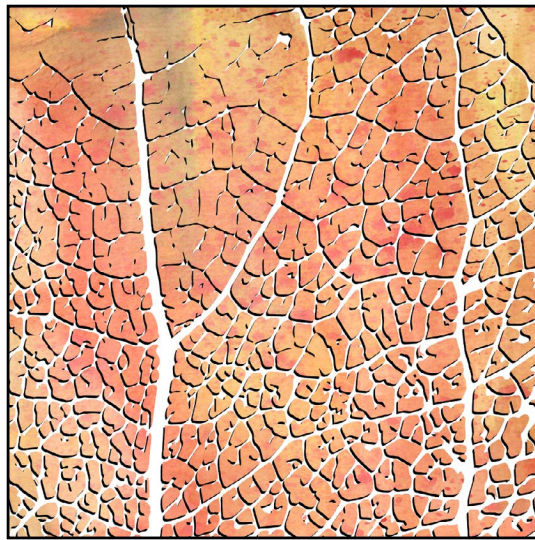
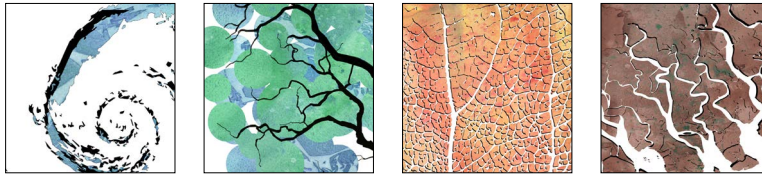


FINANCE FOR A REGENERATIVE WORLD

JOHN FULLERTON



ACT III: REIMAGINING FINANCE



REGENERATIVE FINANCE IN 4 ACTS

INTRODUCTION

ACT I: CONTEXT¹

- I. A Fresh Look at Finance
- II. The Six Functions of Finance
- III. The Regenerative Paradigm

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- I. Finance Ideology: A Confusion of Means and Ends
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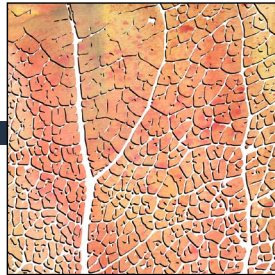
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1 Finance for a Regenerative World Act I: https://issuu.com/capitalinstitute/docs/regen_finan_rvsd_interactive_final3?e=33301005/65770724

2 https://issuu.com/capitalinstitute/docs/act_ii_final_19816282908d30



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INTRODUCTION

I WOULD REMIND YOU...THAT SOCRATES WAS EXECUTED NOT FOR HIS MEGALOMANIA OR GRANDIOSE PROPOSITIONS OR CERTITUDES, BUT FOR STUBBORNLY DOUBTING THE ABSOLUTE TRUTHS OF OTHERS.

— *John Raulston Saul*

In Acts I and II of “Finance for a Regenerative World”, I have reviewed a series of profound deficiencies in our financial system that go well beyond the popular critiques. In summary, I am suggesting that:

- Finance, left to its own devices, has demonstrated a pattern of extraction from the real economy rather than acting in service of the real economy. We suggested that this outcome has deep ideological roots in which good people playing by the rules unwittingly contribute to bad outcomes for society. The economy is also fraught with excessive greed and outright fraud which are particularly violent and destructive when played out in financial markets. But the accepted practice of systemic extraction of value (rather than the creation of value) runs far deeper. This extraction, ranging from hidden fees in the normal course of retail banking to the most sophisticated so called “financial engineering” conducted by powerful fund managers controlling immense pools of capital is ultimately more harmful to the long run health of our political economy

**The Death
of Socrates,**
Pierre Peyron

than the well-publicized examples of reckless and unethical behavior within finance.

- We have lost track of the distinction between real investment and financial speculation. We have normalized speculation as if it is investment. We have no shared understanding of how to think about excessive speculation and its effect on the real economy, nor how to safely manage it within global finance.
- We do not have a proper understanding of markets as tools, where and how they work well, and where their limitations lie. Instead, our discourse on “free markets” has been reduced to an ideological battle across a political divide in which the debate is reduced to the unproductive extremes. Markets are either seen as infallible and omniscient, or markets and the market system are seen as inherently corrupt and thus must be tamed through a heavy regulatory hand. If, on the other hand, we see markets simply as tools with useful but not unlimited applications, this false choice becomes apparent.
- I have highlighted the inherent conflicts of interest within finance which pose a proven danger to society. We suggest that financial leaders have not only failed to manage these conflicts, but increasingly seem to be predisposed to exploit them for personal gain. I believe the stakes for individuals and for society are too large to rely on financial firms to manage these conflicts. Instead we must demand structural change to mitigate or eliminate the most dangerous threats. I also underscore the fact that our response to the problems facing Wall Street has been mired in ideology. It fails to factor into our analysis and governance of the financial system the growing scientific evidence that finance appears to attract a significantly higher than average population of psychopathic and anti-social behavior, with repercussions to society as a whole.
- I have laid out the case that in the unprecedented context of the 21st century, there is a strong case to be made that financial assets in general do not yet reflect in their price multiple long-term adverse realities. These include permanent global growth headwinds due to ecological

boundaries, unrecognized off-balance sheet liabilities, stranded assets, and government fiscal imbalances and central bank balance sheet over-extensions amplified by contagion from the financial crisis right when economies are increasingly brittle. Collectively, these issues raise the possibility that a material and structural reduction in financial asset and real asset valuation is on the horizon, with severe feedback loops throughout the real economy.

- Finally, I have introduced the concept that there may be in the aggregate “limits to investment” given ecological boundaries that we have already breached, yet our financial system has not even begun to contemplate such limitations, much less how they might be efficiently and fairly managed in the interest of society as a whole.

Collectively, these observations amount to an overwhelming indictment of the health and viability of our modern financial system, revealing its structure and condition is woefully inadequate to meet the societal challenges that today’s unprecedented context represents. Not only is it failing in its core functions that we reviewed in Act II, but the consequences of these fatal flaws, whether intended or not, now represent an existential threat to societal well-being.

It is essential to keep the unprecedented context of the first half of the 21st century in mind as we grapple with the challenge of our financial system. We don’t live in an era of change; we live in a change in era. We are at the dawn of the Integral Era. After four hundred years of Modernity, this shift is marked by a new understanding of complexity and how interconnected and interdependent everything is, as now understood by modern physics. The shift in understanding has occurred over the past seventy five years, but broadening awareness is only happening now. The physics only re-affirms our age-old understanding of “oneness” which is at the heart of all our wisdom traditions — Western, Eastern, and Indigenous.

WE DON’T LIVE IN AN ERA
OF CHANGE; WE LIVE IN A
CHANGE IN ERA.

Our growing understanding of complexity demands a shift from the reductionist logic of Modern Age thinking centered on breaking down what’s complicated into understandable parts to understanding the primacy of the relationships that constitute wholes. In summary, we have:

- A once-in-centuries Great Change underway, from the Modern Age to what some are now calling the Integral Age;

- The profound imperative to shift our economics into alignment with the new understandings of complexity in the Integral Age: Regenerative Economics;
- The realization that our outdated Modern Age finance is unfit for this purpose — far beyond its ethical shortcomings; and
- An existential threat represented by the Modern Age's reductionist grip on the finance ideology that drives economic decision making at all costs.

This is a deadly serious reality. It is directly linked to the interconnected ecological, economic, financial, social, and political chaos accelerating all around us. As I first intuited over a decade ago, I now suggest and firmly believe this reality is in fact the root cause we are failing to grasp as our "leaders" seek solutions to our problems which are in fact mere symptoms of our finance ideology disease.

Two implications fall out of this conclusion:

First, it is not enough to encourage and even incentivize "good" or what I'll call "regenerative" finance — that is, finance aligned with the needs of emergent regenerative economies. We must also break the grip on power that the modern financial paradigm holds over our culture, and the associated limitations it imposes on our policy choices.

Second, the greatest failure of early twenty first century financial leaders will not be the greed-driven ethical failures that have been on public display and have

understandably grabbed all the media attention and public scourge. History will judge the greatest failure of finance to be a failure of wisdom.

HISTORY WILL JUDGE
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WISDOM.

Our financial elite have demonstrated a lack of the ability to evolve and to adapt to the changing context that runs far deeper than technological change. They appear too preoccupied with personal ambition and perhaps greed, and too smug in the hubris that so often accompanies power. In fairness, they are all but forced to comply with the short-term pressures of the system itself. Real leadership in the 21st century demands a curiosity and awareness of the great change unfolding in every domain of knowledge, coupled with a moral compass to navigate its implications for finance. Real leadership requires wisdom. Neither the opportunistic trader culture that dominates Wall Street today, nor the reactive, technocratic response to survive the self-inflicted wounds of the crisis are emblematic of the wisdom demanded from Wall Street leaders.

Instead, we see from Wall Street a continued push for more “success” defined as personal wealth and power — a definition sanctioned by our culture, one must add. This drive has direct consequences, including the ongoing systematic violence being done to society and the planet that manifests as climate change, among other ecological crises, and accelerating inequality with all its social implications. Despite these dire consequences, we continue to sanction the drive for individual “success” in most of our elite business schools and think tanks as the pursuit of prosperity. Policy makers tremble over the prospect of the next recession and pursue undifferentiated economic growth while Wall Street seeks the maximization of shareholder value and investors engage in the prudent pursuit of risk adjusted returns. These ideals naturally define the media’s primary economic narrative. The creative minds of an alternative form of finance working in the interest of society — including advocacy groups, regulators, policy makers, academics, and more — are mired in a game of defense, and often are trapped themselves inside an outdated worldview.

What is needed is new transdisciplinary collaboration with the breadth and capacity to fully and energetically participate in the design and testing of the profound systemic transformation necessary to usher in the Integral Age.¹ Systems science tells us that in the real world, systems only shift in response to pressure. Clearly perceived risks and therefore pressures for change are on the rise. With that rising pressure comes the true source of hope for the profound change we need. Indeed, “green shoots” of change abound as we will examine next.

Where we are headed must stretch beyond anything currently in evidence on the ground. Any serious analysis of the challenges we face, and an objective assessment of the incremental change we will describe, leaves us with a sober conclusion. Our current efforts are not nearly enough, and time is not our friend — particularly with respect to the accelerating consequences of climate change.

I am proposing we reimagine finance as if it were aligned with natural laws and the universal patterns and principles that underlie living systems — systems that have stood the test of time in the real world. The human economy is distinct from other living systems because of our unique humanity. We are a part of all living systems, but appear to be more complex than other living systems, at least with respect to intellect and consciousness (some will rightly debate such claims). Accordingly, we must build on the patterns of all living systems and the laws of nature and energy that bound them. Still, we must go further to embed what we know about what it is to be human from the social sciences, and even the science of consciousness in our system design for human economies.

1 The Capital Institute was founded in 2010 precisely to participate in this collaborative process.

The perceptive reader will note a paradox. On the one hand, I am suggesting we must first understand ourselves — and, by extension, the human driven economic activity we call “the global economy” — as embedded in, and not apart from, the larger systems of the planet and the entire biosphere.² With this understanding, we could not refer to “the environment” as an issue or a special interest. We are a part of the environment. And yet at the same time, we sense that humans hold a special place in the evolutionary process of life on this planet, hopefully a positive one.

From what we know, our minds are more developed. We use more sophisticated tools and can pursue knowledge as no other beings that we are aware of can. We appear to be capable of higher levels of consciousness, and we are gradually gaining the ability to articulate what exactly that might mean. So, a human economy must be both a part of the living systems paradigm while at the same time steering the system to higher levels of complexity. But such higher levels of complexity must be sustainable, or we will steer ourselves into collapse. We matter. We are not just like any other form of life, nor should we seek simply to mimic other forms of life. But we have much to learn from life, the patterns of success, and the design principles —and we had better respect her natural laws. They are laws, not theories.

In summary, my approach to reimagining finance is built on a four-part hypothesis:

1. There are universal patterns and principles that illuminate how systems that have sustained themselves over long periods of time actually exist in the real world.³
2. A human economy that can sustain itself over a long period of time, like any living system, will need to be regenerative. Regenerative Economics, in alignment with these patterns and principles, is the natural next stage in the evolution of economic thought, building on what came before it while rejecting assumptions that don’t align with these universal patterns and

2 See Lynn Margolus and Jim Lovelock, “Gaia Hypothesis”

3 These principles are impossible to describe in a linear list of bullet points because they are not linear but integral, by definition. Unfortunately, we communicate in linear language — so we must attempt, using reductionist logic, to describe them as a series of principles. There is no “right” way to do this. I have attempted to describe these patterns and principles in the context of an economic system by reducing them to eight interconnected and interdependent principles

principles.⁴

3. The economy must be understood as embedded in society, which in turn is embedded in the biosphere and not separate from it.⁵ Similarly, finance, properly understood, is embedded in economy, not apart from it. Finance must be understood as being in service of a regenerative economy and, more broadly, a regenerative society. In other words, we need a financial system in service to life.
4. The six core functions of finance discussed in Act II of this paper must be working individually and collectively in service of a regenerative economy rather than in service of finance and its practitioners. This perspective represents a profound shift. It defines the core purpose of a “regenerative” finance.

We take as our starting point that the purpose of “regenerative finance” is to catalyze and enhance regenerative economies. But we must go further. Finance represents at

WE TAKE AS OUR STARTING POINT THAT THE PURPOSE OF “REGENERATIVE FINANCE” IS TO CATALYZE AND ENHANCE REGENERATIVE ECONOMIES.

its core, the circulation of energy in an economy.⁶ It is not like other sectors of the economy. Regenerative finance is a necessary enabling condition of regenerative economies, and must work in service of their healthy function. Therefore, if finance as a subsystem does not transform from its present extractive tendencies, there can be no broad-based transition to regenerative economies

So as we explore the promising “green shoots” of regenerative finance emerging in the real world, we must remain cognizant that it is not enough for “green shoots” to emerge around the fringe of mainstream finance. Our goal must be to transform all of finance.

4 Regenerative Economics is the application of nature’s laws and patterns of systemic health, self-organization, self-renewal, and regenerative vitality to socio-economic systems. See Fullerton, J. “Regenerative Capitalism: How Universal Principles and Patterns Will Shape the New Economy” (2015)

5 Regenerative Economics builds on this critical insight from Ecological Economics which is the trans-disciplinary field connecting economics with ecology.

6 Einstein’s profound identity $E=MC^2$ tells us that all matter is energy. It follows that the material economy can be understood as energy, and it follows that finance is fundamental (for better and for worse) to an economy, consistent with our common sense and experience.

I. REGENERATIVE FINANCE GREEN SHOOTS

There are many hopeful “green shoots” emerging within the financial system, that individually often respond to a particular “problem.” When looked at collectively, these green shoots can be seen as the beginnings of pressures building that in aggregate will force systemic change within finance. However, we often are too trapped within the existing reductionist paradigm to see how a true system transformation can and must occur. Without a dependable road map, we miss opportunities to question, and to “stubbornly doubt” the conventional wisdom.

Our eight principles are helpful in assessing whether these changes are addressing root causes or are merely responding to symptoms. With this in mind, and with the eight principles diagram seen in Figure 1 below, we begin with a brief overview of some of the promising developments in finance looked at through this regenerative lens. Let me stress that this will be only a summary overview. Our goal here is to see how they do or do not fit within our regenerative framework.



Figure 1.

Environmental, Social, Governance (ESG) Investing

At the heart of what is generally referred to as “sustainable finance” is the idea of using an environmental, social, and governance (ESG) lens in addition to a financial lens to analyze financial investments in companies. As we discussed in Act II, this idea emerged out of the “socially responsible investment” (SRI) movement that dates back at least to the 1970s, and likely before.

ESG was seen to be less morally driven than SRI which identified the so called “sin stocks” — gambling, guns, and tobacco. Importantly, it highlights the importance of good governance, and names “environment” as a key issue. ESG was also presented as more analytically rigorous and risk-mitigation driven than the more “feel good” aspects of SRI. In the past decade, the idea has moved from the fringe into the mainstream. Its move into the mainstream has occurred to a significant degree thanks to the idea that identifying and managing material ESG related risks was simply a proxy for good management.

Reams of papers have been written on the validity and challenges of using an ESG lens for active investment management. Performance studies debate whether it enhances or detracts from financial performance — although industry leaders such as Generation Investment Management have clearly demonstrated superior financial performance relative to index benchmarks over an extended period of time from integrating ESG factors into their investment process.⁷ Asset owners representing some 60 trillion dollars self-report that they believe ESG metrics should be part of the investment process, and the trends for corporate reporting are all positive, if still too slow, as detailed in this State Street Report authored by ESG evangelist Robert Eccles and Mirtha Kastrapeli.⁸ ESG is certainly not fringe anymore.

And yet, despite this welcome awareness, little has changed in actual workings of the capital markets. The outcomes that matter to society — from carbon in the atmosphere to the numerous social injustices of the system — seem to stubbornly march on in the wrong direction. If ESG was expected to transform capitalism, it’s not working.

The reasons are complex. One important factor is revealed within the otherwise encouraging State Street report. *Only 17% of the institutional investors surveyed reported that they link investment manager compensation to a timeframe of two years or longer*, hardly any more than the 13% of investors that report linking compensation to a time frame less than one year!

⁷ Skeptics can rightly make the case that the outperformance is driven primarily by overweighting technology and underweighting energy in their portfolios.

⁸ http://www.statestreet.com/content/dam/statestreet/documents/Articles/The_Investing_Enlightenment.pdf

It's even worse than these numbers suggest. It is firmly believed within the investment industry that investment performance is all that really matters. Underperform a benchmark net of expenses, and your days as an active manager are numbered. Not only do powerful compensation incentives drive short term decision making, but the even larger incentive — fear of being fired — all but assures managers' obsession with short-term results and staying within the pack. Many of the big issues and associated risks that ESG is intended to influence, most notably ecological issues including climate and water, manifest at first very slowly, and then suddenly — but in a timescale measured in decades. They remain beyond the decision-making reference and incentive systems of most investment managers.

Furthermore, market prices for products such as commodities reflect immediate supply and demand realities. For example, oil and natural gas are now priced at a fraction of their recent peak due to excessive supply that has been unlocked due to the technology of fracking. These lower prices send precisely the wrong market signal to consumers, irrespective of the producer carbon disclosures demanded by increasingly ESG-aware investors. So, there is a fundamental flaw in the notion that increased ESG transparency will enable the invisible hand of capital markets to guide the actions of large public companies in the direction that society and the planet requires.

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We need to step back for a minute and look at the core underlying assumptions often left unquestioned. The core idea behind ESG investment is simple and goes like this: Free market economist Milton Friedman was wrong when he claimed that there was "one and only one responsibility of business — to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game." ESG advocates have made the compelling case that companies ignore these non-financial factors of good governance, social, and environmental responsibility at their own peril. There are now many case studies to prove the point ranging from Enron and BP to Lehman and Volkswagen, and more recently Gilead.⁹

As important as these extreme outliers are, they don't allow broad sweeping generalizations to be made about the efficacy of ESG disclosure with respect to transforming the economy. Exxon, BP, Shell, and other oil and gas companies are valued as they are today because of their current earnings, and investor expectations about their prospects in the short term. This valuation no doubt includes a view on the

9 Gilead, with their blockbuster drug for hepatitis C at \$1,000 per pill (\$84,000 for course of treatment), was the latest drug company to be vilified for unconscionable (yet legal) pricing for life saving drugs.

short term path of commodity prices as well as a view on the seemingly low prospects for any significant policy intervention that would render their fossil fuel reserves uneconomic as “stranded assets.” The markets understand full well the implications of this risk, and they remain comfortable to value these assets in a business-as-usual manner. No enhanced transparency will change that.

Unsurprisingly, most sophisticated ESG investment professionals are not making the case that ESG transparency will lead to systemic change on the scale and timeframe that is required. Rather, they simply see it as smart investing and a good risk mitigation approach (for their investment portfolio, not society) that can provide early warning signals of future financial problems before they fully manifest.

We should view the move of ESG into the mainstream as an important “green shoot,” supported by important major initiatives such as the International Integrated Reporting Council and its multi-capitals framework aimed at promoting integrated reporting and thinking within mainstream business.¹⁰ In the United States, the Sustainability Accounting Standards Board (SASB) has done important work on materiality by sector. All of this work, it should be noted, is completely aligned with the regenerative principle of “holistic wealth,” or valuing non-financial forms of capital. ESG disclosure should be understood as a necessary and important development, but woefully insufficient in itself to trigger the transformation of business onto a truly regenerative path. As a result, sustainability remains a mirage.

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Impact Investing

Again, books have been written on impact investment, dating back at least to Anthony Bugg-Levine and Jed Emerson’s *Impact Investing* published in 2011.¹¹ Conferences dedicated to the topic organized first by Investors Circle and then Socap have been around for well over a decade. I personally made my first “impact investment” — \$22 million invested in Edison Schools, a charter school company — while still at JPMorgan in 1997, more than a decade before the term was coined at a conference hosted by the Rockefeller Foundation. “Double bottom line” investing in community development in the United States and around the world dates back even far earlier.¹² So the idea of aligning social and or environmental purpose with capital investment is certainly not new, despite what one might read in the mainstream press in recent years. New ideas take time to break into the mainstream, and so called “impact investment” is no exception. But real change is afoot, and capital is flowing — guided by investor

10 <https://integratedreporting.org/the-iirc-2/>

11 <http://www.wiley.com/WileyCDA/WileyTitle/productCd-0470907215.html>

12 <http://cdfi.org/what-are-cdfis/>

interest to use capital to address pressing social and environmental problems, even if there is still more talk than action.

Rather than wading into the endless debates over return trade-offs, structuring investments, and exits or attempting any overall descriptions here, I will offer only a few brief observations on the topic:

- All investment has impact, both positive and negative — so impact investment is not a new idea, nor is it an “asset class,” as some self-interested advocates are pushing. Impact is the reality of all investment.
- Impact investment began as a reference to real, direct investment into typically young, growing companies. It dilutes the importance of the idea to expand it to include financial investments in secondary securities as some now do, including, for example, the entire field of ESG investing in public security portfolios.
- The most important “impact investments” are the capital expenditures of large corporations, about \$1 trillion per year for US corporations alone, and the capital investments of nation states in bridges, roads, railways, smart grids, and more. Much of these investments are made with debt financing.¹³ Our attention should focus here.
- Wall Street has an interest in creating new asset classes so it can sell new products. While it is a good thing that institutional-scale capital has become interested in the concept, success is not as simple as a “5% allocation of large portfolios to impact” as some proponents would suggest. Success is grappling with the impact of all investment — most notably the capital budgets of large corporations and large nation states — and the retirement of the term “impact” as an unnecessary distinction.
- Thankfully, thoughtful private investors are at the cutting edge of impact investing. The scaling up of impact investment has been hampered by a lack of credible and standardized metrics. This trend is unfortunate, but perhaps

13 Damodaran, Aswath, finance professor, NYU Stern School of Business <https://www.cnbc.com/2017/02/07/capex-us-companies-spending-on-equipment-and-hiring.html>

inevitable in the hyper-analytical culture of finance. My own experience tells me that quantitative metrics will never capture the real non-financial value of impact projects, and certainly not some of the most important qualities. Of course, we must continue to improve the metrics as best we can. It is essential that we press ahead while metrics develop in the wake of the pioneers, rather than use the inadequacy of metrics as an excuse for inaction.

- Balancing financial return objectives with non-financial outcomes is precisely what we are called to do as we navigate the shift from reductionist and extractive finance to holistic and regenerative finance. We will not get the answers by watching and studying — they will come through experiential learning and sharing.
- It's not about "my portfolio" and the impact measures I can point to. Attribution will always be unclear at best — but capital will never deserve all, or even most of the credit. We need to decenter capital if a new regenerative capitalism is to arise.
- Finally, and here's the tough pill to swallow for us impact investors — we have not pushed ourselves nearly hard enough. We all start with well-meaning yet somewhat smug phrases like "doing well by doing good." I know I said that in the JPMorgan Capital investment committee discussions around my Edison Schools Investment in 1997, and many times after that. I no longer use that phrase. Capital has a responsibility to do better than that. There is no "divine right of capital" to determine how the game gets played, or how the risks get shared and mitigated.¹⁴ Impact investors could use a dose of genuine curiosity, open mindedness, courage, and yes, humility.

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Despite the limitations and imperfections of the concept in practice, Impact Investment has developed impressively over the past two decades. New practitioners are entering the field every year, attracted into impact communities such as Investors Circle, SoCap, Giin, Toniic (clever, right?), PYMWYMIC, and Gratitude Railroad, among others. Research by Toniic has demonstrated the efficacy of impact portfolios when measured

14 Kelly, M., *The Divine Right of Capital: Dethroning the Corporate Aristocracy*, 2003.

against conventional portfolio risks and returns over a ten year timeframe.¹⁵ The impact meme is a powerful idea and important green shoot evidencing a shift toward regenerative finance. It's time to realize its potential.

Mission Driven Banking

Founded in the wake of the financial crisis, the Global Alliance for Banking on Values (GABV) is a global network of shareholder banks, cooperative banks, microfinance institutions, and development banks with a shared mission “to use finance to deliver sustainable economic, social and environmental development, with a focus on helping individuals fulfil their potential and build stronger communities.” Comprised of 46 financial institutions from Asia, Africa, Australia, Latin America, North America, and Europe, GABV members serve over 40 million customers, employ 48,000 staff, and hold a combined assets-under-management of \$127 billion. While still small in comparison with the colossal \$2 trillion balance sheet of JPMorgan alone, GABV is no “cottage industry.” It is growing and showing how banking can both serve the public interest and be profitable on a sustained basis at the same time. In fact, the research shows the GABV banks have generated comparable profitability as the banking sector overall, but with much lower volatility.¹⁶ Therefore, GABV banks are better — for their owners and for society. The combination of their real economy “productive lending” focus and their lower volatility, demonstrates their superior approach from a societal perspective. This financing is done without any supportive policy framework that incentivizes such an approach.

THEREFORE, GABV BANKS
ARE BETTER — FOR THEIR
OWNERS AND FOR SOCIETY.

The leaders of these financial institutions rightly point to mission and values as the essence of what makes GABV members distinct. As a romantic aside, the JPMorgan I worked for in the 1980s and 1990s also defined culture as its distinguishing characteristic and source of its long-term prosperity. But as we've learned, culture is something that must be nourished and protected at all costs. JPMorgan's old culture ended up conflicting with its near term ambitions in what became a hyper-competitive marketplace after sweeping deregulation. The culture was lost. The consequences are apparent for all to see. In response to the financial crisis, and the ongoing associated societal damage and wasted resources, it has been heartening to watch a group of genuine and courageous financial leaders such as Triodos Bank's Peter Blom, Vancity's Tamara Vrooman, and Beneficial State Bank's Kat Taylor returning to culture and basic values to conduct the so called “boring banking.” This means relationship banking consisting of productive loans into the real economy, and the fair and transparent customer service that our society actually needs.

15 https://www.toniic.com/wp-content/uploads/2017/04/Toniic-T100_2016_Launch-Report2.pdf

16 <http://www.gabv.org/wp-content/uploads/2016-Research-Report-final.pdf>

GABV member principles of values-based banking are summarized in Figure 2 below:



Figure 2. Source: Global Alliance for Banking on Values

Green Finance

Green Finance generally means the financing of green infrastructure designed to deliver climate change solutions. Wind farms and solar farms are most common, but green finance also includes a corporate issuance of bonds to finance energy efficiency in a manufacturing plant, green real estate finance, and much more. As one can imagine, the field of green finance is enormous, and much progress has been made in setting standards and tracking progress. I think of this area as mobilizing the existing global financial markets to deliver as much of the financing needed as possible within existing market constraints to transform the economy to become more climate friendly, largely through the implementation of the energy and transportation systems transition and the greening of our built environment.

The Climate Bonds Initiative led by Sean Kidney who early on saw the potential of creating a category for “green bonds,” is now the source for all things “green bonds” including information, standard setting, and market data.¹⁷ With the first corporate green bond issued in 2013, the growth of the market is impressive, and on track to

reach \$200 billion of annual issuance for the first time in 2019, up four-fold in the last four years.

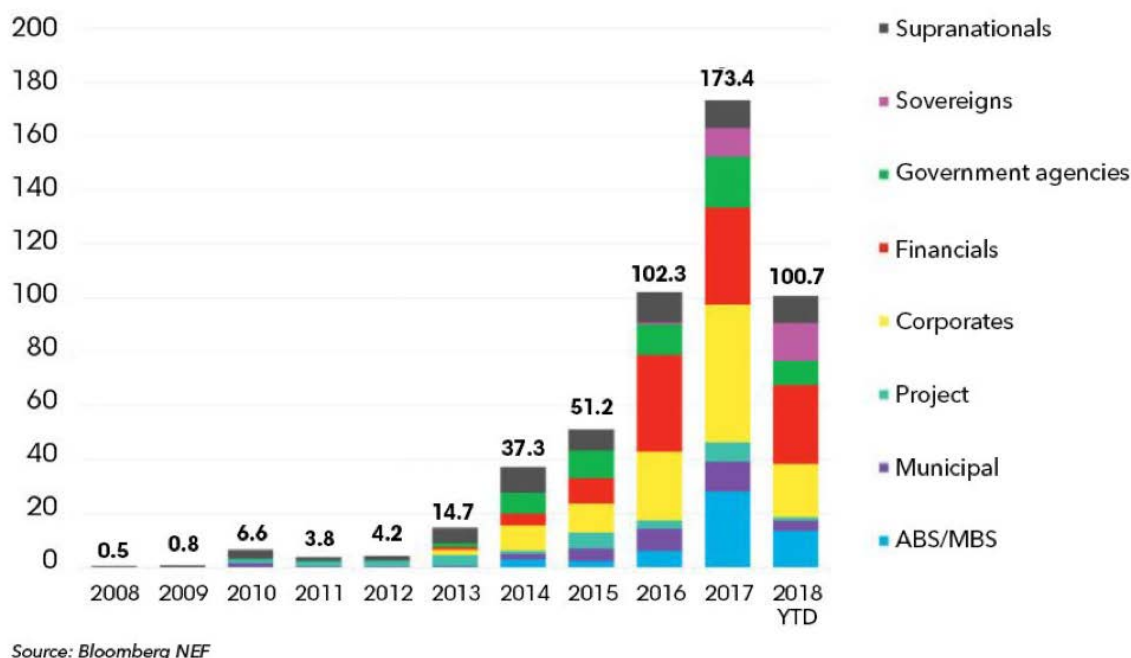


Figure 3. Annual green bond issuance by issuer/bond type.

While impressive, these numbers pale in comparison to the annual investments required to drive the energy transition alone, which are measured in the trillions of dollars. The green bonds effort is a very valuable way of mainstreaming green finance into the global capital markets, and provides much needed clarity and education to investors who are increasingly seeking to invest into greening the economy. This debt financing is generally linked to real investments being made that meet the criteria for “green bonds,” quite different than simply trading in secondary securities.

The most comprehensive effort to document the various national and regional efforts toward “greening” the financial system, while encouraging supportive cross-sector and cross-culture collaboration, is the ambitious UNEP Inquiry: Design of a Sustainable Financial System led by Simon Zadak and Nick Robbins.¹⁸ Their work, now in its third year, involves facilitating the learning, collaboration among national financial centers all trying to shift the flow of capital toward greening the economy. With the tag line, “The Financial System We Need,” the Inquiry was initially and courageously launched under Achim Steiner, former Executive Director of the UNEP. It has quietly facilitated essential dialogues and provided critical research across sectors and geographies without proscribing solutions which would have inevitably pulled the Inquiry into

18 <http://web.unep.org/inquiry>

political mine fields. Not surprisingly, China emerges as the global leader in green finance, while the US tends to be the laggard.

Integrated Capital

One of the more promising developments of recent years is the rise of a concept called “integrated capital.” What practitioners mean by “integrated” is multiple forms of capital, with different impact, risk, and return criteria, coming together in service of a single project or enterprise. Rather than limiting the financial tools to various sources of debt or equity, the concept extends the corporate finance design process to include sources of capital such as philanthropy, or program related investments from mission aligned foundations, creative public financing tools such as the New Market Tax Credit, as well as impact investor capital, and more generic commercial capital sources ranging from bank loans to insurance company private placements.

There are numerous instances of integrated capital now being deployed in support of mission specific projects. For example, Jonathan Rose has built a successful real estate investment business through the creative leveraging of commercial capital with various public sources of subsidy to achieve social outcomes. Rose Company projects incorporate affordable housing, energy efficiency, open public spaces, access to public transportation, and even integrates health care services into a building community.¹⁹

One of my favorite examples of this innovative and integrated approach to capital is the sustainable forestry funds managed by EcoTrust of Portland, Oregon. Spencer Bebe has long since been at the forefront of innovative techniques to flow capital into ecologically important projects, from the early days of debt for nature swaps. Ecotrust Forest Management (EFM), led by Bettina Von Hagen, invests in forests in the Pacific Northwest with an ambitious mission: Identify, purchase, and manage ecologically important tracts of forestland to the highest standard of sustainability, while positioning these properties to be sold to the most logical long-term stewards of that land at a market price, rather than at auction to the highest bidder. Ideally, this mission results in selling land back to the native American communities who once owned them. To achieve this goal, EFM needs to invest smart, and then weave together multiple stakeholders into a shared outcome on the land. They frequently incorporate New Markets Tax Credits linked to forestry job creation, and philanthropy from organizations that care about river restoration, such as Bonneville Power.²⁰

RSF Social Finance is one of the pioneers of this integrated capital approach, and details

19 Note: Jonathan Rose is on Capital Institute’s Board of Directors, and the author is an investor in Rose Company funds.

20 Full disclosure: The author is a proud investor in the EFM funds

several of their projects on their website.²¹ When looked at through a regenerative lens, integrated capital is a perfect example of the principle of “edge effect” in action, unlocking potential that exists only by working — often tediously — across the edges of the various forms of capital. In addition, it demonstrates the principle of “right relationship” since such collaborative financing can only be built on a foundation of deep and trusting relationships. Most important, the projects RSF finances exemplify a holistic understanding of wealth creation — another regenerative principle.

Integrated Capital as practiced by Jonathan Rose Companies, Ecotrust, RSF Social Finance, and a growing number of others in support of regenerative economic activity is a glimpse of what a shift toward Regenerative Investment will look like.

Evergreen Direct Investment: Capital Markets Under New Scrutiny

The Capital Institute published a white paper on what we are calling Evergreen Direct Investment (EDI), a concept first introduced to us by Tim MacDonald, who spent a significant amount of his career in the real estate finance world.²² Tim shared our concern that capital markets, despite their many positive attributes, had evolved to a point where they were no longer fit for purpose, as we have discussed above. Most importantly, the ever-shortening time horizon of capital markets, and the speculators that increasingly dominate them, disconnected real institutional scale asset owners — pension funds, sovereign wealth funds, and others — from the enterprises in which they are investing.

“THE EDI IDEA ... IS THE SINGLE MOST INTERESTING AND PRACTICAL THING I’VE SEEN FOR FOSTERING LONG-TERMISM ON THE PART OF BOTH COMPANIES AND INVESTORS.”

—Robert Eccles, Professor, Harvard Business School & Founding Chairperson, the Sustainable Accounting Standards Board

Evergreen Direct Investing, at its core, is about putting investors in right relationship with enterprise, in accordance with our 8 principles. It is but one of a multitude of approaches to accomplish this goal. It is also a creative response to the mismatch between the mature, stable, but slow-growth businesses that are trapped in and underappreciated by public capital markets. The leverage buyout industry recognized this mismatch decades ago and extracted billions of dollars in value from the system in the process. That same “value” — resilient cash flows — can be better understood as the driving force for companies looking to transition their business models into alignment with the necessities of the global sustainability imperative. EDI is an

21 Full disclosure: The author holds depositary interest in RSF Social Finance. <http://rsfsocialfinance.org/our-story/how-we-work/integrated-capital/>

22 <http://capitalinstitute.org/our-projects/evergreen-direct-investing/>

example of just one such approach. It marries the resilient cash flows of mature “cash cow” enterprises with long term investors who rightly value them to match their own financial obligations, and aligns management incentives with the long term transformation objectives that any serious discussion of sustainability demands.

Capital Markets are wonderful and powerful tools, but we must learn to see them for what they are, and not sugar coat their limitations. We must modify our use of them accordingly. As discussed in Act II, when looked at through our regenerative lens, modern capital markets violate our regenerative principles in at least four ways:

- The pursuit of efficiency over resiliency, violating the principle of “in balance”
- The complete disintermediation of asset owners and enterprise, violating the principle of “right relationship”
- They value only financial wealth, violating the principle of “holistic wealth”
- They operate in an abstract global digital space, unconnected to the places where economic activity occurs, violating the principle of “honors community and place.”

How can we expect to have a healthy economic system if the principle markets for capital formation and corporate ownership that dominate global finance are in violation of the core principles that define all healthy systems?

We think there is better way to marry real investors with business enterprises in genuine ownership relationships — hardly a new concept. EDI is but one variation on a theme. The owners of privately held businesses, for example, understand fully the responsibility of true ownership, often with their name on the door. This direct association is no guarantee of socially responsible behavior, but at least there is someone or some entity responsible for corporate behavior and its implications for society at large. The responsibility — response ability — that goes with ownership is a necessary precondition to transformational change.

Private ownership is not the only answer, and often is not the best solution. For large corporations it is usually no longer practical. But the global economy has now evolved to a state — with our tacit approval, since our policies have allowed this to happen — where we have giant global corporations valued at hundreds of billions of dollars. At the same time, we have large pools of capital, also measured in the tens and hundreds of billions of dollars. The responsibility for the exercise of ownership, if

it is to exist at all, necessarily rests with these large pools of capital — pension funds, sovereign wealth funds, the large foundations, and critically, within a few private families that have amassed enormous concentrations of wealth.

The stewards of these superpools of capital must rise to the responsibility of ownership. EDI is but one of many tools at their disposal. If they don't rise to the occasion, public corporations will remain trapped in the short term clutch of modern capital markets that are not fit for purpose in dealing with 21st century challenges.

Place Based Regenerative Investment: The Future We Need

An emerging trend in impact investing is the concept of place-based investing. When looked at through our regenerative lens, we realize that the corporation, or even an individual project, is not the right unit of analysis. A company's operations, or a stand-alone project such as a bridge or a building, is a mere piece of a whole. The whole is what matters. A corporation or a project is better understood within the context of the place in which it operates. This perspective is what our principle "honors community and place" implies for investment. So, it's Panasonic's solar manufacturing plant and its relationship within the greater Buffalo/Niagara community that should be our initial focus, not just the global corporation called Panasonic. Place is where the ESG principles meet with reality. Regenerative investment is place-based and "place sourced" to borrow from regenerative practitioner Bill Reed. It looks at a community within its bioregion and sees it as a system. It responds to the needs and opportunities within that system. In this way, and perhaps only in this way, regenerative investment can move into alignment with all eight of our regenerative principles.

THE STEWARDS OF
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DISPOSAL.

In his wonderful book, *Harmony: A New Way of Looking at the World*, Prince Charles writes: "At the heart of the matter, lies a crisis in our perception — the way we see and understand how the world works." This statement holds truth at multiple scales, including, I will suggest, in how we think about economy and our investment within it. Seen in a new way — one that is aligned with our living systems principles rather than the reductionist logic of finance — a global corporation is first and foremost a network of participants in numerous place-based bioregional economies. Such a view holds clear implications for the benefits of decentralized decision making within global corporations. How investors of all scales and scopes can respond to this change in perception will significantly determine the success of the emergence of regenerative economies.

II. THE PUBLIC NATURE OF MONEY, BANKING AND INVESTMENT

The ideological wave to embrace neoliberalism's mantra of globalization, privatization, and deregulation masks an important understanding. Banking is not just a business.

**BANKING IS NOT JUST
A BUSINESS.**

Unlike consumer products or business services that clearly reside in the private sector in any free market economy, there is a distinctly public nature to banking, as well as money and investing. That is to say, the public welfare is dependent upon a resilient banking system, but also a productive banking system. Banking and investing matter in a way that cars and couches don't.

While this reality is understood intellectually, we behave as if banking is just like any other business with one important exception — banking is heavily regulated. This regulatory framework, whether strong or weak form regulation, is defensive in nature in order to mitigate risks. First, regulation is designed to protect bank depositors, with FDIC insurance being the primary tool in the U.S. banking system. Second, it is also designed to protect the safety and soundness of the banks individually with a complex series of capital adequacy and liquidity requirements. Third, after the malfeasance that came to light in the 2008 crisis, there is a consumer protection institution founded in 2011 called the Consumer Financial Protection Bureau (CFPB) designed to protect American consumers from illegal and predatory behavior by regulated banks. Different bodies play similar roles in other jurisdictions. Fourth, since contagion risk — the risk that one bad bank can bring down the whole system — has manifested with globalization, the regulatory framework is designed to manage the systemic risk of the banking system as a whole. This systemic risk function has been significantly enhanced after the 2008 financial crisis, through a complex series of rules administered by the Bank of International Settlements (BIS).

Collectively, the improvements in the global banking regulatory regime represent important progress. Much has been written critiquing both the deficiencies and the unintended consequences of this regulatory framework, such as the two excellent books referenced in Act II of this paper. Still, it is fair to say that the evolution of our regulatory framework for global banking, though far from perfect, has made the banking system more resilient as a whole. Banks safer individually, and have increased accountability to customers for fair dealing.²³

²³ Further structural change I would like to see includes far more stringent capital and liquidity requirements for “systemically important” banks relative to smaller banks — so much so that banks would find it in their economic interest to shrink and simplify to avoid this distinction. Better for banks to shrink and simplify themselves rather than require the always imperfect hand of regulation.

However, nothing in the regulatory response to the financial crisis, or in banking regulation's own purpose statement to ensure a sound banking system, addresses the second aspect of the public nature of banking. This second aspect relates to how well banking activity actually serves the needs of a healthy economic system. Such needs may not always align with what constitutes sound banking, or optimizing risk adjusted return for an individual bank.

For example, it is only common sense that financing young growth companies in our inner cities, or renewable energy and energy efficiency projects in developed and developing economies, are essential requirements for a healthy economic system. Both of these activities serve a healthy economy more than, say, a leveraged buyout of a food products company by an investor who intends to cut back on the development of their healthy food offerings to save costs. Unfortunately, the latter financing is likely to be viewed as more attractive to the banking sector, and may well generate a higher risk adjusted return for that bank. But is it productive for the health of the economic system overall? We will examine this question briefly below with respect to banking, investment, and money systems, themselves.

Banking as if it Matters to Society

As the simple example above is intended to illustrate, what is in a particular bank's near-term shareholder and sound banking interest — and certainly in the bank management's interest given the incentive system of modern banking — may not be in the best interest of the economic system and society, overall. It is important to understand that in this simple example, we are not assuming that the loan to a small emerging business, or a solar project in Peru, is uneconomic or imprudent. When looked at either through the lens of shareholder value, or through the lens of a regulator examining the safety and soundness of a particular bank, the loan to the leveraged buyout could well be a more attractive opportunity for the bank based on how the system and capital requirements are designed — especially with all associated fees, and after the bulk of the risk is sold down in the marketplace. The regulator perspective could well be aligned with the shareholder value perspective in this regard. The regulator's preference for more liquid bank balance sheets, and the prudent reserves which they demand banks hold for illiquid loans held to maturity, virtually ensure this alignment.

But at what cost to society?

In our present financial system, the optimal decision for bank shareholders is aligned with regulatory incentives and therefore pleasing to bank regulators, but is actually the exact opposite of what is the interest of the economy

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and a healthy society. It turns out, such practices appear to run afoul of the “right relationship” principle of regenerative systems. The “underwrite and distribute” model that modern banking has gravitated towards in order to optimize risk adjusted returns to shareholders — one aspect of the overall financialization of capitalism which happens to be in line with the regulatory framework — *severs the long-term relationship between the business enterprise and the bank*. The “credit relationship” mindset that not long ago defined bank-to-borrower relationships has been replaced by the “transaction mindset” of modern Wall Street, which so easily drifts into a predator-prey exchange. At its worst, the “underwrite and distribute” transaction mindset leads to “liar loans” and the subprime mortgage crisis that brought the world economy to its knees in 2008.

What we see in contemporary banking is that bankers are incentivized to initiate the leveraged buyout of the food company in the example above because that’s where the bonus honey-pot lies. Bank capital naturally flows toward the leveraged buyout, which will cut research and development for the production of more healthy food for society in order to optimize financial returns to the leveraged buyout sponsor (and the bankers) in the short-run. It will also reduce the bank loan risk and capital requirements in the process. In our example, the cost of this trend is less lending to young businesses in the inner cities and less lending to renewable power projects in Latin America. Our current financial paradigm rationalizes these outcomes as a regulated, private banking industry doing what it is designed to do and behaving responsibly, as defined by regulatory bodies.

WE HAVE A CONFLICT
BETWEEN WHAT IS PRUDENT
AND PROFITABLE ON THE
ONE HAND, AND WHAT IS
MOST PRODUCTIVE FOR
SOCIETY ON THE OTHER.

Yet, the outcome is clearly not in the broader interest of society — it is less “productive” for society than an optimal solution. We have a conflict between what is prudent and profitable on the one hand, and what is most productive for society on the other.

How big a problem is this? Well, that depends upon what other sources of financing are available to serve the productive needs of society. In a socialist system, there may be government owned or supported banking institutions to fill this void — but such government sponsored finance is not without its own challenges. In the United States, there is a nascent movement afoot to create more Public Banks, following the successful model of the Bank of North Dakota to both serve the public interest and remain a resilient bank through the business cycles.²⁴ Outside the United States, public banking is common and represents a meaningful aspect of the banking system in many countries, including Germany, Japan, Canada, Australia, India, and yes, China. Hybrid models, such as the U.S. mortgage banking system, maybe interesting to explore, but are also fraught

24 <https://www.publicbankinginstitute.org/>

with challenges and conflicts of interest as we have learned.

Perhaps the ideal solution is found when the free enterprise system can address this deficiency and treat it as both a responsibility and an opportunity. The notion of banking with responsibility to the genuine productive needs of society may seem nostalgic today, but it doesn't need to be that way. As introduced above, the Global Alliance for Banking on Values (GABV) provides a beacon of hope in this regard. GABV banks generate at least equivalent returns on equity at a lower volatility while banking in sectors of society that the more mainstream banks shy away from.

What is important to emphasize is that GABV banks are private sector banks, operating with no special subsidies or incentives. In fact, many of the capital and liquidity constraints instituted after the financial crisis unintentionally and unfairly penalize their real economy focus. For example, the liquidity constraint intended to curb the malfeasance that caused Lehman to collapse actually penalizes real economy banks in their core small business lending activities. Small business lending, done responsibly, is exactly what we want banks to do!

One very hopeful development in the global banking arena is that banks, both within the GABV and not, are demonstrating that it is possible to do the dull business of banking in a way that serves the real economy while still being attractive to long term shareholders. What is probably not possible is for bankers to be taking multi-million dollar bonuses for these productive efforts. So when you hear bankers saying a particular type of business — say, project financing for renewable energy, with its long gestation period and long-term on-balance sheet holding requirement — doesn't "move the needle," understand what they are really saying is that they don't want to do it because it will not generate a large bonus for the bankers. We have a system where bankers and management in mainstream finance optimize for their annual bonus pool, rather than the needs of the real economy. This trend is understandable at the individual level — bankers are merely responding to incentives. It is also completely unacceptable when considering the health of the whole system.

What else can be done to foster the banking system we need? The answer, I believe, lies first with proper incentives — both carrots and sticks. It also lies with innovative models of collaboration "at the edge" between the public and private sector, and even between the private and philanthropic sector.²⁵

With regard to carrots and sticks, I will more fully address policy in the final section of this paper. Two things are clearly needed. First, strong incentives that discourage to the point of making uneconomic, unpermitted, or unlawful what we have too much

25 Recall "Edge effect abundance" is one of our 8 principles, referring to the potential that lies by working across edges in the system. In natural systems, edges are filled with diversity, and thus opportunity for novelty.

of. This list certainly includes leveraged speculation with asymmetric benefits flowing to the financiers at the expense of society, and of course, extractive and deceitful practices of all varieties.

Second, we need other incentives that encourage the productive activities we need banks to do, such as productive lending into the real economy and providing financial services that are transparent and fair. These incentives must be created while still honoring the need for a safe and sound banking system. This transformation is not complicated. But it starts with retiring the ideological belief that anything that is possible and legal should be permissible in a free market financial system, and that anything important to the economy will somehow magically happen on its own. This ideology misses the public good aspect of banking. There is no analogous imperative for cars and couches. What is good and completely logical for the bankers, viewed through the reductionist lens of the financial system alone (and their personal bonus pool), is not necessarily good for society. There is no reason we need to live in a society where one part acts as a parasite to the whole.

An unavoidable consequence which bankers will fiercely fight is that certain financial activities that may seem innocuous in isolation — from arranging the financing for a multi-billion dollar leveraged buyout, to lending to speculative, high frequency trading hedge funds — must become less profitable, unprofitable, or prohibited, in order to give primacy to the health of the whole system. The financial sector overall will shrink substantially, and compensation levels will shrink, creating adaptation challenges for individuals and for entire cities overly concentrated in the financial sector, most notably London. As a result, human and financial capital will flow toward more productive purposes. The economy will be healthier, finance centers will become more diversified and, as a result, more resilient after a painful adjustment process. As a side benefit, pressures driving inequality and all its associated consequences will be eased, unleashing hidden potential found only when systems become more aligned with regenerative principles.

THE FINANCIAL SECTOR
OVERALL WILL SHRINK
SUBSTANTIALLY, AND
COMPENSATION LEVELS WILL
SHRINK

Proper incentives and rules should take us much of the way toward the financial system we need, but only if we have the political will to impose them.²⁶ The current context demands more than what free market solutions can be reasonably expected to deliver, even with the proper incentives we have yet to experience. Many genuine needs can be addressed by the private sector acting responsibly on its own, but society's financing needs — particularly at this seminal moment in time, with trillions

26 A full examination of the power dynamics necessary to create that political will is beyond the scope of this paper. Our purpose is simply to clarify what needs to be done, and to propose a systems science rather than ideological rationale for such an agenda.

of critical infrastructure investment and business model adaptation requirements — will not all be conventionally “economic” to deliver on a risk prudent level and in the timeframe that is necessary.

Such needs are both social and ecological. Significant advances have been made in financial inclusion through innovations such as micro credit and impact investment. Still, the task of delivering banking solutions to the nearly half of the global population which has been largely excluded from healthy, equitable participation in the modern global economy would certainly be made easier by innovative, large scale collaborations between the private sector, philanthropy, and the public sector. Fortunately, this is already underway, with numerous examples of philanthropy subsidizing the technical assistance needs of micro-credit and small-holder farmer financing needs.²⁷ More could be done to align such hopeful initiatives with the global foreign aid industry, as well as host country government finance capacity.

With respect to our looming ecological crises, the scale of need for collaboration is unprecedented — both in terms of policy and finance. At its core, this lack of collaboration is because of the capital intensity of what needs to be done — most notably the multi-trillion dollar annual investment in renewable energy infrastructure required to shift away from fossil fuels on a timetable that has a hope to keep the atmosphere below 1.5 degrees warming.²⁸ The capital intensity of an unprecedented \$2 trillion per year creates a sourcing challenge (where does the money come from) and a flow challenge (how will the volume of transactions necessary actually happen), particularly into less developed countries. The capital intensity of these projects means that the critical cost of capital has an outsized impact determining the pace at which solutions can scale. The cost of capital is less of an impediment on the social inclusion side, where access is the key but sensitivity to the cost of capital, within reason, is less consequential. On the other hand, a one percent change in the cost of capital can mean the difference between moving forward or not on a major infrastructure project.

THE CAPITAL INTENSITY
OF THESE PROJECTS MEANS
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CAN SCALE.

Infrastructure is less risky than start-up companies, particularly if credit worthy

27 See for example, Acumen and Root Capital, as well as many peer-to-peer initiatives.
<https://www.rootcapital.org/about-us>
and Acumen Fund as just two examples of this collaborative approach with philanthropy
<https://acumen.org/>

28 The scientific consensus, as expressed through the Paris Climate Agreement, is that we must keep global warming below 1.5 degrees Celsius above pre-industrial levels.
<https://www.ipcc.ch/sr15/>
<https://www.climatealityproject.org/blog/why-15-degrees-danger-line-global-warming>

counterparties can be contracted up-front to use the infrastructure, as is often the case. This arrangement provides the opportunity for debt financing for as much as two-thirds of the capital requirements. The good news is that banks can literally lend the money into existence in order to make loans if they want, that's what banks do. The challenge is that such loans require the commitment of bank balance sheets over long periods of time. Such project financing is no longer seen as attractive to global banks due to the regulatory capital regime in place, especially after the 2008 financial crisis. This

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creates a bottleneck, restricting the critical flow of capital, right when trillions of bank lending per year is needed. Not surprisingly, such a bottleneck is also in conflict with one of our 8 principles, "robust circulation."

There are two solutions to address this bottleneck — modify banking regulations and incentives, or look outside the private banking sector for this large-scale lending capacity.

Modifying the regulatory and incentive framework is tricky business. The truth in banking is that lending into long-term, illiquid project finance in developing countries is inherently riskier than, for example, making short-term collateralized loans to hedge funds. It is not simple to develop a well-diversified portfolio of such project loans, all with established sponsors. These challenges are the reason large banks have generally deemphasized project finance in recent years, even prior to the stiffer regulatory treatment of such loans following the financial crisis.

Numerous practical challenges beyond regulatory constraints impede the flow of private bank lending into the critical and massive energy system transformation we need. These include misaligned incentives as we have discussed, the complexity of deal structuring, the novelty of new technologies with limited historical risk experience, a rapidly changing landscape in terms of technologies and public policies, and basic country risk where much of the new infrastructure must be built. In sum, there is a clear and crying need for public sector engagement on a massive scale to complement private sector banking activity.

THERE IS A CLEAR AND
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SECTOR ENGAGEMENT
ON A MASSIVE SCALE TO
COMPLEMENT PRIVATE
SECTOR BANKING ACTIVITY.

The idea of public sector financing of what needs to be done, as opposed to what is most attractive for bankers to finance, is not new. In more planned economies — from more socialist approaches in Europe, to the State dominated banking system in China — public-sector banking plays an important role in many economies. There is an entire industry of multilateral quasi-public sector development banks, most notably the World Bank. There are even larger development banks around the world, from China to Brazil. Of course, public

sector banking is ripe for corruption and mismanagement, as well. It lacks the discipline of the marketplace, and often has incentive systems driven by political ambitions. Regardless, the advocates for private sector banking have lost their argument for the discipline of markets thanks to the abject failure of the so-called “private” banking system in the 2008 financial collapse.

THE TRUTH IS, “PRIVATE
SECTOR” BANKING IS A MYTH.

The private banking sector, it turns out, was wholly dependent upon the public sector to keep it solvent, after all. The truth is, “private sector” banking is a myth. We should acknowledge that truth and organize our banking system and its regulatory regime in the public interest, addressing the fallibility of both private sector and public sector approaches head on.

Such an approach would include recognition of the vital role of public sector and quasi-public sector institutions in addressing funding gaps and obstacles to the efficient flow of capital towards the goals of society. The vision for the World Bank outlined by recently departed President Jim Yong Kim reflects an understanding of this need. He advocated working with the private sector as a “deal maker” rather than working independently as a pure lender.²⁹ Such a role requires a profound cultural shift from lender only to efficient transaction structuring. This structuring includes prudent lending when others will not in order to catalyze a multitude of additional capital to flow. It also includes the arrangement of subsidy for technical assistance when needed. And it includes the sourcing of insurance, for political risk in certain countries. Finally, it requires attracting the more “commodity” portion of a transaction from private capital markets that stand ready and willing to do the easier but often larger dollar portions of the deals, typically the senior and least risky slice of a complex credit.

This shift will not be easy. The World Bank risks being exploited by the nimbler, shark-like private sector of finance. There will be a natural tendency for World Bank “deal makers” to lose sight of their mission in the face of incentives and just “do deals.” This shift is a real management test. Is it possible for the World Bank to transition to the skill set of an investment bank while maintaining or even restoring the compassionate culture of the public purpose institution that defined its original endeavor? Can it accomplish this task while shedding the neoliberal economic orthodoxy, and replacing it with an understanding of the role of finance in a regenerative economic system? A tall order, to say the least.

The World Bank, and other public development banks, must rise to the occasion, and serve as the effective “general contractor” by arranging critical financings that respond to the social and ecological needs of this time. Such a general contractor role requires

29 <https://www.nytimes.com/2018/01/25/business/world-bank-jim-yong-kim.html>

competence and a firm hand. Development banks will use their own balance sheets for direct lending smartly and where necessary, while both attracting the private sector and disciplining its natural tendency toward excess. In keeping with our principle, “edge effect abundance,” great potential potential lies dormant at “the edge” between the traditional foreign aid industry (private and public), the traditional development bank lending sector, and the now massive private capital markets always in search of outlets for investment. Only time will tell if the World Bank and others can execute such a challenging plan. It will be essential that the Bank not get dazzled — or bamboozled, as so many smart people before — by modern financial technology which Kim once referred to as “some of the coolest stuff I have ever looked at.”

Perhaps the most vital sector of global finance at this time is a well-capitalized industry of regional and global development banks. Naturally, we would want to see numerous experiments with alternative development banks, regionally organized in alignment with our “honor community and place” principle and capitalized to tackle this great challenge. They must have project finance lending capacity. They must have critical relationships with all sectors of finance — including philanthropy, insurance, the public sector, and the private capital markets. They must also have the transaction origination expertise normally associated with investment banks. At the same time, these development banks must somehow preserve a culture that is true to their mission and purpose. For bankers seeking a higher calling, this is your time!

PERHAPS THE MOST VITAL
SECTOR OF GLOBAL FINANCE
AT THIS TIME IS A WELL-
CAPITALIZED INDUSTRY OF
REGIONAL AND GLOBAL
DEVELOPMENT BANKS.

Investment as if it Matters to Society

Like banking, the business of investment is not *just* a business, like computers and cars. How investment capital flows within an economic system matters profoundly with respect to the characteristics of the economy that results.

Firstly, we must recognize that public policy influences the flow of investment capital, regardless of the form of economic system. Zoning laws, public transportation infrastructure, patent laws, direct and indirect subsidies, and industry regulatory frameworks all profoundly influence the flow of investment capital, even in what we refer to as a free market system. There is no truly “free market system” when it comes to investment. Public policy always plays an integral role.

Second, the public debate on investment policy is too often reduced to arguing over how much to encourage it, irrespective of what direction it flows. This oversimplification is again based on our flawed ideological belief that investment drives growth, and that growth is the path to prosperity, regardless of its qualitative nature. While undifferentiated growth sometimes does lead to prosperity, this is increasingly

not the case, as we have discussed. A more nuanced understanding about the quality of growth is essential to transition to a regenerative economic system. For example, the economy today needs massive investment to grow its renewable energy infrastructure, while at the same time it needs to strangle incremental investment in most fossil fuel derived sources of energy. Not all growth is alike. Unfortunately, our public policies and their impact on investment flows are too often binary, on – off in design. And they are dominated by the power of special interest groups, rather than by any economic system design objectives.

Finally, as we have discussed but it warrants repeating, we must distinguish the difference between real investment in the productive economy — such as building companies, buildings, and windfarms — on the one hand, and financial investment and speculation in securities and other existing assets, on the other. We often lump them together under the label “investment” when they are profoundly different activities. Both have a place in a modern economy, but the quality and scale of each is what matters, and the quality of real investment is what matters most to the public good.

Collectively, these three issues define the very public nature of investment, even though investors in any free enterprise system invest largely in accordance with their private desires and objectives. We will discuss these issues and more in Section XI below, “Towards An Integral Investment Theory.” But first let us turn to the topic of money.

III. MONEY IN THE REGENERATIVE PARADIGM

Anyone who tells you that they understand money has most likely not thought about it enough. After spending nearly twenty years working inside a large multi-national bank, I was surprised to realize over a decade later how little I really understood about money at a systemic level. It's an esoteric topic that too few give the thoughtful attention it deserves. With Facebook now suggesting it wants to become a central bank of its own currency, we had better give the subject serious focus.

What is clear is that the getting of money dominates much of culture throughout the world, as the global economy has been increasingly monetized and financialized. Our dependency on money to meet our needs and wants goes unquestioned, even though it was not always that way. Many wise people have taught us that money can't buy happiness — but the truth is, a significant amount of money flowing into a household, and saved for retirement, is essential to a basic quality of life in a developed

THE DESIGN OF THE MONEY
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modern economy. This fact is particularly true in America — where increasing levels of consumer debt have become the norm, where affordable housing in cities is under systemic threat, where the social safety net is under strain as a result of national, state and local budget pressures, and systemic stresses have chipped away at family and community support systems. For most Americans, a sense of money scarcity is now an accepted reality, even among

those considered in the upper middle class. It follows that the design of the money system is both important, and, a potential key leverage point for systemic change.

Since my formal training in JPMorgan's bank management program, I've always understood that money is created by the banking system, literally loaned into existence by banks. This simple fact became a sensational discovery after the financial crisis with the publication of books like *Modernizing Money*³⁰ and *Where Does Money Come From?*³¹ What surprised most observers, even those who thought they understood the money system, is that almost all money in circulation in our fiat currency system is literally lent into existence by banks, rather than printed by a nation's Treasury or Central Bank. Remarkably, there was even confusion around this point at the Bank of England, so much that they had to publish their own study which confirmed what the earlier books had so nicely explained.³² There are two principal exceptions to this fact. The first is the physical currency — coins and bills — in circulation which amount to a tiny fraction of the money supply. The second exception is the

30 Dyson, B. and Jackson, A., *Modernizing Money: Why our Monetary System is Broken and how it can be Fixed* (2012)

31 Ryan-Collins, J. et al., *Where Does Money Come From* (2011)

32 <https://www.bankofengland.co.uk/quarterly-bulletin/2014/q1/money-creation-in-the-modern-economy>

unprecedented technical support central banks employed following the financial crisis known as quantitative easing (QE) which involved the Central Banks “printing” money electronically in order to purchase bonds as a means to support the financial markets, and bank balance sheets in the process.

For practical purposes, in the free market economic system we live in, banks have been delegated the authority and responsibility to create and contract the money supply through their ordinary lending and debt retirement activities. Central banks influence the rate of money creation through their control over short term interest rates,

IMPORTANTLY, THERE IS NO
QUALITATIVE ASPECT OF THE
FED’S APPROACH.

the “cost of money.” This gives central banks enormous power to stimulate or contract the domestic economy, in response to recession or fear of inflation. Importantly, there is no qualitative aspect of the Fed’s approach. It uses the blunt instrument of price — the price of money — with no attempt to direct credit towards one use over

another. This decision is left to the market, and other public policy decisions. It is critical to understand that the supply of new money only comes into existence when a bank decides to make a new loan, for whatever purpose. Conversely, the money supply contracts when a loan is repaid.

Why does it matter that banks — not governments, communities, business networks, or perhaps even Facebook — are charged with the creation and contraction of the money supply? Is it a good idea? The two books mentioned above are a good place to start answering these questions. Debates rage on, as they have for ages. Given spatial constraints here, I intend to make only a few macro observations on what I see as the three critical, interconnected issues relating to money in the context of a healthy economic system.

First is the distinction between a fiat money system and a sovereign money system. Second is the topic of monetary policy, including the profound implications of the controversial Modern Monetary Theory (MMT) — really more an explanation than a theory. Finally, we will discuss complementary currencies, both conventional and the newer crypto varieties, and their role in our money system. Note, I will not address the gold standard, which for many reasons should remain part of the historical record of the story of money, but is no more relevant to the modern global economy than buggy whips are to modern transportation systems. I will attempt to offer my perspective, without wading into the technical details, while recognizing the enormous complexity of the subject that warrants much further discussion.

Fiat Money vs. Sovereign Money, and the Role of Banks

A central question being raised after the financial crisis is whether policy makers should consider rescinding from banks the privilege of creating money. A similar impulse

followed the Great Depression in 1933, when a group of influential economists — led by Irving Fisher out of the conservative “Chicago School” of economists at the University of Chicago — put forward a plan for banking reform known as the Chicago Plan. Economists from the IMF formally revisited the plan in 2012 as a possible response to the financial crisis in a working paper that received wide attention.³³ The core of the plan was to restore “full reserve banking” which would have the practical effect of prohibiting banks from lending money they did not have on deposit. The money creation function would be turned over to the government, a system referred to as a “sovereign money” by its thoughtful proponents at Positive Money in the United Kingdom.³⁴

It was only natural that a response to the reckless and fraudulent behavior of banks that precipitated the financial crisis would include a fresh assessment of the core functions of banking, including the money creation function. Since irresponsible lending, often linked to real estate speculation, seemed to be a pattern of abuse that leads to boom-bust cycles in the real economy, why not reign in the banks’ tendency to accentuate the boom-bust cycles by curtailing their ability to create money at will? Why not turn banks into boring utilities that serve the needs of the economy without the possibility of wrecking it in the process?

The case for sovereign money has been well articulated in *Modernizing Money*. The stance has its origins in writings by Frederick Soddy in 1926, and was later popularized by Irving Fisher in his book called *100% Money*. Over time, it has received interest and support by noted economists Milton Friedman, James Tobin, Laurence Kotlikoff, Martin

Wolf of the Financial Times, and even former Bank of England Governor Mervyn King. Not surprisingly, as memories of the financial crash have faded, the discussions about sovereign money have faded, as well. This trend doesn’t diminish the importance of careful reflection on this interesting topic.

MY OWN VIEW IS THAT A SHIFT TO 100% SOVEREIGN MONEY WOULD ENTAIL SIGNIFICANT COSTS TO THE REAL ECONOMY IN TERMS OF LOST DYNAMISM AND FLEXIBILITY.

Like all things to do with money, it’s complicated. My own view is that a shift to 100% sovereign money would entail significant costs to the real economy in terms of

lost dynamism and flexibility. The values-based banks in the GABV we discussed earlier would likely be restrained by 100% reserve requirements, hampering the good business they can do today to support a vibrant and healthy real economy. Advocates of sovereign money would argue that banks like those in the GABV should remain unconstrained to do the good lending they do, provided there is an effective governance mechanism within the central bank for providing an adequate money

33 <https://www.imf.org/external/pubs/ft/wp/2012/wp12202.pdf>

34 <http://positivemoney.org/>

supply. While perhaps true in theory, I'm not convinced this would be the case in practice. Such an effective governance mechanism — free of political influence, much less blatant corruption — is an optimist's view of any government or quasi-government agency. The reality I suspect is a case of picking one's poison.

Instead, I would prefer to see a radically different governance regime and set of capital requirements for banks which would effectively ban them from all of the excessive speculative activities that get them — and the real economy — into trouble in the first place. For example, I call for much stricter margin lending requirements and borrower leverage limitations that will restrict speculative leverage in the system, constraining speculative hedge fund lending and the leveraged loan business, in particular. A full set of policy recommendations follows in Act IV.

There is no reason to presume that all banks, and even all big banks, will always behave irresponsibly — notwithstanding their impressive track record on that front. Giving up on responsible banking — and consequently removing their ability to lend money into existence for productive purposes — will have real costs to a modern economy. At this moment in time, we need to encourage massive credit extension for vital issues like the transformation of the global energy infrastructure. Accordingly, hampering the credit creation process by switching to 100% reserve banking does not seem wise in the current context, and certainly without many other profound changes in the institution of banking. What's needed first and foremost is the political will to regulate and control the banking sector in such a way that it serves the real economy. There is no reason to tolerate the banking sector using the assets in the real economy for its own speculative short-term gains, while shifting the risks onto society when failure arrives as it inevitably does.

Monetary Policy

The objective of Monetary policy carried out by the Federal Reserve in the United States is laid out in the Federal Reserve Act of 1977. This act modified the original Federal Reserve Act of 1913, which first established the Federal Reserve. A response to the inflation woes during the 1970's, the Federal Reserve Act of 1977 made price stability of money an explicit policy goal for the first time. Ever since, the Fed has pursued its "dual mandate" of full employment and price stability, with a belief system that the two are typically competing objectives that ebb and flow with the business cycle. This belief system was first represented in the now famous "Philips Curve" named after an economist named William Phillips.

The idea is simple and no doubt a partial truth: When unemployment is low, pressures for inflation build in the economy. The Fed responds by raising interest rates to choke off such inflation pressures, even at the risk of weakening the economy and hurting the full employment objective. Conversely, when the economy appears to be weakening

and unemployment is on the rise, the Fed “eases monetary policy” (lowers short term interest rates) in order to stimulate the economy at a time when the risks of inflation appear to be low. This is the primary dance central bankers engage in, using sophisticated economic forecasting models to anticipate these shifts in the business cycle which lead to changes in unemployment and inflation. Of course, these are the same models that failed to predict the financial crash of 2008. They are directly linked to the flawed statistics and an absence of connection to the feedback loops from the financial markets that such models are based on, as we have reviewed above.

The European Central bank, on the other hand, pursues a single mandate: price stability. The result of German “hard money” influence, rooted in that country’s trauma with debilitating hyperinflation following World War I, is that price stability has been the central focus of the European Central Bank, and has influenced its response to the

THE EUROPEAN CENTRAL
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financial crisis. Similarly, German concerns about fiscal deficits (Germany had similar trauma with runaway deficit borrowing to fund their war effort) have driven austerity-oriented policies by the government in its response to weaker economies in Southern Europe. It is important to understand that the single mandate of price stability for the European Central Bank is premised on the belief that

it represents the best strategy to foster a strong and stable economy, which in turn is the understood pathway to full employment. This is the theory.

In practice, central bank obsession with price stability — born out of different inflationary experiences that had harmful or catastrophic impacts on the real economy — lies at the heart of central bank theory and ideology throughout most, if not all modern central banks. There is an implied shared belief that if an economy “heats up,” then the risk of destructive inflation must be lurking, and firm action by central bankers is required.

Yet at the same time, most economists including the ones at the same central banks, would readily agree that the relationship between inflation and full employment implied by the Philips Curve is overly simplistic. In the modern global economy, with technology displacing jobs all the time, there are many real constraints on wage inflation that did not exist when Mr. Philips put forward his theory. Furthermore, the German experience with hyperinflation was grounded in a bet that the country would win the war and be able to repay war debts with the spoils. When that failed to materialize, the war debts coupled with the ensuing reparations imposed on Germany by the victors sealed the fate for the currency and the economy. Such an experience had nothing to do with tightening labor markets as a result of a robust economy. Similarly, the United States’ experience with inflation and then stagflation in the 1970s was caused by an extreme commodity price spike in oil as a result of the OPEC quota system being imposed, not overheated labor markets. In other words, context matters.

Enter Quantitative Easing (QE) as a Grand Experiment

Of course, we also know that the Great Recession was triggered by irresponsible and fraudulent real estate lending and the collapse of the resulting asset bubble, rather than overheated labor markets that needed to be reined in. In this case, central banks, led by the Federal Reserve, moved beyond traditional monetary policy tools to stabilize financial markets after the financial crash of 2008 with the introduction of quantitative easing (QE). The central banks printed trillions of dollars of digital money in order to purchase bonds in the secondary market, thereby artificially supporting market prices. As a result, they artificially lowered long term interest rates. This strategy also ballooned central bank balance sheets to unprecedented levels — by some \$12 Trillion — in the process (See Figure 4 below).

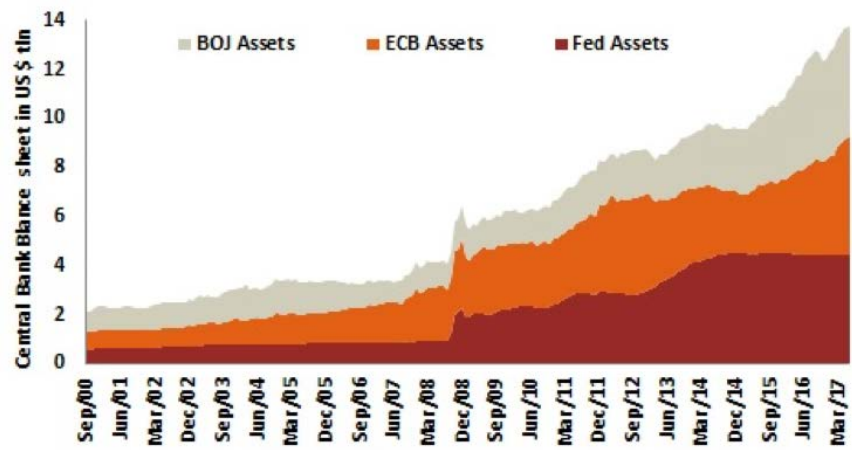


Figure 4: Unprecedented central bank balance sheets of the Bank of Japan, the European Central Bank and the Federal Reserve

The artificial manipulation of bond prices through these enormous balance sheet purchases have artificially lowered long-term interest rates with the intent of encouraging investment and growth. But it also amounted to a massive subsidy through the support of the balance sheets of the then overextended and undercapitalized banking system that was hemorrhaging losses as their bond inventories were marked down in price during the financial crash. In other words, central banks bailed out the banks indirectly by bidding up their asset prices and preserving their capital in the process.

QE was defended as a direct manipulation of long-term interest rates at a time when short-term rates had already been lowered effectively to zero, with the belief that lowering long-term interest rates would have the effect of stimulating growth and economic stability — a claim that is also reasonable, even if hard to quantify in terms

of impact. What is undeniable is that the central banking system transformed its role as lender of last resort to that of bond-dealer of last resort. In this new role, the central banks provide a dual role of ensuring the solvency of banks, and the stability of the bond markets, and by extension, the stability of all capital markets. In other words, the system is rigged to keep it from collapsing.

THE SYSTEM IS RIGGED TO
KEEP IT FROM COLLAPSING.

Somehow, we continue to operate under the myth of “free markets.” Central banks, by legal mandate, remain focused on price stability as if the relationship between inflation and labor markets is the dominant issue affecting economies. Never mind that we have just lived through an experiment of printing money on a massive scale! Printing money is the very act that the price stability mandate of central banks was designed to protect against. No doubt the strategy was helpful, if not critical to avoid a much worse economic collapse. Ten years later, we are not suffering from hyperinflation, or inflation at all. In fact, the Fed is still worried we don’t have enough inflation — but, many, including this author, believe we have dangerously inflated capital market prices of both bonds and stocks, yet done little for the real economy. This asset inflation has had the effect of benefiting the wealthy who own most of the financial assets, as well as leaving the market and, consequently, the real economy in a fragile state.

What about both Quantitative Easing and Critically “Qualitative Easing” as well?

Remarkably, there is little public discussion underway about modifying the mandate of central banks in light of this massive and seemingly successful experiment, now a decade long. While central bankers have made moves to begin the unwinding of the trillions of dollars of bonds that have built up on Central Bank balance sheets, there is little doubt that QE is now a well-respected tool to be used during times of extreme banking system stress. Of course, no one knows what will happen if central banks were forced to print a second \$12 Trillion or more, on top of what they already have already done.

But what about using the Central Bank’s power to print money virtually at will, not simply to purchase bonds in the secondary market to artificially suppress long term interest rates and credit spreads? As we have discussed, the goal of this approach is to stimulate economic growth and support the profits of banks and capital markets investors. In the case of leveraged investors such as banks and hedge funds, it goes further to support their solvency in times of stress, and with it the stability of the financial system itself. What if Central Banks printed money and made loans for other purposes — purposes more “qualitative” in nature which achieved social and systemic aims beyond the pursuit of undifferentiated economic growth and supporting the financial system? Why not purchase bonds or initiate new loans in the renewable energy sector, supporting the kind of growth we need to transition our energy system off fossil fuels and onto renewable sources, like wind and solar as an

obvious possibility to consider? Or why not target specifically low-income housing, or other clear social objectives to address inequality? Critics will shout “government shouldn’t pick winners,” but government is already saving losers like banks and real estate developers. How is that any different?

“Qualitative easing” is the targeting of qualitatively desirable social and or environmental objectives with a Central Bank asset purchase program. In Japan and Bangladesh — and other countries of which I may not be aware — such qualitative easing is already a reality. It is a particularly effective tool for capital intensive projects, such as energy infrastructure, housing, hospitals and schools, because the cost of capital is a dominant cost of such a project. Obviously, such a monetary operation raises many practical and governance questions. But at a moment in time when the world needs to stimulate an unprecedented trillions of dollars of infrastructure investment, and capital markets are clearly not up to the challenge for the many reasons described in this brief, we should begin controlled experiments and associated serious conversation about the role that the world’s leading Central Banks should play in this crucial challenge of our age.

Modern Monetary Theory (MMT)

There is a serious effort to rethink monetary policy that questions the ideology about money within politics, business, and central banking circles. Its implications are profound. If this relatively new thinking is right, it also has significant implications for the transformation to regenerative economies.

This fresh approach to monetary thinking is called Modern Monetary Theory (MMT), which, its proponents argue, is more of an explanation of how money actually works rather than a new theory. Developed by leading economists primarily at the University of Missouri in Kansas City and the Levy Institute of Hyman Minsky fame at Bard College, MMT challenges the very ideology of money, inflation, deficits, and unemployment.³⁵

The core explanations underlying MMT are incontrovertible statements of fact. The possible implications of a fresh look at these facts are radical. Einstein’s comment

35 Leading thinkers in the MMT field include Stephanie Kelton, former Chief Economist at the Senate Budget Committee and editor of the key MMT blog *New Economic Perspective*; Warren Mosler, a former hedge fund manager and MMT evangelist who pretty much figured out the arithmetic underlying how money works from his very practical world of bond market arbitrage as one of the early successful fixed income hedge fund managers dating back to the 1980s; and Wrandall Wray, a Minsky disciple who has written the “text book” of MMT: *Modern Money Theory: A Primer on Macroeconomics and Sovereign Monetary Systems*. For a good overview article on MMT and its proponents, see <https://www.thenation.com/article/the-rock-star-appeal-of-modern-monetary-theory/>

that theory determines what we are able to see is never more relevant than when it comes to money, and MMT holds the potential for us to see money and deficits in an entirely new way — if we can transcend our ideological beliefs.

MMT explains first and foremost that governments that have their own currency are not like households or businesses, or states that do not have a sovereign currency. Since such governments can print their own currency, they literally cannot run out of money. They can always print more. The radical and controversial implication of this fact is that federal deficits don't matter as much as we have always been made to think, at least within certain boundaries. This claim is heretical and requires a more nuanced assertion that we will discuss below. MMT suggests that all the talk on the left and the right of runaway deficits that will come home to roost on the backs of our children is simply untrue. The debts of nation states with their own currencies will never actually be paid back.³⁶

MMT HOLDS THE POTENTIAL
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³⁶ An important caveat here is that such a currency must retain the faith of the marketplace that it will not become victim of hyper-inflation, itself a binding constraint on reckless, corrupt, or simply unproductive money printing.

A second and related factual observation in direct contradiction with conventional thinking on both the left and the right concerns the literal *requirement* for a growing public sector deficit in a growing economy. In this case, the fact in question is a simple accounting identity, revealed in the graphic of actual historical deficits and surpluses in Figure 5 below:

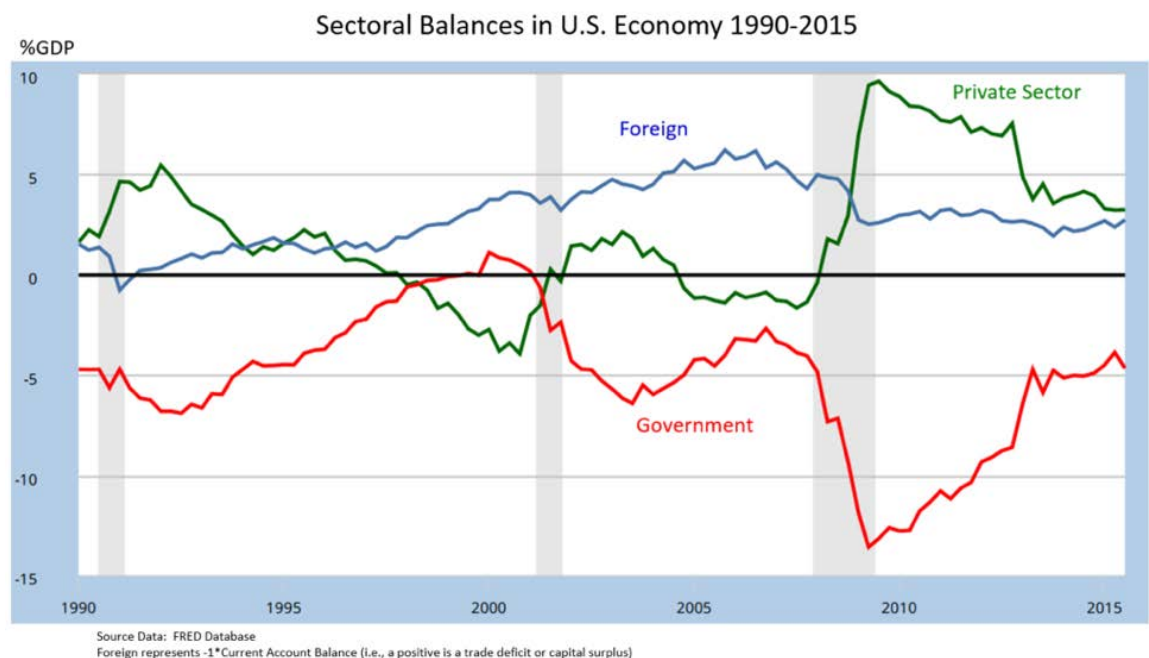


Figure 5: Note the symmetry between Private sector and Public sector deficits and surpluses. The Foreign Current Account Balance can be ignored for our purposes (although it is an important topic for another day), as it does not affect the accounting identity between the Private and Public sectors of the economy.

This chart matches our common sense. We know that, within the private sector, the only viable and sustainable goal is to achieve some level of surplus over time. As individuals, we know we need to save for retirement. That annual saving is our household "surplus." Even if we borrow to purchase a house, and therefore go into significant deficit for that year, we know that beginning the next year, we must start paying down the debt (with interest) or we risk the bank foreclosing. In this case, an annual deficit is followed by years of surplus as we pay off our mortgage. Or we lose the house, a forced rebalancing of our deficit.

Similarly, the requirement of any business is to generate a surplus for its shareholders over time. It may lose money as a young company with venture capital funding to plug the gap, or during recessions as a mature company. It may borrow to build new plants and equipment, creating an annual deficit in the process. However, if it is not able to generate consistent surpluses over time, eventually it goes out of business. To

state the obvious, since actors in the private sector do not have the ability to borrow endlessly with no promise of a future surplus — or print their own money — they must generally drive toward being in surplus. This simple statement of fact is demonstrated by the private sector generally being in positive territory. Note in Figure 5 that when the private sector falls into deficit for an extended period of time, recession follows as represented by the shaded vertical section. During recessions, banks contract their lending, bankruptcies rise, and the private sector is forced to de-lever (return to net savers), often a painful process.

THE “CLINTON SURPLUS”
MAY HAVE ACTUALLY
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RECESSION

Note also in Figure 5 that the one time the public sector generated a surplus in 1998 to 2000, what became known and celebrated as the “Clinton Surplus” may have actually exacerbated, or even caused the subsequent recession. This effect is the radical and profound implication of MMT.

What was previously not obvious, and in conflict with conventional thinking about deficits, is also clearly revealed in the chart. There is an accounting identity which demands that for every private sector surplus, there must be an equal and offsetting public sector deficit. This reality is somewhat obscured by the foreign trade balance — a simple national economy with no foreign trade would make it easier to see but does not change the story. If one superimposes the trade balance on top of the private sector surplus, we are left with the fact that the public sector deficit is literally the mirror opposite — thus, the accounting identity! When the public sector goes into an annual surplus, it forces the private sector to go into an equal, offsetting deficit — obviously something that cannot be sustained over the long run.

This revelation is indeed profound. If we understand that the private sector generally must remain in surplus over the medium and long term, then any talk of “balanced public sector budgets” is simply nonsense and is incompatible with a vibrant economy, according to MMT. Furthermore, if the economy is growing over the long term, then the annual private sector surpluses are likely to build over time. Therefore, the cumulative public sector deficit must build over time to finance the private sector surpluses. This is simple arithmetic which is demonstrated in reality.

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This simple arithmetic is also in direct conflict with the supposed need to “balance the budget” in order to avoid destroying the lives of our children and leaving the country in financial ruin. Of course, the actions of politicians have been contrary to their professed concern over soaring deficits, most recently

with the Trump budget busting tax cuts in 2018 when employment was very strong. Few mainstream economists, or the politicians they influence, seem even aware of the math that underlies the necessary permanence of public deficits.

MMT advocates go much further. They are primarily focused on the economic and moral imperative of full employment. They use their clarity regarding deficits to argue for government spending until there is full employment, and then using tax receipts as the governor over money supply into the economy. They believe there cannot be wage inflation when there is significant unemployment, notwithstanding obvious structural rigidities that hamper labor mobility. These radical implications of MMT deserve a serious debate. Wouldn't it be nice if the public sector could literally hire surplus labor to do the endless good work that needs to be done, including infrastructure and public park repairs, energy efficiency upgrades for buildings, planting trees, and caring for the elderly?

My own view is unsettled on these radical possibilities. Certainly, there is room for targeted, "qualitative" Central Bank asset purchases as well as government deficit spending or money printing to achieve social and ecological imperatives. Globally, central banks printed \$12 trillion in response to the financial crisis of 2008, so it would be hard to argue there is no room for another one or two trillion.

The question is: what are the limits? What are the permissible purposes of such money creation, before adverse consequences set in — consequences such as a loss in confidence in the currency which would bear potentially harmful or even disastrous effects. Our approach to such questions should be grounded in empirical study, rather than flawed ideology on both sides of the political spectrum, as it is today.

MASSIVE UNTAPPED POTENTIAL
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SCALE.

What I do believe is that massive untapped potential exists to stimulate the transformation of our economic system through prudent and strategic public sector QE investment at scale. This potential demands that we look with fresh eyes at monetary and fiscal policy in a holistic way, unconstrained by outdated and erroneous ideology. Just as QE was an unrecognized tool prior to the financial crisis that proved to be extremely useful, we surely have potential tools and strategies linked to our

money system waiting to be unlocked in order to address the interconnected and interdependent economic, social, and ecological crises of our time. The first step to exploring and unlocking this potential is to acknowledge our current flawed ideology. It is also clear that the decision for European countries to give up their domestic currencies and join the Eurozone without simultaneous political union was a disastrous mistake. Countries such as France, Italy, and Greece are now trapped without the use

of this powerful monetary tool, of which MMT has articulated the importance. Monetary union is a complex subject beyond the scope of this paper. With hindsight,

it is remarkable how many countries willingly traded their sovereign currencies away, seemingly without even understanding the consequences. Promises of a free trade zone and the ability to borrow off of a stronger currency with lower interest rates proved too seductive. It also proved to be a trap, locking the weaker economies in a strait jacket of austerity imposed by an ideologically determined (an scarred) Germany at the center of the Eurozone. These economies were left without the ability to adjust through the critical exchange rate mechanism. Domestic currency devaluations are not without pain, but they enable economies to adjust and begin a fresh start.

IT IS ALSO CLEAR THAT THE DECISION FOR EUROPEAN COUNTRIES TO GIVE UP THEIR DOMESTIC CURRENCIES AND JOIN THE EUROZONE WITHOUT SIMULTANEOUS POLITICAL UNION WAS A DISASTROUS MISTAKE.

This option has been removed from France, Italy, Spain, and Greece, among many others, and they are paying the price.

Complementary Currencies from Time Banks to Bitcoin

Few people have thought more deeply and thoughtfully about money and complementary currency systems than the late Belgium economist, Bernard Lietaer, a former currency trader and one of the architects of the European Currency Unit that later evolved into the Euro. However, Lietaer's idea for a European Currency Unit was to have it be a complementary currency to national currencies rather than to replace national currencies, as eventually happened with the Euro. Lietaer wrote many books on money, most recently, *Rethinking Money: How New Currencies Turn Scarcity into Prosperity*.

In *Money and Sustainability, The Missing Link*, Lietaer helps us draw the direct connection between money systems and our desire for a sustainable economic system.³⁷ It was from this work that we first discovered co-author and theoretical ecologist Bob Ulanowicz's important "window of vitality" which is expressed in Figure 6 below. The window of vitality describes the zone of balance that all healthy and persistent living systems find between resiliency and efficiency, based on his empirical research. In Ulanowicz's words,

"The analysis provides heretofore missing theoretical justification for efforts to preserve biodiversity whenever systems have become too streamlined and efficient. Similar considerations should apply as well to economic systems, where fostering diversity among economic processes and currencies appears warranted in the face of over-

37 Lietaer, B. (with Arnsperger, C., Goerner, S. and Brunnhuber, S.) *Money and Sustainability, The Missing Link* (2012)

development.”³⁸

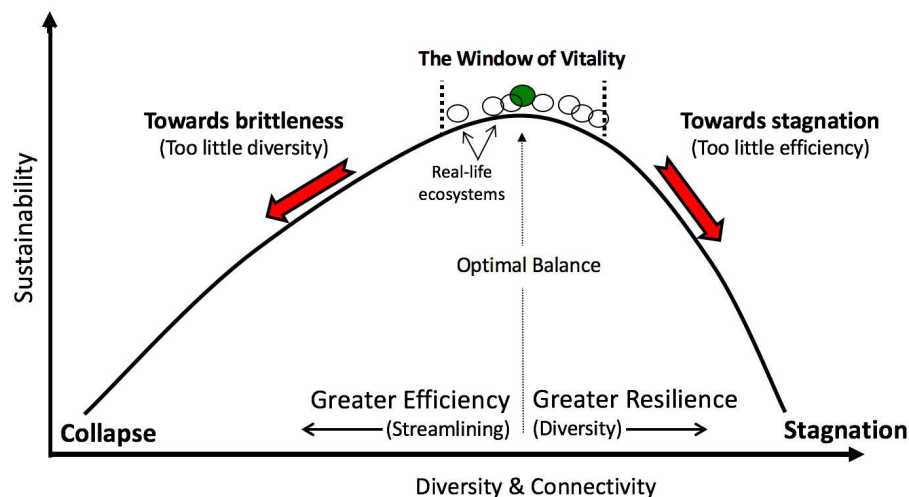


Figure 6: The Window of Vitality, Robert Ulanowicz

THIS EMPIRICAL
FINDING FROM REAL
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IN STARK CONTRAST
WITH CONVENTIONAL
ECONOMICS'
OPTIMIZATION OF
EFFICIENCY!

The window of vitality tells us empirically that in real living systems which sustain themselves over long periods of time, there is an optimal balance of diversity and streamlining, or efficiency. Note, this empirical finding from real living systems is in stark contrast with conventional economics' optimization of efficiency! As we have learned, the optimization of efficiency typically comes at the cost of the resiliency associated with diversity. This observation is at the foundation of our “seeks balance” principle — one of Eight Principles of Regenerative Economies discussed earlier in this paper.³⁹

Lietaer and colleagues have applied this understanding to money systems. They argue that our “efficient” single currency money system is too brittle, lacking in diversity and resiliency, and therefore more likely to collapse, and less able to address the diverse needs of a complex economic system. Think of what happens when a single currency economy has a run on the currency for whatever reason, as happens regularly in emerging markets and even in some developed markets, such as the collapse of the British Pound in the 1990s. Lietaer makes a good case for complementary

38 <http://wtf.tw/ref/ulanowicz.pdf>

39 The “seeks balance” principle applies more broadly than this relationship between efficiency and resiliency. For example a regenerative economy must balance the masculine and feminine energies as well, just as such a balance is necessary for species regeneration at the most basic level of reproduction. This shifts the social justice call for equal rights for women to be not just a moral demand, important as that is, but it is also a healthy system design requirement.

currencies not to replace sovereign currencies, but to add much needed diversity to the system, making it more resilient in the process.

I find this theoretical argument, grounded in the scientific understanding of real living systems, to be profoundly important for our understanding of not only money systems, financial systems and entire economies as well. There are real world examples of such complementary currency systems adding valuable resiliency to economies, particularly in times of stress. The WIR in Switzerland, a business-to-business credit system founded during economic stress in the 1930s, is probably the most advanced and large-scale example in operation today.⁴⁰ Over 60,000 mostly small and medium sized Swiss businesses transact approximately \$2 billion dollars-worth of business annually using the WIR currency — this is no pilot project. Research by professor James Stodder has demonstrated that Switzerland's legendary economic stability is linked directly to this complementary, peer-to-peer currency system that provides counter-cyclical credit capacity when it is most needed.⁴¹

LIETAER MAKES A GOOD
CASE FOR COMPLEMENTARY
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Interestingly, Lietaer points out that since Japan's economy crashed in the early 1990s, a broad diversity of over 600 complementary currencies have emerged in Japan in response.⁴² Japan is perhaps an extreme case of adjustment from an era of industrial expansion to stagnation. Nonetheless, the lessons Japan has to teach both the similarly stagnant Eurozone, and to some degree the United States, are worthy of deeper study. In particular, the spontaneous emergence of complementary currencies as a critical tool to build resilience has proven to be important and, according to Lietaer, explains why Japan's economic "lost decades" have not resulted in a more extreme economic collapse.

An array of diverse complementary currency systems are being utilized throughout the world. Time Banks, created by legal scholar Edgar Cahn, are an economic development tool where the unit of currency is time.⁴³ One hour of service is the unit of account that is exchanged, tapping into the underutilized asset of surplus time, particularly where unemployment is high, to meet community needs, such as day care and elder care. It is a barter system of surplus time — essentially surplus labor — with a centralized accounting ledger. It is designed to work in

40 https://www.huffingtonpost.com/jacqui-dunne/rethinking-money_b_2268797.html

41 James Stodder, "The Macro-Stability of Swiss WIR-Bank Spending: Balance and Leverage Effects," paper submitted to Swiss Journal of Economics and Statistics (2011), and, James Stodder, "Complementary Credit Network and Macro-Economic Stability: Switzerland's Wirtschaftsring," Journal of Economic Behavior and Organization, 72 (October, 2009)

42 http://www.lietaer.com/images/JapanCC_2003.pdf

43 <https://timebanks.org/>

a complementary way with the mainstream economy, putting people to work, serving genuine unmet needs, and therefore building resilience into the system in the process. Hundreds of such systems are active in over thirty countries, most notably in the United States, the United Kingdom, New Zealand, Greece, Spain, Japan, South Korea and Argentina.

Many complementary currencies arise in the context of the move toward more place-based economies, in alignment with our principle “honors community and place.” Such currency experiments serve as a tool to encourage community members to “buy local,” which means increasing the circulation of money throughout the local economy. This benefit of course is also in alignment with our principle, “robust circulation.”⁴⁴ BerkShares in the Berkshire region of Massachusetts, and the Bristol Pound serving the town of Bristol in the United Kingdom are two leading examples of these experiments, each with a distinct paper currency. Many have found initial success, but also challenges in sustaining themselves by scaling up to some critical mass that allows their expansion to become self-generating. Robust digital platforms are often beyond the reach of such efforts, thereby limiting their practical application in the 21st century.

Enter the Blockchain

Blockchain technology promises to address the critical security and mass scaling challenge of complementary currencies. From my limited research, blockchain itself is still an immature technology. Accordingly, it is important to understand its practical limitations on the more visionary applications. Money systems are not good tools to “fail fast” with.

It is important not to confuse the Bitcoin speculative insanity — the boom likely fueled at least in part by Chinese newly minted tycoons seeking to move capital offshore anonymously, followed by the inevitable bust — with the potential of blockchain technology still waiting to unfold. It is also interesting to note that before his death, Bernard Lietaer had become immersed with the blockchain as an enabling technology to aid with the exponential growth of complementary currencies. In 2017, he joined the Bancor Protocol Foundation as the Chief Monetary Architect. The Bancor website states:

The Bancor Protocol establishes a new generation of cryptocurrencies called “Smart Tokens” which benefit from convertibility and built-in liquidity thanks to a novel price-discovery mechanism. They achieve this through the use of one or more “reserve”

44 “Robust circulation” has a more complex meaning as well, beyond the circulation of money. It includes the efficient circulation of energy and materials (“circular economy”). Like any healthy metabolism, it also requires healthy inputs (austerity is a problem) and safe disposal of wastes (everything from toxins in the rivers to CO2 in the atmosphere).

currency balances, managed directly through their smart contracts. This allows Smart Tokens to be bought and sold at an algorithmically balanced price at any time, without needing a counterparty and its risks, nor requiring traditional exchanges. This allows local, lightly traded and new currencies to cross the liquidity threshold instantly, leveling the playing field for a new long tail of user-generated currencies to emerge.

In other words, Bancor is a digital solution that solves the liquidity requirement of any practical currency without it being the dominant currency that attracts all the transaction volume. It also preserves anonymity and eliminates the counterparty risk of traditional currency settlement systems. It's worth noting that Bancor raised \$153 million in 2017 in its landmark initial coin offering (ICO). That's not loose change.

I am not qualified to comment intelligently on the potential of blockchain technology to bring complementary currencies into the mainstream and fulfill the vision of Lietaer, Cahn, and other early advocates. I do know it is being used for purely speculative and other nefarious purposes, but that does not mean it does not also hold immense socially useful potential. I don't know if it will be possible to use blockchain technology at scale without requiring an impossible and unethical amount of energy to "mine" new coins. One report suggests that the current coin mining activity already uses more electricity than all of Singapore. I'm also uncomfortable with the basic premise behind crypto currencies — their anonymity is prized by an anarchist-leaning culture with a total lack of trust in institutions. Trust would seem to be at the heart of any functioning society, and I'm skeptical about a technological "fix" to such a fundamental problem. However, based on the enthusiasm Lietaer and many other thoughtful people have expressed for the potential of blockchain technology, and Lietaer's passion to show the world how complementary currencies can unleash pent up abundance, I'm paying attention. I will leave readers with this tantalizing comment from Bancor's admittedly non-objective co-founder Galia Benartzi:

THIS IS OUR NEXT
'INTERNET',
AND IT WILL TOUCH
EVERYTHING WE
KNOW.

Blockchain infrastructure is still very new, but the problems that arise aren't showstoppers, they are growing pains ... New blockchain technologies will emerge, the existing ones will scale (or not). Even bubbles will grow and burst — everything is very fluid, but this technology is here to stay. And everywhere that users can benefit from decentralization of control and profit, it will flourish. This is our next 'Internet', and it will touch everything we know.

IV. TOWARDS AN INTEGRAL INVESTMENT THEORY (IIT)

Let us now explore the possibility of what the future of investment might look like if we follow our premise to its logical conclusion. To refresh, our integral worldview rests on the following four-part hypothesis:

1. We have entered a great change in era from the Modern Era to the Integral Era, with our guiding metaphor for the universe shifting from a machine composed of separate parts to a complex network — more precisely a self-organizing, ever evolving living system of interdependent relationships. This network is called the web of life, consistent with the scientifically robust Gaia Theory first articulated by James Lovelock and Lynn Margolis in the 1970s;
2. The Integral Era rests on our new understanding that everything is connected to everything, that the universe is made up of integrated and embedded wholes, not separate parts. Nested wholes, from the microscopic to the cosmic, are the organizing structure of reality;
3. There are universal patterns and principles that describe the organization of living systems which sustain themselves over long periods of time, always adapted to the unique context of place. In a similar way, every snowflake is unique, yet every snowflake looks like a snowflake;
4. Only when the human economy — inclusive of finance and the real investment decisions that significantly define the nature of the economy — comes into alignment with these universal patterns and principles that appear to enable the regenerative process to unfold, will we have an economic system design that is genuinely sustainable (socially, economically, and ecologically) in the long run;

Why a new investment theory? Because the tools of Modern Era investment theory and practice were developed in the context of Modern Era reductionist thinking that is no longer suited to the emerging challenges and opportunities of the Integral Era. And because the way that capital flows — what gets invested

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in, and what does not attract investment — in an economic system of any variety is profoundly important. Investment is the bridge to the economy of the future.

It is important to note here that the shift from the Modern Age to the Integral Age will be an organic process, not one imposed by the will of those in power. It is the natural response to the limitations and the self-limiting nature of our Modern quest for endless “progress.” The shift is well underway without much notice yet in the mainstream, and certainly among our so called “leaders.” Nevertheless, now is the critical time to expand our collective awareness of this alternative system design, with its dependable patterns and principles, so that we may co-create this integral society effectively. In the process, we can hope to mitigate the worst of the inevitable fallout from a shift of this magnitude.

Critique of IRR and MPT

Before turning to an Integral Investment Theory (IIT), let us briefly critique the two principal tools of Modern Era investment practice: Internal Rate of Return (IRR), and Modern Portfolio Theory (MPT).

At the micro level, the IRR calculation — or cruder versions of the same concept, such as “payback period” — dominates investment decision making. The IRR allows future and uncertain cash flows of a project to be compared with the initial cost of the project. The more uncertain future cash flows are — that is, the riskier they are — the higher a “discount rate” a rational decision maker is likely to demand in order to undergo the project. Taken together, these two attributes provide a powerful and practical decision support framework. When the management of a firm undertakes investments that deliver the projected risk adjusted cash flows discounted at a rate that is higher than the firm’s cost of capital, the inevitable outcome is the creation of “shareholder value.” This end goal explains the dominance of IRR as an organizing tool for financial decision making in business. In other words, it basically works.

IRR has two biases built into the design. These biases are not mistakes, in that they made perfect sense in the context of reductionist Modern Era thinking. First, the future

THE DISCOUNTING
MECHANISM SAYS COSTS
BORNE BY OUR CHILDREN
ARE WORTH LESS THAN
COSTS BORNE BY US.

is worth less than the present, since a dollar today can be invested even risk free and be worth more than a dollar in the future. This is the mathematical reality of the interest-baring debt-based money system we have. Since future cash flows of a new investment project are also uncertain, it only makes sense to value them at a further discount to reflect that uncertainty, all else equal. Yet the same discounting function dictates that future risks, including those with potentially overwhelming, not incremental costs — the costs of future climate change risks, for example — also get valued less as a result of the discounting

function. The discounting mechanism says costs borne by our children are worth less than costs borne by us. Costs borne by our grandchildren are almost worthless.

Most thoughtful people would fundamentally disagree with this design feature built into IRR calculations. Conventional economists, including Nobel climate economist William Nordhaus, have attempted to rationalize this flaw by arguing that in the future, we will have more money and new technologies to solve these future problems, so what matters is that we maximize present economic value.⁴⁵ The extra money will more than pay for our future problems. This logic flies in the face of the precautionary principle and our common sense when the stakes are not trivial, but the very survival of life as we know it on Earth.

The second design flaw is revealed in the name itself. “Internal” rate of return specifically looks at only cash flows and risks that are “internal” to the organization making the investment. There is no place for benefits or costs (“externalities”) that will accrue now and in the future to external stakeholders. Of course, we now know this omission is at the heart of our challenge, with much work focused on how to internalize such externalities into the investment decision making process. Internalization will help, but it can only go so far. As my colleague Peter Brown at McGill University wisely observes, “there is a difference between a cost that can be fixed with money and a wrong that never can.”

THERE IS A DIFFERENCE
BETWEEN A COST THAT CAN
BE FIXED WITH MONEY AND A
WRONG THAT NEVER CAN.

Destroying individual lives with generational ramifications as was done with the practice of slavery is not an externality. It is a wrong. The consequences of this wrong continue to haunt not only the direct descendants of slaves, but our entire society, which is complicit in this wrong. Similarly, with our new understanding of how everything is connected to everything in the Integral Age, wasting human potential through poverty, health and education deficiencies, destroying communities in the name of economic progress, destroying rainforests and our soils, and loading the atmosphere with heat trapping gasses are similarly all wrongs that cannot be fixed with money. Society as a whole — rich and poor alike — suffers from our complicity. An internal rate of return is simply the wrong tool to drive investment decisions that have such consequences. Public policy responses including regulation and laws have proven to be ineffective in accounting for externalities when designed within a paradigm that presumes our simple freedom to invest in accordance with the mechanics of the IRR.

Now let us turn to the macro level and Modern Portfolio Theory (MPT). Beyond individual firm investment decisions, we have a significant group of actors in the

45 <https://www.econlib.org/library/Columns/y2018/MurphyNordhaus.html>

economy known as “asset owners” or “investors” who allocate capital across an investment portfolio, either directly themselves or, more often, via intermediaries such as banks, mutual funds, or hedge funds. These investors vary in scale and scope. They include individuals and their personal savings; wealthy families whose assets vastly exceed the purpose of conventional savings; increasingly concentrated institutional investors such as pension systems, university and foundation endowments; and sovereign wealth funds. For all of these investors, the dominant investment framework used either explicitly or implicitly is called Modern Portfolio Theory which was developed by Harry Markowitz in 1952, and for which he won the Nobel Prize.⁴⁶ The largest of such investors consider themselves “Universal Owners” since their philosophy is to own a share of the global economy via small stakes in virtually every company in the world.

The central and important contribution MPT makes is to quantify the benefit of portfolio diversification. It demonstrates that, based on its core assumptions which we will discuss below, there is a mathematical “efficient frontier” on which there is a maximum expected return for any level of risk. Figure 7 below shows an efficient frontier as depicted in a typical marketing document from JPMorgan used with its private wealth and institutional asset management clients. It suggests that as a result of the firm’s assumptions about expected risk and return of various asset classes (bonds, stocks, etc.), investors could rationally expect to be compensated less in 2017 than in 2016 for any given level of risk along the “efficient frontier”. But by diversifying across asset classes, the investor can move up onto the efficient frontier from any of the single asset classes lying below the curve, all sub optimal outcomes (based on the assumptions in the model of expected returns and risk, defined as volatility). It also implies other “truths” based on the inputs of the model. For example, Figure 7 suggests that it makes no economic sense to invest in commodities alone when one can increase returns with less risk by investing in Large Cap stocks. Consistent with this example, MPT permeates the psyche and practice of the entire wealth management industry, often with little or no conscious thought.

46 People refer to the “Swedish National Bank’s Prize in Economic Sciences in Memory of Alfred Nobel” as the Nobel Prize in Economics. But Alfred Nobel, rightly in my mind, did not consider Economics to be a science, so he did not set up a prize for economics.

Efficient Frontiers and 60/40 Portfolios Based on 2017 vs. 2016 LTCMAS for Risk and Return

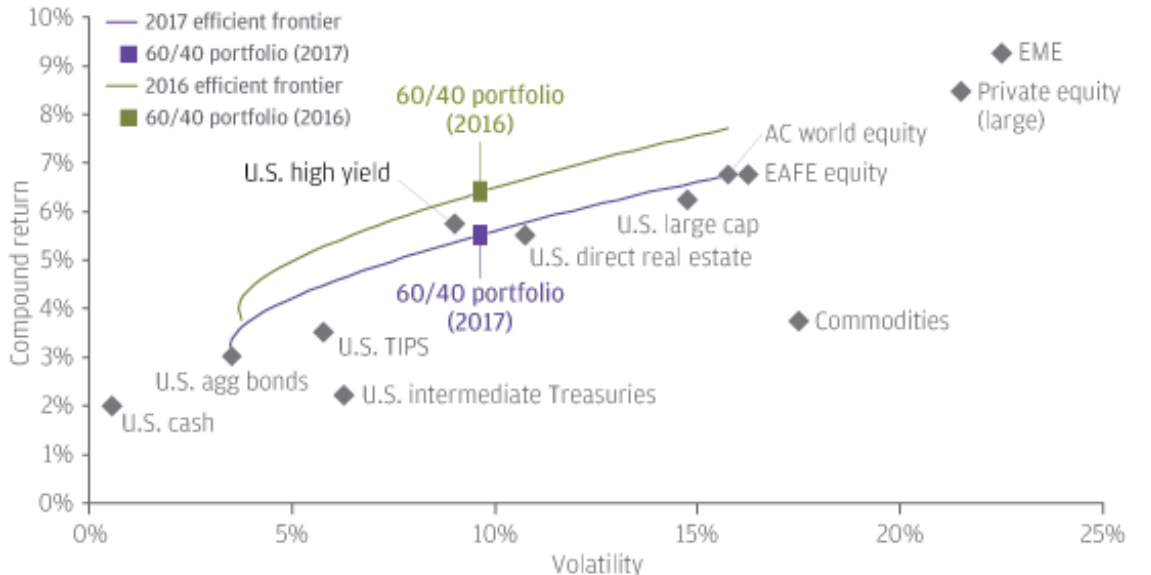


Figure 7

Criticisms of MPT are not new, and they vary from the conceptual to the technical.⁴⁷ Most would agree that, at the very least, MPT is an incomplete description of reality. Defenders acknowledge its limitations yet defend it as “better than the alternatives,” which are few and too complex to be marketed to the average or even somewhat sophisticated investor.

It should be noted that an underlying premise of using any passive approach like MPT is that markets are at least relatively rational and efficient (key assumption 1), and in the long run, you can’t beat the market (key assumption 2). We now have empirical reason to suspect markets are not always rational and efficient. Additionally, Warren Buffett is proof that one can beat the market over the long run with careful stock selection, even if few of us can expect the same outcome.

Here, I will focus on other less well understood and often unquestioned assumptions embedded within the MPT framework that are particularly relevant to investing at the dawn of the Integral Age.

First, MPT uses historical data of securities or commodity prices as the core input to determine both expected risk and return. This implies an unstated assumption that the future will be like the past. Of course, no one knows the future. If one believes, however, that we are at the dawn

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47 file:///Users/johnfullerton/Downloads/9783642554438-c1.pdf

of an entirely new cultural age, and have entered this new age at the dawn of a new geological age — the Anthropocene — then one must reject the assumption that the future will be like the past. This assumption, alone, is reason to move beyond MPT.

Second, the application of MPT has been expanded now to include relatively new and less liquid asset classes, some of which are not really asset classes at all. “Hedge fund,” for example, tells us more about compensation structure than investment strategy. Accordingly, the available historical data is either incomplete or statistically not significant, or both, for these newer asset classes. This limitation should preclude applying the MPT framework to private equity and hedge funds, and most certainly to something like impact investments in rural India. Regardless, MPT is exactly what you will find from the leading wealth management firms.

Third, the logic of value creation through diversification across a portfolio is itself based on two key assumptions: that financial returns are “normally distributed” across a bell curve shaped distribution, and that the correlations among asset classes holds steady over time. We know from real world experience that both of these assumptions are false, as the repeating financial crises have demonstrated. It appears that the theoretically expected 100-year storms under the tail of the bell curve are occurring about every five or ten years — essentially, there are “fat tails” under the actual curves.

We also have seen correlations approaching one (perfect correlation) across asset classes during times of extreme financial stress.

THE ENTIRE STATISTICS BASED
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Nassim Taleb’s prescient book *Black Swan* explained this reality to anyone who would listen.⁴⁸ The entire statistics based analytical framework of modern finance, both the risk management paradigm of banks and hedge funds, and the investment framework of MPT used throughout the investment world were built on a foundation of sand.⁴⁹ And yet, as of this writing, both MPT and VAR remain in widespread use. While banks and their regulators are more cognizant of these limitations today, and have

48 Taleb, N. *Black Swan: The Impact of the Highly Improbable* (2007).

49 Full disclosure: I was a manager within the markets businesses at JPMorgan in the 1990s when the value at risk (“VAR”) framework was developed for financial risk and was subsequently spun off as “Risk Metrics” in a separate company. I also served on the board of Risk Metrics. In fairness, the creators of VAR fully understood its limitations. It was originally designed to provide a simple, timely snap-shot firm wide risk measure to JPMorgan CEO Dennis Weatherstone at the end of each trading day, what became known as “The 4:15 Report.” Unfortunately, VAR was subsequently misused and abused by managers and even CEO’s to defend their recklessness that would go very wrong, blaming the risk models. It is a lesson in Einstein’s admonition that “everything should be made as simple as possible, but not simpler.”

implemented tools such as stress tests to assess the potential consequences of such Black Swan events, the investor public is still largely unfamiliar with the flawed statistics underlying what Wall Street sells them every day.

Complex Systems are Unpredictable and Therefore Not Manageable in the Conventional Sense.

Defenders of VAR (“value at risk”) and MPT usually acknowledge the limitations and deficiencies of these models, yet argue that they are better than nothing. A farmer’s almanac is also better than nothing — if we did not have more sophisticated weather forecasting tools. This defense misses professor Taleb’s central message: financial markets are complex systems in the technical sense of the word. They demonstrate what scientists call “non-linearity,” leading to rare but highly consequential “phase shift transitions” from one state to another. This essentially means that these Black Swan events are not predictable using statistical models. The ongoing use of such models accordingly creates fraudulent false comfort in Taleb’s view, and is recklessly irresponsible. Instead, Taleb argues, we must accept the reality that financial markets are vastly more uncertain than we would like to believe, and we should manage our affairs accordingly — that is, manage them far more conservatively for the vast majority of actors. In other words, we cannot “manage” complexity in the conventional sense of the word. Rather, we need to learn to work with it.

What’s remarkable is that the sophisticated finance analytics professionals who understand complexity and the flawed assumptions that underlie both MPT and VAR largely agree with Taleb. This phenomenon is not new. It was well understood when evaluating the financial crisis of 1998 precipitated by the collapse of Long Term Capital Management in 1998.⁵⁰ LTCM famously defended their misjudgments by referring to

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CRISIS.

the extremely low probability — a 7 standard deviation event, in the language of statistics — of failure. A short decade later, memories had faded. It was the same complacency of relying on flawed financial statistics, this time in combination with massive fraud on top of excessive leverage that led to the horrendous fallout from the 2008 financial crisis.

Taleb’s understanding of complexity is most certainly correct. Quants who understand complexity science are no longer a rarity inside financial firms. In fact, many of the leading quant trading hedge funds are

⁵⁰ The author represented JPMorgan on the LTCM Oversight Committee that managed the liquidation of the failed hedge fund during 1998-1999 on behalf of a consortium of banks who recapitalized the fund in order to protect their massive credit exposure to the fund, and to avoid systemic contagion in the event that the fund default.

putting complexity science to work. In doing so, they are profiting from its superior understanding of financial market behavior, often at the expense of those locked in a MPT framework. Financial system regulators are belatedly grasping this shift toward a complexity understanding of economics and finance.⁵¹ And yet, even leading financial firms such as JPMorgan and Goldman Sachs still feed their clients investment advice built on the flawed foundation of MPT as evidenced in Figure 7 above.

Beyond Complexity to An Integral Approach

Seeing financial markets as complex adaptive systems is essential, and a sharp departure from the flawed statistical foundation of modern investment theory. I want to push our thinking beyond this necessary and enlightened shift which reflects logic that should be self-evident after an examination of core assumptions, as we have done.

The question Taleb and others utilizing their complexity view of finance is essentially: How do I utilize my insight to invest wisely, to maximize my long term expected financial returns, or to beat my benchmark?

I want to change the question entirely.

The question I am interested in is this: What must investors, collectively as an energizing and determinative force in the economy, do to ensure the viability of the system as a whole over the long run? In other words, my question shifts from “me” and “my portfolio” to a full system health perspective.

We learn again and again in financial crises that behavior that may make logical sense for an individual firm, can spell disaster for the system as a whole. Similarly I believe, there is collective investment behavior that is essential for systemic health in the long run. And it is essential to understand what that looks like. In other words, how do we need investment capital to flow in order to ensure not just the health of my portfolio, but to ensure the health of the system? Here, the system that matters is not merely the financial system, but the economic system within which finance is embedded. This holistic approach is what I mean by an “Integral Investment Theory.”

IN OTHER WORDS, MY
QUESTION SHIFTS FROM
“ME” AND “MY PORTFOLIO”
TO A FULL SYSTEM HEALTH
PERSPECTIVE.

An integral understanding is premised first and foremost on a new awareness that there is no separation of “me” and “we.” Everything is connected. This is not some warm and fuzzy new age thinking. It is now well understood in quantum physics,

51 Andy Haldane’s rise to the Chief Economist of the Bank of England reflects this new understanding.

in biology, and of course in ecology. Remarkably, the great religions and mystics have always taught this central “truth” — that is, a sense of oneness. It was clearly articulated in a modern sense with the introduction of Gaia Theory by James Lovelock and Lynn Margolis in the 1970s, and is now increasingly becoming a mainstream understanding of the earth as a living system. It is fascinating that this understanding reflects the Sophia mythos of the pre-Christian Gnostics. At the same time, Buddhism even denies the existence of the “self.” Many Buddhists believe that our misguided understanding of “the self” disconnected from “the other” is the root of our anxiety and suffering. Even finance now has a term for this oneness: “contagion.” However, few within the world of investment, and even the “sustainable investment” community, consider systemic issues ahead of the implications for “my portfolio.” To do so sounds wholly naïve and utopic.

Such thinking requires that we understand that winning in a collapsing system is not winning. It is losing. Additionally, we must understand that the system is in an early phase of collapse already. Viewed from Venezuela or Syria, collapse is of course already well advanced. Unfortunately, in the vibrant world financial centers like New York and

London, any talk of collapse is generally scoffed at. Furthermore, the competitive paradigm in which my winning means your losing is engrained in the competitive DNA of western individualism. Understandably, I am staking out a position that will elicit little support today within mainstream finance.⁵²

SUCH THINKING REQUIRES
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IS LOSING.

An integral understanding does not demand we reject Adam Smith’s metaphor of the invisible hand and the concept of self-interest, entirely. Fordham University finance professor Frank Werner suggests that the invisible hand, like its contemporary Newtonian physics, was not a false idea.⁵³ As with Newtonian physics, however, it only explains reality in a limited set of circumstances. In the case of the invisible hand, it explains a guiding force for economies in the context of the small, local proprietorships with limited market power that existed in Adam’s Smith’s time. The invisible hand explained the nature of markets and their seemingly magical economic outcomes in the context of seemingly vast, unlimited and largely untapped natural resources, plentiful labor, and populations accustomed to a significantly inferior quality of life than is acceptable in our modern context. Finally, it is critical to remember that in the eighteenth century, finance was local and underdeveloped, and financial capital was scarce.

52 I do not hold that total collapse is inevitable. However, I do believe that collapse of some significant interconnected dimensions — social, political, economic, financial, ecological, and ultimately moral — is well underway. Our potential to see a new pathway, and have the courage to pursue it, is our best strategy to mitigate the consequences of an uncontrolled collapse.

53 Werner, Frank, *The Amazing Journey of Adam Smith*, 2009

In stark contrast, today's hyper-competitive global capitalism is characterized by huge concentrations of economic power resting with multinational corporations who can move production anywhere on the globe and influence public policy to gain competitive advantage. There are certain State controlled enterprises — particularly in China — which can compete without the near term economic constraints of the private sector. We have a society with higher expectations for material well-being and convenience. A significant fraction of society has resources to pay for not just genuine needs, but for limitless desires. In doing so, they crowd out the demand for genuine needs by the majority of global society who lack adequate financial resources to pay for them in an increasingly market based economy. Furthermore, the financial sector is now global, not local, financial capital is no longer scarce, and competition for short term financial returns is fierce. Today's hyper-competitive global capitalism is playing out in the context of increasingly scarce natural resources with usage rates drawing down their stocks and as a result, their ability to function properly.

Finally, Adam Smith was a philosopher who grounded his economic thinking on a moral foundation in which “sympathy” was the overriding moral value enabling his invisible hand metaphor to function.⁵⁴ If he were able to see the modern global economy today, he would undoubtedly conclude that his invisible hand metaphor, coupled with the moral sentiment of our day, is in need of a major upgrade, if not outright replacement. The invisible hand holds important truths despite its obvious limitations, just like Newtonian physics. However, its mythical hold over our thinking in the face of staggering facts and circumstances whose consequences could not be more profound — particularly in developed, modern, Western democracies — remains one of the true mysteries of the Modern Age.

Integral Rate of Sustainable Return and Integral Portfolio Theory

With this as context, let us now turn to what I will call an Integral Rate of Sustainable Return (IRSR) and an Integral Portfolio Theory (IPT). More accurately, it is an IRSR hypothesis and an IPT hypothesis. Consider this an invitation to a thought experiment — imagining what a future IRSR and IPT might look like, and how we will get there.⁵⁵

This journey of discovery will be built on my deeply practical understanding of economics and finance. Yet at the same time, it is aligned with a basic understanding of living systems and complexity science, and indeed with our latest understanding of how the universe actually works.

⁵⁴ Smith, A. *A Theory of Moral Sentiments* (1759). Smith's *Wealth of Nations* in which he introduced the concept of the “invisible hand” was published seventeen years later in 1776.

⁵⁵ My apologies to those who prefer the practical to the theoretical. But when the world runs on a theory that is patently flawed and leading society to collapse, it's about time we struggle to discover a theory better adapted to the current context.

It sees ideas such as “internalizing externalities,” and the ESG, and impact investment initiatives as directionally correct. But these ideas remain locked in the conventional reductionist paradigm in which “my project” and “my portfolio” are understood as separate from the whole. In this old paradigm, project analysis or portfolio construction is done by modifying existing invisible hand ideology, and is done within a modified IRR or MPT framework.⁵⁶

It may be helpful to recall our earlier diagram depicting the transition from degenerative systems to regenerative systems, this time depicting various “sustainable finance” activities on the spectrum:

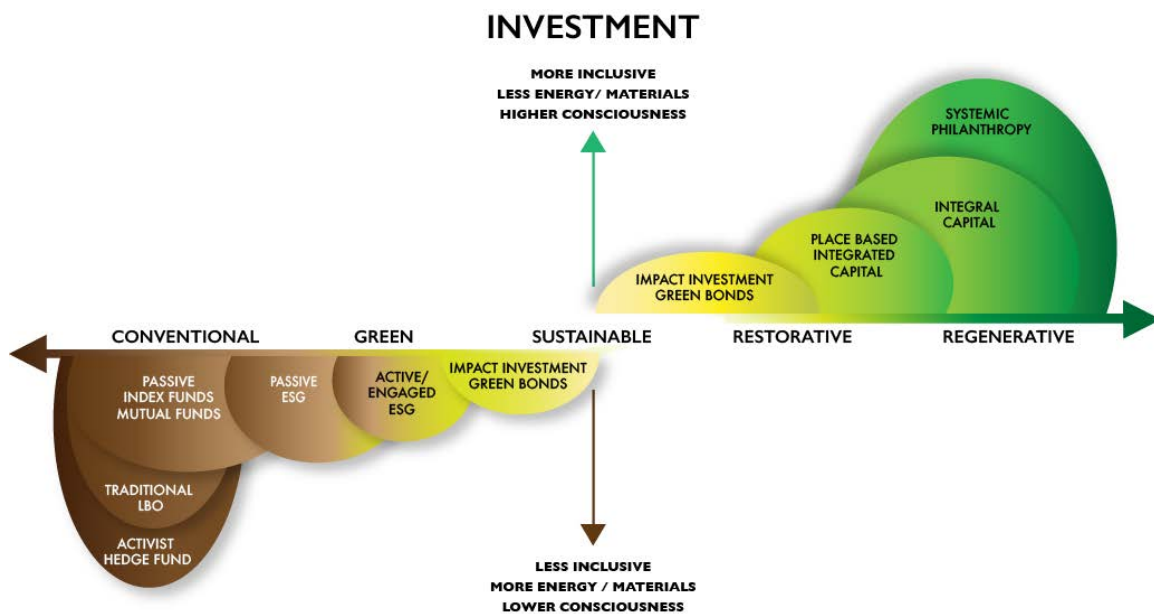


Figure 8

The key point depicted in Figure 8 above is the need to shift above the line and to the right where we leave “less bad” approaches behind — as important as they are — and begin to tap into potential that exists for system wide health when we move into alignment with all the regenerative principles.

Place based integrated capital, as practiced by RSF Social Finance and others, is on the frontier today approaching regenerative finance. Integral capital investment remains in the pilot experimentation phase. And Systemic Philanthropy, the ultimate purpose

⁵⁶ For example, I and others have attempted to look at a three dimensional “efficient frontier”, with the third dimension being “impact,” however one defines it. I long ago concluded it was a dead end, a search to optimize what cannot be optimized. Rather, it must be balanced — one of our regenerative principles it turns out.

of capital by which our surplus financial capital is transformed into lasting social and natural capital, is barely on the radar. But it will come.

Said a different way, the upper right is where the potential exists for multiple problems to dissolve through systemic rethinking while at the same time new and previously unseen value is created for the system as a whole. This is the promise of regenerative potential.

Integral Rate of Sustainable Return (IRSR)

Let's first consider how we might evaluate the IRSR of a corporate investment project. To begin, we must determine what we mean by "sustainable." Fortunately, much good work has been done on this question that we can draw upon.

Kate Raworth's framing of the goal of an economy in *Doughnut Economics* is most helpful, displacing the conventional goal of undifferentiated GDP growth. In its place, the goal of the system is to achieve an outcome inside the "doughnut," providing visual clarity of the interconnected and simultaneous objectives of the economy.⁵⁷ The doughnut is depicted (Figure 9 below) as being bounded by Rockstrom's ecosystem "planetary boundaries" referenced earlier on the outer edge, or "ecological ceiling," and by a "social foundation," or minimal thresholds consisting of a series of social factors such as health, education, and equity as the inner edge of the acceptable zone.

57 Raworth, K. *Doughnut Economics: Seven Ways to Think Like a 21st Century Economist* (2017)

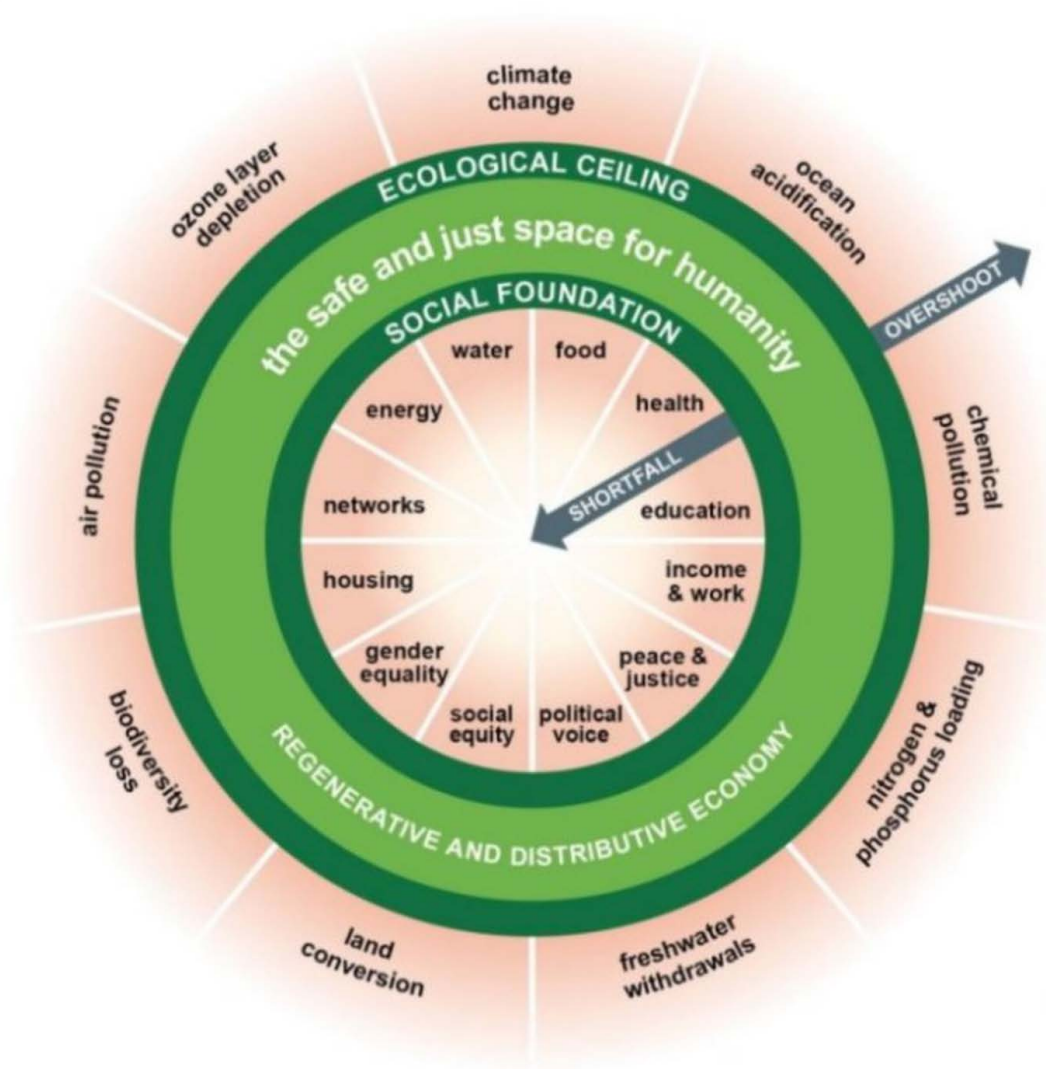


Figure 9

Alternatively, we could use the UN's seventeen Sustainable Development Goals as depicted in Figure 10 below, although the doughnut has the advantage of delineating boundaries visually.⁵⁸ Naturally, there is significant overlap between the two. However, there is one critical difference, and it can be found in SDG #8 calling for economic growth. Old habits die hard. A regenerative economy and a complementary Integral Rate of Sustainable Return on investment calls for a new understanding of economic growth that is nuanced, differentiating productive growth from destructive growth.

SUSTAINABLE DEVELOPMENT GOALS



Figure 10

Now imagine a corporate finance officer looking at a new investment project, seeking to use IRSR and contrast it with the conventional IRR calculation. Let's begin with an easy one, where the company is Exxon, and the project is a new offshore oil exploration platform that will drill new exploration wells.

Since the IRSR first demands an integral perspective replacing the internal perspective, the corporate finance executive looks not just to the impact on Exxon, but also the impact on the system within which Exxon is but a part. After a brief review of the climate change planetary boundary in the doughnut to assess if the project can be

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considered "sustainable," and a consideration of the already discovered fossil fuel reserves that, if burned, will breach the climate change boundary, the executive concludes that there is no possible positive IRSR for exploring for more oil. The positive social benefits to society of energy provision, no matter how great, simply cannot offset the ecological consequences.

In other words, with integral thinking, there is no "netting" positives against negatives. One negative outside the doughnut renders the project investment a failure from an IRSR perspective, unless the outcomes can be modified to yield a return within the doughnut. The executive doesn't even need to consider the risk of oil spills in the ocean in this case.

At the same time, the conventional IRR might be attractive to Exxon and its shareholders. If the company is managed according to an IRSR hurdle, Exxon would easily decide

not only to cancel this one project, but to cease all exploration for new fossil fuel reserves — unless it had a view on how oil might be economically utilized without being burned. For example, such reserves might be used as feedstocks for polymers in next generation materials that could replace more energy intensive alternatives.

The key takeaway matches our common sense. In a world where we already have more carbon embedded in discovered fossil fuel reserves than we can safely burn without catastrophic ecological consequences, using IRR as a decision-making tool is not only insufficient — it is mad. By utilizing an integral approach such as a simple IRSR, we get a decision that is consistent with the goal of an economy that operates within the safe and just operating space depicted by the doughnut. We will address the very real practical challenge of how we might encourage or require such an approach in Act IV, the policy section of this paper.

Now let's turn to an easy example on the other end of the spectrum. Consider an entrepreneur who wants to start a yoga studio, or an art gallery, or many other similar service ventures catering to a broad spectrum of human development from health, to artistic endeavors, to spiritual growth and much in between. While there are some integral return challenges — such as the ecological footprint of the real estate and associated transportation — it becomes quickly obvious that such projects lie comfortably inside the doughnut. As a result, these businesses, if successful, would generate a positive IRSR. Much of the integrated return would accrue outside the financial parameters of the investment. For example, the improved well-being of the customers and the realization of their potential, as well as the cost savings to the system of illness avoided, would not be explicitly reflected in corporate profits, and would actually harm certain profits in the “healthcare” industry (fewer sick people). It is also true that the conventional IRR of such a project may well be inferior to the IRR of the clearly destructive oil exploration project.

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We are trapped in the grip of a dilemma between short term profits and long term well-being. Yet conventional finance theory sees no dilemma. We destroy the planet and harm human health because there's a profit in it.

Most investment decisions, whether in the private sector or the public sector, will have an IRSR analysis that is far more complex than the easy examples discussed above. For example, how do we evaluate a factory to build solar panels? It will produce a product that displaces dirty energy, and at a financial profit, creating many good jobs in the process. It will therefore create vital “integral” returns to society. It will also use many finite resources like rare earth minerals, and massive amounts of toxic chemicals and energy to run the factory.

Creating a truly positive IRSR is no simple matter to analyze, much less achieve. Using a clear and sound framework, coupled with new and vital measures of regenerative vitality is the essential first step.⁵⁹ Much work lies ahead.

Thoughtful readers will be realizing that if we are to take IRSR seriously, many conventional investment projects will no longer pencil. There are two responses to this reality. Either we reject IRSR as “unrealistic,” or, we begin to recognize that the path to regenerative economies — true sustainability — will be much more complex and challenging than we now realize, even in the more progressive sustainable

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business and investment communities. After ten years inside the leading ESG investment firm, Duncan Austin coined the elegant phrase “Greenwashing” to describe conventional “sustainable finance.”⁶⁰ I agree.

But there is a third and, I believe, correct response. This predicament defines our critical challenge at the dawn of the integral age. We must learn to think and invest systemically and holistically, allowing us to realize the

massive untapped potential that can be unlocked if we learn to see in a new way. We know we are on the right track when one action, in this case an investment decision, solves multiple problems, all at once. My hypothesis is that if we use the regenerative principles — understood as a collective pattern, not an ala carte menu — as our guide, such opportunities will begin to reveal themselves. We must develop this new muscle — regenerative thinking — through hard experience in the real world.

Capital Institute has illuminated numerous examples of this in our Field Guide to Investing in a Regenerative Economy, which recounts mostly small-scale projects where one can see the emergence of regenerative economics naturally happening.⁶¹ I have worked on such an approach with my own impact investing practice, including with Grasslands, LLC, New Day Enterprises, PBC, Waterfield Farms, and First Crop, PBC. All four of these companies are putting regenerative principles into practice, and aim to use a systemic approach in the

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59 Sally Goerner, Brian Fath and colleagues have developed some initial prototypes of such metrics, described in “Regenerative Development: The Art and Science of Creating Durably Vibrant Human Networks”
<http://capitalinstitute.org/wp-content/uploads/2014/08/000-Goerner-Regenerative-Development-Sept-15-2015.pdf>

60 Austin, Duncan, “Greenwish: The Wishful Thinking Undermining the Ambition of Sustainable Business (2019)

61 <http://fieldguide.capitalinstitute.org/>

communities in which they operate. This work is investing at the edge. And the edge is where we need to be.

THE EDGE IS WHERE WE
NEED TO BE.

Large institutions with their entrenched thinking will never lead such a shift. We see this grand shift happening through the process of “scaling out” the islands of innovation, rather than “scaling up.” This distinction essentially means replicating and connecting distributed solutions rather than established institutions making new and ever more concentrated and centralized solutions. Such an approach creates resiliency in the process.

This approach defines the strategy underlining the Regenerative Communities Network of bioregional scale regenerative economy initiatives, now linking together in a global peer to peer learning network.⁶² It also defines the approach of numerous other distributed solutions, ranging from permaculture initiatives responding to the crisis in agriculture, to even advances in next generation nuclear power (we are so late and the consequences of failure are so grave that everything must be on the table).

Advances in technology, or a new innovative synthesis of existing technologies, will be a catalyst for such opportunities. For example, real progress is underway in distributed next generation nuclear power that utilizes spent fuel made from depleted uranium, the radioactive waste of existing nuclear technology. Leading scientists at Terra Power are working on such an opportunity today, with the backing of visionaries like Bill Gates.⁶³ Safe, cheap, clean, distributed power, and plentiful useful heat — if used imaginatively, to heat cities, greenhouses, or advanced materials manufacturing, for example — could profoundly address climate risk, nuclear waste proliferation risks, resilient and economic electricity generation, land and water efficient greenhouse agriculture, and perhaps unlock new advanced materials possibilities. It accomplishes all this while creating an entire new industry with good, productive employment across a diversity of skills. Such a technology breakthrough clearly has the potential to sit on the upper right quadrant of Figure 8 above. Terra Power has already demonstrated the viability of this technology in China, albeit under a different cost and regulatory environment than exists in many Western economies.

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The key question is, can we unlock such technological breakthroughs in such a way that we transform our economies in the process, rather than have the new technologies only further exacerbate and even accelerate the deficiencies of the current economic

62 <https://capitalinstitute.org/regenerative-communities/>

63 <http://terrapower.com/technologies/twr>

model. The internet offered such an opportunity. Unfortunately, without the wisdom and guiding principles of regenerative system design, the internet has unleashed the side effects that come with advertising driven business models that extract data from users and use it to further promote material consumption through highly targeted advertising.⁶⁴ Just what our overly consumerist economic system needed the least!

Furthermore, without forward thinking policy intervention to counteract the natural concentration of power that flows to network platforms, the internet-enabled business platforms such as Google, Facebook, and Amazon have created concentrations of power and wealth that would have made even John D. Rockefeller blush. Again, awareness of the principles of regenerative systems — which, in this case, are aligned with the pro-competitive bias of conservative economists such as Milton Friedman, would have helped us anticipate these unintended consequences of our current economic system design. Only by getting clear on first principles of healthy systems do we have a chance to craft policy solutions to mitigate anti-social outcomes while at the same time encouraging the innovation that is essential for all systems to adapt to a changing context.

In a capitalist system, outsized — and now grotesque — returns to innovators are embedded in the nature of innovation. But it doesn't need to be that way. For example, Tim Berners-Lee invented the world wide web and received world recognition but no financial windfall, just as Jonas Salk invented the polio vaccine and chose not to patent it for the benefit of society and at a cost to him that has been estimated at \$7 billion.⁶⁵ These are the heroes we should be celebrating, rather than the billionaires of Modern Era degenerative extraction.

What a regenerative approach to innovation would demand is a balance. We would understand that public investment in research was essential for a healthy society. We would demand and fund, rather than cut, essential public research. Such a change, of course, would involve making choices.

We would also modify the now obscene incentives that flow to innovators in the private sector who, for the most part, are made possible by the innovations that came before them. Microsoft was only possible because of the prior invention of the microchip, and Facebook, Google, and Amazon are only possible because of Berners-Lee's invention of the internet. We would modify such incentives, not out of some unhealthy envy, but because we understood that a healthy regenerative system demands that power and wealth be more equitably distributed. This balance is in accordance with the principles "robust circulation," in addition to the principle of "balance" itself. If we see the

64 In *Corporation 2020*, Pavan Sukhdev identified limitations on the subsidy of advertising as one of the key leverage points to transform business

65 <https://www.forbes.com/sites/quora/2012/08/09/how-much-money-did-jonas-salk-potentially-forfeit-by-not-patenting-the-polio-vaccine/#44e3fa6c69b8>

economy as a healthy metabolism, we understand that there are limits to extraction before circulation is compromised, and necrosis sets in.

A reasonable and healthy debate on the merits and difficulties of this position is essential, but a distraction from my purpose here. The point here is that we need to incentivize new investment in innovation, but do so using an integral return framework rather than the outdated “internal rate of return” framework that was designed, perhaps unwittingly, to optimize internal rather than integral returns. In doing so, we can expect the consequences of such innovations to further enhance the health of the system as a whole, rather than so much of the “created value” going to so few when in fact it was made possible by the cumulative progress that came before it.

Integral Portfolio Theory (IPT)

I will now shift from the consideration of individual investment projects undertaken by either private or public sector actors to the challenge of portfolio investment by large institutional scale investors such as pension funds, sovereign wealth funds, and endowments. While the same issues apply to all investors, financial capital has become extremely concentrated in a relatively small number — only hundreds — of large pools of capital. This concentration presents a unique opportunity and responsibility for these systemically important actors.

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The vast majority of financial capital in the global economy today is invested explicitly or implicitly in accordance with Modern Portfolio Theory (MPT). As we have discussed, MPT is a flawed theory of speculation built on flawed assumptions. Variations on MPT that address some of its limitations include post-modern portfolio theory (PMPT) and contemporary portfolio theory. While they deal with some of the statistical limitations of MPT, I still take issue with these theories of financial speculation because they treat financial markets as an end in themselves, separate from the real economy.

It requires a giant leap to contemplate what an integral portfolio theory (IPT) might look like. Here I will provide just an initial conceptual framework to guide our thinking on how to begin such a leap. Specifically, how does a portfolio manager move an investment portfolio from the “less bad” in the lower left quadrant of our Figure 8 above, to the regenerative upper right quadrant? With the useful insights we can retain from MPT plus our eight regenerative principles as our guide, let’s examine how we might begin to develop an integral portfolio theory.

I will begin with diversification, a central premise of MPT. Here, the theory is quite

valuable and aligned with our principle “in balance.” One dimension that must be “in balance” is the qualities of diversity and efficiency as discussed above and illustrated in this revealing diagram (Figure 11 below), developed by theoretical ecologist Dr. Robert Ulanowicz which he derived from the empirical study of actual living systems. Ulanowicz observed that there was a “window of vitality” where healthy systems balanced efficiency and resiliency. Interestingly they tend to skew somewhat toward resiliency — to the right in the diagram below (see Figure 6, page 47).

Translated into portfolio strategy, this diagram suggests diversity and efficiency are both important qualities for a portfolio — but on balance diversity should be somewhat more dominant. The uncorrelated returns of genuinely diverse investments will indeed benefit a portfolio, just as MPT suggests. However, IPT also highlights the reality that too much diversity not only loses any incremental benefit, but it actually begins to harm the health of the system. In living systems, this manifests as “stagnation.”

Let’s consider what this finding might imply with respect to an investment portfolio. At the very least, it begins to ensure that financial returns equal market returns, since a highly diversified portfolio begins to resemble the “market basket” itself. But that characteristic alone does not imply stagnation, only passive acceptance of market returns for a portfolio. At a moment when profound transformation of our economy is in order, can we begin to see passive acceptance of market returns beginning to feel like stagnation, leading to collapse? Let’s examine deeper, using more of our principles.

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An interesting observation is that when a portfolio is comprised of thousands of investments, it becomes impossible in practice to have any meaningful relationship with the companies one invests in — which violates the “right relationship” principle. An IPT would suggest holding a diverse portfolio of investments, but with some finite limit to that diversity in order to not violate the principle of “in right relationship.” Work needs to be done to find that correct balance, but my instinct would suggest the number is somewhere between twenty-five and fifty ideally uncorrelated investments. Certainly anything over one hundred has reached into stagnation territory. In the real world, there will be some correlation, but it is important to distinguish between correlation of business fundamentals —technology industry versus healthcare for example — and stock price correlation, which will likely be much higher.

Now let’s press further with the “right relationship” principle. As a foundation for all healthy living systems, direct and well-functioning, symbiotic relationships of critical components are essential. This is true at a cellular level within organs of our bodies, all the way to the “right relationship” between Earth and the sun — the basis of the

miracle of life on planet Earth. It follows that the relationship between the dominant investor pools of capital in our economy and the dominant companies — the most impactful economic enterprises in the history of humanity — must be “right” if the economic system is to be healthy. Unfortunately, this is certainly not the case.

Most investment capital has become quite passive and disconnected from the enterprises in which it invests. This trend is only accelerating as so-called active managers fail to justify their fees, and few exercise the relationship of genuine ownership.⁶⁶ Consider the difference between the relationship an index fund holding .6% of a company’s stock and the relationship Warren Buffett has with a company he owns, or even the relationship that a 20% long term owner with a board seat has with a company. Such relationships are more common outside the US financial system, in Europe, Asia, and Latin America in particular. Ironically, western financial capitalists such as Wall Street banks have been arguing that stodgy relationship driven investments are “inefficient” and generate sub optimal returns on investment. At times, this is true, of course. However, such “stodgy” long term relationships also provide the context for genuine responsibility over a company’s activities, and with that the possibility of healthier outcomes for the system as a whole. Only with the *response ability* that accompanies ownership do we have the mechanism in place to drive long term healthy decision-making for a company, inclusive of all its stakeholders.

I assert that a precondition of an integral portfolio is active, engaged and responsible ownership, in keeping with the principle, “in right relationship.” For a smaller investor, this could mean simply voting a proxy. For the large institutional pools of capital, it more likely means engagement with management and ideally a seat on the board of directors, or even a controlling interest.

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Another fundamental principle of an integral portfolio theory is to invest using a systems lens, unlocking opportunities at the “edges” between conventional companies or industries, or between the private sector and the public, or inclusive of the philanthropic sector. If we look to invest in alignment with the “edge effect” principle, the “honors community and place” principle, and the “empowered participation

66 One clear long term trend in investment management has been the decline of “active management” by fundamental stock pickers, being replaced by low cost index funds. This has happened as active managers have not consistently outperformed the market by enough to justify the costs (and fees) of active management. One unintended and little discussed consequence of this trend is the further severing of the relationship between investors and the enterprises in which they invest. A passive index strategy requires no fundamental research and investment judgement. It’s all done by machine with the sole intent of replicating the market performance at minimal cost.

principle,” we are drawn to the concept of place based integrated capital investment (see Figure 8) which is gaining currency now within the impact investment community. Place-based investment is also central to our work with the Regenerative Community Network at Capital Institute.⁶⁷ By looking to identify investments that cross conventional silos within one place — say, healthcare and housing for example as is being pioneered by Jonathan Rose and Company — and by empowering the community to identify the needs and opportunities themselves rather than an outside, top down driven process, we can unlock hidden potential that is only possible by thinking across edges of sectors. In this way, both the communities receiving the investment and the portfolio benefit, affirming that their long-term interests are inherently interconnected and interdependent.

By now, the pattern should be emerging. First, diversification but not overdiversification. Second, direct and active engagement, consistent with the responsibility of ownership, which itself limits the scope of a portfolio. Third, learning to think of place — ideally the bioregional scale — as the ultimate unit of analysis, in contrast with industries or even companies

themselves. In fact, companies and their own capital investment programs need to gravitate to such an approach, and part of the role of responsible ownership is to ensure companies embrace this new way of thinking.

THINK OF PLACE
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OF ANALYSIS

True fidelity to the universal patterns and principles of living systems to guide an investment strategy could someday evolve into a genuine “integral portfolio theory” for investments. Such a complete theory is beyond the scope of this paper, but hopefully the reader has a taste of where this line of thinking will go.

We can also quickly assess what would not qualify as part of an integral approach to investing. To begin with, cheating — insider trading for example — by definition is not win-win, and not “in right relationship.” Better laws that may sacrifice some characteristics of what some speculators today would consider our free market system will be necessary. Furthermore (and this will be controversial), an investment approach that relies on having a competitive information edge — whether legally obtained, illegally obtained, or lying within the vast grey area in between — is extractive by nature. It follows that the game of speculation is not the same as the serious business of investment. The former is extractive by nature and must be curtailed as we will address in Act IV, the latter is what requires our careful attention.

Following an integral portfolio approach would therefore eliminate many hedge fund strategies that in a MPT paradigm are “successful” in the competitive environment that now defines modern finance. This paradigm creates winners and losers in a hyper

67 <http://capitalinstitute.org/regenerative-communities/>

competitive game. Unfortunately, this game is not creating any real value when looked at holistically. Similarly, much of the activity of so-called “activist investors” — what detractors call short term opportunists or even pirates — will be seen as short term and extractive in nature, rather than creating any integral value.

In fact, much of what now constitutes sophisticated “investment” will be seen for what it really is — extractive speculation. It will no longer be seen as generating positive returns when looked at through an integral lens. When considered holistically, we see this is not a game in the conventional sense at all. As James Carse wisely points out, there are two types of games. Finite games are played for the purpose of winning. Infinite games, on the other hand, are played for the purpose of continuing the play.⁶⁸ In our ignorance, we with our finance ideology driven worldview, are playing the ultimate infinite game as if it's a finite game. We are marching toward collapse as a result.

IN OUR IGNORANCE,
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GAME.

What might a prudent portfolio of a large pension fund, or a “universal investor” such as the great sovereign wealth funds of the world look like if designed using an integral portfolio approach? There are endless possibilities, but here's one preliminary sketch, based on the principles of IPT just described.

First, rather than beginning with the MPT derived “asset class” approach to asset allocation, the portfolio construction would be built on an understanding of what is required for integral economic health, while at the same time balancing its own very real fiduciary obligations. Like most things in the regenerative paradigm, it's a both/and paradox that must be balanced. A pension fund is a “whole” in itself, and, it is embedded in and interdependent within a greater whole.

As an initial thought experiment, I will explore what a portfolio might look like for a large endowment of an elite New England based college. Keep in mind an endowment understood holistically within its organization has offsetting liabilities it must fund — teacher salaries or student scholarship, for example. Its objective, therefore, should be first must first and foremost be to invest in resilient cash flow streams, ideally growing at least with inflation. Context is also important, so the greater systemic imperative of energy transition off fossil fuels, for example, must influence the portfolio allocation, if the portfolio is to be truly integral. Here's what it might look like:

- 10% invested in place-based investment funds targeting the northeast bioregional community of which the college is a member. Since it is an endowment, these funds would

68 Carse, James P., *Finite and Infinite Games*

be focused on real assets, such as renewable energy infrastructure, regenerative real estate projects, capital partnerships with public-sector entities, and institutions such as hospitals and other universities — all of which generate resilient distributable cash flows that match the endowment's desired payout capability.

- 20% invested in broadly diversified, global “green” infrastructure and real estate funds or directly into such projects. At this moment in history, there is an imperative that all institutional investors contribute significantly to the clean infrastructure build that is essential to avoid the worst consequences of climate change. Fortunately, this can be done prudently while generating returns ranging from 5% for loans to 10–15% for assuming more project risk. These are all highly attractive resilient cash flow generating project investments, meeting both the narrow institutional fiduciary needs while meeting the broader systemic needs at the same time.

- 35% invested across twenty to thirty stable, mature businesses with the ability to distribute meaningful dividends that match the endowment's desired payout stream. Identifying these core portfolio companies requires extensive research and judgment. Outsourcing this skill introduces all kinds of conflicts of interest and time horizon distortions, as we see in the present system, so if the institution has sufficient scale, these should be staffed internally with decade long incentive systems. At the same time, the endowment would be an active investor. Where possible, it would hold a board seat and exercise influence by all means at its disposal. As a responsible owner, the investor must drive such businesses toward the creation of financial returns for shareholders while also creating holistic wealth for society as a whole. This can be done by helping companies to see themselves and managing themselves as networks embedded in a series of bioregional economies. Decision making must be driven down into these bioregions where the companies operate.

No single mutual fund or index fund can assume the responsibility we need from active investors in individual companies. The endowment would likely form partnerships with like-minded investors to share costs and gain influence, particularly with larger companies by pooling investments together to gain meaningful ownership positions of 20% or more.

- 20% invested in a portfolio of twenty-five or more emerging growth companies, with similar governance engagement as with the mature “cash cows.” In this case, they provide the portfolio a way to participate in the growth of emerging technologies and applications that will define the economy of the future, while again accepting the responsibility that goes alongside ownership of such growth companies to ensure they create balanced value for society as a whole. Imagine if Facebook had had such influence responsibly owning even a third of the company with commensurate influence. History might have been different.
- The final 15% of the portfolio might be invested in liquid securities such as short-term bonds issued by aligned public and private enterprises. They would provide some reserves and stability to the portfolio as well as serving near term liquidity needs.

It is important to note what is not in the portfolio:

There is little debt in the portfolio other than short term debt in the liquid securities allocation, and there is no debt of highly leveraged companies. Unlike equity, debt has an adversarial relationship with owners, and the divergence of interests increases as leverage and stress increase. Broadly speaking, it is much harder to be in “right relationship” with a company as a debt holder, and this becomes truer as credit quality deteriorates. Looked at on a macroeconomic scale, our economy would be more resilient and regenerative if it was financed with more equity than debt. It certainly should not be financed with high levels of debt that provide the foundation of much of the leveraged buyout industry — an industry associated with so much short term thinking and financial extraction, a point we will return to in the policy discussion below.

There are no hedge funds or private equity funds. The fund model, typically with a 7 year life, generally encourages short term behavior and has embedded conflicts of interest between the agents and the asset owners. Of course, such generalizations are unfair, and there is a trend toward longer fund lives as well as highly responsible fund managers. There are even holding company models with no forced exits for investments and better alignment of interests, but these remain the exception to the rule. Hedge funds, by their nature, are in the speculation business with time horizons ranging from less than a second for some high frequency trading, to months or years. The nature of the business is buying securities to sell them at higher prices, rather than anything that resembles genuine ownership and the assumption of dedicated long-term responsibility that goes with it. Naturally it is unfair to make such a generalization,

and many exceptions to this rule. There are even now hedge funds speculating on winners and losers from adverse trends such as climate and health, which on balance, will accelerate the reckoning that is due to unfold. If successful, these funds and their activities can only accelerate the change in behavior and strategy we need from business. But such hedge funds are too the exception to the rule.

There are also no venture capital funds. This claim could be challenged, as investing in innovation is fully aligned with the regenerative framework. Despite the benefits of a diversified portfolio of inherently risky early stage innovative companies, the conflicts of interest and incentive structures that define the venture fund model remain too great. And too many of the venture funds are focused on the quick buck from the latest App, typically focused on making consuming more “convenient”. This is not what our overconsuming culture needs. Therefore, as a general statement, they work against the goal of an integral approach. As an alternative, an endowment of significant scale can afford to hire such investment expertise in-house and construct an intentional portfolio of early stage growth companies itself, fully aligned with its objectives. This is reflected in the 20% allocation above.

Can one make the case for investing in distressed companies or countries? Of course. Such companies and countries need investment capital. Executing such an investment strategy in a way that balances the harsh economic realities with the regenerative principles is perhaps asking too much from the private sector. While conceptually feasible, our portfolio avoids it at least until a unique, perhaps public/private partnership model can be assessed at a granular level. Ironically, speculating in distressed securities can be done on a small scale in a way that actually assists the market with price discovery and facilitates the necessary direct investment that is essential for recovery. For large endowments who typically invest in multi-billion dollar distressed funds, the scale of these funds often tips them into behavior that can all too easily become anti-social and in conflict with the goal of integral health. The vulture investing in the distressed bonds issued (irresponsibly) by Puerto Rico is a recent case in point. Therefore, in our hypothetical example, we have no allocation to distressed investing.

Can such a portfolio match a “benchmark” portfolio in the conventional sense? I don’t know. But that is the wrong question, since there is nothing that would suggest that the benchmark portfolio contributes to the integral health of society. In fact, our core hypothesis is premised on the idea that if capital flows in a business as usual fashion, we are heading for systemic collapse. One non-trivial challenge is that we must leave our benchmarks at the door! As a practical matter, in today’s context, and based on my own experience, I see no reason why such a portfolio could not generate positive *integral returns*, including resilient high single digit returns on a sustained basis, which any endowment or pension fund should be more than happy to achieve.

WE MUST LEAVE OUR
BENCHMARKS AT THE DOOR!

Obviously, this snapshot leaves as many questions as it provides answers. I hope it illustrates the principles and approach to move toward an integral theory of investment. How to encourage such practice through policy and other means, and how to generate the courage and leadership to move in such a direction among large asset owners in particular will be discussed in the next section.