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Sustainable Investments: Between the Faithful Servant and the Intuitive Mind

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Abstract

Sustainable investments are becoming increasingly prominent while at the same time the market reality remains unchanged despite evidence that current business practices reach beyond ecological limits and are in breach of both the inter-generational and intra-generational equity. Are sustainable investments a myth? Clearly not – this paper argues that capital markets could indeed play a central role in overcoming this dilemma. However, for this to occur current sustainable investment practices have to move on in two central regards: In order to improve the authenticity of data, it is important to make clear what environmental, social, and governance (ESG) related data is actually measuring. This, in turn, will contribute to ensuring that investors gain trust in ESG-criteria and investments. In order to overcome the prevailing focus on short-term profit maximization, it is necessary to put more emphasis on a systems-perspective. This, in turn, will help investors to move on from having a too narrow ceteris paribus perspective towards addressing risks and opportunities within changing ecological and human-social systems.

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1. Introduction

*The intuitive mind is a sacred gift and the rational mind is a faithful servant.
We have created a society that honors the servant and has forgotten the gift.*

Albert Einstein

Evidence from empirical market data shows that the market share of sustainable investments¹ has continued to grow in recent years (Eurosif, 2010) and is further expected to do so, as illustrated by a recent survey among pension experts (Allianz, 2010). This trend is also reflected by the signatories of the Principles for Responsible Investment, which increased from 557, worth US\$ 18.5 trillion, in 2009 to over 900, worth US\$ 30 trillion, in 2011 (PRI, 2010a, 2011): 94 percent of the signatories have implemented policies that refer to environmental, social, and governance (ESG) criteria. Likewise, recent investor polls illustrate the increasing relevance of sustainability on capital markets: A study by Novethic (2010) illustrated that 70 percent of European asset owners (n=251) take ESG-criteria into account in their management decisions. The 2010 global investor survey on climate change found that 87 percent of asset managers (n=46) and 98 percent of asset owners (n=44) consider climate change issues to be a material issue for their investments (risk and/or opportunity).

One could suppose that through these developments on capital markets more sustainable business practices in the corporate world are triggered. When considering the business reality however, current global production patterns are far from sustainable. The human ecological footprint has exceeded the Earth's bio-capacity by 50 percent (WWF, Zoological Society of London, & Global Footprint Network, 2010) and global CO₂ emissions are increasing both in absolute and relative terms. A paradoxical situation seems to exist: On the one hand financial market participants increasingly integrate ESG-criteria into their investment decisions, but on the other hand in terms of the business reality a significant shift towards more sustainable production patterns has not been triggered.

Are sustainable investments in fact a myth as the data they are based on is "hopelessly flawed" (Entine, 2003: 352)? Or does research into sustainable investments actually help companies and investors to better address sustainability issues (Barnett & Salomon, 2003) and we simply have to continuously improve the data (Waddock, 2003)? This paper questions the field of sustainable investment in two regards: the authenticity of the data and the prevailing time perspective. It is the established rational mind that drives us and makes us believe that markets are actually as perfect and omniscient as the efficient market hypothesis suggests. The intuitive mind, however, looks at the obvious and discovers incorrect assumptions and new avenues. Several researchers have pointed to out that current methods and data in the realm of sustainable finance are not as accurate as they should be (Griffin & Mahon, 1997; Margolis & Walsh, 2003; Mattingly & Berman, 2006; Orlitzky, 2011; Orlitzky, Schmidt, & Rynes, 2003; Rowley & Berman, 2000; Vogel, 2005). If there is a lack of authenticity in the ESG-related data, can sustainable investment practices then actually contribute towards sustainable development? Furthermore, much of the ESG-research and data is looking backwards while the biggest sustainability challenges are ahead of us. In order to spur sustainable investments, would it not be a requirement to capture these challenges from a risk and, perhaps even more important, an opportunity perspective? Of course there is "no magic potion or formula" (Waddock, 2003: 378) for how to capture such 'future' trends and how to improve the data and methods. As two important anchors for this I suggest a focus on building investor trust and (re)focusing ESG-criteria towards taking a systems-perspective as proposed by the Darmstadt Definition of sustainable investments.

¹ Sustainable investments are often described using overlapping and complementing terms such as 'social,' 'ethical,' 'responsible,' 'socially responsible' and others (Cadman, 2011; Eurosif, 2010, 2011; WEF, 2011). In this paper 'sustainable investments' is used as a generic term (cf. Juravle & Lewis, 2009).

The remainder of this paper is organized as follows: First, the general link between sustainability and capital markets is discussed based on a literature review. Second, I revisit the scope of sustainable investments from a theoretical perspective. Third, I summarize the practices of current capital markets when investing in a 'sustainable' manner. Finally, I critically reflect on these practices and highlight initial ideas regarding how we may trigger capital markets to become a real driver for sustainable development.

2. Sustainability and capital markets

Capital markets play a fundamental role in global economic development: Whichever form economic development takes, banks and investors always play the key role in the allocation of capital through their financing function. Through this power of decision-making, the same argument can be made for sustainable development (Clark & Hebb, 2005; Orbach & Busch, 2004; Scholtens, 2006): Whichever form (more or less) sustainable development takes, banks and investors can be seen as a key driver (or barrier) for how sustainable this development is. This argument holds not only for macroeconomic developments but also for single actors within the economic system, notably in terms of formulating an adequate and effective corporate sustainability strategy. As such, capital markets are generally considered to have a "great transformational power to accelerate the transition towards more sustainable business practices and value creation" (WEF, 2011: 6). There is clear evidence that capital markets *could* play an important role in fostering sustainable development, but why should they do so? If the liberal view stemming from neoclassical economics holds then there is a negative link between sustainability efforts and financial performance (Friedman, 1970). In this case, sustainability is in conflict with the capital markets' central objective of value creation. If the win-win paradigm holds then there should be a positive link (Scholtens, 2008). In this case, sustainability is in the self interest of capital markets and contributes to enlightened value maximization (Jensen, 2002).

Chatterji, Levine, & Toffel (2009) provide an overview of the evolved motives for sustainable investments: First, 'financial investors' believe in the win-win paradigm and seek to achieve superior financial performance by reflecting on ESG-criteria. Many reasons can be found as to why this 'it pays to be green/good' argument holds and will even increase in its importance: In cases where the biophysical environment imposes new constraints and offers opportunities firms need to adequately respond to sustainability challenges (Hart & Milstein, 1999; Russo & Fouts, 1997; Shrivastava, 1995). One of the most prominent examples of the business sphere being impacted by the biophysical environment is the limited availability of crude oil coupled with steadily increasing demand. This presents both a clear constraint for all carbon-dependent industries and a unique opportunity for the entire renewable energy sector. Furthermore, in some areas policy makers have started to internalize negative externalities through new regulations, which also affect the business environment. One prominent example of this is the European emission trading scheme. Such changing conditions of the business sphere affect business risk, profitability, and ultimately firms' competitive advantage (e.g., Orlitzky & Swanson, 2008; Porter & Kramer, 2006). This has led investors to become increasingly concerned with extra-financial criteria reflecting the environmental, social, and governance criteria within investment decisions.

Second, 'deontological investors' do not want to support irresponsible business practices and thus avoid investments in such assets. Thus, in addition to – or sometimes to even complement – business motivations many investors follow a clear value-based and ethical approach (Cadman, 2011; MSCI, 2011). More recently, the term 'impact investments' has also gained in importance. This investment style critically reflects on the outcomes of an investment strategy before an investment in an asset or construction of a portfolio has actually taken place (Eurosif, 2010; Mercer, 2009). Thus, many investors follow rather normative claims by reflecting on their responsibility as investors and the outcomes of their investment activities. For companies this means that corporate sustainability efforts are able to attract financial resources from socially responsive investors (Kapstein, 2001).

Third, 'consequential investors' seek to influence firms by directing their investments to more sustainable firms. Waygood (2011) argues that capital markets may influence firms in their sustainability efforts in two principal ways: via financial influence and investor advocacy influence. The former refers to the fact that the cost of capital for listed companies is determined by the buying and selling of equity shares and debt. Using an economic equilibrium model, it has been estimated that more than 20 percent of green investors (of a firm's total investors) are required to prompt polluting firms to reform (Heinkel, Kraus, & Zechner, 2001). The latter considers the shareholders as principals which can exercise their rights of share ownership over a company's management. Such efforts are usually referred to as 'engagement' or 'shareholder activism'. After all, 88 percent of the Principles of Responsible Investment signatories declared that they would vote at corporate annual general meetings on issues relating to ESG-criteria (PRI, 2011), indicating that investor advocacy influence seems to be a topic of increasing relevance.

Fourth, 'expressive investors' focus on sustainable investments as this important for creating their own public image and social identity. For example some institutional investors have started to consider themselves as 'universal owners', meaning that their highly-diversified and widely-spread portfolios are representative of global capital markets (PRI & UNEP FI, 2010). Theoretically, it should therefore be in their long-term interest to reduce negative externalities as they are exposed to the costs of environmental damage caused by the firms they invest in.

As such, there are different motivations for taking ESG-criteria into account within investment decisions. It seems that there are increasing business motivations for investments in firms that pursue a sustainability strategy. This in turn may trigger more favorable investment recommendations for such firms from security analysts (Ioannou and Serafeim 2010). In fact, more and more investors claim that their reason for investing in sustainable business practices is "regardless of the existence of any altruistic motivation" (Gray, 2011).

The arguments above suggest that sustainable investments should actually be more financially beneficial. Is there any empirical evidence for this? Since the early studies 30 years ago (e.g., Spicer, 1978) many academic scholars and practitioners in the financial industry have continued to investigate the business case for corporate social and environmental performance. First of all, it is necessary to mention that some methodological concerns with this research have been raised (e.g., Margolis & Walsh, 2003; Orlitzky et al., 2003; Vogel, 2005). Just looking at the results, the extant literature yields a mixed picture: In organizational studies, some authors find support for a positive link (Dowell, Hart, & Yeung, 2000), others propose a negative link (Walley & Whitehead, 1994), while some cannot detect a clear effect or find a neutral link (Elsayed & Paton, 2005). In studies looking at market performance (usually 'alpha' generation) there is a similar picture. Some authors find that stocks reflecting on sustainability issues may outperform the market (Derwall, Guenster, Bauer, & Koedijk, 2005), underperform the market (Chong, Her, & Phillips, 2006), or that there is no clear or a neutral link (Bauer, Derwall, & Otten, 2007). Some meta-analyses seek to summarize the findings thus far (e.g., Margolis & Walsh, 2003; Mercer, 2009; Mercer & UNEP FI, 2007; Orlitzky et al., 2003). The results indicate that corporate sustainability efforts are likely to pay off; at the very least there is no clear indication of a negative relationship between corporate financial performance and corporate social and environmental performance.

3. The theoretical lens: scope and definition of sustainable investments

In the literature, sustainable investment practices are often described using overlapping and complementing terms such as 'social,' ethical,' 'responsible,' 'socially responsible', and others (see, e.g., Cadman, 2011). In line with recent suggestions (Eurosif, 2010, 2011; Hoffmann, Scherhorn, & Busch, 2004; Juravle & Lewis, 2009; WEF, 2011), this paper regards 'sustainable investments' as a generic term for investments that seek to contribute towards sustainable development by integrating

long-term environmental, social, and corporate governance (ESG) criteria into investment processes in order to combine investors' financial objectives with restrictions on nature and social concerns.

When looking at the scope of this definition of sustainable investments, the expression 'triple bottom line' seems helpful as it has been established as a central term when analyzing the efforts of firms towards a sustainable development. This understanding promotes the simultaneous consideration of all three dimensions of sustainable development: the economic, ecological, and social-ethical dimension (Dyllick & Hockerts, 2002; Schaltegger & Burritt, 2005). Following the definition above, sustainable investments should be – at least from a theoretical point of view – investments that are aligned with the individual goals of these three dimensions of sustainable development. From a practical point of view, there are many efforts with regards how to best determine ESG-criteria, even reflecting on industry specifics (DVFA & EFFAS, 2010). However, how can we make sure that such ESG-criteria actually fulfill the goals of all three dimensions and thus that sustainable investments actually spur sustainable development?

To answer this question, an investment's contribution to sustainable development can be described regarding its functional level: The financial means provided must be used in such a way that the investment is aligned with and supports the existence of human-social and ecological systems. This means that in both dimensions systems can be designed so that they are self-sustaining, i.e. lasting over the long-term. For this, the economic dimension comes into the picture: Generating profits is central in keeping the systems alive on a sustained basis through replacement and enhancement investments. In this context many governance aspects have also been suggested to be relevant (Berrone & Gomez-Mejia, 2009; Cogan, 2006; Kolk & Pinkse, 2010). For example, board diversity and gender composition may affect firms' sustainability ratings and reputation (Bear, Rahman, & Post, 2010) and family-controlled public firms have been found to have a better environmental performance than their non-family counterparts (Berrone, Cruz, Gomez-Mejia, & Larraza-Kintana, 2010). The main focus of the following theoretical viewpoint is now placed upon the ecological and human-social systems as these are the main areas where (un)sustainable action and performance is most tangible.

For ecological systems, the essential question for relevant sub-systems then is: Is this system independent from the steady supply of non-renewable resources? Can the waste be used in other production processes to create industrial symbiosis as discussed in the Industrial Ecology literature? Or in simple terms: Is this system able to mimic the closed cycles of the natural environment? One concrete example in this context is electricity production based on solar power. If the appropriate infrastructure and production facilities were available, electric power could be generated without requiring any additional natural resource consumption (maintenance not considered). For this consideration the lifecycle-wide perspective is important, i.e. the environmental effects of the necessary infrastructure and construction of the production facilities must be incorporated into the balance. From this point of view, electricity generation based on solar power may be a significant improvement, but it is not a closed cycle. As such, electricity generation without any external effects remains a dream of the future. This externality argument also holds for many other areas of industrial production, resulting in the current situation that mankind has exceeded its ecological limits. Since 1966 humanity's ecological footprint has more than doubled. In 2007 the human ecological footprint exceeded the earth's bio-capacity by 50 percent, meaning that we were using resources equivalent to 1.5 planets (WWF et al., 2010). It is estimated that without significant changes humanity will require the capacity of two Earths by 2030 (WWF et al., 2010). This development is also reflected by climate change: Global CO₂ emissions increased by 4.4 percent between 2008 and 2011 (from 29.3 to 30.6 gigatons) while at the same time global GDP increased by 3.9 percent (from US\$ 71.7 to 74.4 trillion).² This not only means that CO₂ emissions have increased globally; it also implies that – as the carbon intensity (CO₂ / GDP) has increased – our current growth is even worse than the preexisting production systems. The following conclusion can be made: At present there are no industrial technologies that are 100 percent consistent with natural systems. Nevertheless, technological

² <http://www.iea.org>

improvements allow important steps towards more sustainable development (e.g., through an increase in eco-efficiency).

Regarding human-social systems, it is important that financial means are not used in a way which disregards the principles of inter- and intra-generational equity. The Brundtland Definition clearly states what would be required for sustainable development in terms of inter-generational equity (WCED, 1987): future generations shall be able to satisfy their needs under the same conditions as the present generation is able to do so. In a similar manner, it can be argued that sustainable development also requires that the conditions of intra-generational equity are met: the developed world cannot live at the cost of the developing world. With regards to energy demand and climate change, it is evident that the core of current business practices is in breach of both the inter-generational and intra-generational equity dimensions. Fossil fuels are increasingly used, and the adverse effects of a changed climate are left for future generations; while much of the fossil fuel consumption takes place in the developed world, people in developing countries such as Africa are already exposed to severe consequences of global warming (Collier, Conway, & Venables, 2008). The following conclusion can be drawn: At present mankind is not on a sustainable track regarding human-social systems. Nevertheless, in this area several developments and innovations also illustrate how we could move forward towards a more sustainable future (e.g., clean-tech investments in the developing world through Clean Development Mechanism projects).

From this theoretical viewpoint, it can be argued that investments can actually spur sustainable development. However, 'sustainable investments' per se do not exist. In fact, it would make more sense to speak of 'more sustainable investments'. Theoretically, sustainable investments should be investments that are aligned with the individual goals of the three dimensions of sustainable development. However, from a practical point of view current business practices are not aligned with the requirements of sustainable ecological and human-social systems. The theoretical claim of truly sustainable investments would be fulfilled if investments into a long-lasting self-supporting system reflecting the aforementioned three dimensions of sustainable development were feasible. Moreover, what also generally speaks against such a definition is a logical argument: If there were only sustainable investments the opposite would be non-sustainable investments. As a consequence, the best-in-class principle would have no function and the first steps towards greater sustainability would neither be taken into account nor honored. Instead, more sustainable investments contribute to a more sustainable future. By choosing these investments investors make, under given circumstances at a certain time, the highest contribution possible towards sustainable development.

Although it may be more appropriate to speak of 'more sustainable investments', the term 'sustainable investments' seems to be better suited to colloquial language and, moreover, is already widely established. As such, I continue using sustainable investments as an umbrella term for all sorts of investments in sustainability-oriented assets. In the following, attention is turned towards the 'Darmstadt Definition of Sustainable Investments' as a holistic definition that reflects the systems-perspective outlined above (Hoffmann et al., 2004):

From an economic perspective sustainable investments require that:

- *profits are accrued on the basis of long-term production and investment strategies instead of short-term profit maximization,*
- *profits from investments are responsibly related to the actual increase of economic value in real terms,*
- *the fulfilment of basic needs (e.g. water supply) is not threatened, and*
- *profits are not based on corruption.*

From an ecological perspective sustainable investments require that profit making is consistent with:

- *an increase of resource productivity,*
- *investments in renewable resources,*
- *the recycling and reuse of used material and substances, and*

- *the workability of global and local ecological systems (e.g. rainforests, oceans).*

From a social and cultural perspective sustainable investments require that profit making is consistent with:

- *the development of human capital (responsibility for employment, education and up-grading, support of self-governing workers, compatibility with family and job, respect for a person's individuality),*
- *the development of social capital (creation of opportunities for gainful employment, fair balance between generations, treatment of minorities without discrimination, functioning regions, commitment towards responsible corporate citizenship), and*
- *the development of cultural capital (respect and empowerment for cultural diversity encompassing the protection of personal civil rights and liberties and societal integrity).*

The individual points of the Darmstadt Definition illustrate in which areas investments can provide concrete contributions towards a more sustainable future. As a kind of common denominator for all these areas, sustainable investments reflect long-term trends and consider long-term adjustment processes. Hence, it is the notion of the long-term that results in investments actually spurring more sustainable development. Only if the invested money is not primarily driven by short-term profit maximization can the necessary structures for more sustainable production and consumption patterns be established. Examples of this include the establishment of new markets for fair trade products or research and development expenses for resource efficient production technologies.

The advantage of such a long-term perspective is also evident from a capital markets logic: The aforementioned examples of climate change and fossil fuel scarcity illustrate how the entire carbon-intensive lifestyle of the industrialized world will have to change towards renewable energy sources in the long-run. Natural limits and governmental regulation will inevitably result in significant price increases, which will in turn improve the competitiveness of renewable energy sources. Through the early anticipation of these trends, investors can detect emerging risks and create new business opportunities. Based on far-sighted and long-term oriented investment decisions, portfolio managers are able to pick the winners of this development – and through this create a triple-win situation: the financial performance of investments is secured in the long run, risks are minimized, and the goals of the ecological and social dimensions of sustainable development are supported.

4. The empirical lens: sustainable investment practices in capital markets

Looking at the current sustainable investment practices actually applied in capital markets, Eurosif (2010) published a classification for sustainable investment strategies in its prominent European SRI Study 2010. This classification refers to two main categories: core and broad sustainable investment strategies. The former consists of positive screenings, the best-in-class approach, thematic funds, and specific norms-/ values-based exclusions. The latter focuses on simple screening methods, the engagement approach, and ESG-integration. Table 1 illustrates the investment approach of each type of sustainable investment strategy in detail.

Table 1: Different types of sustainable investment strategies

Core strategies

Positive screening	The selection, within a given investment universe, of stocks of companies that perform best against a defined set of ESG criteria. This may include Best-in-Class or theme funds.
Best-in-Class	An approach where the leading companies with regard to ESG criteria from each individual sector or industry group are identified and included in the portfolio.
Thematic funds	Thematic funds may focus on sectors such as water or energy, or issues such as a low carbon economy. A theme fund must show an explicit motivation, taking into account ESG considerations in the fund construction process. This requires the existence of specific mechanisms, such as the involvement of sustainability expertise in stock analysis selection, the application of an ESG screen, or the management of the product by the analysts.
Norms- /Values-based exclusions	Norm-based exclusions refer to the negative screening of companies according to their compliance with international standards and norms such as issued by OECD, ILO, UN, UNICEF. Value-based exclusions apply more than two negative criteria/filters, addressing aspects such as tobacco or weapons.

Broad strategies

Simple screening	An approach that excludes given sectors or companies from a fund if involved in certain activities based on specific criteria, such as arms manufacture, publication of pornography, tobacco, animal testing, etc.
Engagement	A long-term process of dialogue with companies which seeks to influence company behavior in relation to their social, ethical, and environmental practices.
Integration	The explicit inclusion by asset managers of ESG-risk into traditional financial analysis. Corporate Governance risk should be limited here to the interface between Governance and Social and Environmental issues.

Source: Eurosif (2010)

Based on these different investment strategies, investors and analysts currently seek to determine whether investments are more or less 'sustainable'. In fact, based on the underlying screening concepts and assessment approaches, different aspects of the previously described general requirements for sustainable investments following the Darmstadt Definition can be addressed. To which extent and whether all three dimensions are reflected simultaneously depends, however, on the sophistication and scope of the individual concepts and approaches. Table 2 illustrates the global amount of sustainable investments based on these strategies globally.

Table 2: Sustainable investments globally

Region/Country	SRI Strategies	Total SRI (billion €)
Europe (FY 2009)	- Core SRI (23%) - Broad SRI (77%)	4,986
USA (FY 2010)		2,141 (3,069 US\$)
Canada (FY 2008)	- Core SRI (9%) - Broad SRI (91%)	405 (609 Cnd\$)
Australia & New Zealand (FY 2010)	- Core SRI (20%) - Broad SRI (80%)	58 (93 Au\$)
Japan (2009)		4 (579¥)
Total		7,594

Source: Eurosif (2010)

Looking at this big picture, roughly EUR 7.6 trillion have been invested into sustainable investments globally, which appears to be a huge amount of the total assets under management. In order to understand these numbers in more detail, the paper now focuses on the biggest proportion of these investments, the European market. The recent Eurosif European market survey is based on data from 13 European countries for the financial year (FY) 2009. Table 3 illustrates the 2009 market share for the different types of investment strategies. As a key result, this report highlights that the sustainable investment market – covering both core and broad strategies – has increased from EUR 2.7 trillion assets under management in 2007 to almost EUR 5 trillion in 2009. The main proportion of this growth, however, can be ascribed to an increase in broad investment strategies, largely driven by institutional investors (Eurosif, 2010).

Table 3: European market for sustainable investments

Core strategies	Billion EUR
Positive screening	145
Best-in-Class	148
Thematic funds	35
Norms- /Values-based exclusions	868
Broad strategies	
Simple screening	986
Engagement	1514
ESG Integration	2828

Source: Eurosif (2010)

It is obvious that from a sustainable development perspective it is not only the pure amount of money invested which matters. Due to this variety of individual screening and assessment concepts some strategies result in a bigger impact while others make only a minor contribution to a sustainable development. For example, the effect of a simple exclusion of a specific aspect by an institutional investor is certainly less effective as compared to a far-reaching engagement approach that seeks to influence entire corporate strategies towards proactively addressing sustainability issues. The results of the Eurosif (2010) survey suggest that sustainable investments following core strategies represent 10 percent of the total assets managed by the European asset management industry, and up to 47 percent when following the broad definition.

Beyond this somewhat questionable high percentage – almost one out of two Euros invested follows ESG-criteria – there is also huge variation in sustainable investment strategies and market penetration between different European countries. For example, the sustainable investment market in the Netherlands encompasses almost EUR 400 billion, while France has reached EUR 50 billion, and the German market is below EUR 13 billion. One explanation for this is that in Netherlands, for example, institutional investors' awareness of ESG-related issues is very high. In contrast, relatively few institutional investors in Germany have already taken ESG-criteria into account (Eurosif, 2010).

Looking at the numbers in detail, several questions arise. First, there is no consistent picture of how big the sustainable investment market actually is. Sources other than Eurosif may use different methods, definitions, and scope and thus end up with different results. Moreover, following the Eurosif (2010) results 26 percent of the total assets managed by the European asset management industry integrate some sort of ESG-related data. However, the progress report of signatories of the Principles for Responsible Investment (PRI, 2010b) – investigating the global market as a whole – proposes that such ESG-integration is only being implemented across eight percent of listed equities in developed (which refers mainly to the US and European market) and six percent of listed equities in emerging markets.

Second, it is obvious that the main share of sustainable investments have to be ascribed to ESG-integration strategies. These are defined as the “explicit inclusion by asset managers of ESG-risk criteria into traditional financial analysis” (Eurosif, 2010: 60). In order for this definition to be fulfilled it is sufficient to have a formal policy integration document. However, the Eurosif report acknowledges that how this approach works in detail is often not clearly articulated. The key question is: How are the ESG-criteria integrated into traditional financial analysis and what are the consequences for buying and holding a specific asset? Apparently, the current ESG-integration strategies are not well integrated themselves. 45 percent of asset managers and owners state that thematic analyses and research on ESG-issues fed back (somehow) into the mainstream analyses under the umbrella of their integration practices; however only eight percent state that the ESG-based rating results are systematically included in standard analysis spreadsheets (Eurosif, 2010).

Finally, much related to the points above, this raises the question of how effective the applied sustainable investment strategies actually are. For example, acknowledging that engagement, integration, and exclusion strategies bear the risk that their meaning and implications for sustainable development remain rather vague, this creates a very different picture: only about three percent of total funds are invested following the strategies positive screening, best-in-class, and thematic funds. In addition, doubts have been raised regarding whether financial analysts really know what to do with ESG-related information; this information is not very standardized and harmonized, which makes its “interpretation” for investment decision-makers even more difficult (Garz & Volk, 2011). Practitioners have started to address this shortcoming. For example, Goldman Sachs (2011) has developed an assessment framework named “GS SUSTAIN Focus list” to incorporate ESG-criteria into stock picking processes. Beside traditional investments metrics such as return on capital and company's industry positioning, the assessment process converts a set of 20-25 ESG-criteria (depended on particular industry characteristics) into quantitative scores. Notwithstanding that such approaches have to be

considered current best practice, the choice of the ESG-criteria still remains arbitrary and the extent to which such frameworks are actually implemented beyond such sell-side reports is unclear.

5. From the faithful servant to the intuitive mind

This lens on current sustainable investment practices within capital markets illustrates that there is significant development occurring. It seems that a growing number of investors take note of ESG-criteria. However, my main proposition is that the existing sustainable investment practices currently appear to be insufficient to fulfill the requirements of the Darmstadt Definition. At present, investors view sustainable investments as faithful servants: potential fancy add-ons to established investment products. The actual contribution of capital markets to sustainable development however must (still) be rated as rather low (Schepers & Sethi, 2003). The main reason for this can be seen in a lack of data-authenticity and the prevailing short-term time perspective. To overcome both, we have to think more in terms of intuitive minds.

With respect to the *authenticity of data*, recent research has investigated to what extent sustainable investment practices can actually contribute to sustainable development. Chatterji et al. (2009) ask how well sustainability-related ratings actually measure corporate efforts in addressing sustainability issues. The authors base their analysis on the widely used ESG-criteria provided by Kinder, Lydenberg, Domini Research & Analytics (KLD) and compare the ratings with environmental performance data obtained from the US EPA's Toxic Release Inventory (TRI) and the rate of compliance with environmental regulations. On the one hand, the results show that KLD concern ratings are a good measure of past environmental performance and, to a lesser extent, predict future performance and compliance violations. On the other hand, strengths ratings neither predict future performance nor compliance violations. In a related study, Delmas and Blass (2010) examine the criteria for comparing companies and the pros and cons of current sustainable investment practices. Based on an analysis considering 15 chemical companies, the authors find that firms can exhibit a superior and inferior performance simultaneously depending on the metrics chosen. Those with a poor result in terms of environmental performance (e.g., measured based on the toxic releases) may have a better stance on pollution-prevention activities. Both studies illustrate that ESG-rating results depend on the underlying data screening and metrics. Some ESG-criteria are actually related to (i.e. measure) improvements in ecological and/or social-ethical outcomes. Others have to be seen as rather meaningless artifacts. This has two main implications:

First, this demonstrates the necessity of using more than one indicator and different categories when analyzing a firm's environmental and social performance-based current ESG-criteria. Current practices in using ESG-criteria require significant improvements in order to become more authentic. Intuitively, more emphasis needs to be put on the question of which ESG-criteria actually (i.e. in a reliable manner) reflects which type of information and how this is actually integrated into the investment process so that the screening has an effect on sustainability performance (i.e. the validity of the outcomes). Moreover, future research on sustainable investments may reach a more congruent picture by focusing more on disaggregated measures of corporate sustainability and analyzing the underlying moderating and mediating effects (Barnett, 2007; Busch & Hoffmann, 2011; Pelozo, 2009; Schreck, 2011). Second, this calls for greater transparency regarding the underlying screening methods applied in sustainability assessments and ratings. This suggestion is also supported by the recent findings of the second phase of the Rate-the-Raters' project, which was launched by SustainAbility.³ The central message is this: If investors cannot understand and trust such assessment and rating they will not trust sustainable investments at all – be it from purely business motivations or due to normative claims. In order for sustainable investments to really spur sustainable development investors need to understand and trust ESG-related data and ratings. Adequate competencies at both ends, investors and managers, are an important requirement for this.

³ <http://www.sustainability.com/library/rate-the-raters-phase-three>

With respect to the *prevailing time perspective*, more emphasis on long-term performance and goals seems to be an essential condition for capital markets to foster sustainable development. The excessive short-term orientation and value maximization attitudes of the current dominant market paradigm “often trap mainstream investors in a complicated mindset” (Juravle & Lewis, 2009: 81). Investors tend to have a narrow ‘*ceteris paribus*’ perspective which impedes the required reorientation towards global challenges and neglects the full implication changes in environmental and social systems will have on investments. The main reason for this can be seen in the wide-spread belief that the efficient market hypotheses actually holds (Lenssen, Bevan, & Fontrodona, 2010). However, even business leaders such as Jack Welsh and leading economists such as Joseph Stiglitz (2010) have recently questioned this belief, notably with respect to the dominant paradigm of short-term profit orientation. The current over-rationalization has led to a too narrow focus on short-term realities, whereas with intuitive thinking we need to see systems as a whole. This paper highlights that the economic dimension is also important when designing self-sustaining human-social and ecological systems: generating profits is central in order to keep the systems alive on a sustained basis. However, for this understanding a long-term time-horizon is required. As such, sustainable investments driven by long-term oriented business motivations are certainly the way forward.

The main implication is that the field of sustainable investments requires a mental shift towards a risk and, perhaps more notably, opportunity perspective. Global trends such as the mounting negative externalities of climate change need to be reflected and their effects on ecological and human-social systems need to be investigated. A change in these systems significantly alters the world and thus affects the way we will do business in it. These trends and system-wide effects need to be rooted in a long-term strategy as depicted by the Darmstadt Definition of sustainable investments. Thus, the triple bottom line approach in combination with what Jensen (2002) calls ‘enlightened value maximization’ seems to be a promising way forward. For investors this may have two implications: First, such a strategy needs to be reflected in strategic asset allocation (SAA) as the global trends affect risks and returns across asset classes (Garz & Volk, 2011). Second, in terms of portfolio management the screening of potential investment risks and opportunities via integration of relevant ESG-criteria bears the highest advantage for actually following the triple bottom line approach and simultaneously maximizing long-term value.

6. Conclusion

This paper was motivated by the paradox that while sustainable investments become increasingly prominent at the same time the market reality remains unchanged despite evidence that current business practices reach beyond ecological limits and are in breach of both inter-generational and intra-generational equity. Are sustainable investments and corporate social responsibility a myth (Devinney, 2009; Entine, 2003)? Clearly not – this paper argues that capital markets could indeed play a central role in overcoming this dilemma. However, we have to move on from considering the efficient market hypotheses as the faithful servant to fostering our thinking as intuitive minds about the role of finance for a more sustainable future.

There seems to be evidence that even investors themselves are becoming aware of this need to move on. Climate change and its resulting effects on ecological and socio-economic systems is probably one of the most serious challenges humanity faces in the 21st century. At the very least in cases where such dramatic and system-wide changes become tangible, there is indication that many investors have realized this and see the need for substantial action: In a statement made to international governments prior to the 2010 UN climate change conference, a group of 268 investors collectively representing assets of USD 15 trillion called for substantial action to curb greenhouse gas emissions (UNEP FI, 2010). Other examples in this context are the ‘Investor Network on Climate Risk’, or the ‘Institutional Investors Group on Climate Change’, which pursue similar objectives. This is good news, albeit limited to one pressing issue.

To boost the real potential of sustainable investments, current practices in capital markets need to be advanced. A recent World Economic Forum report (WEF, 2011) suggest four key functional changes

in this regard: (1) improve information so that ESG-criteria is widely spread; (2) strengthen competencies so that investors and managers have the competencies to assess ESG-related aspects; (3) modify incentives so that more emphasis is laid on long-term performance; (4) enhance governance so that shareholders and managers establish a mutual understanding for long-term value creation. The findings of this paper complement these suggestions in two ways: In order to improve the authenticity of data, it is important to demonstrate what it is that ESG-related data is actually measuring. This, in turn, will contribute to ensuring that investors gain trust in ESG-criteria and investments. In order to overcome the prevailing focus on short-term profit maximization, it is necessary to put more emphasis on a risk and opportunity perspective which reflects the looming changes in ecological and human-social systems. This, in turn, will help investors to move on from having a too narrow *ceteris paribus* perspective towards intuitively considering the sustainability of their investments as proposed by the Darmstadt Definition.

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