

# The True Meaning of Sustainability

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## The Meaning of Sustainability

What does it really mean to be sustainable? If we, as ‘good citizens of the Earth’, conserve and recycle, take a ‘cradle-to-grave’ approach to consumption, reduce our carbon footprint, and develop clean, renewable energy, will we have achieved the elusive ‘S’? The recent collapse of our financial system suggests otherwise. What started as an innocent search for yield<sup>1</sup> has resulted in the collapse, impairment, or bailout of numerous financial titans, (Lehman Brothers, Bear Sterns, and Merrill Lynch to name a few), a \$700 billion dollar rescue package, and perhaps a global recession. What caused this meltdown? The answer is rather complicated, and better explained by those more knowledgeable than myself.<sup>2</sup> However, I can offer a ‘Reader’s Digest’ version.

Investors seeking high-yield securities in a low-interest environment turned to mortgage backed securities (MBSs)<sup>3</sup>, which were lucrative and safe, according to their triple-A ratings. (It turns out the ratings were not at all indicative.) For large institutional investors, these products were quite useful. Large, diversified banks such as Citigroup liked MBSs because of their lower capital requirements (lower in fact than mortgages, their plain vanilla cousins).

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<sup>1</sup> Michael G. Crouhy, Robert Jarrow, and Stuart M. Turnbull, “The Subprime Credit Crisis of 2007,” *The Journal of Derivatives*, (Fall 2008): 84.

<sup>2</sup> See [en.wikipedia.org/wiki/Subprime\\_mortgage\\_crisis](http://en.wikipedia.org/wiki/Subprime_mortgage_crisis); Crouhy, et al. and “When Fortune Frowned: A Special Report on the World Economy,” *The Economist* (11 October 2008).

<sup>3</sup> A mortgage-backed security is a type of asset-backed security that is secured by a mortgage or collection of mortgages. These securities must also be grouped in one of the top two ratings as determined by an accredited rating agency. [www.investopedia.com](http://www.investopedia.com)

Additionally, banks could create structured investment vehicles (SIVs)<sup>4</sup> to house these investments, effectively moving them off their balance sheets completely. For other investors such as mutual funds, these MBSs were simply high-yield, (relatively) low risk investments. Unfortunately, these MBSs were products of the “originate to distribute” model. In other words, banks passed on the risk to investors when they sold the MBSs.<sup>5</sup> This means that no one, from mortgage originators to rating agencies, was incentivized to properly assess risk because the assets were being sold to the next buyer.

Even more unfortunately, the collateral for these securities was based on risky assets, subprime mortgages granted to less-than credit-worthy borrowers approved via shoddy due diligence. (No money down-mortgage, anyone?) In a process called securitization<sup>6</sup>, the cash flows from these securities were chopped up, repackaged, and sold, yielding boat loads of cash for the creators of these complex financial products, mostly because the cash flows were mispriced in the market. (The sellers made money on the difference.) Not only were the securities mis-rated (as evidenced by the massive downgrade from triple-A to junk in a matter of days or weeks), but these same securities could be used as collateral for yet another pool of securities.

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<sup>4</sup> An SIV is a pool of investment assets that attempts to profit from credit spreads between short-term debt and long-term structured finance products such as asset-backed securities. Funding for SIVs comes from the issuance of commercial paper that is continuously renewed or rolled over. The SIV earns profits on the spread between incoming cash flows and the high-rated commercial paper that it issues. [www.investopedia.com](http://www.investopedia.com).

<sup>5</sup> Crouhy, et al.

<sup>6</sup> Securitization is the process through which an issuer creates a financial instrument by combining other financial assets and then marketing different tiers of the repackaged instruments to investors. [www.investopedia.com](http://www.investopedia.com). See also Crouhy p. 84 for a technical explanation of the securitization process.

The house of cards unraveled due to what is, in retrospect, a likely series of events. Interest rates went up; housing prices went down; mortgages defaulted; and the MBSs began to collapse as their value eroded. This caused huge losses for investors, which rippled through the financial system. Why? First, investors had bought other structured products, called credit default swaps (CDS), to protect against default. (Credit default swaps are designed to transfer the credit exposure of fixed income products between parties.)<sup>7</sup> If the securities were endangered, the CDS issuer promised to cover the losses. Not surprisingly, as losses mounted, the issuers could not keep up and began to default themselves. Given the lack of balance sheet transparency (Remember the SIVs?), banks could not tell how exposed other banks were. As a result, they refused to lend to each other and the inter-bank lending rates (e.g. LIBOR) skyrocketed. Similarly, banks, fearing an inability to meet their loan obligations, refused to lend to typically stable lenders, such as corporations. This caused a collapse of the asset-backed commercial paper market, which is how companies received short-term loans, based on their assets, to fund operations. The net result? No one lent to anyone, fomenting a credit crisis of epic proportions.

Let's take a moment to recap. We have the search for yield, the creation of lucrative yet risky financial products, poorly assessed risk, a dearth of trust and credit, and finally, a systemic breakdown. Now, how is this related to sustainability? Well, what happened in the financial markets can be described as a system-wide collapse. The cause was the toppling of a pyramid of investments, the value of which was artificially inflated by the securitization process. In other words, a set of finite resources and conditions (high housing prices, low interest rates,

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<sup>7</sup> [www.investopedia.com/terms/c/creditdefaultswap.asp](http://www.investopedia.com/terms/c/creditdefaultswap.asp)

stable triple-A securities) were treated as if they were infinite. Similarly, sustainability (development that meets the needs of the present without compromising the ability of future generations to meet their own needs)<sup>8</sup>, is predicated on the reality that natural resources are also finite. If we continue to exploit this shrinking pile of resources without replenishment, the natural system will eventually collapse.

Assuming the concept of sustainability is applicable to more than one arena, perhaps lessons learned from the financial crisis that will help us to better understand the danger posed to the natural system. For starters, there are at least five fundamental issues: incentive misalignment, externalization of risk, tragedy of the commons, faulty feedback loops, and excessive leverage<sup>9</sup> that are applicable to both systems. Examining solutions to the problems associated with the financial crisis could be instructive for achieving sustainability across systems.

### **Incentive Misalignment**

There are at least four sources of incentive misalignment to explore in the financial crisis: mortgage brokers, bank managers, rating agencies, and investors. Mortgage brokers had little incentive to assess the risk of their mortgages due to the “originate to distribute” model. As a result, they failed to perform basic due diligence on the borrower’s ability to pay. They funded the mortgages of risky borrowers with low introductory teaser rates and 80/20 mortgages which provided funding for 20% down payments plus the remaining balance. Additionally, mortgage originators were compensated on the basis of volume, not mortgage

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<sup>8</sup> Definition created by the Brundtland Commission in 1987; sourced via [www.sustainabilitydictionary.com](http://www.sustainabilitydictionary.com)

<sup>9</sup> [//en.wikipedia.org/wiki/Subprime\\_crisis](http://en.wikipedia.org/wiki/Subprime_crisis). The identification of these issues was inspired by this article.

quality, making default a virtual non-issue.<sup>10</sup> Similarly, bank managers are compensated for short-term gains, which can contradict a long-term perspective.<sup>11</sup> Rating agencies, on the other hand, are paid by the companies who hire them to rate securities. What's more, the agencies profit from the creation of the securities due to the need for ongoing assessment.<sup>12</sup> Finally, investors failed to conduct their own due diligence, lulled into a false sense of security by the triple-A assessments assigned by rating agencies.<sup>13</sup>

Within the natural system, the misalignment occurs with the consumption and disposal patterns that exist in so-called developed countries. People are encouraged to consume in order to drive the profits of corporations that feed consumer needs, but the true costs associated with consumption (of disposable goods, especially) are hidden from view due to the third-party payer problem. The environment absorbs the waste as well as the cost of utilizing and disposing of natural resources. Consequently, these costs are not fully accounted for (if at all) in the pricing of goods.

### **Externalization of risk**

As previously described, mortgage originators no longer bear the full risk of their investments due to the securitization process. The mortgages are bundled into securities, passing the risk on to investors. Some of the institutional investors then mitigate their risk by moving the assets "off the books" into SIVs, creating new securities for sale based on the same assets, or purchased default protection in the form of credit default swaps.<sup>14</sup> This creates a

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<sup>10</sup> Crouhy et al., 86

<sup>11</sup> Ibid., 84.

<sup>12</sup> Ibid., 85.

<sup>13</sup> Ibid., 90.

<sup>14</sup> Ibid., 83

shadow financial system that circumvents the financial regulatory system. As a result, the system can no longer adjust and compensate for the additional risk within it, because the sources have become difficult to identify. The uncertainty created by questions about the ownership and scale of the risk hampered the market's liquidity<sup>15</sup>, or "the degree to which assets or securities can be bought or sold in the market without affecting the asset's price."<sup>16</sup> Without liquidity, money cannot be borrowed or lent, securities and assets cannot be bought or sold, and the financial system breaks down.

Similarly, there are few good measures to capture either the value of the production of social good, or properly assess the costs of damage to the ecosystem. Additionally, "most Western economic models assume cheap and abundant energy forever."<sup>17</sup> SROI analysis, full cost accounting, and the triple bottom line strive to approximate these costs, but they are hardly comprehensive. Because they are not factored into financial models that guide decision-making, these costs and the risks associated with them are externalized. Additionally, the debate over how to measure the rate and/or extent of resource depletion (specifically petroleum), distracts from the reality of the problem and the potential for a solution. With regard to liquidity in the natural system, as the scarcity of resources becomes more acute, people could be forced to hoard and hide valuable resources. This could lead to distortions in the marketplace due to uncertainty about the sources and amounts of these resources. Eventually, the flow of these goods in the marketplace would grind to a halt.

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<sup>15</sup> "When Fortune Frowned: A Special Report on the World Economy," *The Economist* (11 October 2008).

<sup>16</sup> [www.investopedia.com/terms/l/liquidity.asp](http://www.investopedia.com/terms/l/liquidity.asp)

<sup>17</sup> Jones, Van. *The Green Collar Economy: How One Solution Can Fix Our Two Biggest Problems*. (New York, NY, HarperOne, 2008):5.

## **Tragedy of the Commons**

Each of the parties that originated, purchased, or insured mortgage-backed securities (MBSs) acted in its own best interests and down-played (or failed to consider) the systemic risk associated with its actions. Part of this was due to the incentive misalignment and risk externalization described before. When mortgages were packaged to sell, the risk associated with the quality of the mortgages was sold as well. Perhaps more importantly, systemic interconnectedness spread the instability across the subprime, asset-backed, commercial paper, and interbank markets. As a result, what was originally a localized problem spread throughout the financial system.

This is similar to how individual consumers and corporations view the risk and profitability trade-off related to their economic activity. Each consumer acts in her best interest by purchasing products that enhances her life in some way (partially because the costs associated with producing and disposing these goods are hidden from view). Similarly, corporations act in their best interests by providing these goods (partially because they can externalize the ecological costs). In either case, depletion is exacerbated because no one is thinking about the systemic effects on the resource pool. This is also akin to the third party problem, in which an intermediary, in this case the planet, is paying the full costs of a good or service.

## Faulty Feedback Loops

With our financial and ecological systems, reactions to systemic feedback is delayed and distorted by intermediary mechanisms. In the case of the subprime mortgage crisis, securitization and the devolution of risk slowed information to the market system about the risks of leverage. Given the assumed security of these investments and high profitability potential, the feedback loops between MBSs and investors were cycling more quickly than those between the MBS market and the “real” market. However, signals indicating the poor collateral quality and diminished value of the MBSs eventually traveled from the MBS market to the real market, creating painful economic effects.

Similarly, feedback loops exist between consumerism and resource consumption. Stuart Hart describes this as the interaction between the “money, traditional, and nature’s economies.”<sup>18</sup> The traditional economy<sup>19</sup>, “the village based way of life found in the rural parts of most developing countries” and the money economy<sup>20</sup>, “the familiar world of industry and commerce comprising both the developed economies and the so-called emerging economies” exist within (and are fueled by) the natural systems<sup>21</sup>. Several factors described earlier, incentive misalignment, risk externalization, tragedy of the commons and faulty feedback), can prevent critical information from being communicated within the system. However, as the case for critical issues like manmade climate change becomes less of a debate and more of a reality, these loops will begin to work more efficiently.

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<sup>18</sup> Stuart L. Hart, *Capitalism at the Crossroads: Aligning Business, Earth and Humanity* (Upper Saddle River, NJ: Wharton School Publishing, 2007), 2<sup>nd</sup> edition, 33.

<sup>19</sup> *Ibid.*, 36.

<sup>20</sup> *Ibid.*, 34.

<sup>21</sup> *Ibid.*, 38.

In fact, the symptoms of interaction are detectable in all three systems. In the money economy, the richest 800 million consume three-quarters of the world's energy and resources "and also create the bulk of its industrial, toxic and consumer waste."<sup>22</sup> Due to the growth of the money economy, which has eroded the cultural and ecological underpinnings of traditional life, it is becoming increasingly difficult to survive in the traditional economy.<sup>23</sup> Finally, "the money and traditional economies are slowly destroying their own support system," as evidenced by the erosion of topsoil, the depletion of water tables, and global warming.<sup>24</sup>

### **Excessive Leverage**

Ultimately, what killed the big banks was excessive leverage. Yes, they were overexposed to MBSs and yes, the tranches<sup>25</sup> and credit default swaps that were designed to protect them were overwhelmed. However, the key factor is that these financial instruments were purchased with other peoples' money (OPM). These forces combined to create a classic case of insolvency, in which the liabilities of these institutions were worth more than the assets. This is the same problem faced by the natural system. The money economy, as previously described, is dependent on the natural system for the renewable and nonrenewable resources it needs to flourish. Unfortunately, using nonrenewable resources like petroleum is like borrowing without terms for repayment—there are no provisions for replenishment. Simultaneously, renewable resources such as water, wind and solar that can be borrowed and

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<sup>22</sup> Ibid., 34.

<sup>23</sup> Ibid., 36.

<sup>24</sup> Ibid., 38-39.

<sup>25</sup> A tranche is a piece, portion or slice of a deal or structured financing. This portion is one of several related securities that are offered at the same time but have different risks, rewards and/or maturities. <http://www.investopedia.com/terms/t/transches.asp>

replenished supply a small fraction of the world's energy needs. The result is that the money economy is overleveraged; it has borrowed too heavily from the natural system with no plans to repay. Clearly, this is an untenable situation.

### **Implications for Change**

So, what is the key question in all of this? It comes down to whether the current economic system, in which markets allocate resources to their best uses, actually works. (This is a gross over-simplification, but it is a good place to start.) Hart and others have argued that although the "invisible hand" cannot conquer all, multinational corporations driven by the profit imperative can successfully tackle tough social and environmental challenges. The general sentiment regarding the role of the "the highly leveraged, lightly regulated, market-based system of allocating capital dominated by Wall Street" is somewhat less optimistic.

At minimum, a mismatch exists between the market-based activities taking place and the institutional structure of the regulatory system. (In the original 'traditional banking' system, "regulated commercial banks lent money to trusted clients and held the debt on their books."<sup>26</sup> That system was created to monitor banks, but much of the trouble originated outside of the banking system. In the worst case scenario, we have a system that is fundamentally dysfunctional. The inefficient, overlapping system of regulation, from the Securities and Exchange Commission (SEC) to state-based insurance and mortgage oversight, begs the question, "Who should be doing what?"

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<sup>26</sup> "When Fortune Frowned: A Special Report on the World Economy," *The Economist* (11 October 2008): 10.

One potential solution, as described in a plan submitted by the Treasury department, is two-pronged: 1) switch from a rules-based to an objectives-based approach to regulation, which essentially means that the way goals are met will be subject to interpretation; and 2) introduce three separate regulators to monitor market stability, ensure the durability of institutions backed by a federal guarantee, and bolster consumer and investor protection.<sup>27</sup>

Another, as described by Crouhy and his co-authors, is slightly more tactical. For example, they suggest improved information and clarity with respect to ratings; simplification and use of pricing indices for financial instruments; transparency regarding the commitments assumed by banks; disclosure of the types of assets held by financial institutions, and stronger risk management practices. Finally, The Economist argues that the inherent instability of financial markets and misguided government incentives is equally (if not more) responsible for the current crisis than financial innovation. After all, many of the much maligned financial instruments were created to circumvent mandated capital requirements. However, it does concede that leverage, particularly when it involves borrowing and lending at low rates (and stalling when rates increase), is a serious problem that needs to be addressed.<sup>28</sup> One final note: the firms that fared best during the crisis are those that integrated their “liquidity, credit, market, and finance control measures,”<sup>29</sup> indicating that risk management employed across a number of systems was most effective.

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<sup>27</sup> O’Hara, Maureen. Notes from Lecture 25, Financial Markets and Institutions, Cornell University.

<sup>28</sup> Ibid., 15.

<sup>29</sup> Crough et al., 103.

In summary, the prescription for the financial crisis seems to be a strong dose of “command and control”<sup>30</sup> — regulators with more well-defined functions, better information, and more comprehensive (and complementary) jurisdiction. Ironically, this is the same remedy originally recommended for the natural system. Eventually command and control gave way to the green revolution, characterized by “pollution prevention” and “product stewardship”<sup>31</sup>, efforts to do less harm to the environment. However, a growing consensus emerged to progress “beyond greening” toward an approach that views environmental and social problems as opportunities. Consequently, strides are being made in areas like clean technology and base of the pyramid (BoP) business development<sup>32</sup>.

What caused the change? First, people eventually realized that it was more costly to fix environmental problems such as pollution and waste after they were created. Integrating a solution into the original product or process (think smog-eating cement) actually saved money<sup>33</sup>. Secondly, it became apparent that the profit motive was a much stronger incentive to tackle tough problems than “crime and punishment.” Thirdly, the arguably false dichotomy between profitability and sustainability<sup>34</sup> did not properly account for the role of innovation and its ability to make the pursuit of sustainability profitable. The result, at minimum, is a profound change in mindset. The environmental, political and social changes associated with sustainability, including resource management, energy generation, climate change, poverty and

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<sup>30</sup> Hart, 5.

<sup>31</sup> Ibid., 14.

<sup>32</sup> Base of the pyramid refers to the four billion people at the bottom of the economic pyramid. BoP business development is the process, outlined in the BoP protocol, that communities and MNCs can undertake to co-create viable businesses.

<sup>33</sup> Hart, 9.

<sup>34</sup> Ibid., 6.

health, are viewed as potentially profitable opportunities to provide needed goods and services.

### **Where Economy and Ecology Converge**

What then, is the correct response if we can't regulate our way to sustainability?

Clearly, all of the underlying causes described earlier: incentive misalignment, externalization of risk, tragedy of the commons, faulty feedback loops, and the role of leverage are symptoms of the profitability vs. sustainability dichotomy. In other words, you can't profit in the long term without breaking the system, either ecologically or financially. Profitability vs. sustainability is a zero-sum game that has a clear winner and a clear loser, because it is assumed that the self-interests of the players don't align. If they do, it's just until the house of cards collapses. (To give an example, it was in the short-term interests of mortgage borrowers and the originators to participate in questionable approval processes. In the long run, we know how the story ends.)

Clearly, we have to figure out how to profit without breaking our enabling systems, either financial or natural. At minimum, we should dispense with the zero-sum dominant logic, find ways to enable more stakeholders (preferably those alongside and outside of the value chain) to profit, and stop obfuscating the risks and costs associated with the game. The real challenge, however, is to pursue sustainability in multiple arenas and develop an understanding of how sustainability works across systems. Fortunately, we can learn a thing or two from Iceland, which until recently, was a paragon of natural and financial sustainability.

In the 1970s Iceland was poor and almost completely reliant on imported coal and oil. These days, Iceland meets all of its energy needs—geothermal energy heats 90 percent of its homes and hydroelectric energy takes care of the rest. Additionally, the production of abundantly “cheap” power enables Iceland to export the excess. Prior to the financial meltdown this fall, the IMF had ranked Iceland the fourth most affluent nation on Earth.”<sup>35</sup>

These enviable accomplishments are likely little consolation to the Icelandic citizens who have endured the decimation of their financial system — the collapse of kroner, the nationalization of all three banks, and mounting inflation. Ironically, the meltdown has its roots in the recent “liberation” of the banking system. According to David Oddsson, chairman of Iceland’s central bank, the country’s growth was hamstrung by “government control of banking, which put politicians in the position of determining how capital should be allocated.” After being sold to private owners, the new banks sought opportunities for growth overseas because there weren’t enough domestic depositors. Due to high interest rates, Iceland’s main banks, Glitnir, Kaupthing, and Landsbanki, were able to attract foreign depositors. Additionally, the high rates boosted the strength of the kroner, enabling Icelanders to consume imported goods cheaply. (They borrowed in foreign currency with lower interest rates.)<sup>36</sup>

Unfortunately, this system was dependent on the inflow of a finite resource, foreign capital. Glitnir, Iceland’s third largest bank, couldn’t pay off the bonds it had issued five years earlier to fund its growth. This touched off a frantic hunt for foreign reserves, and to make

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<sup>35</sup> Jones, forward, viii.

<sup>36</sup> This section was based on Forelle, Charles. The Isle That Rattled the World---Tiny Iceland Created a Vast Bubble, Leaving Wreckage Everywhere When It Popped. (27 December 2008) The Wall Street Journal.

matters worse, interbank lending had all but halted in the aftermath of Lehman Brothers' demise. Eventually, the central bank bailed out Glitnir, which effectively killed it as well as the two remaining banks; foreign depositors and their governments rushed to retrieve or safeguard their funds from the other banks, leading to their nationalization.

Iceland's case suggests that the concept of sustainability has to be applied more broadly to be meaningful, and perhaps more importantly, to contribute to the survival of functional, sustainable, and effective systems. A systems-wide view of sustainability is required, effectively eliminating the trade-off between it and profitability. In fact, Van Jones suggests that we can leverage one challenge, energy dependence, to address another, the flailing economy (not to mention the rising inequality that has accompanied the current system).<sup>37</sup>

In any case, young Icelanders like Silja Sigurdarottir, seem to be taking the systems-approach to heart. Ms. Sigurdarottir, who had switched majors from engineering to financial math, was laid off from Kaupthing bank in October. Next year she'll be pursuing a degree in, you guessed it, sustainable development.

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<sup>37</sup> Jones, 14.