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HOW INCENTIVES CONTRIBUTED TO THE GREAT RECESSION?

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ABSTRACT

Incentives are widely assumed to be both necessary and beneficial to the proper functioning of markets. Unsurprisingly, a variety of incentives were used throughout the securitized mortgage market. Every link in that so called “securitized food chain” was regulated by incentives mechanisms designed to align the interests of the contracting parties. Yet, the failure of this securitized mortgage market was a key element in the most consequential economic disaster since the Great Depression.

In this essay, I describe the incentive mechanisms built into the mortgage backed securities market. I review the claims made on behalf of these mechanisms and highlight the recognition of their failure as contributing to the financial crisis of 2008. I then argue that incentive mechanisms will always fail to work as expected and further that behaving in response to incentives is not the same as behaving ethically.

TABLE OF CONTENTS

LIST OF FIGURES	iii
ACKNOWLEDGEMENTS	iv
Chapter 1 Introduction	1
Chapter 2 How Securitization Work.....	4
Chapter 3 Incentives in the Securitized Mortgage Market	9
Mortgage Originators.....	9
Wall Street.....	14
American International Group (AIG).....	17
The Fed/Regulators	19
Chapter 4 Incentives Do Not Work	25
Chapter 5 Ethical Behavior Is Not the Same as Responding To Incentives	30
Chapter 6 Conclusion / Solution.....	33
BIBLIOGRAPHY.....	34

LIST OF FIGURES

Figure 1. Unemployment Rate	1
Figure 2. Old Business Model of Mortgages Origination (Ferguson, Marrs, & Ferguson, 2010). 4	
Figure 3. The Securitization Food Chain (The importance of regulation, 2014).....	6
Figure 4. (Adapted from Cassidy, 2010-p.147)	10
Figure 5. Cash Flow (Santander, PGGM, & APG, 2016).....	15
Figure 6. Ranking for losses on loans (Santander, PGGM, & APG, 2016).....	18

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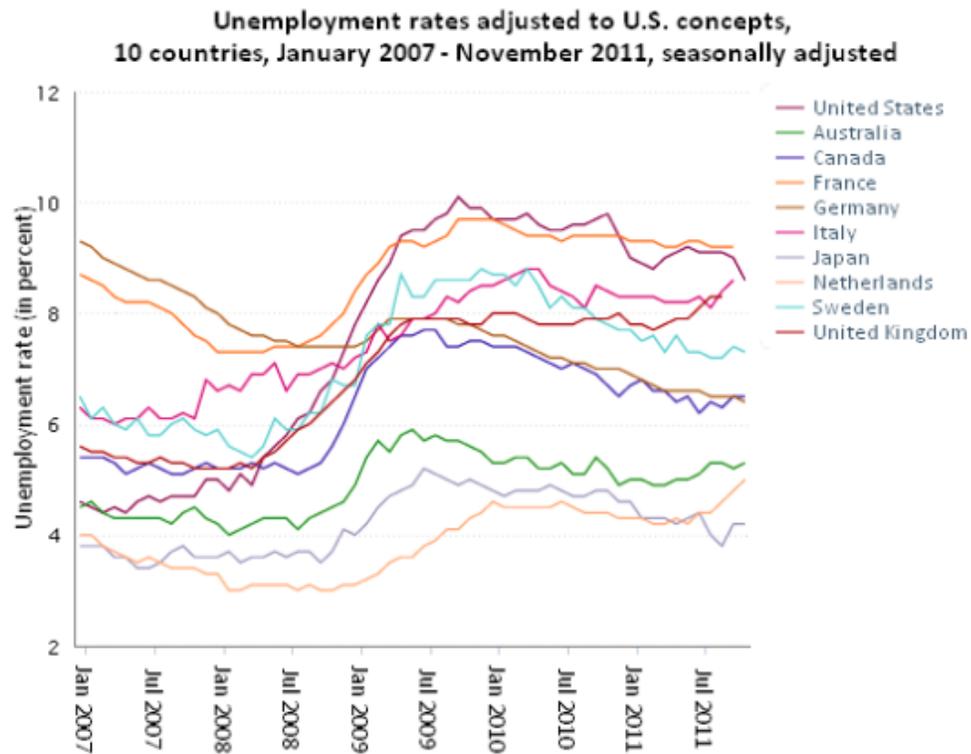
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Chapter 1

Introduction

The 2008 financial crisis was the worst economic disaster since the 1929 Great Depression (Amadeo, 2016). It had a huge negative impact worldwide. In the United States the national unemployment rate was 5.0 percent in December 2007. The unemployment rate peaked at 10.0 percent in October 2009. The unemployment increased during this period for many other countries as well. The graph below showed the change in the unemployment rate of a variety of countries from 2007 to 2011. (BLS, 2012)



Source: U.S. Bureau of Labor Statistics

Figure 1. Unemployment Rate

The impact of the financial crisis was more than on just unemployment. It also negatively affected the financial sectors of many countries, which required massive and urgent government action. In Iceland the banking system virtually collapsed. Since Iceland's economy depends on its financial sector, the Iceland government had to borrow from the IMF and other neighbors in order to rescue the economy. Other European countries such as Portugal, Italy, Greece and Spain faced a similar problem as Iceland. Ireland's situation was even worse than Iceland because the Irish government turned private losses of the banks into public obligation and worsened its prospects of economic growth. (Shah, 2012) Different parties, such as the Fed, regulators, Wall Street, banks, mortgage companies and individual borrowers have been blamed for the crisis, at the center of which was the collapse of the securitized mortgage market.

This paper examines the role of incentives in the securitized mortgage market to evaluate the theses that incentive mechanisms are unlikely to work as advertised and further that behaving according to incentives is not the same as behaving ethically. Chapter 2, explain how securitization work using the example of the mortgage backed security market. Chapter 3 provides evidence of the incentives for each party that was involved in the mortgage backed security market. Following Grant (2002), incentives can be distinguished from coercion and persuasion as a specific technique to change the behavior of an agent and, chapter 4, outlines the nature of incentives and the assumptions needed to hold when designing incentives. Furthermore, this chapter argues that incentive mechanisms are unlikely to work as advertised because these assumptions are unlikely to hold. Chapter 5, explain the difference between ethical behavior and behavior understood as a response to incentives. Not only does the use of incentives crowd out other intrinsic motivations for action but behaviors designed as responses to incentives cannot be understood as ethical since they are mechanical. The concluding chapter 6, suggests the lessons

from the Great Recession have not yet been learned. Incentives for ethical action cannot be designed and reliance on such devices only makes the financial system more fragile.

Chapter 2

How Securitization Work

Securitization is a technique that converts a typically non-tradable asset/liability, such as mortgage, into a tradable financial asset/liability, as for example a 30-year mortgage into a mortgage backed security. The main reason offered for securitization as an economic good is that it permits a finer allocation or sharing of risk. Securitization allowed banks and other originators to share the risk of loan default with institutional investors, through the sale and purchase of mortgage backed securities. (Santander, PGGM, & APG, 2016) To better understand the mechanics of the securitization process and the market, in this chapter I describe the development and architecture of the mortgage backed securities market.

Securitization changed the business model of mortgage origination in the United States. The old business model of mortgages origination was very simple. It only involves two parties, which were the homebuyer and the lender.



Figure 2. Old Business Model of Mortgages Origination (Ferguson, Marrs, & Ferguson, 2010).

This traditional business model of mortgages origination was labor-intensive and based on a direct and long-term relationship between the borrower and the lender. After the lender issued a loan to the homebuyer, the homebuyer made mortgage payments directly to the lender. Under this business model, it was difficult for homebuyers to get loans because lenders had to be very careful. Since lenders kept the loans they issued on their books, they bore the risk of mortgage default by the homebuyers. The lender suffered the financial cost of a defaulting borrower and accordingly, lenders carefully evaluated the financial condition of the borrower. (Cassidy, 2010, p. 256). For example, typical loan terms for mortgages required 20-25 percent of the value of the asset as down payment.

The business model of mortgage origination became complicated after the invention of securitization. Mortgage backed securities (MBSs) are a relatively new asset class, dating from the early 1980s. Fannie Mae issued its first mortgage backed security in 1981 and Freddie Mac issued its first Collateralized Debt Obligation (CDO) in 1983. Derisively called the “securitized food chain” by the Chris Ferguson, the director of the documentary film “Inside Job”, the chain of players integrated into the MBS market are many and diverse. These parties include the homebuyers, mortgage lenders, investment banks, rating agencies, investors and insurance companies such as American International Group, AIG.

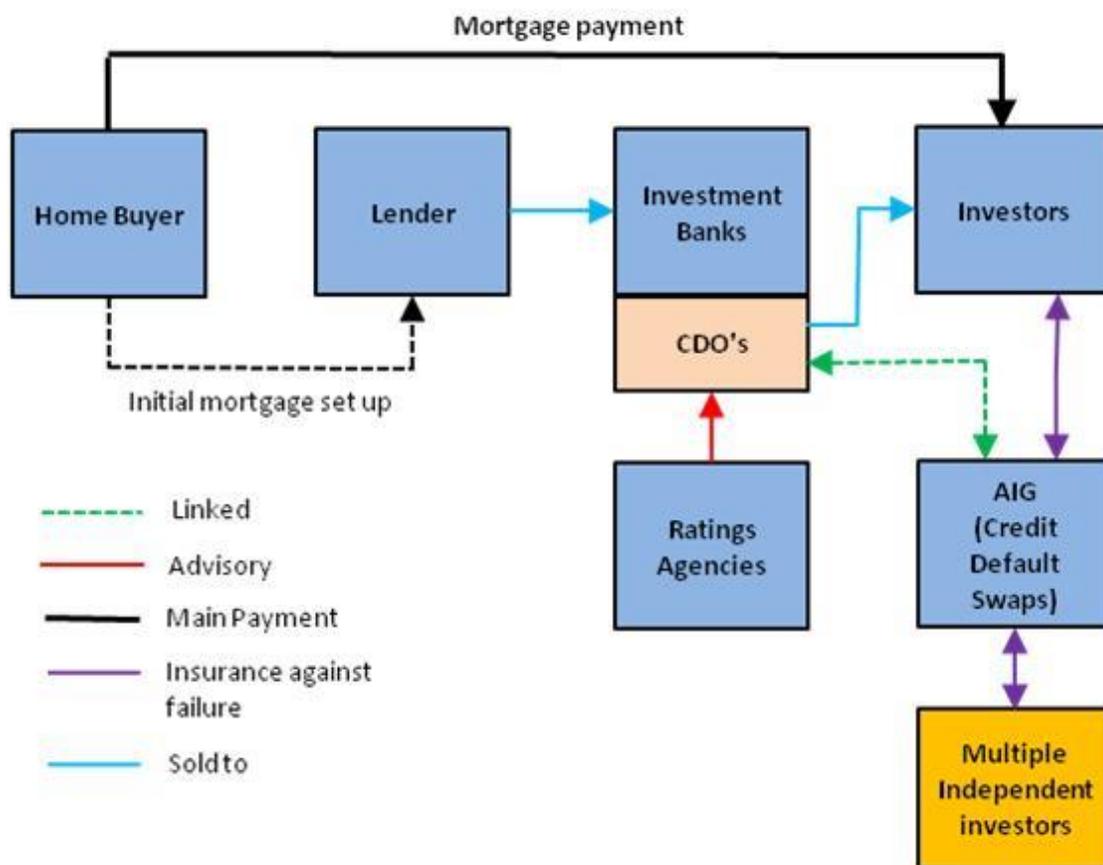


Figure 3. The Securitization Food Chain (The importance of regulation, 2014).

The “securitization food chain” of mortgages is structured as follow:

1. Homebuyers get mortgages from the mortgage originators, the lenders.
2. The mortgage originators sell off the mortgages to Wall Street investment banks, which in buying these provide a source of funding to the mortgage originators to originate even more mortgages.
3. Investment banks put these mortgages into derivatives called collateralized debt obligations, CDOs. This is the process of securitization; which convert a non-tradable asset/liability into a tradable financial asset/liability.

A CDO is a collection of any asset that generates yield, which includes residential and commercial mortgages, junk bonds and emerging market debt. Investment banks would

use a technique called tranching to separate the mortgage bonds into different classes according to their risk level or investors' interest.

4. Investment banks would pay a fee to the rating agencies for them to rate the CDOs. Most of these CDOs carried an AAA or AA rating.
5. After the CDOs were rated, investment banks would sell the CDOs to investors for cash. Investors include hedge funds, pension funds, money market funds and individual investors. Money market funds and pension funds are only allowed to purchase triple-A securities.
6. When homebuyers make the mortgage payment, the money would go to the investors who purchased the CDOs as interest payment.
7. Investor who purchased these CDOs and other investors who did not purchase these CDOs can purchase insurances from AIG to protect themselves against the default of CDOs. The insurance is a derivative called credit default swaps (CDS). People who purchase credit default swaps have to pay a premium to AIG for purchasing the insurance. (Cassidy, 2010, pp. 256-264)

As this structure of relationships shows, the securitization of mortgages requires a number of interdependent parties, each tied to the other in a long chain of mutual dependence and profit. Unlike the simplicity of traditional two party mortgages, securitization would not work if any of these party were absent. This is the reason that this new business model of mortgage origination involving securitization is called the "securitization food chain", on which a number of players feed.

Securitization was promoted with the claim that it benefited the parties within the food chain. Securitization helped mortgage originators to raise funding and to reduce risk. When

mortgage originators sell the mortgage to investment banks they simultaneously raise more funds for further origination and reduce the risk of holding mortgages to term. When investment banks package these mortgages into securitized products categorized by risk level, they create products for a variety of risk tolerances thus better aligning the risk appetite of investors and risk levels of products. Capital markets are said to work more efficiently when those holding the risk are best prepared and willing to do so. Since securitization implies pooling all kinds of loans together and distributing the pool among investors, it provides investors with a diversified portfolio of investments. Moreover, “securitized investments have “tranches” with different levels of risk which also suits different investors.” For example, “when investors purchase the most subordinate tranches, they share especially in the credit risk of the loans.” (Santander, PGGM, & APG, 2016) By selling off the securitized instruments, investment banks can increase their sales revenue and revenue generating potential. Furthermore, securitization also allowed both rating agencies and insurers (like AIG) to increase their revenues and profits by attesting to the quality of the derivatives and by selling credit default swaps, respectively.

Securitization is therefore thought beneficial to the economy when used in a correct and responsible way. Securitization is like automobiles, when used responsibly, they are convenient and safe for people. But, “when misused by their drivers, cars can cause great destruction and death.” Similarly, the “abuse of the securitization technique by certain parties has contributed to the great financial crisis.” (Santander, PGGM, & APG, 2016) All across the securitized food chain, responsibility and due diligence were downplayed or ignored because risk was minimized. Even for those holding the most risky instruments, the protection of insurance offered the ultimate security. Thus, each party acting in their narrow self-interest that reduced their individual risk nevertheless increased the overall systemic risk.

Chapter 3

Incentives in the Securitized Mortgage Market

Mortgage Originators

Many new mortgage companies were formed because securitization provided them with a source of funding. At the beginning, there were two distinct breeds of mortgage originators. One set of companies issued standard loans to people with good credit, such as 30-year fixed rate mortgages, which they sold to Fannie and Freddie. “Countrywide Financial was a good example of that kind of company. The second group had very different roots. They grew out of what was known as hard-money lending – lending made to poor people, primarily. (“Hard money” refers to the large down payment its customers had to make, even for a basic item such as a refrigerator.)” (McLean & Nocera, 2010, p. 20) The Alternative Mortgage Transaction Parity Act allowed lenders to offer more creative mortgages, such as adjustable-rate mortgages rather than simple thirty-year fixed-rate instruments, which made possible for lenders to lend to consumers who would have never previously qualified for a mortgage. This marked the birth of the subprime mortgage industry. (ibid, p. 29)

The Alternative Mortgage Transaction Parity Act and securitization allowed mortgage originators to issue adjustable-rate mortgages and immediately sell the mortgages to Wall Street. Therefore, the mortgages were removed from their books. Since they are not the ones who keep the mortgages and bear the default risk, originators did not care about the quality of the mortgages they generated, that is, the credit-worthiness of the borrowers. This gave the second

group of mortgage originators, “the hard-money lenders,” an incentive to generate subprime mortgages. “Subprime mortgage is a type of loan granted to individuals with poor credit histories (often below 600), who, as a result of their deficient credit ratings, would not be able to qualify for conventional mortgages” (Carther, 2016). A borrower with a poor credit history who is given a mortgage means mortgage originators knowingly generated mortgages with a higher risk of default.

Profits	Firm 2		
		Low Credit Requirement	High Credit Requirement
Firm 1	Low Credit Requirement	100, 100	150, 50
	High Credit Requirement	50, 150	50, 50

Figure 4. (Adapted from Cassidy, 2010-p.147)

The mortgage market in the context of securitization can be thought as similar to the prisoner’s dilemma. The competitive pressures among lenders push more and more lenders to get into the subprime mortgage market. Consider for example, a two-person game, with a subprime and prime mortgage business. The subprime business is characterized by low credit requirement (and high loan volume) (see figure 4 above). The total market with subprime lending is assumed to be twice the market without it (200 versus 100 above). Lenders who enter the subprime market are able to capture the entire business and thus the profits, as represented by the payoff of 150. In contrast standard lending originators, like Countrywide, which maintained high credit requirement (and low loan volume), generated comparatively less profit represented by their payoff of only 50. In order for these standard mortgage originators to gain higher profit, they are incentivized to get into the subprime lending business, which will provide both players with an

equal payoff of 100. Otherwise, these subprime mortgage originators could eventually force standard mortgage originators out of the market.

Thus, every mortgage company in the United States was generating subprime mortgages, which means there was lots of competition among mortgage originators. Subprime mortgage originators were lowering their guideline in order to issue more loans. Moreover, they were willing to issue any mortgages as long as Wall Street was willing to buy those mortgages (McLean & Nocera, 2010, p. 143). The top managements of these subprime mortgage companies did not care about the quality of the mortgage or the credit-worthiness of the borrower or even the lending practices of the employees as long as mortgages were originated. The search for profits is the driver that drives all of the mortgage originators into the subprime business.

As noted by Lo in his extensive review of 21 books on the financial crisis, “personalities at the top create incentive (disincentives) for its employees to follow” (2012, p. 172) Management used incentive-based compensation to encourage employees to issue more mortgages. Employees received bonuses based on the amount of mortgages they issued. When Countrywide, which used to be a standard mortgage originator, started to originate subprime loans, it changed its compensation system: instead of earning a flat salary, loan officers were now earning commission based on volume (McLean & Nocera, 2010, p. 142). Loan officers earned commission based on the number of loans that they issued, which gave them the incentive to issue any kinds of loan to get their bonus. “The mortgage brokers who steered hard-up working-class families toward risky subprime mortgages were reacting to monetary incentives” (Cassidy, 2010, p. 11).

Mortgage brokers issued all kinds of loans to boost up their volume, including liar loans, 80/20 loans, 2/28 pay option adjustable-rate mortgages (ARMs), and so called NINJA loans. A

liar loan does not require borrower to provide income documentation (Alcaly, 2014). “Loans with a combination of incomplete documentation - so called liar loans - and low or no down payment rose from almost nothing in 2001 to almost 20 percent of the subprime originations by the end of 2006, according to a working paper by the Federal Reserve Bank of Atlanta” (McLean & Nocera, 2010, p. 211). 80/20 loans allow “the customer to took out two loans in order to borrow 100 percent of the money needed to purchase a home (ibid, p. 144). 2/28 pay option ARMs had a low fixed rate for the first two years, and then converted to a higher adjustable rate for the remaining twenty-eight years (ibid, p. 130). This meant that low-income borrowers would most likely default when the higher adjustable rate kicked in. NINJA loans stands for no-income, no jobs and no-assets loans (Cassidy, 2010, p. 11). It is issued to borrower with no income and no-assets of any kind. Indeed, eventually all the mortgage originators were making “loans with no down payment, no income verification to borrowers with very low credit scores.” (McLean & Nocera, 2010, p. 135).

Brokers use fraud to increase their volume. “Fraud was an everyday occurrence. ‘You’d look over and there would be a guy altering W-2s,’ says Bomchill. Taylor later told the Los Angeles Times that she’d walked in on coworkers using a brightly lit Coca-Cola vending machine as a tracing board so loan agents could copy borrowers’ signatures onto blank documents.” Every subprime company adopted this kind of aggressive practices because they felt they would lose the business to Ameriquest if they did not do the same. (McLean & Nocera, 2010, p. 130)

When the subprime mortgage originator, Ameriquest, was sued for fraudulent practice, top management “changed its compensation guidelines so that loan officers were no longer rewarded for tacking on additional fees, and it implemented new software designed to prevent

fraud. But the relentless pressure for loan volume never changed, and in the branches there always seemed to be ways of getting around the new policies.” Ameriquest even hired a mortgage veteran named Ed Parker to investigate fraud in other branches of the company. Parker discovered branch employees in Fresno “were manipulating bank statements to make it appear that the prospective borrowers had more cash reserves than they did.” And in California, “stated-income letters were being manufactured that misrepresented the age of elderly borrowers.” As Parker described, executives did not really want him to perform his job because executives do not care about the fraudulent activities of employees. They just want Parker to be the symbolic figure of Ameriquest, to show to the public that Ameriquest was not conducting fraudulent activities. (McLean & Nocera, 2010, pp. 133-134)

Fraudulent activities were common among mortgage originators. Top managements were making too much money on these mortgages and did not care about the systemic risks these products were generating. After all, they did not have to bear the risk of default. As Parker describes, managements were fine with their employees conducting fraudulent acts to generate dangerous products because originators “make more than five times the profit selling an option ARM to Wall Street than a prime fixed-rate loan” (McLean & Nocera, 2010, p. 135). Wall Street did not care what was going on with the subprime industry; they want more and more loans. “Wall Street was encouraging the subprime companies in their race to the bottom. Lousier loans meant higher yields” (McLean & Nocera, 2010, pp. 217-218).

Wall Street

CDOs are structured financial products. Structured financial products needed a high rating. “The whole purpose of an asset-backed security was to take assets that could never merit a triple-A rating on their own and transform them into products safe enough to be rated that highly” (McLean & Nocera, 2010, p. 111). Resolution Trust Corporation allowed Wall Street to work on something called “credit enhancement” on a broader scale. Through credit enhancement, Wall Street did something called “senior/subordinated structure, where the cash flows from the underlying mortgages were redirected so that the “senior” bonds got the money first, thereby minimizing the risk for the investors who owned those bonds. Credit enhancements helped convince the rating agencies to rate some of the tranches triple-A, which in turn helped convince investors to buy them” (ibid, p. 31). Each tranche offers different risk and return for investors. The “more senior tranches having lower risk and hence a lower return and more junior (or subordinated) tranches have a higher risk and requiring therefore a higher return” (Santander, PGGM, & APG, 2016).

The following figure showed the orders of the cash flow of the CDOs to the different tranches. The triple-A rated or the senior tranche is the first to receive payment. The double-A rated tranche is second to receive payment. The single-A rated tranche is third to receive payment. And, the equity tranche is the last to receive payment.

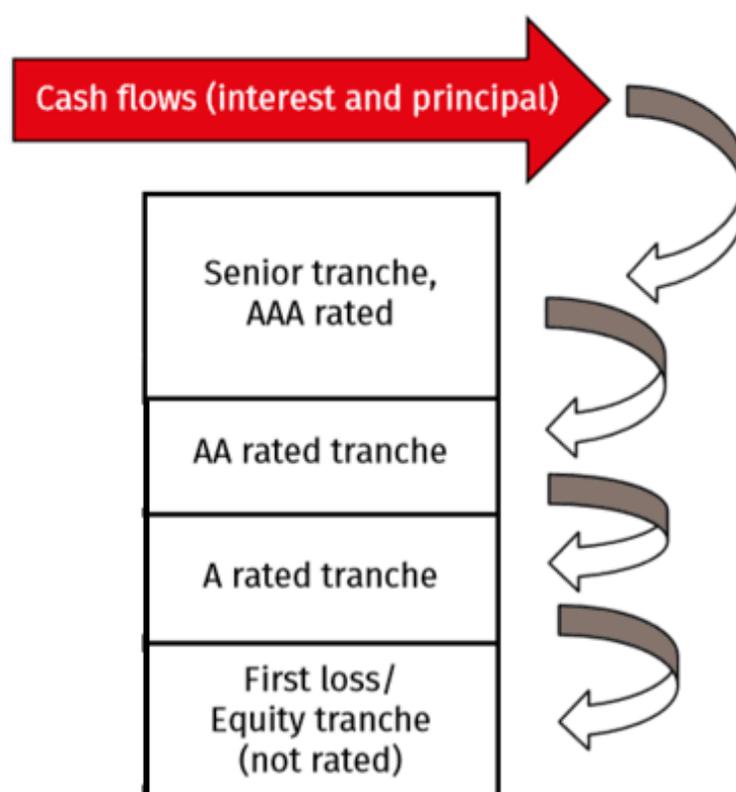


Figure 5. Cash Flow (Santander, PGGM, & APG, 2016)

Just like the mortgage originators, Wall Street did not care about the quality of the CDOs. Huge portions of the CDOs were sold down the food chain to investors, with Wall Street only keeping a small portion of the senior tranches. “Once a tranche of mortgage-backed security was stamped triple-A, nobody ever went back and reanalyzed it.” CDOs “give banks and Wall Street securities firms both the means and the motive to move their worst assets off their balance sheets and into a CDO instead. And since the rating agencies could be counted on to rate a big chunk of the CDO triple-A, nobody would be the wiser” (McLean & Nocera, 2010, p. 121).

Wall Street firms shopped for the ratings of their CDOs. “Rating shopping occurs when an issuer chooses the rating agency that will assign the highest rating or that has the most lax criteria for achieving a desired rating. It is common for securitization issues” (Rating shopping,

2006). Rating shopping allowed Wall Street to put any quality of product to form a triple-A CDOs. As a result, CDOs became “the biggest buyers of triple-B tranches of mortgage-backed securities, purchasing and re-assembling an astonishing 85 to 95 percent of them” (McLean & Nocera, 2010, p.123).

Rating shopping was easily done. “For instance, UBS banker Robert Morelli, upon hearing that S&P might be revising its RMBS ratings, sent an e-mail to an S&P analyst. ‘Heard your rating would be 5 notched back of moddys [sic] equivalent,’ he wrote. ‘Gonna kill your resi biz. May force is to do moodyfitch only...’” (McLean & Nocera, 2010, p.118). Investment banks pay the rating agencies for their service, and if one rating agency will not provide the rating that the investment banks wants, they would go to another rating agency down the block. This gave rating agencies an incentive to provide any rating that Wall Street investment banks wanted. Once “structured finance became the rating agencies’ main source of revenue” (Cassidy, 2010, p. 263), even blue chip rating agencies like “Moody’s, sacrificed rating quality in an effort to grow market share” (McLean & Nocera, 2010, p. 117).

Traders and senior executives on Wall Street received enormous incentive packages comprising cash and stock options based on the sale volume of CDOs/MBS. These incentive packages gave investment banks the incentive to package junk bonds into triple-A CDOs and sell them to investors. After the Wall Street realized the CDOs were toxic, Wall Street offered higher bonus for traders to sell all of the toxic CDOs to investors. Even though, traders knew those products are toxic, they sold them anyway (Quinto, Dodson, & Chandor, 2011). The more CDOs they sold, whether toxic or not, the more profits and hence the more money made by managers and traders.

Every investment bank CEO was paid million of dollar in cash bonus, restricted stock and options. The total amount of bonuses for each investment banks CEO received in 2006 are as follow: the CEO of Bear Stearns received \$33.85 million, Lemman Brothers received \$40.5 million, Goldman Sachs received \$54.72 million, Merrill Lynch received \$48 million, Morgan Stanley received \$41.41 million, Citigroup received \$25.98 million and Bank of America received \$27.87 million (Cassidy, 2010, pg. 289).

“Here was the ultimate consequence of the delinking of borrower and lender, which securitization had made possible: no one in the chain, from broker to subprime originator to Wall Street, cared that the loans they were making and selling were likely to go bad. In truth, they were all taking on huge risks in granting these terrible loans. But they were all making too much money to see it. Everyone assumed that someone else would be left holding the bag” (McLean & Nocera, 2010, p. 218).

American International Group (AIG)

AIG sells credit default swaps, CDSs, to insure against the default of CDOs. AIG employees were designed incentive compensation to motivate employees to sign more contract on CDSs (McLean & Nocera, 2010, p. 73). AIG received premium from the parties who purchased CDSs. “Every firm on Wall Street was going to AIG to buy credit default swaps on their super-senior tranches” (ibid, p. 200). “‘We simply assumed triple-A was a triple-A,’ says a former Moody’s managing director who worked on CDOs” (ibid, p.123). With the belief that triple-A means triple A, AIG was very confident that

the triple-A tranches would not default. By insuring against triple-A CDOs, AIG earn a huge profit on the premium with a large number of people purchasing CDSs.

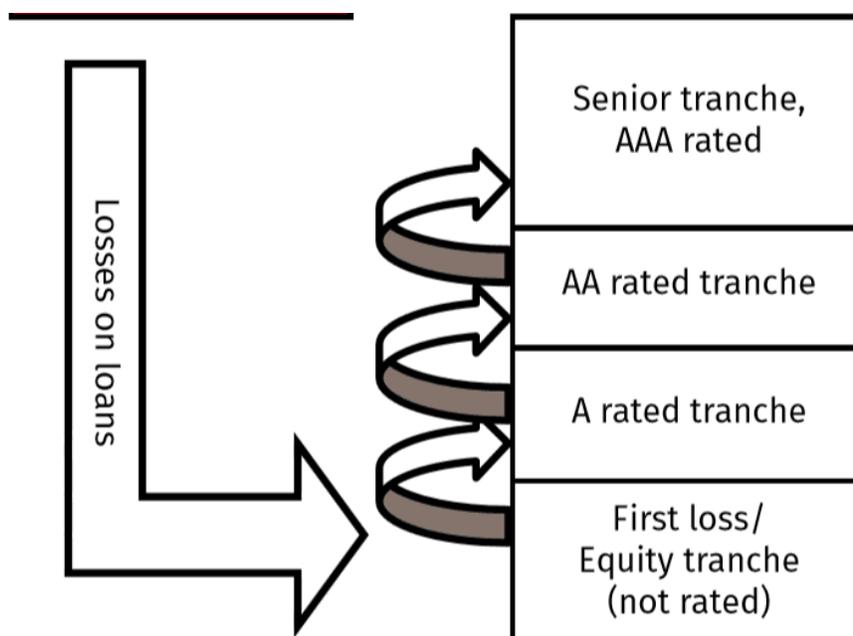


Figure 6. Ranking for losses on loans (Santander, PGGM, & APG, 2016)

“Different tranches have different ranking in terms of when the investors in the tranches will be affected by losses.” (Santander, PGGM, & APG, 2016) A first loss/equity tranche investor will be affected by the first x amount of losses; any additional losses will be absorbed by the investors in the A rated tranche, then the AA rated tranche and lastly the AAA rated/Senior tranche. Triple-A tranche will only bear leftover losses that were already absorbed by the first loss/equity tranche, A rated tranche and the AA rated tranche. Therefore, AIG was willing to issue large quantity of CDS under the assumed belief that the housing market was healthy and would continue to grow (McLean & Nocera, 2010, pp. 188-189).

The credit default swaps had collateral triggers. Parties in the food chain who insure their triple-A tranches, had the right to demand cash margin, if the rating agencies lowered the rating of the super-senior tranche or if the value of the tranches fell. AIG only consider the credit risk,

which is the likelihood of a triple-A tranche defaulting. It ignored the liquidity risk, the risk of getting collateral calls, which could drain its cash reserves. Every time when a tranche fell, AIG had to put up cash collaterals. And, when more and more tranches started to fall, AIG needed lots of cash for the collaterals. At one point, “AIG was on the hook for some \$60 billion worth of subprime exposure” and eventually, ran out of cash and had to be bailed out by the US federal government (McLean & Nocera, 2010, p.322).

The Fed/Regulators

“The Federal Reserve is the most powerful institution in the US economy.” “In the public mind, the Fed’s main function is the management of monetary policy – moving interest rates up or down in order to achieve its twin goals of full employment and stable prices. But the Fed is also responsible for supervising and regulating much of the banking system.” (Surowiecki, 2016) As chairman of the Board of Government of the Federal Reserve System, Alan Greenspan held the most powerful position in the world for eighteen and a half years, from early August 1987 through the end of January 2006. (Alcaly, 2017)

Greenspan’s ideology was that financial markets knew best. The markets moved capital from those who had it to those who needed it. They spread risks among each other. “They gathered and dispersed information. They regulated global economic affairs with a swiftness and decisiveness that governments couldn’t match.” (Fox, 2011, p. xii)

The Commodity Futures Trading Commission (CFTC) is a government agency that regulated derivatives. (Alcaly, 2017) In 1989, Gramm, the chairwoman of CFTC, enrolled the support of a CFTC staff, Brickell, who had a powerful ally in Greenspan, and pushed the CFTC

to rule that derivatives were not futures and were therefore outside the agency's jurisdiction. (McLean & Nocera, 2010, pp. 64-65). Though James Bothwell of the General Accounting Office warned of the dangers posed by the derivatives markets in early 1994, "not a single one – not the FDIC, the SEC, the Treasury, the Fed, the CFTC, nor even the Comptroller – would support Bothwell." (ibid, pp. 66-67) Everyone viewed derivatives as safe instruments because they were market driven solutions and required no regulations.

In 1997, Greenspan asked Edward Gramlich, a Federal Reserve governor, to head up the Fed's committee on consumer and community affairs. After the hearings, Gramlich went to present a specific policy idea to Greenspan. "He wanted the Fed to 'use its discretionary authority to send examiners into the offices of consumer finance lenders that were units of Fed-regulated bank holding companies.'" Greenspan turned aside after Gramlich presented his idea, and Gramlich interpreted Greenspan's action as a rejection, therefore, he did not pursue the policy. (McLean & Nocera, 2010, pp. 89-91)

In fact, in 1999, the cover of Time magazine named the so called "Committee to Save the World" comprising Larry Summers, Robert Rubin and Alan Greenspan, all of whom shared the same 'free market' ideology. Robert Rubin was previously co-chairman of Goldman Sachs and Larry Summers was his deputy. Anytime a regulator wanted to impose rules to regulate the financial markets, Alan Greenspan and other regulators would band together to reject the idea. In the late 2000, Donna Tanoue, the chair of the Federal Deposit Insurance Corporation from 1998 to 2001, argued (McLean & Nocera, 2010, p. xv), "that banking regulators needed to 'sever the money chain that replenishes the capital of predatory lenders and allows them to stay in business.' She was talking about the Wall Street's purchase and securitization of subprime loans. The FDIC even issue draft guidelines instructing banks on how to avoid purchasing predatory

loans for their securitization.” The banking industry was angry about the draft guidelines. The House banking committee rejected her plan when she went testified. (ibid, pp. 93-94)

In August 1996, Bill Clinton appointed Brooksley Born, a lawyer, to be the new chairman of the Commodity Futures Trading Commission. (McLean & Nocera, 2010, p. 100) The responsibility of the CFTC was to regulate derivatives that were traded on exchanges. And, Born wanted to regulate derivatives that were not traded on exchanges but were the fastest-growing and riskiest segment of the market. “Unlike regulated derivatives, for which the exchange required that participants make partial payments on their trades and guaranteed that trades would honored, the market for “over-the-counter” derivatives was a free-for-all with participating banks making up rules as they went along. As Born emphasized in the documentary, nobody even knew how extensively these derivatives were being used.” Greenspan was opposed to Born’s idea on regulation because Greenspan believed that markets were self-correcting. (Alcaly, 2017)

When “the SEC proposal raised serious “jurisdiction” issues, the CFTC argued that if any agency should by rights be overseeing derivatives it should be the CTFC. Born would later say that she didn’t care who wound up regulating derivatives, so long as it was done right.” In March 1998, the draft of the concept release was completed by the CFTC. This draft of concept release is a thirty-three pages long policy paper. On May 7, the CFTC published the concept release. “Rubin, Greenspan, and Arthur Levitt, the chairman of the SEC, immediately sent a letter to Congress requesting that it block the CFTC’s effort to solicit comments.” “Over the next few months, Born testified more than fifteen times in a series of highly charged congressional hearings about the concept release.” “The concept release got nowhere. Persuaded by Greenspan et al., Congress slipped a provision into an agriculture bill that prevented the CFTC from acting

on derivatives for six months – which just happened to be the amount of time left in Born’s term as chairman.” (McLean & Nocera, 2010, pp. 104-106)

To prevent people like Born, who raise concerned about the regulation of derivatives, in 2000, with the push of Phil Gramm, chair of the Senate banking committee and the enthusiastic support of Larry Summers, Treasury secretary, Clinton signed the Commodities Futures Modernization Act (1999) into law. The Commodities Futures Modernization Act is the known as the Gramm-Leach-Bliley Act, and it “explicitly stated that derivatives were not futures and could not be regulated by the CFTC – or any other government regulator.” The Gramm-Leach-Bliley Act prevented the FED “from conducting detailed examinations of the nonbank subsidiaries of the big banks. In other words, even though it was responsible for regulating the big bank holding companies, it had to rely on the SEC to oversee.” This law “repealed Glass-Steagall, which had split commercial from investment banking.” (McLean & Nocera, 2010, p. 109)

A GAO report “found that all the regulators ‘acknowledged that they had relied heavily on management representation of risks.’” “The SEC oversaw everything that had to do with the buying and selling of stocks.” Bear Stearns, Goldman Sachs, Morgan Stanley, Merrill Lynch, and Lehman Brothers, “all formed holding companies and had affiliates engaged in all kinds of activities,” but no government agency regulated the holding companies. (McLean & Nocera, 2010, p. 243-244)

Office of Federal Housing Enterprise Oversight, OFHEO, was a weak regulator, in the late 1990s, “the agencies didn’t even have a director.” “Every year, it seemed, OFHEO’s proposed budget was cut, either by Congress or the White House.” When Armando Falcon, the head of the OFHEO, first took office in 1999, “he discovered that some risk examinations were

being put off because the agency didn't have the manpower to conduct them.” (McLean & Nocera, 2010, pp. 174-175)

“Many mortgage originators that existed outside the banking system and were unsupervised by any federal agency.”(McLean & Nocera, 2010, p. 86) “Federal regulators have ‘no obvious way to monitor the lending behavior of independent mortgage companies.’” (ibid, p. 95) The focus of federal regulators, such as the Fed, the CFTC and the SEC, were to monitor the behavior of Wall Street. Most of the regulators are supportive of the action of Wall Street. “The US regulatory system was deeply flawed, reflecting pressures from powerful commercial banks, investment banks, and insurance companies, and negligently implemented, it failed to counteract the prevailing optimism and cool the housing and credit market” (Alcaly, 2010).

The Office of Thrift Supervision (OTS) was funded from fees that were paid by the thrifts themselves, based on their size. Washington Mutual is one of the thrift under OTS's supervision. According to the Senate Permanent Subcommittee on Investigations, the fees from Washington Mutual represented 12 to 15 percent of the agency's revenue. (McLean & Nocera, 2010, P. 215) The OTS's operation depends on the thrift's size. If the thrifts were driven out of business by subprime companies then the OTS would go down with the thrifts. The OTS had an incentive to act in favor of the thrifts for its own survival.

Moreover, even politicians worked in the interest of financial capital and many senators and congressional representatives were supportive of the deregulation of financial markets. They were acting in favor of the mortgage originators. “According to Wall Street Journal, Countrywide spent \$8.7 million between 2002 and 2006 on political donation, campaign contributions, and lobbying to defeat anti-predatory lending legislation.” (McLean & Nocera, 2010, p. 149) “According to the *Los Angeles Times*, between 2004 and 2008 Arnall and his wife,

Dawn, raised and gave more than 12 million to GOP causes and candidates.” (ibid, p. 209)

Roland Arnall is the founder of ACC Capital Holdings, the parent company of Ameriquest, which is a subprime company. (ibid, p. ix)

Thus, the securitized food chain provided a lot of monetary incentives packaged in ideological justification for regulators, senators, and congressional representatives.

Chapter 4

Incentives Do Not Work

In her essays on the history and significance of incentives, Ruth Grant (2002, 2006, 2008) has made a persuasive case for rethinking the role of incentives as a tool of government. While incentives are popularly thought to be a benign instrument prompting economic welfare, Grant highlights its historical features that make them better understood as a political device. Contrary to widespread perception, incentives as a technique to prompt and change behavior emerge only at the turn of the 20th century. Grant identifies the birth and elaboration of incentives within the intersection of three currents of socio-economic development.

The first factor promoting the use of incentives was the establishment of scientific management by Frederick Taylor (1911). This effort focused attention on how to encourage workers to greater output by offering a piece rate compensation scheme, instead of a salary. This was explicitly understood by Taylor and the proponents of scientific management as the necessary monetary incentive needed to prevent workers from under-performing. In a related vein, thinkers who debated the relative efficiency and feasibility of socialist economies, notably the public ownership of the means of production, insisted on the need for incentives as a synonym for motivation. To overcome the lack of motivation that was thought to accompany the lack of private property, socialist thinkers highlighted the need for incentives, though not limited to financial ones. The third current feeding the growth of the use of incentives was the emerging science of learning and behavior called behaviorism. According to the theory of behaviorism,

human action can be reduced to observable behavior and conditioned by means of operant stimulus. Thus for example, through a blend of positive and negative reinforcements (incentives), desired behavior can be encouraged and undesired behaviors discouraged.

According to Grant, these three currents have contributed to how incentives are thought about and put into practice today. In particular, she emphasizes four aspects of incentives that distinguish it as a particular form of governing people (Grant, 2002, p.135). Unlike rewards which are usually unexpected or compensations which are paid in recognition of effort, incentives are a form of extrinsic benefit or bonus. Second, incentives mediate an authority relationship as for example between teacher/student; employer/employee; parent/child. Third, incentives take the form of a discrete prompt whether monetary or non-monetary, to elicit a particular behavioral response. Accordingly, a financial bonus for higher output is no different from a chocolate promised to a student for completing an assignment. Finally, incentives are designed to change the status quo by motivating a person to choose other than s/he would in a world without incentives. As such, incentives are a form of social engineering.

The widespread use of incentive mechanisms in contemporary society as a tool for social engineering would perhaps be acceptable if they worked as expected. However, it is analytically implausible that incentive mechanisms would work as advertised. (In the next chapter, I will present a well known empirical result concerning the failure of incentives). To uncover the theoretical reasons for the failure of incentive mechanisms, it is perhaps simplest to reassess the technical assumptions required to effect robust incentive schemes.

Incentive design is a particular feature of agency theoretic models that are widely used in a number of fields including accounting, finance, and economics among others. The general problem is one of finding a 'second-best' solution when information asymmetry and self-interest

divides parties to a possible contract. The canonical examples of such problems are the ‘adverse selection’ and ‘moral hazard’ issues attendant to insurance schemes. As Baiman (1999) points out in his elucidation of the assumptions needed for designing incentive compatible contracts, both parties to the contract must share some common knowledge. Specifically, the state space and the action space must be known to both parties prior to contracting. That is, contracting parties must know all possible future events that would take place and anticipate all the possible future actions to be taken by the contracting parties. The contracts are defined as complete when the state space and action space are fully identified and stated within the contract. If all the state spaces are not identified then this contract is said to be incomplete, which means that self-interested individuals would easily exploit the states that were not specified within the contract.

Consider a simple contract over incentivizing the behavior of ‘carrying an umbrella if it rains’. We must identify all possible states in the state space before the contract can be formed. The state spaces we need to identify are all possible weathers, which include rain, snow, sunny, windy, foggy, cloudy, hurricane, flood and many other weather events. Rain includes acid rain, drizzle, cloudburst, freezing rain, intermittent rain, rain showers, thunderstorm and etc. The action space is to take an umbrella. It is hard to identify all the possible states even with this simple contract. In general, it is impossible to identify every element of the state space and anticipate all possible contingencies for contract when the future is unknowable. An economy characterized by high levels of innovation, interacting variables, and exogenous shocks is unlikely to be predictable or even knowable. As the former secretary of defense Donald Rumsfeld infamously said, “...there are unknown unknowns. There are things we don’t know we don’t know.”

The common knowledge assumption regarding state and action space implies that there is no uncertainty in the sense of Frank Knight (1921). Knight proposed the contrast between “risk” and “uncertainty” as that between the calculable future and the unknowable future. All incentive schemes assume that uncertainty as unknowable future can be transformed into risk. Such an assumption rules out the possibility of “not knowing what one does not know” (Secretary Rumsfeld). The innovative, the surprising, the unforeseeable are assumed away by the logic of incentive design. And yet, insofar as incentives are offered to self-interested people, when unforeseeable states of the world occur, they are likely to invent unexpected kinds of action that serve their own interests. In this way, incentive schemes will always fail in the long run. .

Let us look at an example of incentive schemes gone awry. “Some Health Maintenance Organizations (HMO) have instituted incentives for doctors to contain costs by allotting a certain sum per patient and then allowing the doctors to keep any remaining funds if they spend less than their allotment (“capital plans”).” The purpose of these incentives was to discourage overtreatment for patients and their goal was to cut costs and to promote optimal health care. Here it was assumed that the possible states of the world (illnesses) and possible actions (therapeutic possibilities) were common knowledge. Yet, in time, the self-interest of doctors undermined these incentive schemes. Doctors began to undertreat the patients and compromise the quality of care that only they could fully evaluate to maximize the excess funds which were treated as a bonus (Grant, 2006, pp.35-6). Similarly, the endless budget games that dog all organizations, and grade inflation in the presence of student evaluations are other examples of incentive schemes that do not work.

It is the assumption about common knowledge of the state/action space that cannot be expected to hold. Self interested agents will exploit unknowable states that occur and/or invent

actions that were not anticipated to act against the interest of the principal. Every party within the securitization food chain was incentivized with monetary rewards, even the investors. Wall Street sold so much CDOs because CDOs offered high returns and investors believed they could make huge profits on CDOs. It is widely believed that one of the causes of the 2008 financial crisis was ‘badly’ design incentives. This perception relies on the mistaken belief that incentives can be correctly designed. However, what the financial crisis shows is that the incentives were well designed within the limit of what was known. However, since incentive mechanisms cannot and never can anticipate every state in the state space and every action in the action space they will necessarily fail in the long run. All parties in the securitized food chain then exploited the lack of complete knowledge to further their narrow self-interest even while creating widespread systemic risk. It is precisely because incentives are assured to fail in the long run that the crisis occurred.

Chapter 5

Ethical Behavior Is Not the Same as Responding To Incentives

In Frey's papers (2001, n.d.) on human behavior and crowding theory, he stated external motivation via monetary rewards crowds out intrinsic motivation of human behavior. The crowding out effect captures the psychological theory concerning motivation on economic behavior. For example, Titmuss (1970) argued that paying for blood undermines the cherished social value of making a gift and as a result would reduce the willingness to donate blood. The quality and quantity of blood supply would therefore be negatively affected when it became a paid commodity. The well-known social psychologist Alfie Kohn (1993) has also amassed empirical results that show providing monetary reward has negative consequences for motivation. The crowding-out effect holds that raising the monetary incentives for an action reduces rather than increases the supply of the desired behavior. The theoretical possibility for the crowding-out effect is that motivation may be negatively affected when a previously non-monetary relationship is transformed into a monetary relationship. The opposite theory of crowding-out effect is the crowding-in effect, which means that external intervention increases in intrinsic motivation.

Extrinsic motivations are incentives coming from outside of the person whereas, intrinsic motivations are those internal to a person. As Deci describes (1971, p. 105), a person is intrinsically motivated to perform an activity when one receives one's satisfaction from the activity itself. In most economic models, the theoretical argument only includes extrinsic type of motivation. Intrinsic motivation is often completely disregarded because it is difficult to

determine which parts of the employee's performance are motivated by intrinsic motivation. The purpose of the motivation crowding theory is to mediate the standard economic model and the psychological theories.

External intervention may crowd-out or crowd-in intrinsic motivation. External intervention is said to crowd-out intrinsic motivation when external intervention reduce the agent's performance level or work effort. When agents view the external intervention as a controlling factor, which reduce the agents' self-determination and self-esteem. The agents would response by reducing their intrinsic motivation in the activity controlled.

External intervention crowd-in intrinsic motivation when external incentives raise agents' motivation to perform or work effort and at the same time raised their intrinsic motivation. When agents view the external intervention as a supportive factor, the agents would feel their self-esteems are fostered and they are given more freedom to act. As a result, agents would increase their work effort.

Through circumstantial evidences and laboratory evidences conducted by psychologist and economist and field evidences by econometric studies, Frey was able to show that incentives, as a form of external intervention, crowd-out intrinsic motivation. One of the evidence that shows external intervention undermining external incentive is children's learning behavior. Take for example, when parents pay their children for mowing the lawn. At the beginning, children might be willing to mow the lawn without any form of compensation. Once parents started to pay children to mow the lawn, children would expect to receive monetary rewards every time they do the task. With this expectation of receiving monetary rewards, children are only willing to do this task if they receive money. Monetary reward also reduces the children's willingness to do any other household task for free. Monetary reward crowd out children's intrinsic motivation

to do household tasks. With monetary reward, children were reacting to the reward they will receive, not on the specific task they promised to do. Children would say “yes” to anything people ask them to do as long as they receive monetary rewards.

Alfie Kohn (1993) argued incentives are only a way to obtain temporary compliance from people to perform the task. People are not motivated to perform the task, they are motivated to get the rewards. Reward will destroy teamwork because it force people to compete with each other in order to receive the reward. When rewards are given, people only focus on the quantity instead of quality. Sometimes, they will engage in unethical or illegal behavior for the reward. He also agreed with Frey on the idea that incentives undermine intrinsic motivations. Kohn also view monetary reward as a form of bribery. Bribes do not work in the workplace. He suggest corporation to use training and goal-setting programs because training and goal-setting programs had a greater impact on productivity than incentives schemes such as pay-for-performance plans.

Incentives crowd-out intrinsic motivations but this is a blind spot of economic theory generally. At the theoretical level of economics the possibility of external interventions via monetary incentives is generally been accepted. “What gets rewarded gets done” is a widespread article of faith in economics and management. Intrinsic motivations allow people to think whether certain tasks are ethical or unethical. When intrinsic motivations were crowd-out, people lose the ability to think critically about what they do. They do whatever they are incentivized to do. In fact, people are only responding to the monetary incentives, which means they act mechanically according to the offer they receive. Responding to incentives is therefore not ethical action but rather conditioned behavior.

Chapter 6

Conclusion / Solution

As the 2008 financial crisis showed, every party within the “securitized food chain” had its own incentives that were seemingly aligned to the general interest of optimal risk-sharing. Yet, the entire chain collapsed partly because the incentives were structured to maximize self-interest by also increasing the systemic risk. All incentive schemes will eventually fail because they require the state and action spaces to be known prior to writing the contract. In general, foreknowledge of all states of the world and all possible actions is impossible, and therefore it provided the opportunity for people to exploit the unknown space through self-interest.

In response to the crisis, President Obama passed the Dodd-Frank bill in July 2010. The Dodd-Frank Act has more than eight hundred pages, and its length and complexity proves that no amount of rules can capture all the details needed to regulate financial markets. The Dodd-Frank act is also incentive based and as a result, the Dodd-Frank act is also likely to fail to accomplish what it was supposed to do. For example, “three and a half years later only about half of its provision has been converted into functioning regulations” and “it (already) offers countless opportunities for lobbyists to weaken and exploit its provision.” (Alcaly, 2014)

People are increasingly use incentives as a tool when they wish to bring change. (Grant, 2002, p.111) The question remains: if we know that incentives will fail eventually and further that responding to incentives is the opposite of ethical behavior, then how can we replace incentive with ethical behavior, so people can act ethically and take responsibility of their own actions?

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HOW INCENTIVES CONTRIBUTED TO THE GREAT RECESSION?

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Work Experience:

Chinese Youth Organizing Project Summer Program,

Asian Americans United

Philadelphia, PA

Summer Youth Leader Director

Summer 2014 – Summer 2016

- Planned agenda and activities for the six weeks summer program with two other directors
- Co-facilitated training workshops for high school youths aged 14-18 covering topics on diversity
- Built relationships with and motivated high school youths through regular group and individual meetings
- Resolved conflict between high school youths to help them improve social skills
- Supervised high school youths through their final presentation project for community members
- Collaborated with other organizations to host citizenship workshops for the Chinese Community
- Interpreted English to Chinese, Chinese to English during workshops
- Translated documents and materials into Chinese

Supervisor's Name: Wei Chen

Awards & Activities:

Outstanding Community Award

Chinese Benevolent Association of Greater Philadelphia

July, 2012

Beta Gamma Sigma

Pennsylvania State University Chapter

December, 2015

Chinatown Vote, Asian Americans United

Philadelphia, PA

- Communicated with more than 100 people on the street for registration
- Followed up with more than 50 people to remind them to go out to vote
- Contributed to meetings with 20 other members to discuss and resolve problems that occur that day
- Encouraged the Asian community to register and go out to vote.

Chinese Class, Chi Yin Temple

Philadelphia, PA

- Taught Chinese to around 15 elementary school students aged 7-12
- Led the class by myself and sometimes corporate with another teacher to facilitate the class
- Prepared materials for the weekly Chinese lesson
- Made Power Point for eight phrases of The Classic of One Hundred 'Filial Piety' every week
- Explain the meaning of each phrase in The Classic of One Hundred 'Filial Piety'
- Assign writing assignment for students to practice writing
- Gave writing test for the students to ensure students learn and know the characters
- Arrived early to talk to students, get to know their hobbies and interests
- Brought little gifts, such as candy and pencil, to encourage students to work hard

Language Proficiency:

- Fluent in Cantonese and Taishanese
- Advanced proficiency in reading, writing, and speaking Mandarin