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Abstract

Drawing broadly on the literature on the political economy of the financial crisis, the paper looks at deregulation as a market driven process that culminated in a collective action failure. In the run up to the 2008 Financial Crisis strong competition and moral hazard went hand in hand and that raises a flag that needs explanation. The paper argues that opportunistic profit (rent) seeking was more the cause rather than the effect of moral hazard and regulation failure. Deregulation promised higher profitability partly because of better risk management made possible by advances in information technology and partly because financial institutions could take “tail-risks” the full cost of which they did not have to bear. The profits deregulation promised in turn incentivized financial firms to invest in tilting the political process to shape government policy. Because systemic risk cannot be fully privatized social insurance against it is inevitably a *common pool (or open) resource*, which means that there is an incentive for financial units to *over-extract* in the form of excessive risk taking in the absence of effective regulation. That explains why with deregulation market competition could culminate in excessive risk taking with mounting social costs. Using simple game theory the paper gives a stylized account of what sustained the deregulatory trend. In the course of deregulation, the regulator’s implicit threat of imposing discipline on financial institutions lost much of its credibility. That, combined with growing plutocracy go a long way in explaining why deregulation became a run-away market driven process that worsened the problem of moral hazard over time.

Keywords: financial deregulation, collective action failure, excessive risk taking, moral hazard
JEL Classification: D72, C70, G20, G18,

Excessive risk taking by banks which eventually culminated in the financial crisis is commonly blamed on *moral hazard* caused by poor risk management at a multitude of levels. In moral hazard arguments the ultimate culprit is usually the government whose misguided intervention slackens competition and prevents markets from working efficiently. The moral hazard problem in the run up to the 2008 Financial Crisis was however more complex as there was no hint of deficiency of competition. In fact, many market participants at the time felt that they were compelled to take excessive risks because of competition. The Citigroup CEO Charles Prince's often quoted statement was emblematic of the period: "When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you've got to get up and dance. We're still dancing."¹ How and why strong competition and moral hazard could go hand in hand remains an open question that needs to be addressed.

The celebrated revolution in finance that accompanied deregulation enabled an ever smaller base of short term liabilities support an ever larger volume of long term debt in the financial system as a whole. Was this achieved by better diversification technology and market efficiency or at the expense of exposure to greater social risk? When the market becomes the arbiter, the argument ran at the time, risk is priced and diversified more efficiently. Indeed, new financial innovations made it possible to diversify risk much more broadly than ever thought possible, but their adverse effects on systemic risk was mainly ignored until after the financial crisis (Freixas, Laeven & Peydro 2015). Many arguments made in favor of market liberalization, based on over-sweeping generalizations based on frictionless markets, could hardly survive close scrutiny (Crotty 2009, Palley 2013, 2014, Cassidy 2009). However, it is not clear how much of that mattered. Much evidence suggests that the real driver of deregulation – at least, at the sphere of political decision making - was often more than the force of ideas. The lucrative profit opportunities deregulation promised appears to have not only incentivized lobbying efforts to influence the political process but also put a premium on ideas that supported it.

The process that culminated in the financial crisis involved the steady removal of regulatory constraints on leverage and weaker enforcement. A string of political decisions were

¹ FCIC (2011, p. 175).

clearly of decisive importance in this outcome, each with their idiosyncratic conditions and circumstances. But, it is hard not to connect the dots. The longer term general trend was one where financial institutions consistently pushed out the bounds of deregulation to take on greater risk. Deregulation promised higher profitability partly because the revolution in information technologies made better risk management possible and partly because financial institutions were allowed to take “tail-risks” the full cost of which they did not have to bear.

Thus, better and more efficient diversification explains only part of the reason why the finance revolution seemed to be working prior to the crisis.² The gradual phasing out of *payment* for social insurance against systemic risk - by foregoing lucrative investments that entailed tail risks - created a margin which was shared it appears three ways between the creditors, borrowers and the financial intermediators – that is, until the crisis hit. Competition as expected eroded this margin over time, incentivizing banks to push for further deregulation to keep externalizing the cost of whatever insurance against systemic risk remained. The most immediate form this took was the progressive relaxation of fiduciary oversight at a multitude of levels that amounted to nothing less than what Green (2012) calls a general governance failure. Without it, the banks most probably could not have let low-income borrowers accumulate the amounts of debt they did.

But, was the governance failure a cause or an effect? Pinning excessive risk taking by banks on government regulation failure hides from view the systemic nature of the problem which clearly was quite independent of who the particular regulators or political decision makers were. Nor, does it take into account how the expected future profits deregulation promised incentivized banks to force the hand of the *rule maker* to become more permissive or turn a blind eye. Looked at this way, opportunistic profit (rent) seeking was more the cause rather than the effect of moral hazard and regulation failure. Thus, far from being prevented from working efficiently by government intervention, it appears that financial markets worked

² Trying to stave off falling living standards in the face of stagnant wages, working class households' demand for borrowing was strong; and, that was at a time when uphill capital flows and skewed income distribution had accumulated a plethora of funds in the hands of wealth owners seeking safe lucrative outlets to lend. Financial deregulation made it easier for the former to borrow, while at the same time improving the terms under which the latter could lend. The market in short responded quite “efficiently” to the demand for cheap loans by borrowers and for better yielding “safe” securities by lenders. An explosive increase in financial intermediation - what we have come to call, financialization - was the outcome.

only too well in incentivizing financial firms to invest in tilting the political process that shaped the tenor of rule relaxing. Arguably, when financial firms pushed the hand of regulators in one *fait-accomplis* after another they were responding to market incentives they strategically (and successfully) strived to put in place.

The paper draws broadly from those who have taken a similar political economy approach to the financial crisis. As Acemoglu (2011) puts it, one finds two different views put forth in this literature. One holds that the political system responded to the tensions created by rising income inequality by relaxing financial regulation which eased lower income groups' access to finance (Rajan 2011, Calomiris & Haber 2014, Wolff 2013), while the other view emphasizes the distorting effect of rising inequality in income and wealth distribution on the political process (Johnson & Kawak 2011, Gilens 2014, Mian *et al* 2010, Bartels 2010). While broadly in alignment with the latter view, the paper's focus is not the political process but rather deregulation as a market driven process that culminated in a collective action failure, which also explains why financial markets could not have self-regulated the way Greenspan had expected they would.³ Put succinctly, the argument is that because systemic risk cannot be fully privatized social insurance against it is inevitably a *common pool (or open)* resource, which means that there is an incentive to *over-extract* in the form of excessive risk taking in the absence of effective regulation. Thus, with deregulation market competition could culminate in excessive risk taking with mounting social costs. At the micro level, the deregulatory trend was sustained initially by the competition between regulated commercial and unregulated shadow banks, and later by the changing nature of the strategic interaction between regulators and financial institutions when the regulator's implicit threat of imposing discipline increasingly lost its credibility. This I argue was not only because of growing *plutocracy* but also because it became widely believed that the cost of imposing discipline had become prohibitive in liberalized markets.

The discussion is organized as follows. Section I below defines conceptually the threshold beyond which deregulation becomes "excessive". Section II presents a simple model to argue that social insurance against systemic risk becomes an *open* resource, and that deregulation

³ his well-known testimony in 1997 in front of the House Committee on Banking and Financial Services, 105th Cong., 1st sess., May 22, 1997.

can incentivize “over-extraction” in the form of excessive risk taking. Section III gives a stylized account of deregulation as a market driven process, using game theory to conceptualize the relationship between commercial and shadow banks on the one hand, and financial institutions and the regulator on the other. A brief conclusion ends the paper.

I. A Bird’s Eye View – What Needs Explanation?

Consider the following analogy: as better technology (diversification) makes cars much safer manufacturers successfully lobby to have all speed limits discarded (lifting of constraints on leverage). With rising demand (cheaper loans and higher debt) producers experience higher profits, a part of which they pass onto their suppliers. After a brief interval when consumers, producers and their suppliers seem to think they are better off accidents begin to escalate, locking in all drivers in a high risk environment including those whose continued caution no longer pays off. In this process, the effect of competition is not efficiency in the usual sense of an optimal outcome but speeding up the transition to a new sub-optimal Nash equilibrium characterized by negative network externalities. Yet, because all parties enjoy a higher temporary payoff on the way to the new equilibrium when negative effects kick in, deregulation can mistakenly be credited for the initial improvement.

A simple diagrammatic exposition can help. At a general level, the overall level of financial intermediation risk is an increasing function of leverage (L) and a decreasing function of better diversification (D).

$$R = R(L, D)$$

$$R_L > 0; R_D < 0$$

We can totally differentiate R to derive constant risk isoquants in the D – L space,

$$dR = R_L dL + R_D dD$$

the slope of which is given by:

$$\left. \frac{dL}{dD} \right|_{dR=0} = -\frac{R_D}{R_L}$$

In Figure 1 below each isoquant depicts constant levels of risk. A higher (lower) level of leverage has to be balanced by higher (lower) diversification for risk to remain at a constant level. Financial innovations that enable better diversification shift the isoquant downward (rightward), moving us from an initial point such as A to B, where risk is lower. Thus, a higher level of leverage becomes possible at the initial level of risk at point C.

However, the very competitive process that gives rise to financial innovations and better diversification technology also entails the evasion of regulation which contributes to their piecemeal dismantling as discussed in Section III. The result is increased leverage associated with a higher level of risk at point D. In what follows, I argue that this captures in a nutshell the gist of the process we have experienced in the run up to the financial crisis. Section II makes the argument that excessive risk taking is in essence a collective action failure and Section III discusses how market competition gives rise to it in the absence of effective regulation.

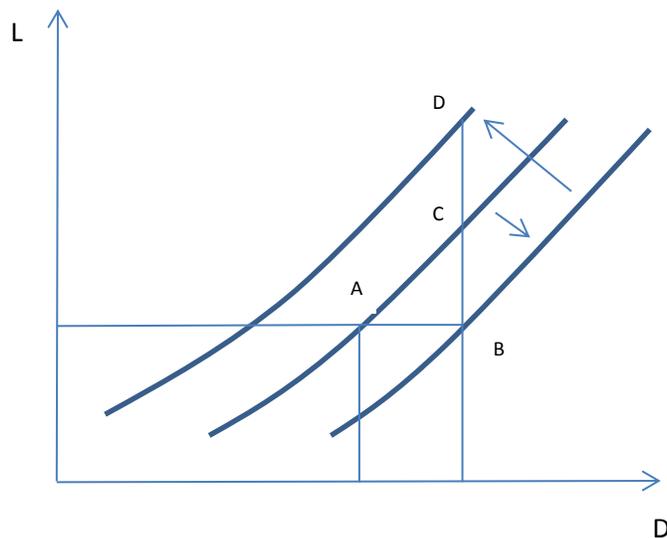


Figure 1

II. Excessive Risk Taking as Collective Action Failure

In a financial economy, leverage makes a higher return possible provided that the systemic risk increased levels of debt creates is well insured. When the insurance cost is factored in the overall return to leverage diminishes with the overall level of debt. Thus, a healthy financial system requires a system of regulation that can have private agents factor in the cost of social insurance against systemic risk in their profit maximization decisions. To the extent that is achieved the social payoff from leverage can be maximized. However, as argued in this section, deregulation can potentially turn social insurance against systemic risk into an *open* resource, which is ultimately what gives rise to excessive risk taking.

To discuss the effect of deregulation it is helpful to conceptualize first what financial regulation needs to accomplish. Think of n units of equal size in some population of private investors who have a choice between two types of investment strategies: first strategy has a higher risk adjusted potential return and raises leverage, while the other safer strategy is debt neutral.⁴ Because systemic risk rises with the total amount of debt in the system, factoring it in, the return on the first strategy falls with the number of units taking it, while the return on the second strategy though initially lower remains constant throughout.

The first objective of regulation is to have the cost of social insurance against systemic risk be reflected accurately in the market environment within which private investors make their decisions. Let us start out assuming that this is accomplished, and thus no discrepancy between social and private return exists. Then maximizing decisions of private players minimize the level of social cost. In our example, the $n + 1^{st}$ unit decides on its investment strategy by comparing the return on the first strategy, $P(n + 1)$, with that of the second, $S(n)$.

$$P(n + 1) = \alpha - mn$$

$$S(n) = \varphi$$

where n is the number of units that take the first strategy, while α , φ and m are positive constants. The return on leveraged investment when only one unit takes this strategy is higher

⁴ For the sake simplicity I will assume a simple positive relationship between leverage and systemic risk.

than that of the second one by the margin $(\alpha - \varphi)$, but diminishes at a constant rate m with each additional investor. We would expect competition to yield a Nash equilibrium, equalizing the two rates of return at the point $P(n + 1)$ line intersects $S(n)$ in Figure 2. The higher return of leveraged investment would dissipate as more units try to take advantage of it, and when more than n^* units adopt this strategy the return would fall below that of the second strategy, causing units on the margin to switch strategies until the two returns are equalized. In equilibrium, the number of units who make leveraged investments would be given by:

$$n^* = \frac{\alpha - \varphi}{m}$$

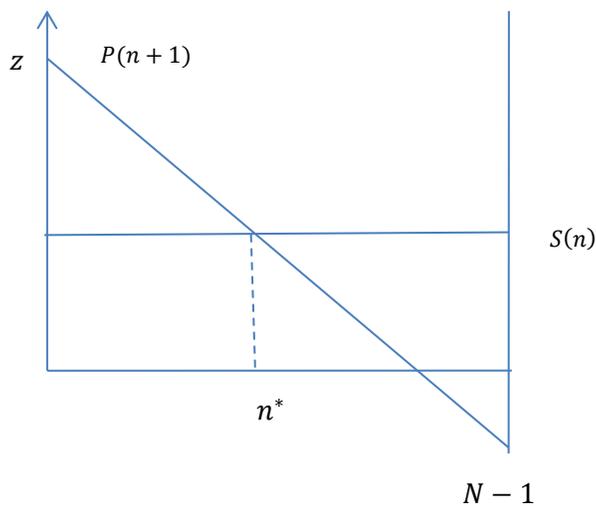


Figure 2

In this simple example, the social payoff (Z) is given by,

$$Z(n) = n(\alpha - mn) + (N - n)\varphi$$

and, setting $\frac{\partial Z}{\partial n} = 0$, we can see that it is maximized when the number of units making leveraged investments is equal to:

$$n_o = \frac{\alpha - \varphi}{2m}$$

Note that this is half the number of units who would choose leveraged investment in equilibrium,

$$n_o = \frac{n^*}{2}$$

which implies that the level of debt is socially sub-optimal at this point. Thus, imposing a tax on leverage so that competition gives rise to an equilibrium level of debt which is at a socially optimal level would be the second objective of regulation. As shown in Figure 3, the after tax return on leveraged investment, $P^t(n + 1)$, would then intersect $S(n)$ when $n = n_o$ and ensure that the social payoff is maximized.

The socially optimal level of debt in the system can rise if diversification technology improves over time as the lines depicting both before and after tax return on leveraged investment would shift up. Regulation would then need to be recalibrated to move from a point such as B to C in Figure 1 above. However carrying deregulation beyond point C would involve excessive risk taking and thus be unwarranted. At a point like D neither objective of regulation would be fulfilled. In our simple model what would this look like?

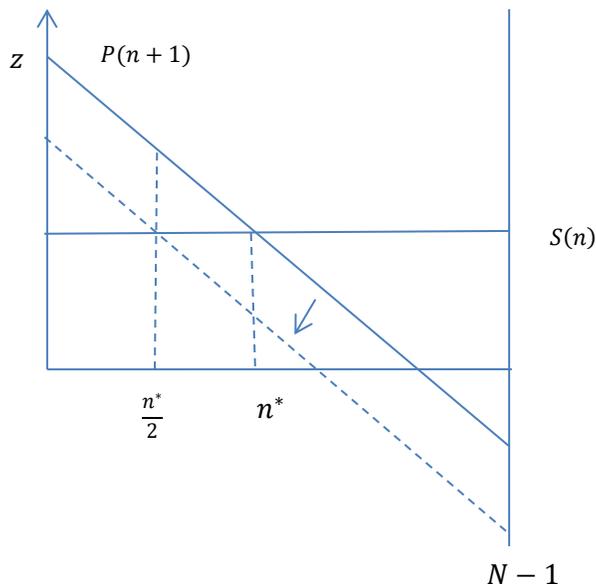


Figure 3

It would involve the partial removal of the tax on leverage which dissipates the social return from leverage. But, more importantly, it would also draw a wedge between the private and social marginal costs of leverage. If the former lies above the latter as depicted in Figure 4, it is possible that the social marginal cost of debt becomes negative in equilibrium. This is potentially much more damaging than the forgone Pareto improvements as it allows activities that earn positive private returns whose social marginal return is negative. This is the world of private gain at collective cost, a collective action failure, where competition and moral hazard could go hand in hand. It explains in a nutshell why Greenspan's contention that regulators could simply rely on the self-interest of financial institutions does not work.

The next section uses simple game theory to discuss what types of strategic interactions among market players might have helped produce this outcome.

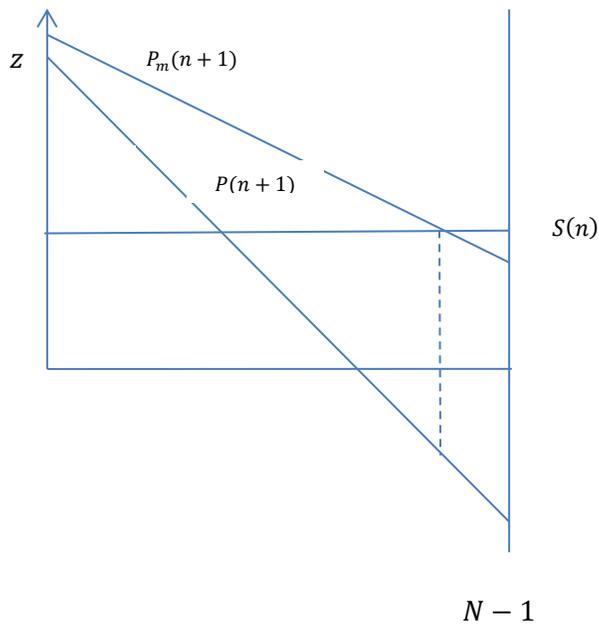


Figure 4

III. A Stylized Account of Deregulation

The dynamic that fueled deregulation can perhaps be captured by focusing on two strategic interactions: one, between the unregulated shadow banks and the regulated commercial banks, and the other between regulators and financial institutions. The former appears to have been the driving force behind early deregulation in the 1980s, while the latter became increasingly more important in the 1990s.

The roots of financial deregulation go back to the rise of shadow banking in the 1970s. The Money Market Funds were outside the regulatory system, which meant they did not have to shoulder the cost of social insurance by refraining from more lucrative riskier investments. Technically, commercial banks and thrifts enjoyed a competitive advantage *vis a vis* shadow banks in that their deposits were insured while the latter's were not. However, this proved a hollow distinction (and it was widely perceived as such at the time by market players) when the repo and commercial paper markets, both crucial for Money Market Funds' solvency, ran into

trouble successively the Fed in each case deemed that given their size and systemic importance the cost of letting chips fall where they may could be prohibitive and stepped in.⁵

This meant that commercial banks had to pay for social insurance against systemic risk while the latter – as Paul Volcker⁶ put it – could free ride. This gave rise to a PD interaction between the two, where the former had kept pushing for legislation to level the playing field (play tit-for-tat) against free riding shadow banks. It was basically their efforts to escape the *sucker's* payoff (in the north-east corner in the payoff matrix below) that shaped the trajectory of early deregulation. In response to such pressure, Congress first repealed Regulation Q which enabled banks to pay higher rates on deposits, and when that led to a profit squeeze passed new legislation that allowed them to make more lucrative riskier investments, among them adjustable rate mortgages that passed on the interest rate risk onto borrowers. Throughout the 1980s and early 1990s banks and thrifts were allowed increasingly more risky loans to bolster their earnings in the name of leveling the playing field.

Stylistically, Wall Street firms received the *temptation payoff* throughout 1980s, while the *sucker's* payoff first went to commercial banks and thrifts and later to borrowers, culminating in the S & L crisis. By the latter part of the 1990s, the difference between commercial and shadow banks eventually disappeared and taking tail risks (which had advantage of putting off the *sucker's* payoff until some indefinite future) became the dominant strategy of securing the *temptation* payoff. This however meant that crucial strategic interaction became that between financial institutions and the regulator.

		Shadow Banks	
		<i>Pay</i>	<i>Free Ride</i>
Commercial Banks	<i>Pay</i>	b,b	d,a
	<i>Free Ride</i>	a,d	c,c



⁵ This was in fact the very genesis of the later *Greenspan put* – see below.

⁶ FCIC, p. 33.

As discussed above, the more important objective of regulation is to align social and private return. This is achieved to the extent regulators succeed in reducing the financial units' payoff from lucrative investment strategies that can be socially harmful. Thus, the strategic interaction between the regulator, the custodian of social interest, and financial institutions is a PD game, and thus the challenge of the regulator is to reduce the *temptation* payoff financial institutions can earn through *defection* – i.e., profiting at the collective expense. In the 1990s, *defection* increasingly took the form of taking tail risks, which deferred and externalized the cost of social insurance against systemic risk.⁷

The regulator on the other hand can *nourish* or *punish*. Its “defection” takes the form of imposing discipline for instance by not bailing out financial firms in time of trouble or more broadly taking punitive measures which can however be socially costly. In the payoff matrix below, the financial institutions are the Row and the regulator the Column. Assuming that, $a > b > c > d$, banks will choose to refrain from socially harmful risky activities if the regulator can reduce their payoff by imposing a cost t such that $(d - t) < b$.

Much of the emphasis of the political economy literature referred to in the introduction is on the growing inability (or unwillingness) of the regulator to impose costs that are high enough to deter defection either because of the political pressures to appease low income voters or because of the growing political power of banks. However, here, there is another important dynamic that is often overlooked. As the unregulated segment of the financial market grew in size, it eventually became common knowledge that the social cost of imposing discipline had become prohibitive which altered the nature of the strategic interaction between regulators and financial firms. Given that the *sucker's* payoff had the same time profile adjustable mortgages with teaser rates did, it became rational for market players to expect that market discipline would not be imposed if that were too costly in the present. For the regulator it was preferable to appease (*nourish*) than to impose discipline (*punish*). Arguably, the *Greenspan put* - which promptly became the *Bernanke put* as the latter became the Fed chair –

⁷ What activities amount to *defection* in this context and how they changed over time and require a lengthy discussion of its own which is out of the scope of this one. Likewise, what the regulator can do to reduce the profitability of potentially socially harmful practices is another large topic that has to be ignored here.

was the market's recognition of this fact. The Lehman debacle was of course the exception that proved the rule.

		Financial Firms	
		<i>Cooperate</i>	<i>Defect</i>
Regulator	<i>Nourish</i>	b,b	d,a
	<i>Punish</i>	a,d	c,c

Put a bit more technically, once the cost of imposing discipline on defectors exceeds that of appeasement, the regulator's *sucker's* payoff (d) exceeds its *punishment* payoff (c). With $d > c$, the PD turns into a Chicken game, where the off-diagonal *nourish/defect* turns into a Nash equilibrium. The effect of the increased inability of the regulator's to impose discipline due to the growing political power of financial institutions, especially in the 1990s, (falling t) worked in tandem. Thus, it would be more accurate to write $(d - t > c)$ to highlight the effect both dynamics had in transforming the nature of the strategic interaction between regulators and financial institutions. In other words, c had fallen steadily with market liberalization; d was kept artificially high, sugarcoated with frontloaded benefits that overshadowed drastic but indefinite collective future costs; and, all this, at a time when t was falling because of growing plutocracy.

IV. Conclusion

In the run up to the 2008 Financial Crisis strong competition and moral hazard went hand in hand, mainly because opportunistic profit (rent) seeking was more the cause rather than the effect of regulation failure as deregulation was driven by the profits it promised. Deregulation promised higher profitability partly because of better risk management made possible by advances in information technology and partly because financial institutions could take "tail-risks" the full cost of which they did not have to bear. Because systemic risk cannot be fully privatized, social insurance against it is inevitably a *common pool* (or *open*) resource. That means that financial institutions were incentivized to *over-extract* in the form of excessive risk

taking in the absence of effective regulation. That explains why with deregulation market competition could culminate in excessive risk taking with mounting social costs. In the course of deregulation, the regulator's implicit threat of imposing discipline on financial institutions lost much of its credibility, and that combined with growing plutocracy played an important role in turning deregulation into a run-away market driven process that made the problem moral hazard worsen over time.

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