Money with Purpose: Rethinking Strategic Asset Allocation through Impact Investing

The uncertainty we witness makes it clear that we need new tools for long term decision making instead of models built on analyzing historical data. This applies also for the financial sector. We are currently witnessing a shift from ESG investing into the realm of impact investing. Impact Investing targets specific solutions and has impact criteria at the core of the investment decision making process. Authors suggest a holistic approach to strategic asset allocation, as well as looking at action options based on multiple future scenarios, instead of one baseline model. Every forward looking strategy begins with the definition of intent. Intent incorporates the values and organizational culture of investors, enabling investors to consider the potential positive and negative impacts of their investment decisions. In this article, the use of strategic foresight methods is advocated as a way to expand the knowledge base of strategic asset allocation. Based on highlighting the move from the short-term biased shareholder model to the broader stakeholder model, and instead of conventional forecasting approaches the authors suggest adaptive foresight methodologies to be used at cocreating the future.

Keywords: impact investing, portfolio management, asset allocation, purpose of money, strategic foresight

Introduction

Today's investment management practices are based on Modern Portfolio Theory, a framework first conceived during the post-World World II era. Markowitz himself has acknowledged the challenge with estimating future returns in an efficient portfolio by stating that "It is precisely at the point where the assumptions break down that financial models, pushed to their limits, lead to disastrous consequences. The fundamental changes happening in today`s world, from climate change to epidemic outbreaks to rapid disruptions in the capital markets, are seldom incorporated into our investment decisions as part of strategic asset allocation. Current approaches to strategic asset allocation ignore or underestimate eg the significant social and environmental risks. (Christian 2011, 3)

New challenges we face today require new kind of impact integrated thinking. Impact driven investors, which have begun to create products, raise capital, and make new investments, directly target progress toward the UN defined Sustainable Development Goals. Traditional asset allocation and portfolio management theories, such as the classic modern portfolio theory (MPT), advocated by Markowitz, put in practice a heavy emphasis on risk and return. These figures are difficult to estimate in reality. Nobel winning economist Joseph Stiglitz has recently called for comprehensive agenda of economic reforms, which "must focus on education, research, and the other true sources of wealth. It must protect the environment and fight climate change and it must provide public programs to ensure that no citizen is denied

the basic requisites of a decent life. These include economic security, access to work and a living wage, health care and adequate housing, a secure retirement, and a quality education for one's children".

This article aims to understand how strategic foresight can significantly improve institutional investors in designing their strategic asset allocation. The article will first start with a literature review, followed by a discussion section where the outline for a sustainable portfolio theory will be presented. Finally, we will end the article with conclusions.

Literature Review

Markowitz suggests that the most efficient portfolio, that is the highest return for any given risk level, can be achieved by optimal diversification across a mix of risky assets and a risk-free security, depending on the investor's risk profile (Bodie, Kane & Marcus, 2018). Markowitz (1959) advanced that this method is most suited to institutional or large private investors, possibly due to their greater ability to assess risk and diversify across assets (including government securities), given their large pool of funds. The concept of reducing risk by diversification has revolutionized portfolio management and has enabled for increased global access to finance across asset classes. Investors pursue the optimal risk-return portfolio through constantly analyzing information and using various diversification strategies assuming markets are efficient and investors rational. In reality, neither of these assumptions is totally correct.

Modern Portfolio Theory defines risk as a single number—volatility, measured by the variance (or standard deviation) of returns around a mean. Beta measures the "systematic" part of risk, that is, the volatility of a portfolio or security that is a function of the overall market. A relatively newer measure, Value at Risk (VaR), uses probability distributions to measure the magnitude of expected losses over a particular period of time, typically using historical data to develop statistical probabilities. (Christian 2011, 4)

Modern Portfolio Theory addresses a limited scope of risk, which can be managed because it can be quantified. Uncertainty, on the other hand, is a broader concept, it includes all which is unknown and therefore is not manageable in the same way. Statistical models and quantitative analysis work well with MPT's definition of risk but not with uncertainty. However, simply because uncertainty cannot be modeled precisely within the framework that MPT or other theories set forth, these powerful dynamics cannot be ignored. Qualitative analysis and scenario modeling, which along with other tools of Futures Studies are an evolving field of academic study, can contribute to a deeper, more nuanced understanding of uncertainty, differentiating between aspects of uncertainty that are really unknown and those that are uncertain because of their scope and their time horizon.

Knut N. Kjaer, former CEO of Norges Bank Investment Management, has noted that "…the global financial markets are complex adaptive networks, with

behaviors similar to those found in biological networks" (Kjaer 2011, 61). With rare exception, financial professionals have failed to seriously address ecological limits and are thus unnecessarily surprised by disruptions and shortages. One exception is Grantham (2011), who tracked inflation-adjusted commodity prices over past business cycles. He maintains that we have seen a "paradigm shift" as evidenced by the fact that, for the first time during a recession (2008-2010), inflation-adjusted commodity prices did not decline, but in fact increased. He suggests that investors focus on owning commodity-related assets as well as shares of companies that are actively engaged in resource efficiency.

Markowitz himself has acknowledged the challenge with estimating future returns in an efficient portfolio by stating that "It is precisely at the point where the assumptions break down that financial models, pushed to their limits, lead to disastrous consequences…". The efficient frontier of portfolios that are optimized to provide the highest return for a given level of risk (variance) is the true efficient frontier only if actual future returns, variances, and covariances are identical to those that were forecasted at the time the portfolio was created. It is this point, identified more than half a century ago, that is increasingly problematic in the 21st century as complexity and uncertainty have increased significantly. Today it can also be evidenced through certain stranded assets and generally deficient accounting policies, such as IFRS, that traditional risk measures do not capture several non-financial risks such as environmental risks.

There is an increasing number of new enterprises aiming to improve social and environmental welfare that are being established and built but they require more sources of funding to grow. Impact investing as a growing investment strategy or having values and culture incorporated as a core investment belief to precede Strategic Asset Allocation (SAA) plays a pivotal role contributing to unlocking the power of private capital to address societal issues.

Traditional approaches to modeling SAA fail to take account of externalities eg climate change risk, which is a systemic risk. Addressing systemic risks involves using methods of systems thinking, i.e. the notion that one cannot understand the whole based only on understanding how the parts function. Hence, there is a need for a new framework for SAA, which will be based on understanding sustainability within the core of the financial system. Developing such a framework requires us to address the issue of the purpose of the financial system. Investors shall state their investment beliefs as part of their SAA strategy in order to define how they want their capital or investable universe to be put in use over the long term and to define their long term goals.

Impact investment is a new emerging field, best practices of which are still very much in the state of developing. Even though sustainable investment strategies are discussed more in the institutional investment sector, most SAAs are focusing in practice on short term risk and return optimization. As of today, we have already seen examples of a major shift to see sustainable investment as a new high growth investment strategy. In the future, we believe that long-term investing will serve both the direct and indirect interests of the primary

clients, other direct stakeholders and society-at-large at a more sustainable level than through the current asset allocation strategies. In order to reach these goals it is a must to move away from the short term thinking, which characterizes the institutional investment sector today.

Methodology

This article is carried out as a desk study based on a literature review. The authors didn't use any primary data in the research, instead secondary data based on academic journals and periodicals were used as the basis for analysis. Key words and Boolean operators were used as part of search algorithms on EBSCOHost. Then the references were organized and analyzed with the assistance of Mendeley Desktop version. Qualitative data analysis was done through thematic analysis of the available data, to look for broader thematic topics. Such topics identified were those of: financial system as a complex system, impact investing and the relationship with definition of intent, the relationship between foresight and uncertainty, systems transitions and nonlinearity, and finally the relationship between portfolio building and intention.

Across the world, the appetite for impact investing is growing. Investors are eager to show that they are a force for good—that profit isn't their only objective. A recent survey of asset managers conducted by the Global Impact Investing Network found that 86 percent of respondents said they ventured into impact investing because of client demand (GIIN, 2018).

Philanthropy sits at one end of the spectrum in impact investment, and has been driving change. In 2007, Rockefeller Foundation coined the term Impact investing, which combined both financial return and societal/environmental impact. Certain cities and regions have emerged as "hotbeds" of Impact Investing representing diversity of available investors (Roundy, Brockman, & Bradshaw, 2017).

In the past few years, there has been significant growth in the use of the word "impact" as part of the brand for mutual funds and equity-traded-funds (ETFs), and the number of impact branded funds in public markets has grown from 13 to 62 since 2008 (IFC, 2019). Majority of such funds simply apply ESG screens to their investments, without more in-depth commitment to impacts or incorporating relevant impact criteria in their asset allocation strategies. Since, until now, there have not been internationally accepted standards governing what it means to manage for impact, institutional investors and asset owners have had difficulty assessing which of these funds are truly managed for impact. There has also been wide spread confusion in the market between responsible investment, ESG funds, and the various impact products. Since the label of "impact" has been applied loosely in the absence of common agreement to their use, it risks becoming devalued among the market participants, leaving good-intentioned investors disillusioned, as the products available are not corresponding with their inherent investment beliefs. The prevailing argument is that the suitability of companies for a portfolio depends

largely with the type of investor. As we have seen, there is growing demand and awareness for impact investments, but many asset owners are still unaware of the true impacts of their investments (European Commission, 2018).

Dealing with uncertainty, complexity, and the search for novelty are becoming increasingly important. Positioning advice and value chain analysis, re-engineering and "foresight" perspectives may be a short-term help to managers facing new competitors, new technologies, and cost pressures, but do not convey information on where to go and how to get there in dynamic, uncertain environments that nevertheless seem to follow historic patterns (Reschke, 2005a, 2005b).

By intending to transform systems for greater sustainability, equity, and justice, the goals of sustainable SAA are more consistent with the aspiration to protect humanity and the nature than the wealth accumulation motive of traditional investing.

By focusing on building impact portfolios and collaborative partnerships, sustainable SAA can unlock change of the type we need than the old paradigm of today's investment professionals, based on Modern Portfolio Theory. While the Efficient Market Hypothesis of Modern Portfolio Theory entails that the market will enable an optimal solution, the complexity theory suggests that there may be emerging lock-ins, previously unseen societal effects, or other positive or negative externalities that need to be tackled via collaborative action in order for the invested businesses and ecosystems to move into the preferred basin of attraction.

Discussion: Adaptive Foresight Framework for Strategic Asset Allocation

Adaptive planning can be seen as strategic planning that deals with uncertainty by integrating robustness, flexibility, and adaptivity in a unified framework. Some of the earliest theoretical constructs for strategic planning were built on a structural approach: only a handful of alternative structures – in a form of visionary scenarios – are developed and tested against scenarios driven by external circumstances. The objective is to identify the most robust structure, usually a combination of those originally proposed. Usually such a mix can be achieved by trading the core elements between these scenario structures. Weber and Eriksson (2008) warn against relying solely on such trading, as real options are inherently more complex than simple financial instruments. Adaptive Foresight hence needs to find a balance between the looseness suggested by network theory and the robustness necessary for an applied financial investment framework.

As our attempt is to incorporate sustainability indicators into strategic asset allocation, adaptive foresight proves its usefulness as both the connection to broader sustainability and long term orientation has been established since the term 'adaptive foresight' was first brought into academic literature by Eriksson and Weber (2008).

According to Makridakis (2004), "the role of foresight is to provide business executives and government policy makers with ways of seeing the

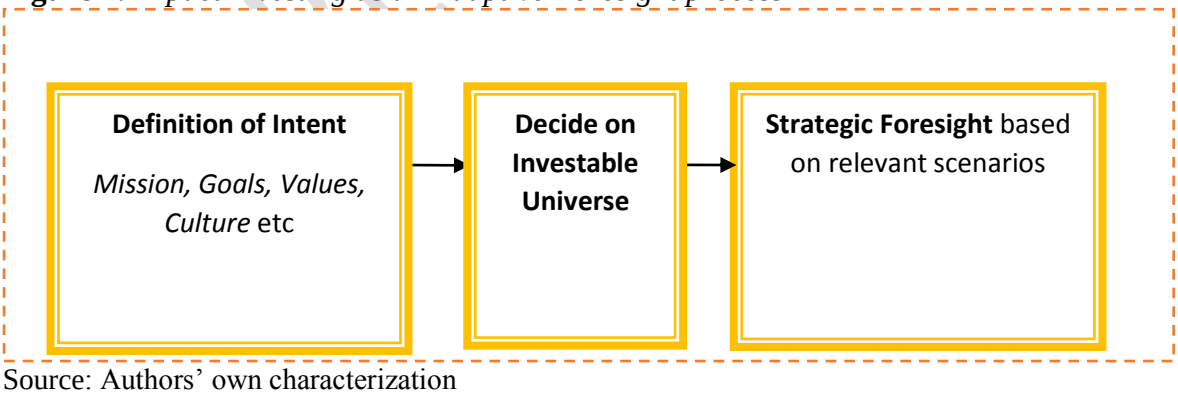
future with different eyes and fully understanding the possible implications of alternative technological/societal paths". Understanding such alternative paths is crucial also to institutional investors, especially impact investors, which target long term positive social and environmental impacts, which are hard to measure and quantify. Another challenge facing the sector is investing across emerging markets, with a high degree of uncertainty and lack of relevant information. These markets are often difficult to invest in, with multiple entry barriers and high country and political risks, which make the impact of the investments also be particularly challenging to assess.

Based on the analysis of today's challenges of the modern economy and the need to secure long term sustainable growth and quality of life for the next generations, the main questions which arise, are the following: If the market bases its investment decisions and asset allocation on short term risk and return, what is the impact on society at large? Are we creating a long-term sustainable economy, or are we investing in assets that compromise the social and environmental stability that is needed for a sustainable economy? Are we, by focusing on maximizing short term profits and minimizing risks, actually decreasing our own sustainability over the long-term?

Sustainable investing based on strategic foresight can be seen as more aligned with the fundamental nature of our world than the probabilistic forecasting based decision-making frameworks of present-day investment managers, which only look at historical data instead of mapping the future using scenarios and other foresight methodologies such as roadmapping.

Below is a schematic path model, which will outlines impact investing as an adaptive process:

Figure 1. *Impact Investing as an Adaptive Foresight process*



Source: Authors' own characterization

Definition of Intent

To successfully build a portfolio of impact investments, investors must first establish what their mission, goals, values are culture are. Only based on defining these parameters, will it be possible for a company to build a sustainable basis for building value over the long term.

Once the stakeholders (usually this falls under the responsibility of the Board of Directors) have defined the values, culture, and goal of the organization, the investor will need to articulate the impact mission of the portfolio. Think of the Apollo mission of taking humanity to the Moon as an analogy. What is the mission around which we can as an organization mobilize all the necessary resources of our stakeholders and get them committed to working together with us to achieve that joint vision. The current practice among the impact investing sector is that the impact thesis is usually driven by the value set of an individual or organization and is typically called the organization's theory of change, often with reference to specific impact objectives such as access to clean water or affordable housing. The authors advocate using a visionary and inspiring Mission Statement as it will be necessary to get every stakeholder committed to joint action in order to create a sustainable future. The key question for institutional investors from a systems perspective is: Where could a relatively small investment trigger a larger change that becomes irreversible, and where non-linear feedback effects can act as amplifiers?

Decide on Investable Universe

Alongside the Mission Statement, the investor should decide the investment scope with respect to the investable universe. This decision is driven by the following parameters: the instruments that will be eligible for investments; the geographies and sectors of focus; the growth stage and scalability of the businesses that will be targeted; and the risk appetite of the investor.

In setting the investment scope and return expectations, investors are encouraged to leave broad debates and discussions about whether there is a need for a trade-off between financial returns and impact.

Build Scenarios

An updated asset portfolio model, to replace the current models, envisaged by the Modern Portfolio Theory, is needed in order to incorporate impact variables depending on different investor types, one which includes the various possible future scenarios. Scenarios are defined as structurally different stories about how the future might develop. By using scenarios decision makers are able to establish a broader framework for strategic planning and they are provided with new ways of thinking about and planning for the future.

A careful study will show that in complex adaptive systems, it is not often a case that a single intervention would trip the system over a tipping point. Instead, sudden change or phase transition is often the result of multiple drivers acting in unison. This forms an opportunity for systemic investors to build portfolios of assets that can be mutually reinforcable, as they add on each other's impact potential. What matters in building such sustainable portfolios is not so much an individual asset's achievements but the overall potential to

unlock or speed up transformational effects in sync with other assets in the portfolio. To sum up, the main objective is to build strategic synergies for creating the right type of transformational dynamics with respect to the set mission. This implies a move away from the single asset paradigm — one stock, one bond, one project — that dominates today's investment practice toward a sustainable portfolio paradigm.

Conclusions

It has always been difficult for the short term focused human being to deal with the long-term, slow-burning problems that threaten the planet today: climate change, population growth, increasing environmental toxicity, and the impact of all these three on the future ability to feed the 11 billion people projected for 2100 (Grantham, 2018). Dealing with long term challenges requires long term thinking, one example of which in the investment sector is impact investing. In the end, it all comes down to the potential to move the needle on the development challenges facing our world.

Investors are no longer satisfied with compartmentalization either. They do not want to make money in one part of their life and do good in another. They want opportunities to make money while doing good or vice versa. If the impact investing industry, in all its diversity, innovation and creativity, can respond to that basic demand from investors, then it can play its part in creating a world we will all want to live in.

Global financial markets are currently fixated on debt limits rather than ecological limits, but there is an inevitable collision on the horizon between ecological limits and economic growth as we know it. In financial terms, it will be increasingly costly to emit, pollute and produce, and some companies—even whole sectors—will face significant disruptive challenges. Meeting such challenges will require both companies and government decision makers to adapt more futures oriented thinking and decision making processes. Here the field of Futures Research can provide many tools and frameworks which will be useful for long term planning of investment decisions, to cope with the nature of risks and uncertainty in a holistic and integrated manner. Rather than treating environmental and social concerns merely as externalities, as much of the ESG investing literature still does today, these considerations ought to be integrated into the strategic asset allocation decisions by institutional investors and governments when designing their long term strategic plans.

The authors of this article believe in a future where investors can align their purpose and values with their investments relying on solid evidence based data, which integrates financial risks and returns and social/environmental risks and returns. These investors are guided by sustainable portfolio managers and advisors who have experience in advising them about integrating investment beliefs with suitable investment and impact options and how they connect with the investors' impact and financial objectives. In addition, utilizing the Sustainable Portfolio Management framework, together with the tools of

strategic foresight and futures research methodologies, institutional investors who have been previously skeptical about impact investing will be able to make more informed long term asset allocation decisions, understanding the value and viability of producing a lasting long term impact. This enables making intentional choices across a range of investment instruments, using data science and foresight methods to test different investment and impact theses.

The practical implication to impact investors is that any investment decision concerning strategic asset allocation for building the impact portfolio would necessarily have to include assessing the time horizon of the impact generated by such an investment, beyond the end date of cash flows generated to shareholders. Currently risk is being viewed as if it reflected a single point in time, as a probabilistic indicator of risk for the whole investment period. Instead what we are proposing, is reassessing the nature of risk and uncertainty through strategic foresight, which has a long tradition in assisting decision makers to deal with complexity and uncertainty. The decreased uncertainty may then serve as a basis for utilizing a lower discount rate for long-term investments, something which has been propagated by Prof. Joseph E. Stiglitz among others. This calls for a new, adjusted model of how investment decisions and asset allocation are viewed by institutional investors and corporations, to add a new dimension and layer to the existing and currently used Modern Portfolio Theory of Harry Markowitz, to include externalities and the longer time horizon of impact generated by the portfolio of investment decisions to the wider network of stakeholders and the society as a whole. This is the basis for Sustainable Portfolio Theory, which aims to connect the research traditions of Modern Portfolio Theory, Strategic Foresight and Sustainable Development, to create an investment framework for long-term investing, which will better incorporate externalities and value created over the time horizon of the investment decision, as well as their contribution to the sustainable development of the societies such investments are designed to serve. ***The core idea here is that investors, once having aligned their values, defined their intent and equipped with a sense of a joint mission, have the ability to shape and co-create the future.***

References

Arinaminpathy, N., Kapadia, S., & May, R. (2012). Size and complexity in model financial systems. *Bank of England Quarterly Bulletin*, *52*(4), 366. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=84540622&site=ehost-live

Benijts, T. (2014). A Business Sustainability Model for Government Corporations. A Belgian Case Study. *Business Strategy & the Environment (John Wiley & Sons, Inc)*, *23*(3), 204–216. http://10.0.3.234/bse.1784

Bertrand, P., & Lapointe, V. (2018). Risk-based strategies: the social responsibility of investment universes does matter. *Annals of Operations Research*, *262*(2), 413–429. http://10.0.3.239/s10479-015-2081-4

Brandstetter, L., & Lehner, O. M. (2015). Opening the Market for Impact Investments:

The Need for Adapted Portfolio Tools. *Entrepreneurship Research Journal*, *5*(2), 87–107. http://10.0.5.235/erj-2015-0003

Christian, Leslie E. (2011): New Foundation for Portfolio Management. *RSF Social Finance Version 2.0*.

Eriksson, A., & Weber, M. (2008). Adaptive Foresight: Navigating the complex landscape of policy strategies. *Technological Forecasting & Social Change 75 (2008)*, 462–482.

Esty, D. C., & Karpilow, Q. (2019). Harnessing Investor Interest in Sustainability: The Next Frontier in Environmental Information Regulation. *Yale Journal on Regulation*, *36*(2), 625–692. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=137589904&site=ehost-live

Fagerström, A., Hartwig, F., & Cunningham, G. (2017). Accounting and Auditing of Sustainability: Sustainable Indicator Accounting (SIA). *Sustainability: The Journal of Record*, 10(1), 45-52.

Gaffeo, E., & Tamborini, R. (2011). If the Financial System Is Complex, How Can We Regulate It? *International Journal of Political Economy*, *40*(2), 79–97. http://10.0.10.193/IJP0891-1916400205

GEOBEY, S., & CALLAHAN, J. (2017). MANAGING IMPACT PORTFOLIOS: A CONCEPTUAL VIEW OF SCALE. *ACRN Oxford Journal of Finance & Risk Perspectives*, *6*(4), 17–36. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=128508609&site=ehost-live

GIIN (Global Impact Investor Network). (2018). "Roadmap for the Future of Impact Investing: Reshaping Financial Markets." GIIN, New York, NY. Retrieved from: https://thegiin.org/assets/GIIN_Roadmap%20for%20the%20Future%20of%20Impact%20Investing.pdf.

Graham, R., & Bertels, S. (2008). Achieving Sustainable Value: Sustainability Portfolio Assessment. *Greener Management International*, *54*, 57–67. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=35271813&site=ehost-live

Harmaakorpi, V., & Jalkala, A. (2013). Complex Adaptive Innovation Systems. - Edited by Philip Cooke. *Papers in Regional Science*, *92*(2), 440–442. http://10.0.4.87/pirs.12027

Hartwig, F., Kågström, J., & Fagerström, A. (2019). Sustainability accounting for externalities. Manuscript for *Sustainability: The Journal of Records*.

Hart, S. L. (1997). Beyond Greening: Strategies for a Sustainable World. *Harvard Business Review*, *75*(1), 66–76. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=9706130739&site=ehost-live

Ho, T. S. Y., Palacios, M., & Stoll, H. R. (2013). Dynamic Financial System: Complexity, Fragility and Regulatory Principles. *Financial Markets, Institutions & Instruments*, *22*(1), 1–42. http://10.0.4.87/fmii.12002

Hommes, C. H. (2001). Financial markets as nonlinear adaptive evolutionary systems. *Quantitative Finance*, *1*(1), 149–167. http://10.0.4.56/713665542

Hübel, B., & Scholz, H. (2020). Integrating sustainability risks in asset management: the role of ESG exposures and ESG ratings. *Journal of Asset Management*, *21*(1), 52–69. http://10.0.4.33/s41260-019-00139-z

IFC (2019). *Creating Impact – The Promise of Impact Investing*. April 2019.

Johnson, B., Holness, K., Porter, W., & Hernandez, A. (2018). Complex Adaptive Systems of Systems: A Grounded Theory Approach. *Grounded Theory Review*, *17*(1), 52–69. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=134107561&site=ehost-live

Kaya, H. (2017). Managing ambiguity in asset allocation. *Journal of Asset Management*, *18*(3), 163–187. http://10.0.4.33/s41260-016-0029-0

Kaufmann, S. (2000). *Investigations*. Oxford: Oxford University Press.
Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate Sustainability: First Evidence on Materiality. *Accounting Review*, *91*(6), 1697–1724. http://10.0.9.4/accr-51383
Kjaer, Knut N. (2011): Asset and Risk Management in a Post-Crisis Market. *CFA Institute Conference Proceedings Quarter*ly. March 2011.
Kurtyka, J. (1999). The science of complexity: A new way to view industry change. *Journal of Retail Banking Services*, *21*(2), 51. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=2680208&site=ehost-live
Lee, M., Adbi, A., & Singh, J. (2018). Outcome Efficiency in Impact Investing Decisions. *INSEAD Working Papers Collection*, *32*, 1–5. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=131457114&site=ehost-live
Lee, M., Adbi, A., & Singh, J. (2019). Categorical Cognition and Outcome Efficiency in Impact Investing Decisions. *INSEAD Working Papers Collection*, *34*, 1–4. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=138354789&site=ehost-live
Markowitz, H. (1959). *Portfolio Selection*: Efficient Diversification of Investment. London, UK: Yale University Press.
Makridakis, S. (2005). Foreword: Foresight Matters, in: H.S. Tsoukas, J (Ed.) *Managing the Future*, Blackwell Publishing, Oxford, 2004, pp. 13-14.
Mazzucato, M. (2018). Directed Technological Change in a Post-Keynesian Ecological Macromodel. (2018). Stockhammer, Engelbert ; Naqvi, Syed Ali Asjad. In: *Ecological Economics*. RePEc:eee:ecolec:v:154:y:2018:i:c:p:168-188.
MELAS, D. (2016). Power to the People: The Profound Impact of Factor Investing on Long-Term Portfolio Management. *Journal of Portfolio Management*, *42*(2), 6–8. http://10.0.15.65/jpm.2016.42.2.006
Mogapi, E. M., Sutherland, M. M., & Wilson-Prangley, A. (2019). Impact investing in South Africa: managing tensions between financial returns and social impact. *European Business Review*, *31*(3), 397–419. http://10.0.4.84/EBR-11-2017-0212
Mouck, T. (1998). CAPITAL MARKETS RESEARCH AND REAL WORLD COMPLEXITY: THE EMERGING CHALLENGE OF CHAOS THEORY. *Accounting, Organizations & Society*, *23*(2), 189–215. http://10.0.3.248/S0361-3682(97)00004-4
Mouck, Tom. (2000). Beyond Panglossian theory: strategic capital investing in a complex adaptive world. *Accounting, Organizations & Society*, *25*(3), 261–283. http://10.0.3.248/S0361-3682(99)00049-5
Nel, D., du Plessis, C., & Landman, K. (2018). Planning for dynamic cities: introducing a framework to understand urban change from a complex adaptive systems approach. *International Planning Studies*, *23*(3), 250–263. http://10.0.4.56/13563475.2018.1439370
Nesvetailova, A. (2014). Innovations, Fragility and Complexity: Understanding the Power of Finance. *Government & Opposition*, *49*(3), 542–568. http://10.0.3.249/gov.2014.12
Oikonomou, I., Platanakis, E., & Sutcliffe, C. (2018). Socially responsible investment portfolios: Does the optimization process matter? *British Accounting Review*, *50*(4), 379–401. http://10.0.3.248/j.bar.2017.10.003
Park, A., & Ravenel, C. (2015). An Alignment Proposal: Boosting the Momentum of Sustainability Reporting. *Journal of Applied Corporate Finance*, *27*(2), 52–57. http://10.0.4.87/jacf.12117
Pellissier, R. (2012). A PROPOSED FRAME OF REFERENCE FOR COMPLEXITY MANAGEMENT AS OPPOSED TO THE ESTABLISHED LINEAR MANAGEMENT STRATEGIES. *International Journal of Organizational*

Innovation, *5*(2), 6–67. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=83843700&site=ehost-live

Pidgeon, N. (2014). Complexity, uncertainty and future risks. *Journal of Risk Research*, *17*(10), 1269–1271. http://10.0.4.56/13669877.2014.940599

Roundy, P. T., Brockman, B. K., & Bradshaw, M. (2018). The emergence of entrepreneurial ecosystems: A complex adaptive systems approach. *Journal of Business Research*, *86*, 1–10. http://10.0.3.248/j.jbusres.2018.01.032

Scoblic, J. P. (2020). Learning from the Future. (cover story). *Harvard Business Review*, *98*(4), 38–47. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=143527451&site=ehost-live

Shad, M. K., Lai, F.-W., Fatt, C. L., Klemeš, J. J., & Bokhari, A. (2019). Integrating sustainability reporting into enterprise risk management and its relationship with business performance: A conceptual framework. *Journal of Cleaner Production*, *208*, 415–425. http://10.0.3.248/j.jclepro.2018.10.120

Slagmulder, R., & Devoldere, B. (2018). Transforming under deep uncertainty: A strategic perspective on risk management. *Business Horizons*, *61*(5), 733–743. http://10.0.3.248/j.bushor.2018.05.001

Stiglitz, J. (2019). *After Neoliberalism*. Retrieved from: https://www.projectsyndicate.org/commentary/after-neoliberalism-progressive-capitalism-by-joseph-e-tiglitz-2019-05

Urwin, R. (2011). Pension Funds as Universal Owners: Opportunity Beckons and Leadership Calls. *Rotman International Journal of Pension Management*, *4*(1), 26–33. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=60157718&site=ehost-live

UBS. (2017). *Mobilizing private wealth for public good*. UBS White Paper for World Economic Forum Annual Meeting 2017.

U-tantada, S., Yolles, M., Mujtaba, B. G., Shoosanuk, A., & Rautakivi, T. (2019). Green Market Economy and Emerging Market Environment: Sustainable Adaptive Complex Systems. *International Review of Research in Emerging Markets & the Global Economy*, *5*(1), 1296–1319. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=139537522&site=ehost-live

Veldman, J., & Gaalman, G. (2020). On the design of managerial incentives for sustainability investments in the presence of competitors. *Journal of Cleaner Production*, *258*, N.PAG-N.PAG. http://10.0.3.248/j.jclepro.2020.120925

WEISMANN, M. F. (2017). THE MISSING METRICS OF SUSTAINABILITY: JUST HOW BENEFICIAL ARE BENEFIT CORPORATIONS? *Delaware Journal of Corporate Law*, *42*(1), 1–50. http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=129041587&site=ehost-live

Williams, G. (2007). Some Determinants of the Socially Responsible Investment Decision: a Cross-Country Study. *The Journal of Behavioural Finance*, 8 (1), 43 – 57.

World Economic Forum. (2019). The Global Risk Report. 2019. Retrieved from: http://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf

Zeithaml, V. A., Bolton, R. N., Deighton, J., Keiningham, T. L., Lemon, K. N., & Petersen, J. A. (2006). Forward-Looking Focus: Can Firms Have Adaptive Foresight? *Journal of Service Research*, *9*(2), 168–183. http://10.0.4.153/1094670506293731