratings agencies did what any good service provider does and let the customer know they are always right. If the customer thought the security should be AAA rated, then it probably should be. Even better than that, ironclad laws of finance theory proved that diversification would reduce risk, and nothing could be more diversified than a security backed by thousands of different mortgages. AAA it was. Investors trusted the ratings agencies, and in any case these were some of the highest-yielding investments around. Not to buy them would mean your fund might have lower returns than the competition and you could lose your job.

Everyone was still doing exactly what they were supposed to do. The problem is, the situation had reached the point of no return. It was broken. Too many houses were built. Too many people had bought too many houses that were too expensive, with too little income, and too many investors had helped that happen. But it happened with everyone doing what they were incentivized to do.

The whole thing started to unravel when inevitably people without jobs or without good enough jobs could not make payments on their mortgages. The people who bought the AAA-rated securities stopped getting *their* payments, and the value of the securities started to drop. As people could not make payments, they had to sell their houses (or the banks did it for them), so home values started to drop. As people saw the value of their houses drop below the balance on their mortgage, more of them started to walk away from their houses and their mortgages. The downward spiral became as self-reinforcing as the previous upward spiral.

In the meantime, the people who had bought the securities ran into trouble. They tried to sell them to get them off their books, but the buyers disappeared. As values fell, the asset values of investors' portfolios fell. They were often leveraged, borrowing money to buy the assets, and needed to pay their creditors. So they sold other assets, which led to the drop in value of other assets that were not related to the problem securities. They also began to look more critically at other assets they had. Maybe those Greek and Italian government bonds were not as safe as they thought. Or maybe the notes on all those developments in Ireland and Spain were risky, or maybe all those credit lines extended to fuel consumption through Eastern Europe warranted more scrutiny. As everyone started to peek more closely at the assets, they saw risk everywhere. It was not just American mortgage bonds, after all; they were just the first to stop performing. The same web of incentives had replicated the risk around the world. At the height of the crisis, no one knew who did or did not have any money, so pretty much everyone stopped lending.

It is not 100 percent fair to say that everyone did their job. A few people probably did not do their job very well.[38] The first are the ratings agencies. They followed their incentives, but they did not do their jobs. Their incentives were to make money for their private, profit-driven companies. Their jobs were to accurately rate securities. If they had done their jobs, it is possible that the crisis would not have happened, since a lot of the investors who bought the securities were required by mandate to invest only in AAA-rated investments.

The second are the bank and securities regulatory agencies. People did try to do their jobs, and some of those lost them. Others simply went along for the ride or didn't want to stop a boom that seemed to be going well, or just didn't understand it. The reasons for regulatory failure are complex, but it is fair to say that regulators fell under some influence from the huge amounts of money being made during the boom times. Regulators frequently go to work for investment banks as a next career step, so no reason to upset anyone. There is no excuse, but that is the reality. Perhaps they followed their incentives, but they did not do their jobs very well.

Most of the rest of the people were just doing their jobs. You cannot expect more from a prospective home buyer who can get a house for no money down, a mortgage broker who gets a commission on each sale, an investment banker who gets a bonus based on creating new securities and selling them, a central bank that might get blamed for wrecking the economy for increasing interest rates, or an investor staring at a high-yielding security that a reputable agency had just rated the highest investment grade.

That is why incentives are so important in economics and why analysis of global economic events and trends requires analysis of a broad range of participants and incentives. The incentives were aligned to make the crisis happen, and are aligned in some way to make almost all events happen. That is the magic of bubbles and busts, and why they are so hard to control.[39]

This completes the overview of the main participants. In the sections that follow, this foundation is built on to go more deeply into how some of them work, and how they and the incentives they feel drive global economic events.

NOTES

1. The CFA (Certified Financial Analyst) Institute Research Foundation published an excellent summary of the principal-agent problem (Shah 2014).
2. Numerous articles and allegations abound. See, for example, Nakamura and Harlan.
3. That said, there are well-documented cases of high tensions between central banks and main branches of government, one case in point being the Bank of Japan and the Japanese ministry of finance.
4. During a September 2015 speech, the head of the US Federal Reserve Bank, Janet Yellen, implied that managing financial stability influenced Fed decision making. This represents a more proactive, and risky, approach than many central banks had been previously been comfortable, or mandated, to undertake (Federal Reserve Bank of the United States 2015). See Cooper (2008) for arguments supporting intervention.
5. Quantitative easing is explained in detail in chapter 3, but suffice it to say for now that cutting back led people to believe that US-based interest rates would rise.
6. *The Economist* 2015e.
7. As a general rule, common-law countries such as the United States and United Kingdom tend to leave more regulation making to executive branches, whereas much of Europe has a civil law system in which the legislatures are traditionally much more specific about how the laws are to be implemented.
8. As told to William Infante, a US businessman based in Mongolia.
9. WTO website.
10. The dispute is quite complex, though good public documentation is available. See the WTO website for a start, particularly the section *DS316: European Communities—Measures Affecting Trade in Large Civil Aircraft.*
11. As noted by one reader of this manuscript, the IMF has been instrumental in getting a number of countries on track toward stability and sustained growth. For example, effectively forcing Bulgaria in 1997 into a currency board that stripped the government of its ability to print money has been credited with allowing that country to join the European Union ten years later. Paul Blustein's (2001) book is a bit critical of the institution, but also highlights the extreme difficulty of making policy at times of crisis and gives a good overview of the string of financial crises of the late 1990s.
12. See this OECD working paper (Slovik 2012).
13. They may also manipulate those rates to their benefit, as with the so-called LIBOR scandal. The Council on Foreign Relations (2015) published a good, brief explanation of the LIBOR scandal.
14. The FDIC (1997) published an excellent summary of the crisis.
15. There are many examples, but for one example see Lewis (2014) and Kolhatkar (2017). Specific cases of the revolving door in the United States between investment banking and government include Hank Paulson (thirty-two years at Goldman Sachs, became secretary of the treasury); Robert Rubin (twenty-six years at Goldman Sachs, became secretary of the treasury); John Corzine (twenty-two years at Goldman Sachs, became governor of New Jersey); Robert Hormats (twenty-seven years at Goldman Sachs, became undersecretary of state); Michael Froman (Citigroup 2001–2009, became the US trade representative).
16. Taibbi 2010.
17. Though many deals are privately placed and hard to track, some estimates for the US and EU market are available in Basurto et al. 2015.
18. The story has many different angles; see Cohan (2015), Dunbar and Martinuzzi (2012), and a more dissenting view at Story et al. (2010).
19. Investment Company Institute 2016.
20. Stevenson and Corkery 2014.
21. For many years, the standard compensation structure was based on 2 percent of assets under management and 20 percent of profits.
22. The story is well told by Sebastian Mallaby 2010.
23. The issue was finally resolved in 2016. For the story and outcome see *The Economist* 2014d and Caliari 2015.
24. Willis, Towers, Watson, 2017. The OECD estimated total global pension assets at $34 million in 2013. *OECD Institutional Investors Statistics* (database) and OECD 2014.
25. Managed Funds Association 2015.
26. Sovereign Wealth Fund Institute 2016.
27. The Abu Dhabi's fund Mubadala's investment in Ferrari is a case in point.

28. Ismail 2011, Bloomberg.
29. UNCTAD, Global Investment Trends Monitor, February 2017.
30. For an overview and retrospective, see Taylor 2014.
31. *The Economist* 2014e outlines the controversy.
32. *The Economist* 2009a.
33. Stevis 2014 and *The Economist* 2013c.
34. It is happening perhaps less and less according to some observers. See Tyler Cowen, *The Complacent Class.*
35. Much research has been conducted over the past decades on the types of biases that enter into human decision making. Two of the most important books on the topic are *Judgment under Uncertainty: Heuristics and Biases* and *Thinking, Fast and Slow*, both by Daniel Kahneman and Amos Tversky (1982, 2011). For a more practical application of the principles, see *Behavioral Finance and Wealth Management* by Michael Pompian (2012).
36. See Jonathan Haidt's *The Righteous Mind* for a psychologist's glimpse at the diverse factors that drive voter behavior.
37. The traders are colloquially referred to as "Mrs. Watanabes." See Smick (2008), chapter 5, or for a short summary, Fackler 2007.
38. Alan Blinder (2013) in *After the Music Stopped* identified seven "villains" in the 2008 crisis, including regulatory shortfalls and the ratings agencies. I would agree on all of his villains, but most of them were doing their jobs.
39. For a similar perspective on the incentive problem in the crisis, see Raghuram Rajan (2010). See also Eichengreen (2011) for a concise and balanced summary of the 2008 crisis.