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DIRTY FEET: Portfolio Carbon

Portfolio risks and opportunities from the carbon intensities of the 40 largest listed companies in South Africa

Dirty Feet: Portfolio Carbon

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Cover picture: Image of Cape Town quayside featuring dolos waterbreaks, engineering created in South Africa, providing protection from marine risks and used in great numbers to protect harbour walls from the erosive force of ocean waves. © SinCo photography archive 2006 - 2012

About SinCo

SinCo – sustainable investment consulting – is a boutique investment advisory firm specializing in sustainable investment architecture in frontier and emerging markets. Since 2006 SinCo has delivered sustainable investment architecture globally to pension funds, asset managers, private equity funds, stock exchanges and international organizations integrating environmental, social and governance (ESG) factors into investment practice for sustainable long-term investment performance. **www.sincosinco.com**

SinCo supports Africa Sustainable Investment Forum (AfricaSIF.org) and its mission promoting sustainable investment in Africa from **www.africasif.org**

About Trucost

Trucost Plc was established in 2000 to help organizations, investors and governments understand and quantify the environmental impacts of business activities. Over the past 11 years Trucost has researched, standardized and validated environmental data from organizations worldwide. The result is the world's most comprehensive data on corporate environmental impacts, covering greenhouse gases (GHGs), water, air pollution and waste. This enables our clients to access:

- The most efficient approach to measuring GHG emissions and wider environmental impacts across organizations, supply chains and investment portfolios;
- Clear identification of priority areas for reducing environmental impacts;
- Validation of source data, including completion of information gaps where data are not disclosed;
- Comparison of environmental performance against peers, sectors and investment benchmarks;
- The ability to create environmentally-efficient investment products.

Caveats

EXECUTIVE SUMMARY

Sustainable long-term investment performance relies on a full appreciation of the risks and opportunities that portfolio investee companies face. Designing sustainable investment strategies requires accurate analysis of material environmental, social and governance (ESG) factors. Focusing on one major ESG factor in South Africa (S.A.) today, greenhouse gas emissions, SinCo presents analysis of Trucost research on the carbon footprints of major companies and investors.

This *Dirty Feet: Portfolio Carbon* report examines the carbon risks of the 40 largest companies by market capitalisation in the Johannesburg Securities Exchange All Share Index (FTSE/JSE Top 40 Index), and the carbon footprints of major pooled equity funds (unit trusts) investing in South Africa today. The analysis, based on an internationally-tested methodology, also assesses the effects of reducing emissions on portfolio performance via a hypothetical "carbon optimized" fund based on the 40 largest South African companies. This identifies an opportunity to reduce portfolio exposure to carbon pricing set to be introduced in countries including South Africa within the next three years, while tracking the returns of the parent index. Long-term investors are increasingly aware of the potential impacts of ESG factors on their 10-year investment horizons.

Dirty Feet: Portfolio Carbon offers new, robust analysis of the challenge faced by major South African companies (and the listed equity funds that own them), of building their businesses in a low-carbon, climate-resilient future in Africa's largest economy. This new evidence-based research using a global best practice methodology analyzing FTSE/JSE 40 Index companies and top 10 funds demonstrates that there are strong financial incentives for investors, including pension funds and asset managers, in large capitalization companies to ensure that carbon risk is actively considered as a material valuation factor. There is a need for major JSE-listed companies to clearly articulate to shareholders, policymakers and regulators their plans and practices in managing their carbon footprints and ESG issues. There is also a clear case for comprehensive, mandatory company reporting on carbon in annual reports and accounts as well as investment policies.

Key findings include:

Companies

- The degree of environmental, social and governance (ESG) disclosure is high relative to other emerging markets.
- Carbon risks are concentrated in the carbon-intensive Basic Resources and Oil & Gas sectors. Companies most exposed to profit risk from carbon costs include Sasol Ltd and Harmony Gold Mining Co. Ltd.
- The FTSE/JSE Top 40 Index companies accounted for 207 million tonnes of carbon emissions, measured in carbon dioxide equivalents (CO_2e) in 2010.
- 52% of these emissions were direct from their operations. The companies directly emitted almost 109 Mt CO_2e, which equates to 20% of South Africa's carbon emissions in 2010.
- 36% of total emissions were from electricity purchases and another 12% were from direct (first-tier) suppliers, such as travel and logistics providers.
- Five sectors accounted for 97% of total emissions: Basic Resources, Oil & Gas, Food & Beverage, Industrial Goods & Services and Telecommunications. The remaining 3% of emissions were from eight sectors.
- If the companies were to pay the carbon tax rate of R75[1] (US$8.97) per tonne of CO_2e for direct operational emissions globally, carbon costs could amount to almost US$974 million. This would equate to 0.2% of revenue or 1% of earnings before interest, taxation, depreciation or amortization (EBITDA) on average across all 40 companies.
- At a higher future carbon price of R200 (US$23.91), direct carbon costs could amount to more than US$2.5 billion globally. This could equate to 0.5% of revenue on average across all 40 companies, or 2.7% of earnings.

1 South African Rand (ZAR). The currency used throughout is US Dollars (US$) at approximately ZAR:US$ 0.12.

- Average exposure to direct carbon costs varies by sector. In the top five sectors, carbon costs at US$8.97/tonne (R75) would equate to between 0.06% of EBITDA on average in the Telecommunications sector and 14% of EBITDA for the Oil & Gas sector. The other four sectors with the highest average percentage of earnings at risk from direct carbon costs are Basic Resources, Retail, Industrial Goods & Services and Food & Beverage. Companies could be exposed to further carbon costs passed on by suppliers.
- Profit risk from carbon costs can vary widely for companies within sectors. Companies that are more carbon efficient and less exposed to carbon costs could gain competitive advantage. Companies could use measures such as energy efficiency and renewable energy technologies and benchmarking of suppliers to help manage carbon risk.

Portfolios

- The carbon footprint of the FTSE/JSE Top 40 Index[2] was 541 tonnes of carbon for every US$m of revenue in 2010. The absence of utilities implies the relative carbon intensity of the companies is lower than that of other major stock exchanges. However, the overall carbon footprint of the Top 40 companies was larger than that of several developed country and emerging market indices.
- Seven out of the 10 major South African equity funds (pooled investment funds, known locally as "unit trusts") had larger carbon footprints than the FTSE/JSE Top 40 Index, indicating a bias towards more carbon-intensive investments.
- The carbon footprints of the 10 funds varied widely, indicating varied exposure to carbon costs. Their carbon footprints ranged from 387 tonnes of carbon per US$m revenue for the Nedgroup Investments Rainmaker Fund to 1,151 tonnes of carbon/US$m for the Allan Gray – Stable Fund.
- Eight of the funds analyzed invested in stocks that were more carbon-intensive on average than Index sector peers.
- Fund managers can rebalance fund holdings based on carbon intensity to reduce carbon risk while closely tracking the financial performance of the underlying Index. Trucost created a carbon optimized version of the FTSE/JSE Top 40 Index with a 7% smaller carbon footprint. Carbon risk could be reduced further by re-weighting the FTSE/JSE All-Share Index,[3] as it has a larger universe of constituents within sectors.
- Appetite for risk varies but all investors prefer known to unknown risks when valuing companies. In conditions of uncertainty, scenarios allow funds to produce probability paths. Understanding the carbon risks – and opportunities – allows investors and their portfolio companies to manage potential financial risk to returns from carbon costs. The study examines opportunities for fund managers to manage financial risk from rising carbon costs by tilting their portfolios toward more carbon-efficient companies, whilst maintaining financial performance consistent with the market benchmark.
- Investors expect ESG issues to have an impact over the next 10 years. Climate-related risks, ranging from water scarcity/sanitation to emissions of greenhouse gases, will impact investment performance over the next 3-10 years. Asset owners, asset consultants, investment managers and investment analysts may improve the quality of their investment decision-making by factoring in the material sustainability issues through pricing scenarios with probabilities for ESG factors.
- This theme requires further evidence-based research, including: 1. carbon intensity of all FTSE/JSE-listed companies and major State-Owned Enterprises (SOEs) will offer a more complete picture of the business sector; and 2. major asset classes need carbon footprints for fixed income and property/real estate asset classes.

2 The FTSE/JSE Top 40 Index consists of the largest 40 companies ranked by full market value in the FTSE/JSE All-Share Index. www.jse.co.za

3 FTSE/JSE Index Africa All Share Index (J203) consists of the top 99% of eligible listed companies when ranked by full market capitalisation.

INTRODUCTION

"The cold reality for institutional investors in emerging markets is that most are hoping that climate change can wait. Today, all costs of investment are not factored in – including the climate change costs and risks of variability from changes in weather, water scarcity or urbanization patterns."

Graham Sinclair and Cecilia Bjerborn, Green Returns[8]

"The science shows us that climate change due to emissions of greenhouse gases is a serious problem. Furthermore, due to the persistence of carbon dioxide in the atmosphere and the lag in response of the climate system, there is a very high probability that we are already heading towards a future where warming will persist for thousands of years. Failing to insure against that high probability does not seem a gamble worth taking."

Deutsche Bank Climate Change Advisors[9]

With the world's population reaching seven billion in October 2011,[4] institutional investors understand that competing demands for key resources such as food, water, land and energy will fuel tensions and commodities prices. The growing stock of greenhouse gas (GHG) emissions in the atmosphere will cause changes in the global climate that are set to increase resource pressures. South Africa, which is already water-stressed, will face rising temperatures, future drying trends and weather variability with droughts and extreme rainfall. This will damage human health, agriculture, and other water-intensive sectors such as mining and power generation. South Africa is among developing countries particularly vulnerable to these effects, given its economic dependence on these sectors.[5]

If climate modeling pans out, some river systems in Africa – southern Africa's Limpopo, north Africa's Nile and west Africa's Volta – will receive less rain than they do at present. This would hit food production and fuel cross-border tensions. The outlook for rain-fed agriculture is particularly bleak in the Limpopo basin, which covers parts of Botswana, South Africa, Mozambique and Zimbabwe and is home to 14 million people.[6]

GHG emissions must peak by 2020 at the latest and fall by 50-80% below 1990 levels by 2050 to avoid more dangerous climate change impacts. South Africa was among more than 100 countries that agreed to act urgently to meet a long-term goal of limiting an average global temperature rise to below 2°C above pre-industrial levels. To help achieve this, the South African Government agreed "nationally appropriate mitigation actions" (NAMAs)[7] to reduce emissions by 2020, alongside the other "BASIC" countries Brazil, India and China. More than 190 countries at the UN climate summit (COP 17) in Durban in November/ December 2011 backed a landmark deal to sign a legal agreement by 2015, which would force all countries to cut emissions no later than 2020. Under the "Durban Platform", 35 industrialised countries were among governments that agreed a second commitment period of the UN Kyoto Protocol from 2013.

Climate change policies and carbon costs

Carbon budgets at country level will determine carbon pricing. Under the UN Cancún Agreements of 2010, South Africa committed to implementing mitigation actions that will result in emissions being 34% below "business-as-usual" levels by 2020, and 42% below by 2025. South Africa emitted an estimated 547 million tonnes of greenhouse gas emissions, measured in carbon dioxide equivalents (Mt CO_2e) in 2010. South Africa is ranked among the top 20 countries measured by absolute carbon dioxide (CO_2) emissions. About 80% of these emissions are from the electricity, metals and transport sectors. Reliance on coal-based power generation is a major cause of the economy's relatively high carbon intensity. As a growing country dependent on fossil fuels, South Africa's GHG emissions could more than triple by 2050, unless action is taken to decarbonise the economy.

4 Population 7 Billion By Robert Kunzig; Photograph by Randy Olson; Special Series: 7 Billion, National Geographic Society, January 2011.
5 Discussion Paper For Public Comment: Reducing Greenhouse Gas Emissions: The Carbon Tax Option, December 2010, SA National Treasury. In response to tension between development and a low-carbon future, South Africa launched a Green Economy Accord, aiming to create 300,000 new jobs and double the country's energy generation capacity over the next 20 years.
6 http://af.reuters.com/article/topnews/idafjoe7ad07v20111114, accessed 18 November 2011.
7 Negotiations around Copenhagen (2009) and Cancun (2010) UN FCCC COP/CMP meetings.
8 Green Returns by Graham Sinclair and Cecilia Bjerborn, Africa Investor Magazine, November-December 2011.
9 DBCCA Climate Change: Addressing the Major Skeptic Arguments, DBCCA and Columbia Climate Center at the Earth Institute, Columbia University, 16 September 2010.

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"South Africa is the continent's largest economy and the sustainable investment pioneer in Africa. Most investment funds in Africa are either based or marketed in South Africa due to its relatively advanced capital markets, investment ecosystem, and established investor base."

Graham Sinclair and Roselyne Yao, Sustainable Investing in Africa's Frontier Markets[14]

"There has been growing recognition in mainstream investment circles that environmental and social issues might also be financially beneficial."

Prof Neil Eccles, UNISA[15]

The S.A. Government therefore approved a National Climate Change Response White Paper in October to establish a National GHG Emissions Trajectory Range that will inform policies to stabilise the country's emissions by 2025 at the latest, and reduce them by 2050.[10] The upper and lower limits of trajectories of GHG emissions in a "Peak, Plateau and Decline" (PPD) plan will underpin "desired emission reduction outcomes" or carbon budgets for significant sectors or sub-sectors, to be created within two years. This will clear the way for caps on emissions from carbon-intensive firms and market-based instruments to introduce carbon pricing within three years.

The S.A. Government will require high-emitting companies and sectors to develop mitigation and low-carbon development strategies to help translate carbon budgets into company-level emissions reductions. Sector plans will also need to include adaptation responses, focussing on issues including water. Reporting on emissions and energy use will be mandatory for companies that emit more than 100,000 tonnes of CO_2e, or whose electricity use results in emissions that meet this threshold. Companies responsible for more than 0.1% of industrial emissions from their sectors will be regulated under the Air Quality Act 39 of 2004, and mitigation plans will need to be approved under rules to implement pollution prevention plans. Major companies in South Africa stand at the forefront of geopolitical change. Their investors need to model scenarios for portfolio carbon impacts on valuations to prepare for rising carbon costs during this decade.

Policies to internalize pollution costs

Climate change and its effects are the result of GHG emissions, which are not paid for by the emitters. The costs of environmental damage caused by polluting business activities are largely "external" to financial accounts, and are therefore known as external costs or "externalities". Because these costs have not been factored into the prices of goods and services, this is a "market failure", which can be corrected by a pricing instrument. Effective climate policy corrects the decision calculus for activities with externalities in the direction of more efficient power generation and use of energy, lower carbon intensity and a lean-carbon economy. To be technically feasible and cost-effective at scale, mitigation implies the need for carbon pricing, namely market-based climate regulatory frameworks that place a price on carbon dioxide emissions.[11] Governments are increasingly using market-based or regulatory mechanisms to correct this market failure and more accurately account for the dependence of businesses on a stable climate and access to water.[12] Externalities can be internalised by charging firms for the damages caused by their pollution,[13] and by making them more accountable to their stakeholders. Therefore, in a world with finite resources and more people, carbon-intensive companies will increasingly pay to emit GHG emissions – or reduce them – under government policies and mechanisms such as performance standards, emissions trading and carbon taxes.

10 http://www.environment.gov.za/polleg/whitepapers/national_climatechange_response_whitepaper.pdf, accessed 30 November 2011. South Africa sees an ambitious, fair, effective and binding multilateral agreement under the UN Framework Convention on Climate Change as essential to deliver climate goals. Emissions are to peak by 2025 and plateau for 10 years between lower and upper limits of 398-614 million tonnes of carbon dioxide equivalents (Mt CO_2e). Emissions must decline from 2036 onwards, and keep to between 212 and 428 Mt CO_2e by 2050. This would be about one-fifth lower than current emissions levels. Energy efficiency, demand management and switching from fossil fuels to renewables in power generation are expected to provide the greatest cost-effective mitigation opportunities.

11 Using the Market to Address Climate Change: Insights from Theory and Experience, Joseph E. Aldy, Robert N. Stavins, NBER Working Paper No.17488, Issued in October 2011.

12 Universal Ownership: Why environmental externalities matter to institutional investors, UN PRI/UNEP FI, Trucost, 2011.

13 European Conference Of Ministers Of Transport, Social Costs Glossary, Cemt/Cs(97)12.

14 Evolutions in Sustainable Investing: Strategies, Funds and Thought Leadership (Wiley Finance, 2011) edited by Cary Krosinsky, Nick Robins, and Stephen Viederman.

15 Responsible investment, Johann Van Zyl in Mail & Guardian, 22 July 2009 06:00 http://mg.co.za/article/2009-07-17 responsible-investment, accessed 12 December 2011.

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"Fiduciary duty is a chimera: it looks to convention rather than forward to innovation in investment management. As such, governance policies and practice must provide the instruments that simple recipes of fiduciary duty are ill-equipped to provide..."

Prof Gordon Clark, Oxford University[23]

Pricing carbon

Carbon budgets will target the largest sources of emissions with the greatest mitigation potential – electricity and liquid fuels suppliers, as well as the mining, industry and transport sectors. The carbon budgets will be cascaded to companies with emissions above a certain threshold. The S.A. Government will use a mix of tools such as carbon pricing and incentives to enable low-cost emissions reductions. Several excise taxes and incentives have been introduced, and in addition to fuel taxes on petrol and diesel, an electricity levy of 2c/kWh was implemented in July 2009.The execution of a carbon tax in South Africa will be pragmatic. A carbon tax based on measured and verified emissions is preferred,[16] but the Government could consider a proxy tax based on the carbon content of fossil fuels (i.e. a fuel input tax) of R75 (US$8.97) per tonne of CO_2, rising to R200 (US$23.91).[17] The S.A. National Treasury puts most estimates of the global marginal external cost of carbon in the range of US$5-US$30 per tonne of CO_2, based on stabilising global atmospheric emissions at 550 parts per million (ppm) (see box, Carbon, at what price?). However, in the absence of a global emissions pricing system, external costs will be partially internalised initially, and phased in across sectors.

S.A. National Treasury modeling shows that a carbon tax of R75 on coal, crude oil and natural gas as an intermediate input into production processes would have the greatest negative effect on output levels for sectors including coal-to-liquid petroleum (-70%), coal and lignite (-24%) and coal-fired electricity generation (-12%).[18] The Energy Research Center (ERC) of the University of Cape Town has said that the difference in costs of electricity supply in South Africa between new coal plants and low-carbon technologies is around 20–40c/kWh, which equates to a price of R200–R400/tCO_2 (US$28-US$57/tCO_2).[19]

Carbon, at what price?

Market-based instruments offer one least-cost way to reduce emissions.[20] Such policies provide a real or implicit carbon price and create incentives for producers and consumers to invest in low-GHG products, technologies and processes. An effective carbon price signal may promote significant mitigation in all sectors. Modeling studies, consistent with stabilisation of GHG emissions at about 550 ppm by 2100, show prices rising to US$80 per tCO_2e by 2030 and US$155 per tCO_2e by 2050. For the same stabilisation level, studies that take into account induced technological change lower these price ranges to US$65 per tCO_2e in 2030 and US$130 per tCO_2e in 2050.[21] The largest reduction potential as a response to carbon prices exists in the energy supply sector.[22] Most top-down, as well as some bottom-up assessments, suggest that real or implicit carbon prices of US$20-US$50 per tCO_2e, sustained or increased over decades, could lead to a power generation sector with low-GHG emissions by 2050 and make many mitigation options in the end-use sectors economically attractive.

16 The S.A National Treasury view is that taxes on carbon afford firms the flexibility to undertake emissions reductions according to their specific processes and provide the long-term price certainty necessary for investment decisions. Ideally, a carbon tax should apply directly to emissions of CO_2 but for administrative reasons this is not feasible. The next best option is a proxy carbon tax on fossil fuel inputs.

17 Currency Cross Rate ZAR:US$ 0.11955 as of 30 November 2011.

18 http://www.treasury.gov.za/public%20comments/discussion%20paper%20carbon%20taxes%2081210.pdf, accessed 30 November 2011.

19 Energy Research Center (ERC), University Of Cape Town. 2010. Comments On Discussion Paper "Reducing Greenhouse Gas Emissions: The Carbon Tax Option". Available at http://www.erc.uct.ac.za/erc_comments_treasury_carbon_tax%20.pdf.

20 See also Robert W. Hahn and Robert N. Stavins, Kennedy School of Government, Harvard University. "Economic Incentives for Environmental Protection: Integrating Theory and Practice." CSIA Discussion Paper 91-15, Kennedy School of Government, Harvard University, December 1991. Hybrid policies that aim to combine taxes and permits emerge as a promising way forward. Environmental Economics and Policy Studies Volume 12, Numbers 1-2, 1-30, DOI: 10.1007/s10018-010-0161-x New and old market-based instruments for climate change policy by Sebastian R. Goers, Alexander F. Wagner and Jürgen Wegmayr.

21 Pew Centre on Global Climate Change (2007). Highlights from Climate Change 2007: Mitigation of Climate Change Summary for Policy Makers. Available at http://www.pewclimate.org/docuploads/ipccsummary050407_050407_143632.pdf.

22 Detlef P. van Vuuren, et al, Comparison of top-down and bottom-up estimates of sectoral and regional greenhouse gas emission reduction potentials, Energy Policy, Volume 37, Issue 12, December 2009, Pages 5125-5139, ISSN 0301-4215, 10.1016/j.enpol.2009.07.024.

23 Clark, Gordon L., Fiduciary Duty, Statute, and Pension Fund Governance: The Search for a Shared Conception of Sustainable Investment (October 17, 2011).

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"Government will continue to forge and maintain effective partnerships with business and industry to ensure that their capacity is harnessed in driving the transition to a climate-resilient, equitable and internationally competitive, lower-carbon economy and society. Government also recognises the importance of private sector funding in achieving national climate change response actions and will work with the financial sector to explore the most appropriate mechanisms to achieve efficient funding flows."

Edna Molewa, South African Minister Of Water And Environmental Affairs[29]

"It is imperative for all businesses to focus on reducing carbon emissions not only to avoid tax and other forms of liability, but also to remain competitive and participate in the benefits of SA's transition to a low-carbon economy. Though the execution of such practices will require substantial restructuring and will be costly, it is predicted that such costs will be far outweighed by the costs of delay or inaction."

Johann Scholtz, Webber Wentzel climate change & carbon trading practice group[30]

Impacts on companies in South Africa

Emissions need to decrease in South Africa by an estimated 0.2% per year to achieve South Africa's 2020 commitment of 34% below business as usual. If achieved and maintained, targets from the FTSE/JSE 100 companies could result in a 0.5% annual reduction in the FTSE/JSE 100's overall direct emissions.[24] So how will this affect investee companies? Pricing externalities will lead to penalties for high emitters/energy-intensive users which may or may not be able to access the benefits of carbon derivatives trading. This will have knock-on effects on revenues and bottom lines. According to the CEO[25] of ArcelorMittal South Africa (AMSA), the proposed carbon tax "would have a devastating effect on ArcelorMittal SA finances". While some companies have been actively assessing carbon intensities, most have not.[26]

Climate change poses a number of risks to companies,[27] including:

- Operational risk – disruption and delays.
- Regulatory risk – compliance with regulations and legislation limiting greenhouse gas emissions.
- Direct and indirect taxation of emissions.
- Reputational and competitive risk, including consumer and shareholder activism.
- Insurance risk – increased premiums, excess payments and even uninsurability.
- Litigation risk.

Impacts on investors

South Africa's Government Employees Pension Fund (GEPF) was among 285 investors, representing assets of more than US$20 trillion, that backed the Institutional Investors Group on Climate Change (IIGCC.org) Global Investor Statement on climate change pressing COP17 negotiators to develop more regulatory incentives to invest in climate finance. Institutional investors consider "a robust international climate change treaty... as an important influence on and guarantor of domestic policy."[28]

Investors play a key role, especially in Africa where the financial services sector is typically a major sector, along with minerals or energy. Misperceptions that financial services companies are low-impact are commonly based on overlooking the impacts of the financial services, for example financing and investments. While investors are beginning to look at potential opportunities from reducing emissions, such as climate finance for low-carbon infrastructure, many are yet to understand and address risks to their investments. Failing to understand the huge systemic impacts financing and investment decisions have will repeat the bitter ironies that led to the 2008 global financial crisis: financial services institutions may claim to be only indirect participants, but were some of the key institutions that triggered the global recession of 2008-2010.

24 Carbon Disclosure Project South Africa's Carbon Chasm, KPMG, August 2011.
25 Comments of CEO at annual investor results presentation, February 2011; http://www.fin24.com/companies/mining/amsa-opposes-carbon-taxes-20110208.
26 The JSE is represented on the Carbon Pricing Working Group, which was begun in 2010 as part of the Climate Change Committee. Through ongoing discussions, it is becoming more evident that the full impacts of a price on carbon may not be sufficiently understood by business (including JSE-listed companies) and the JSE continues its support of work to assist in deepening the research and understanding of this critical aspect in the national response, JSE Limited Annual Report 2010.
27 Webber Wentzel Climate and Carbon trading Group, 2011: The Risks And Opportunities Presented By Climate Change.
28 Investment-Grade Climate Change Policy: Financing The Transition To The Low-Carbon Economy. Prepared by Dr Rory Sullivan, September 2011, commissioned by the IIGCC, the Investor Network on Climate Risk (INCR), the Investor Group on Climate Change Australia/New Zealand (IGCC) and the United Nations Environment Programme Finance Initiative (UNEP FI).
29 Speech By The Minister Of Water And Environmental Affairs, Ms Edna Molewa At The BMW Group Sustainable Future Conference At COP 17, Durban South Africa 29 November 2011.
30 On my mind - Carbon emissions: Greening industry, Johann Scholz, Financial Mail, Thursday, 8 Dec 2011.

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"Not only to politicians and policymakers but to long-term institutional investors…climate change presents both risk – that needs to be managed in order to maintain the sustainability of our investments, and opportunity – for long-term investors such as the GEPF to invest in the new infrastructure required to shift to a low-carbon economy."

John Oliphant, Head: Actuarial and Investments, GEPF[36]

"Successful investing is dependent on one's ability to discern the factors that influence the market's valuation of a company and then judge the accuracy of that valuation."

CFA Institute[37]

Climate change poses a number of risks to investors[31] in companies, including:

- Market entry and market sizing risks as regulators require investors to better integrate ESG-related financial risk in the form of business disruption and delays.
- Regulatory risk in the form of compliance with national regulations and legislation on reporting on ESG factors.
- Exposure to direct and indirect pricing of emissions in their portfolio companies.
- Competitive risk, including investor and shareholder activism, at portfolio company and fund manager levels.
- Underwriting risk in the form of increased premiums, excess payments and an inability to insure/re-insure certain investment securities.
- Litigation risk, including from investors challenging failure of investment firm to manage against mandates and/or fully consider material risks.
- Reputational risks, including where a company has identified and addressed current and future legislative and regulatory risks of the markets where it operates but has been weak in communicating to investors.[32]

Sustainable investment practices to address carbon risk

Pressure is growing globally for all countries and sectors, including investment and finance industries, to start limiting emissions. Trucost's research has found that equity portfolios following different regional strategies could be exposed to carbon costs, particularly in emerging markets.[33] Carbon is one of several environmental, social and governance (ESG) factors that will become increasingly material to investors. Sustainable investment can help manage carbon risk by using ESG information to measure and adjust for the negative (and positive) externalities generated by portfolio investee companies, projects and investment vehicles.

Globally at least US$11 trillion[34] is invested using ESG factors, and some analysts predict that this could top US$25 trillion by 2015. SinCo estimates at least US$450 billion is in emerging markets. US$125 billion in Sub-Saharan Africa[35] is invested with ESG policies, dominated by GEPF and its asset manager, the Public Investment Corporation (PIC), managing 92% of its US$131 bn. A fraction of the US$125 bn – US$5.5 bn – is invested with ESG-branding. Some 80% of institutional and retail investment is still to fully appreciate the sustainability meta-theme, highlighting hidden risk as a major reason for this new research focusing on carbon emissions.

31 SinCo 4M Framework, 2011.
32 CFA Institute Codes, Standards, and Position Papers, Environmental, Social, and Governance Factors at Listed Companies: A Manual for Investors (May 2008); a supplement to The Corporate Governance of Listed Companies: A Manual for Investors, Second Edition Kurt Schacht, CFA, James C. Allen, CFA, and Matthew Orsagh, CFA, CIPMCFA Institute Codes, Standards, and Position Papers, (Sep 2009): 1-51.
33 Carbon Risks & Opportunities in Emerging Markets, International Finance Corporation/Trucost, October 2010.
34 SinCo composite from multiple sources including USSIF, Eurosif, RIAA, SIO, KoreaSIF, Asria, AfricaSIF, UKSIF, 2010.
35 Based on self-reported data, IFC-Sinco Report On Sustainable Investment In Sub-Saharan Africa, July 2011.
36 Comments at the launch of CRISA, Sandton, South Africa, 19 July 2011.
37 FA Institute Codes, Standards, and Position Papers, Environmental, Social, and Governance Factors at Listed Companies: A Manual for Investors (May 2008); a supplement to The Corporate Governance of Listed Companies: A Manual for Investors, Second Edition Kurt Schacht, CFA, James C. Allen, CFA, and Matthew Orsagh, CFA, CIPM CFA Institute Codes, Standards, and Position Papers, (Sep 2009): 1-51.

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REGULATIONS IN SOUTH AFRICA

Revised Pension Funds Act Regulation 28, effective 1 January 2012, applies to all retirement funds regulated in South Africa.

- A fund has a fiduciary duty to act in the best interest of its members whose benefits depend on the responsible management of fund assets. This duty supports the adoption of a responsible investment approach to deploying capital into markets that will earn adequate risk adjusted returns suitable for the fund's specific member profile, liquidity needs and liabilities. Prudent investing should give appropriate consideration to any factor which may materially affect the sustainable long-term performance of a fund's assets, including factors of an environmental, social and governance character. This concept applies across all assets and categories of assets and should promote the interests of a fund in a stable and transparent environment.

Principles 2c(ix)

- before making an investment in and while invested in an asset consider any factor which may materially affect the sustainable long term performance of the asset including, but not limited to, those of an environmental, social and governance character.

SA National Treasury; published into law by Government Gazette, 4 March 2011[43]

Sustainable low-carbon growth

Tensions between growing an economy and the limits of a low-carbon growth path demonstrate some of the tough trade-offs explored by the Brundtland Commission that defined "sustainable development" in 1987 as development that meets the needs of the present without compromising the ability of future generations to meet their own needs, and it contains within it two key concepts:

- the concept of "needs", in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.[38]

However, many climate change policies support wider goals such as energy security, pollution abatement, "green growth", resource-efficient production and sustainable development.[39] Developing countries have an opportunity to adopt low-carbon growth strategies and "leapfrog"[40] developed countries that are locked into high-carbon, ageing infrastructure.

Investing with hard rules

One of the major drivers to integrate ESG factors such as carbon into investment decision-making is rules-driven from the externality issue, company or investor perspectives. Hard rules can affect the price of securities and therefore affect portfolio companies and investors. Examples include the European Union Emissions Trading System operating since 2005, high emitters in Australia will pay a carbon tax from next year, and Regulation 28 in South Africa, which outlines a fund's fiduciary duty (see side panel). (See Appendix 1: Other factors driving sustainable investment).

Investment practitioners will need new tools and information to include ESG factors in their decisions as part of a more advanced investment approach, which goes beyond climate change finance.[41] Long-term investors need to get smarter for sustainable performance in a more inclusive, climate-resilient economy marked by greater volatility and globalization, while avoiding political investment agendas. Otherwise the portfolio risks will play out, hurting investment performance and potentially putting their clients' savings at risk (this is in part the reasoning behind Regulation 28).

Many investors do consider ESG-related risks in their analysis when they include an assessment of regulations, litigation, or political risks, but many investors are less comfortable mapping scenarios for the risks.[42] ***Dirty Feet: Portfolio Carbon*** provides suggestions developing risk modeling and expands on opportunities for companies and investors to re-map to address sustainability impacts (see Next steps on page 28).

38 Environmental, Social and Governance Factors at Listed Companies: A Manual for Investors, CFA Institute Centre for Financial Market, 2008.

39 http://www.greengrowth.org/policies.asp, accessed 21 July 2010, accessed 30 November 2011.

40 http://www.weforum.org/sessions/summary/towards-low-carbon-prosperity, accessed 6 December 2011.

41 Carbon as a commodity and asset class does present opportunities. Bloomberg reported in December 2011 that JSE Ltd. is in talks with the SA National Treasury about starting a carbon credit trading market in South Africa. http://www.bloomberg.com/news/2011-12-02/jse-treasury-in-talks-about-carbon-trading-platform-beeld-says.html, accessed 8 December 2011.

42 The CFA Institute Centre for Financial Market Integrity, the global policy authority on professional and performance standards, financial reporting, and capital markets, launched in March 2008 "Environmental, Social, and Governance Factors at Listed Companies: A Manual for Investors to assist investors in understanding how a company deals with environmental, social and governance (ESG) issues" as a companion toThe Corporate Governance of Listed Companies: A Manual for Investors, Second Edition Kurt Schacht, CFA, James C. Allen, CFA, and Matthew Orsagh, CFA, CIPM Codes, Standards, and Position Papers 2nd Edition, (Sep 2009).

43 In Terms Of Section 36(1)(Bb) And (C) And Section 40c Of The Pension Funds Act, 1956 (Act No. 24 Of 1956), Amend Regulation 28 Of The Regulations Made Under Section 36 Of The Pension Funds Act And Published Under Government Notice No. R.98 In Government Gazette 162 Of 26 January 1962, As Set Out In The Schedule.

Dirty Feet: Portfolio Carbon

"The changes to Regulation 28 of South Africa's pension funds are very enabling and supportive for funds to think more deeply and freely about the long-term impact of their investment strategies on the nation and society in which they live."

Andrew Canter CFA, Chief Investment Officer, Futuregrowth

"With the economic opportunities and increasing investment in Africa, there is rising investor interest in the region. The concept of sustainable investing could also feature more prominently in African investment opportunities… South Africa is likely to keep its status as the richest economy in Africa… in terms of incomes per capita through 2050."

Jim O'Neill of Goldman Sachs Asset Management

Stakeholders need to make informed assessments about the longer-term sustainability of a company and that it is operating as a responsible corporate citizen."

Professor Mervyn King Chairman of the International Integrated Reporting Committee[51]

Building momentum to address carbon risks and opportunities

Shifting economies to low-carbon growth will require significant action by high-emitting sectors. Yet most companies are unprepared for the shift to a low-carbon economy, or their commitments still leave a large gap compared with what is needed or promised in country-level carbon budgets. A disconnect between national commitments and company goals was highlighted in the Carbon Disclosure Project South Africa *Carbon Chasm* report (August 2011). *Carbon Chasm* measures the gap between South Africa's voluntary commitment to reduce national emissions to 34% below business-as-usual levels by 2020, and the emission reduction targets of the largest 100 companies listed on the JSE, as reported to the Carbon Disclosure Project (CDP) in 2010. The CDP, which has encouraged companies to report their carbon emissions in South Africa since 2007, found that just one-third of companies in the FTSE/JSE 100 reported emissions reduction targets.[44]

This year, 83 of the FTSE/JSE 100 companies (the second-highest response level globally) responded to the CDP information request on behalf of 534 institutional investors including 11 from Africa.[45] The CDP South Africa JSE 100 CDP Report 2011: *Partnering For A Low Carbon Future,*[46] launched in partnership with the National Business Initiative, found that 40 companies, including almost all of the high-emitters in the Index, reported emissions reduction targets, up from 31 companies in 2010. According to the JSE/EIRIS report *To What Extent Are Leading South African Companies Tackling Climate Change?* (December 2011), while 60% of FTSE/JSE Top 40 Index have set short-term GHG emissions targets, only 23% have set long-term targets. There is still room for improvement in reporting and goal-setting, with more than half of the JSE 100 yet to develop meaningful carbon reduction strategies.[47] However, the JSE/EIRIS report found that risk management by 73% of FTSE/JSE Top 40 Index companies demonstrates a good overall response to climate change.

Despite the slow pace of change, reputational and physical risks as well as organizations such as the CDP have spurred some South African businesses to begin their transition to low-carbon business models. ***Dirty Feet: Portfolio Carbon*** aims to provide insight into risks and opportunities from carbon emissions for major S.A. companies, and their portfolio investors. This research uses the simplification of carbon footprinting to examine company and investor exposure to carbon pricing. While significant State Owned Enterprises, such as Eskom and Transnet, are not listed on the JSE, analysing the carbon footprint offers a material insight into carbon footprints for companies and their investors for a significant portion of South Africa's footprint. The JSE – and the companies that list on its exchange – plays an influential systemic role, as well as promoting the active appreciation of ESG factors in S.A. through the JSE SRI Index.[48] Since 2004 the SRI Index[49] has become a significant benchmark for broad-based environmental, social and governance (ESG) practice amongst local listed companies. The JSE has been encouraging businesses to "look beyond purely financial measures and to measure themselves against criteria related to the triple bottom line".[50]

44 Carbon Disclosure Project South Africa's Carbon Chasm, KPMG, August 2011.
45 SinCo estimate from CDP 2010 data.
46 2011 Carbon Disclosure Project (CDP) South Africa, 6 December 2011. CDP suggests that the high response rate "suggests that, notwithstanding short-term concerns and the pressures associated with the economic downturn, climate change remains high on the South African corporate agenda…particularly commendable", but that "there has also been an evident improvement in the quality of the responses across all reported issues and business sectors".
47 https://www.cdproject.net/cdpresults/cdp-2011-south-africa-jse-100-report-executive-summary.pdf, accessed 6 December 2011.
48 Criteria against which companies are assessed include environmental impact, policy, management, and reporting; climate change strategy, management, disclosure, performance, and innovation; stakeholder issues that include employee training and development, trade unions and employee participation, equal opportunities, black economic empowerment, health and safety, HIV, community involvement, and stakeholder engagement and reporting; and governance issues that include board practice, codes of ethics, and business value and risk management. Reported in Standard Bank best performer on JSE SRI index, BusinessLIVE, 6 December 2011.
49 South African Listed Companies Make Progress Tackling Climate Change. JSE's 2011 SRI Index Annual Review Results. Johannesburg, 6 December 2011: Two thirds of JSE-listed companies assessed on behalf of the JSE by global investment research provider EIRIS (with their local partner at the University of Stellenbosch Business School), fulfill the base requirements to become a constituent of the exchange's Socially Responsible Investment (SRI) Index.
50 How We Respond To Environmental Challenges: Ongoing Initiatives in JSE Annual Results Report, 2010.
51 Jennifer Denby, "JSE calls for integrated reports," African Business Review, June 18, 2010, accessed December 30, 2010, http://www.africanbusinessreview.co.za/sectors/african-stock-exchanges/jse-calls-integrated-reports.

RESEARCH SCOPE AND METHODOLOGY

"While most responding companies recognise that climate change will entail potentially significant regulatory, physical and other risks and opportunities for their operations, few companies show evidence of being rigorous in quantifying the potential financial implications of climate change."

Carbon Disclosure Project 2011, South Africa[54]

GHG PROTOCOL SCOPES

Emissions were analyzed using the GHG Protocol, which categorizes emissions into three scopes:

Scope 1: Direct emissions caused by a company's refrigerant use, fuel combustion or industrial processes owned or controlled by the company.

Scope 2: Indirect emissions from purchased electricity.

Scope 3: Other indirect emissions from sources not owned or controlled by the company, including suppliers or products in use. This study includes Scope 3 emissions from direct (first-tier) suppliers such as business travel providers, but excludes emissions from upstream suppliers and products in use.

Dirty Feet: Portfolio Carbon is an important new study for investors in South Africa's major companies. The research describes the market valuation impact potential of pricing in negative externalities, primarily greenhouse gas emissions. SinCo commissioned Trucost firstly to analyze the carbon emissions and risks of the largest companies in the Johannesburg Stock Exchange All Share Index by market capitalization – the FTSE/JSE Top 40 Index; and secondly, to analyze the carbon footprints of 10 of the largest equity funds based in South Africa (pooled investment vehicles known locally as "unit trusts").

Portfolios with smaller carbon footprints should be less exposed to carbon costs. To illustrate this, Trucost created a hypothetical "carbon optimized" FTSE/JSE Top 40 Index "fund" based on the South African companies to identify potential opportunities to reduce exposure to carbon costs. Companies were re-weighted based on variations in carbon intensity within sectors and actual returns of the carbon optimized Index were compared against the returns of underlying equities between 2005 and 2011.

Company analysis

Trucost analyzed the carbon performance of the top 40 companies by market capitalization in the Johannesburg Stock Exchange. This data was used to identify:

- The breakdown of emissions from operations, electricity purchases and other direct (first-tier) suppliers across all 40 companies.
- Variations in emissions from operations, electricity purchases and first-tier suppliers across five sectors with highest total direct and indirect emissions.
- Average exposure to direct carbon costs across all companies, measured as carbon emissions relative to revenue and earnings before interest, taxation, depreciation and amortization (EBITDA).
- Five sectors with the highest average exposure to direct carbon costs.
- Variations in direct exposure to carbon costs.
- 10 companies most exposed to direct carbon costs.
- The quantity and quality of disclosures on greenhouse gas emissions by companies analyzed.

How Trucost measures company greenhouse gas emissions

Trucost analyzed the latest available data on corporate greenhouse gas (GHG) emissions, measured in metric tonnes of carbon dioxide equivalents (CO_2e), in its database.[52] The analysis includes the latest carbon data reported by companies to the CDP in 2011, and therefore covers their global emissions in 2010. The study refers to GHG emissions in general as "carbon". Data include direct emissions from company operations, and emissions from direct (first-tier) suppliers such as electricity, business travel and logistic providers. Most companies are not major direct emitters of greenhouse gases and adopting this method ensures that the study assesses the carbon impacts of business activities – such as extraction, production, transport and logistics – outsourced to companies excluded from this analysis. GHG emissions are measured according to the Greenhouse Gas Protocol,[53] an international accounting standard developed by the World Business Council for Sustainable Development and World Resources Institute (see panel, GHG Protocol scopes). The analysis covers GHGs from global operations, including emissions in South Africa. Where corporate carbon data were not publicly available at the time of analysis, Trucost used its proprietary model to calculate likely emissions. Modeling is also used to calculate emissions in supply chains. Trucost's comprehensive coverage of more than 4,000 companies since 2000 ensures that all companies in a portfolio or index are included, not just those that disclose environmental information. To find out more about Trucost's methodology, see Appendix 2.

52 Appendix 2: Trucost methodology.

53 *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (Corporate Standard) was revised in 2004. Since then the GHG Protocol has built upon the Corporate Standard by developing additional guidance such as the GHG Protocol for Project Accounting (wri.org/project/ghg-protocol). World Business Council for Sustainable Development (wbcsd.org).

54 CDP South Africa FTSE/JSE 100 Report 2011, CDP/ Incite Sustainability/National Business Initiative (NBI), December 2011.

Dirty Feet: Portfolio Carbon

"By building understanding and expertise on low carbon technologies, and by arranging the finance that will help bring these technologies to market at scale, we believe we can make a major contribution to a low carbon future, whilst generating new revenue streams for the group."

HSBC Sustainable Finance[57]

Portfolio analysis

To identify how equity investors could be exposed to carbon costs, Trucost allocated GHG emissions to holdings in 10 of the largest equity funds (pooled investment vehicles, known as unit trusts) based in South Africa (See Appendix 7: Synopsis of pooled investment vehicles: Unit Trusts in South Africa). For each portfolio analyzed, Trucost holds corporate GHG emissions data on at least 77% of the value of holdings. Trucost analyzed equity holdings with a total value of more than US$ 10.833 billion as of the end of June 2011, based on data provided by FactSet.[55] Funds are benchmarked against the FTSE/JSE Top 40 Index. The currency used throughout is US Dollars (US$) at approximately US$:ZAR 0.12.[56]

Fund name	Value of holdings analyzed end June 2011 (US$m)	Percentage coverage of equity holdings	Number of portfolio companies analyzed
Allan Gray – Balanced Fund	2,212	96	20
Allan Gray – Equity Fund	2,515	97	20
Allan Gray – Stable Fund	712	92	18
Coronation Balanced Plus Fund	472	100	13
Coronation Top 20 Fund	860	100	18
Investec Opportunity Fund	665	77	29
Investec Value Fund	697	85	43
Nedgroup Investments Rainmaker Fund	1,325	92	31
Old Mutual Investors Fund	753	96	22
Satrix 40	712	93	40

Source: Dirty Feet: Portfolio Carbon, January 2012; Trucost; JSE; SinCo

Calculating fund and index carbon footprints

Trucost analyzed GHG emissions associated with companies held by each of the 10 portfolios. Obviously, several companies are held by more than one of the portfolios analyzed. The carbon and revenues associated with portfolio holdings in each company were allocated to each fund in proportion to equity ownership.

1. Data on the value of portfolio holdings in each company were used to allocate tonnes of CO_2e emissions from each company to each portfolio. To limit any issues associated with double counting GHG emissions, Trucost analyzed only the direct and first-tier indirect emissions for each company in fund carbon footprints. First-tier emissions are emissions upstream from the company's direct suppliers. The same share of equity ownership was used to allocate each company's sales revenue to each portfolio.
2. The total emissions and revenues from each company are summed across each portfolio to calculate its carbon footprint as total tonnes of CO_2e normalised by US$ million revenue.
3. Data on securities are free-float adjusted to calculate the carbon footprint of the FTSE/JSE Top 40 Index. Total emissions from all companies listed in an Index are normalised by their total revenues. The carbon footprint of the Index, which takes account of company weightings based on market caps, is calculated as total tonnes of CO_2e per US$ million revenue.

55 FactSet Research Systems Inc., a provider of investment analytics. factset.com

56 Exchange cross-rate ZAR:US$0.11955 as of 30.11.2011, Oanda.

57 The HSBC Global Climate Change Benchmark Index, launched in 2007 lists companies focused on developing solutions to combat the effects of climate change across many business sectors. The HSBC Climate Change Centre of Excellence, established in 2007, investigates the likely economic risks and opportunities of climate change for the financial markets. http://www.hsbc.com/1/2/sustainability/sustainable-finance accessed 12 December 2011.

RESEARCH FINDINGS

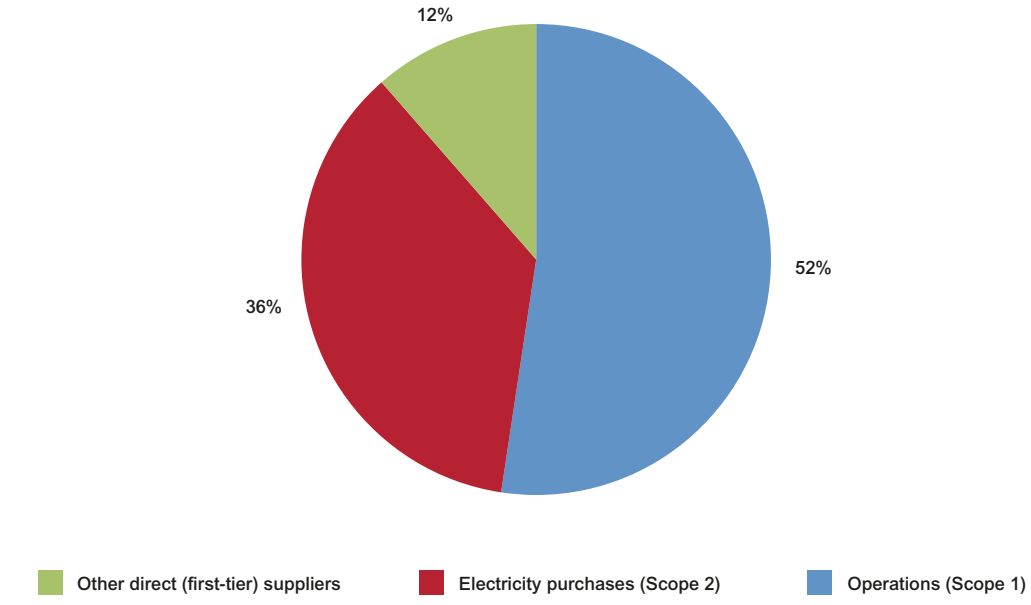
"Anticipating significant changes well ahead of time can be business critical and such changes frequently relate to environmental or social issues. The most salient in recent years has been the rising tide of carbon regulation. In the medium term, this will trigger significant changes in energy, transport and the built environment and this, in turn, will transform competitive conditions. Products will have to change to retain market share or reduce costs."

Julie Hudson, UBS[60]

Company carbon analysis

The FTSE/JSE Top 40 companies directly emitted more than 108.5 million tonnes of carbon emissions, measured in carbon dioxide equivalents (CO_2e) in 2010. These Scope 1 emissions, from their global operations, equate to 20% of South Africa's carbon emissions in 2010 (see page 5). The companies' electricity purchases resulted in a further 74.9 Mt CO_2e (Scope 2). Another 23.7 Mt CO_2e were emitted from direct (first-tier) suppliers, such as travel and logistics providers. Some companies analyzed may supply others in the Index, but including emissions from first-tier suppliers helps account for GHGs which are effectively outsourced to third parties. The analysis of Scope 3 emissions from first-tier suppliers excludes those from wider supply chains and products in use, helping to limit double counting of emissions. Companies are expected to increasingly report on these emissions in line with GHG Protocol Product Life Cycle and Corporate Value Chain (Scope 3) Accounting and Reporting Standards launched in September 2011.[58] Chart 1 below shows the breakdown of emissions across the FTSE/JSE Top 40 by source.

Chart 1:
Breakdown of FTSE/JSE Top 40 Index emissions by source



Source: Dirty Feet: Portfolio Carbon, January 2012; Trucost; JSE; SinCo

Five sectors accounted for 97% of the total 207.2 Mt CO_2e from all 40 companies: Basic Resources, Oil & Gas, Food & Beverage, Industrial Goods & Services and Telecommunications. The remaining 3% of emissions were from eight sectors: Personal & Household Goods, Retail, Banks, Insurance, Health Care, Financial Services, Media and Real Estate. South Africa's industrial GHG emissions continue to be dominated by a few sectors and companies, as found in the 2011 CDP report.[59] Levels of emissions from operations, electricity use and other first-tier suppliers vary widely across the five sectors with the highest total emissions (see Chart 2 on page 15).

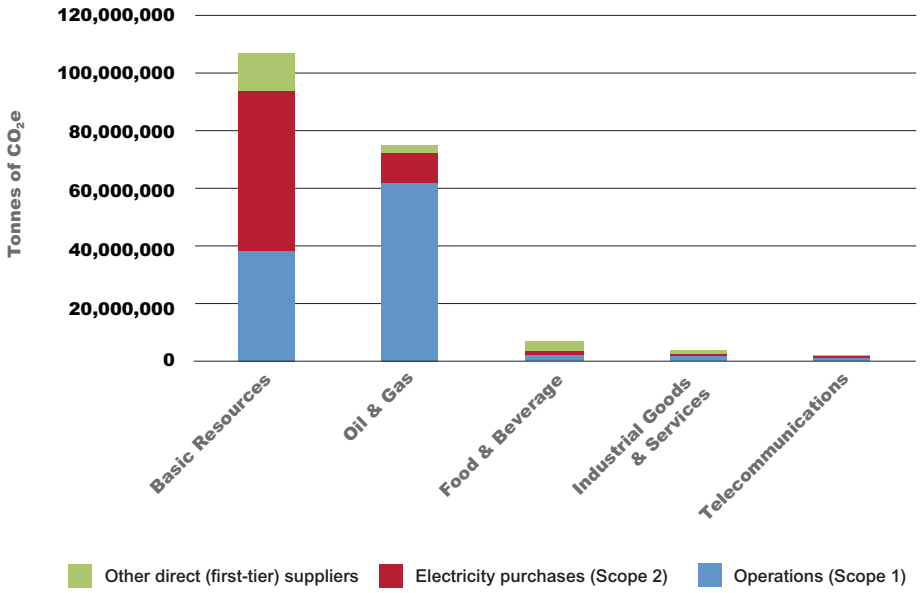
58 http://www.ghgprotocol.org, accessed 30 November 2011.
59 2011 Carbon Disclosure Project (CDP) South Africa, 6 December 2011.
60 Product and services (driven by know-how and brand), ESG Analyser, Global Equity Research South Africa, SRI & Sustainability Theme Piece, by Julie Hudson, CFA, UBS Investment Research, 3 September 2010.

Dirty Feet: Portfolio Carbon

"We take environmental, social and governance (ESG) issues into account when making investment decisions. We also encourage the companies we invest in to strike a balance between profits and being socially responsible, and to actively manage their environmental impact while maintaining high levels of corporate governance standards."

GEPF Responsible Investment Policy[62]

Chart 2:
Breakdown of FTSE/JSE Top 40 emissions in top 5 sectors



Source: Dirty Feet: Portfolio Carbon, January 2012; Trucost; JSE; SinCo

In the top five sectors, the proportion of emissions from operations is highest in the Oil & Gas sector (82%), while Scope 2 emissions account for the largest share of emissions in Basic Resources (52%). Within these sectors, Food & Beverage companies have the highest percentage of emissions (53%) from first-tier suppliers. Across the Index, direct suppliers (excluding electricity) are responsible for the largest share of total emissions in the Media sector (62%). The percentage of indirect emissions from electricity and other suppliers analyzed is highest in the Banks and Insurance sectors (more than 96%). Sources of emissions indicate whether companies could be most exposed to carbon costs applied to greenhouse gases from operations or passed on by suppliers. Companies including investment firms and banks are increasingly assessing their carbon footprints. For example, in 2011, Sanlam Limited released its fourth carbon footprint report using the GHG Protocol Corporate Accounting and Reporting Standard methodology.[61]

Exposure to carbon costs

The S.A. National Treasury will explore the feasibility of an emissions trading scheme and voluntary carbon offsets in the medium to long term. Meanwhile, the Government plans to build on existing carbon taxes by developing a carbon tax rate equivalent to the marginal external damage cost of greenhouse gases to provide a price signal to producers and consumers to drive investment in energy efficiency and cleaner energy, technologies and industries (see page 7).

61 financialresults.co.za/2011/sanlam_sr2010, accessed 12 December 2011.

62 Winkler and Marquard (2009) analyzed the economic implications of a carbon tax in Analysis of the economic implications of a carbon tax by Harald Winkler and Andrew Marquard, Energy Research Centre, University of Cape Town, February 2009. The carbon tax was modeled at prices of around R200/ton. It is argued that a tax at this level will create powerful incentives for more energy-efficient practices. Noting that South Africa may be one of the few African countries that could contribute to mitigating climate change, the authors explore the impact of a carbon tax relative to alternative energy taxes on economic welfare. See Devarajan, Shantayanan, Go, Delfin S., Robinson, Sherman and Thierfelder, Karen, Tax Policy to Reduce Carbon Emissions in South Africa (May 1, 2009). World Bank Policy Research Working Paper Series, 2009. Available at SSRN: http://ssrn.com/abstract=1407951.

Dirty Feet: Portfolio Carbon

The S.A. Government considers a tax rate of R75 per tonne of CO_2, rising to approximately R200 per tonne of CO_2 (at 2005 prices) to be "feasible and appropriate to achieve the desired behavioral changes and emission reduction targets".[63] Trucost modeled potential company exposure to a rising carbon tax. The two tax rates were applied to each company's global emissions from operations (Scope 1).

Findings show:

- If the companies were to pay the carbon tax rate of R75 (US$8.97) per tonne of CO_2e for all of their direct operational emissions globally, carbon costs could amount to almost US$974 million. If their electricity providers passed on carbon costs for emissions from electricity purchases, taxed at the same rate, companies could incur a further US$672 million in carbon costs.
- On average across all 40 companies, US$974 million in carbon costs at US$8.97/tonne would equate to 0.2% of revenue or 1% of earnings before interest, taxation, depreciation or amortization (EBITDA).
- At R200 (US$23.91), direct carbon costs could amount to more than US$2.5 billion globally. This could equate to 0.5% of revenue on average across all 40 companies, or 2.7% of earnings.
- Average exposure to carbon costs varies by sector. In the top five sectors, carbon costs at US$8.97 per tonne would equate to between 0.06% of EBITDA on average in the Telecommunications sector and 14% of EBITDA for the only Oil & Gas company analyzed, Sasol Ltd. Sasol could be particularly exposed to a carbon tax in South Africa if it covers emissions from converting coal-to-liquid fuels. The five sectors most exposed to carbon costs are shown in Table 1 below.

Table 1:
Five sectors with highest average EBITDA exposure to carbon costs

Sector	Number of companies	Average carbon costs (US$8.97/tonne) relative to EBITDA (%)
Oil & Gas	1	14.20
Basic Resources	9	1.84
Retail	5	1.04
Industrial Goods & Services	3	1.00
Food & Beverage	2	0.48

Source: Dirty Feet: Portfolio Carbon, January 2012; Trucost; JSE; SinCo

Exposure to carbon costs would vary for companies within the same sectors, as shown in Table 2.

Table 2:
Variations in exposure to carbon costs

Sector	Carbon costs (US$8.97/tonne) relative to EBITDA (%)	
	Lowest	Highest
Basic Resources	0.1	9.3
Retail	0.0	4.7
Industrial Goods & Services	0.3	1.8
Food & Beverage	0.4	0.6

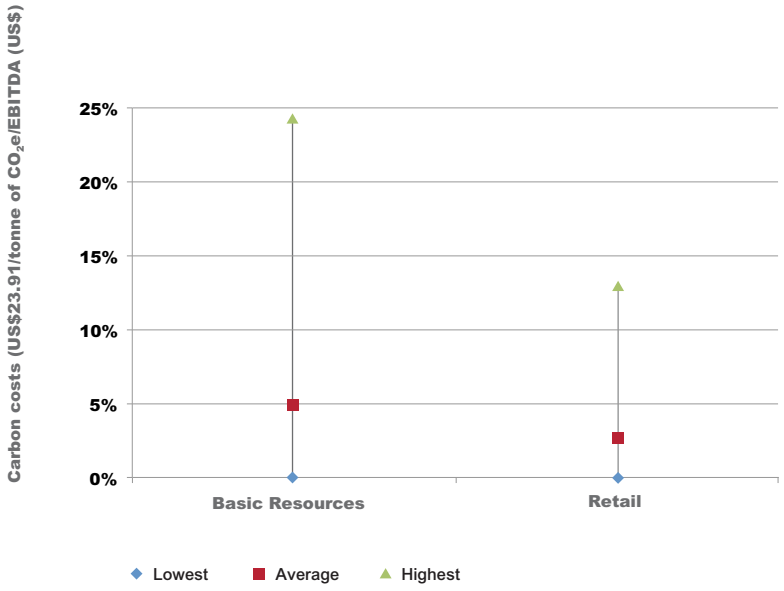
Source: Dirty Feet: Portfolio Carbon, January 2012; Trucost; JSE; SinCo

63 Proposed Carbon Tax 2010. The National Treasury of South Africa supported the tax option through its Medium-Term Budget Policy Statement.

Dirty Feet: Portfolio Carbon

Some companies may be better equipped than others to influence regulatory change and/or adapt to it, influencing their abilities to maximize opportunity and minimize disruption to their existing business model.[64] The ability of companies to absorb or pass on carbon costs without losing market share would be influenced by their competitive position, their brand integrity, and how exposed they are to carbon risk relative to sector peers. Chart 3 shows variations in exposure to carbon costs within the Basic Resources and Retail sectors at the potential higher carbon tax rate of US$23.91. According to JSE/EIRIS (December, 2011)[65] "leading Mining and Banks sectors – the two largest sectors amongst the JSE Top 40 – demonstrate a high-quality response to climate change overall". However, financial services firms in general, and in S.A., underestimate their carbon exposure.

Chart 3:
Range in higher future carbon costs relative to EBITDA



Source: Dirty Feet: Portfolio Carbon, January 2012; Trucost; JSE; SinCo

Actual exposure to carbon costs would vary depending on carbon pricing in countries where companies operate (including value chains) and how they execute corporate carbon management strategies. Carbon costs could be lower if carbon trading schemes enable emissions to be reduced cost-effectively across economies. Carbon-intensive S.A. companies in export industries will also be exposed to carbon controls in countries with higher environmental standards (e.g. E.U.), unless they compete on carbon and resource efficiency. Companies in extractive products and services sectors, as well as the Retail sector, have the highest level of profit risk from carbon costs (see Table 3 on page 18).

64 CFA Codes, Standards, and Position Papers - Environmental, Social, and Governance Factors at Listed Companies: A Manual for Investors (May 2008).

65 To What Extent Are Leading South African Companies Tackling Climate Change?, JSE/EIRIS, 6 December 2011.

Dirty Feet: Portfolio Carbon

"…The next step of the journey is for more companies to move beyond identification of risks to risk mitigation and to prioritize strategies and implementation plans… to seize opportunities that have been identified. For companies who have not elevated their strategic focus and intent sufficiently through allocation of company leadership responsibility and investment in the necessary human resources and appropriate alignment of their internal structures and capacity, responding to risk and opportunities will prove more difficult."

CDP South Africa JSE 100 Report 2011

Table 3:
Ranking of companies with highest EBITDA at risk from direct carbon costs

Company	Sectors
Sasol Ltd	Oil & Gas
Harmony Gold Mining Co. Ltd	Basic Resources
Foschini Group Ltd	Retail
Mondi Group	Basic Resources
Remgro Ltd	Industrial Goods & Services
AngloGold Ashanti Ltd	Basic Resources
Imperial Holdings Ltd	Industrial Goods & Services
BHP Billiton Ltd	Basic Resources
Anglo American Plc	Basic Resources
Gold Fields Ltd	Basic Resources

Source: Dirty Feet: Portfolio Carbon, January 2012; Trucost; JSE; SinCo

Managing carbon risk

Companies can use a market or "shadow" carbon price to identify potential exposure to direct and indirect carbon costs. Potential carbon costs could be included in capital expenditure and investment decision-making. Information on sources of greenhouse gases emitted by companies can be used to identify opportunities to cut emissions. Measures to reduce operational emissions could include energy efficiency, switching from fossil fuels to renewable energy, reducing emissions from industrial processes and substituting carbon-intensive materials. To reduce exposure to carbon costs passed on through supply chains, suppliers can be benchmarked to identify "carbon hotspots". Companies can collaborate with suppliers to improve resource efficiency, cut fuel use, decarbonise energy supplies, remodel supply chains and redesign products to reduce carbon risk. This could drive carbon efficiency across value chains.

Carbon disclosure

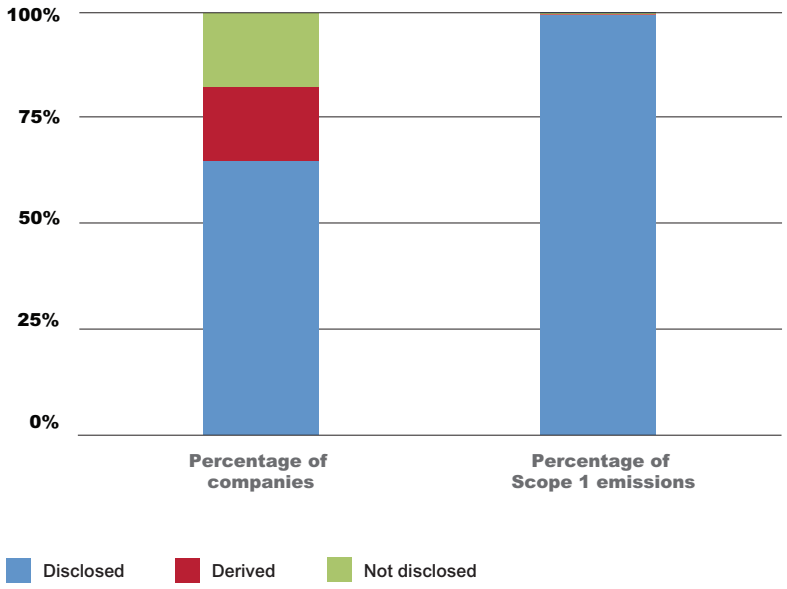
Trucost conducts research and standardizes company disclosed data in annual reports, environmental reports, websites and Carbon Disclosure Project (CDP) responses. Chart 4 on page 19 shows the proportion of FTSE/JSE Top 40 Index[66] companies that disclosed carbon emissions data for 2010. Almost two-thirds of the companies analyzed disclosed data in line with the GHG Protocol. These companies emitted 99.6% of direct operational emissions analyzed in the study.

The remaining emissions were derived from data on quantities of fuel use or electricity consumption, or calculated using Trucost's model. Where companies do not measure or disclose environmental performance data, Trucost uses numerous datasets including pollution and toxic release inventories, U.S. Bureau of Economic Analysis data and UN Food and Agriculture Organization (FAO) data to model a company's operational and supply chain environmental impacts (see Appendix 2).

Companies and investors could use data on corporate carbon emissions to model potential carbon risks from operations and suppliers. Investment analysis could model different scenarios to reflect factors such as varied abilities within sectors to mitigate emissions and pass on carbon costs. Fund managers and institutional investors can also use data to measure and manage

66 For methodology, index rules and revision dates, please see jse.co.za.

Chart 4:
Carbon disclosure levels in the FTSE/JSE Top 40



Source: Dirty Feet: Portfolio Carbon, January 2012; Trucost; JSE; SinCo

carbon risks at an Index or fund level. Examples include Deutsche Bank's analysis of valuation risks from carbon taxes in the South African Industrial Metals industry.[67] This analysis used an approach similar to the Australian regulator, which plans to phase in carbon taxes while shielding key industries.[68] Applied to ArcelorMittal South Africa (iron & steel industry major), the valuation model reduced the expected price impact by 30% of the potential impact (R1/share) on the discounted cash flow model through 2020; pricing impact today at R3,7/share.

Portfolio carbon analysis

Trucost measured the carbon footprint of all companies in the FTSE/JSE Top 40 Index, taking account of their weightings. Aggregated emissions from operations, electricity purchases and other first-tier suppliers amounted to 541 tonnes of carbon for every US$m of revenue. The absence of Utilities implies that as a group, the FTSE/JSE Top 40 Index would be less carbon intensive overall than other major stock exchange benchmark indices. However, the carbon footprint of the FTSE/JSE Top 40 companies was larger than those of the S&P 500, MSCI Europe and MSCI Asia ex-Japan indices analyzed by Trucost last year.[69] Nonetheless, the FTSE/JSE Top 40 Index was 4% less carbon intensive than the S&P/IFCI LargeMidCap Index, suggesting it is well positioned on the whole to attract customers and investors seeking carbon-efficient suppliers and investment opportunities in emerging markets.

67 ArcelorMittal SA – Down But Not Out, Initiating With A Buy; Jarrett Geldenhuys, Deutsche Securities Global Markets Research, 1 September 2011.

68 Sectors under the 'emissions intensive, trade exposed' category receive free credits; over three years from the revenue stream to aid businesses impacted by the plan, equal to 94.5% of their carbon costs, with compensation level dropping by 1.3% per year.

69 Carbon Risks & Opportunities in Emerging Markets, International Finance Corporation/Trucost, October 2010.

Dirty Feet: Portfolio Carbon

Portfolio carbon analysis reveals that there are strong financial incentives for institutional investors to ensure that carbon risk is actively considered as a factor by their fund managers.

Correlation is not causation. But to test the impact on portfolios, Trucost modeled carbon footprints, knowing of course few investment managers are today pricing in future carbon prices. Emissions and revenues were allocated from companies held to each of the 10 portfolios analyzed in proportion to equity ownership. Emissions allocated to the combined fund holdings totaled 5,233,899 tonnes of CO_2e. This equates to 3% of total emissions from the FTSE/JSE Top 40 companies. A total of US$7,108m revenue were allocated to combined holdings. If a carbon price of US$8.97 per tonne were applied to all emissions allocated to holdings, exposure to carbon costs would total US$47m, or 0.7% of revenue allocated to holdings. Carbon costs would be more significant as a share of earnings before interest, taxation, depreciation and amortization (EBITDA). Without action to address emissions, the median global external cost of US$13 per tonne (see page 7) could be more financially material to the funds at US$94m, or 1.3% of revenue allocated to holdings. External costs in South Africa are likely to be higher than the global average, given the country's vulnerability to climate change impacts.

Emissions allocated to each fund were normalized by revenues to calculate carbon footprints. Trucost benchmarked the carbon footprints of the 10 funds analyzed against that of the Index (see Table 4). The larger the carbon footprint, the greater the fund's exposure to carbon costs. At US$8.97/tonne, global carbon costs allocated to holdings could equate to up to 1% of revenue for the fund with the largest carbon footprint – the Allan Gray-Stable Fund. Seven of the funds had larger carbon footprints than the Index, and could therefore be more exposed to carbon costs. The wide variation in the carbon footprints of 10 equity funds analyzed indicates varied levels of carbon risk.

The carbon footprint of the Allan Gray-Stable Fund, ranked bottom, is three times larger than that of the Nedgroup Investments Rainmaker Fund, ranked top. The Allan Gray-Stable Fund carbon footprint is more than twice the size of the carbon footprint of the benchmark Index. This is driven by the effects of both sector allocation and stock selection decisions. The proportion of fund assets allocated to less/more carbon-intensive sectors, relative to the weightings of securities in these sectors in the FTSE/JSE Top 40 Index, results in a negative sector allocation effect. This is particularly driven by an overweight position in the relatively carbon-intensive Oil & Gas sector compared to the Index. Almost 15% of the value of combined holdings was invested in Oil & Gas, which accounts for 6% of the value of securities in the benchmark.

Table 4:
Carbon footprint ranking of equity funds

Fund name	Carbon footprint	Rank
Nedgroup Investments Rainmaker Fund	387	1
Investec Opportunity Fund	432	2
Investec Value Fund	505	3
FTSE/JSE Top 40 Index	**541**	
Coronation Top 20 Fund	572	4
Old Mutual Investors Fund	662	5
Satrix 40	697	6
Coronation Balanced Plus Fund	944	7
Allan Gray - Equity Fund	1,070	8
Allan Gray - Balanced Fund	1,119	9
Allan Gray - Stable Fund	1,151	10

Source: Dirty Feet: Portfolio Carbon, January 2012; Trucost; JSE; SinCo

Dirty Feet: Portfolio Carbon

"Given that equity markets discount the possibility of future events, the presence of widespread and systemic uncertainties will result in higher discounts being applied to these future earnings…Assessing the precise impact of climate change mitigation and adaptation on the value of a business throughout its value chain is challenging, and subject to high levels of uncertainty."

Climate Change And Shareholder Value, Investec Asset Management

"At VicSuper we firmly believe that low carbon investments offer less risk and the likelihood of higher long-term investment returns. Therefore investing in a carbon aware fund is simply a commonsense investment decision for us."

VicSuper[74]

A negative stock selection effect also contributed to the fund's larger carbon footprint than the Index. On average, companies held had a higher carbon intensity – measured as carbon emissions per US$m of revenue – than securities in the FTSE/JSE Top 40 Index. For instance, the carbon intensity of Basic Resources stocks held in the fund was 1,364 tonnes of CO_2e/US$m, compared with 986 tonnes of CO_2e/US$m for Index sector peers.

Holdings in eight of the funds were more carbon-intensive on average than FTSE/JSE Top 40 Index sector peers. Since many of the companies held in the funds are those listed in the Index, variations in carbon efficiency are partly due to differences in the weightings of securities in funds, used to allocate emissions to holdings. This shows the potential for fund managers to reduce exposure to carbon costs by rebalancing holdings within sectors.

Carbon optimizing to reduce risk

Variations in the carbon intensity of companies within sectors create an opportunity for investors to manage carbon risk. For example, the S&P U.S. Carbon Efficient Index offers a broad U.S. market index that is comprised of companies with relatively low carbon emissions and also seeks to track the S&P 500. Investors using this approach include the Australian superannuation fund VicSuper, which has invested A$210 million (US$209m) in a Carbon Aware International Shares portfolio managed by Vanguard Investments Australia Ltd.[70] The UK-based BT Pension Scheme has invested £100 million (US$155.6m) into a carbon efficient index fund developed by Legal & General Investment Management.[71] They have invested in carbon optimized funds which aim to achieve returns close to underlying indices while reducing exposure to financial risk from the transition to a low-carbon economy and rising fossil fuel costs.[72]

Carbon optimized tracker funds rebalance holdings within each sector based on carbon intensity, while maintaining diversification and the sector weightings of parent indices. To illustrate potential carbon savings, Trucost created a hypothetical carbon optimized portfolio based on the FTSE/JSE Top 40 Index.[73] The fund overweights companies that are more carbon efficient than the average for their sectors, and underweights companies that are carbon intensive.

70 Carbon Counts 2011: The Carbon Footprint Of Australian Superannuation Investment Managers, AIST/Trucost, September 2011.
71 BT Invests £100 M In Carbon Weighted Fund, Professional Pensions, 26 May 2011.
72 An example of an actively managed equity fund is the Mergence Low Carbon Fund, with the aim to produce a level of return similar to that of the JSE Shareholder Weighted Index [SWIX] while investing in companies with a lower level of carbon emissions intensity on average than that of the SWIX Index. http://www.mergence.co.za/fund-fact-sheets, accessed 9 December 2011.
73 The FTSE/JSE Top 40 Index consists of the largest 40 companies ranked by full market value in the FTSE/JSE All-Share Index. Index Launch: 24 June 2002. Base Date: 21 June 2002. Base Value: 10300.31. Investability Screen: Free float adjusted and liquidity screened. Index Calculation: Real-time and end-of-day indices available. Real-time index calculated every 15 seconds. End-of-Day Distribution. Index available at 17:30 GMT via FTP and email. Currency: Rand. Review Dates: March, June, September and December.
74 VicSuper takes the lead on low carbon superannuation, 20 May 2009.

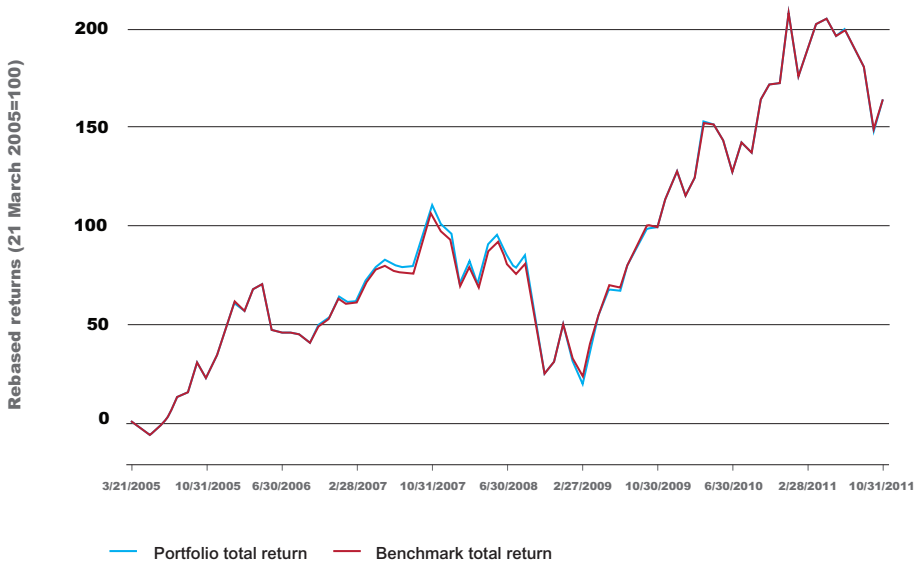
Dirty Feet: Portfolio Carbon

"Understanding the investment case for climate change is fundamental to the fiduciary responsibility that we, as investors, have for our clients. This report assesses the principal risks and opportunities that climate change presents for 10 critical sectors in the South African economy...improved understanding of the investment implications of climate change provides a new angle for analyst interaction with management. This will not only enhance analysts' understanding of the company, but may also encourage the company management teams to develop a more incisive understanding of the risks and opportunities that climate change presents."

Climate Change And Shareholder Value, Investec Asset Management[75]

The carbon footprint of the resulting carbon optimized fund was 7% smaller than that of the parent Index. Carbon savings were limited by the small universe of companies (40), with few companies in some sectors, for example Oil & Gas or Food & Beverage. Carbon optimizing the JSE All Share Index could result in larger reductions in carbon risk, as the Index has a larger universe of constituents within sectors. Trucost tools can carbon optimize investment portfolios to replicate the returns of the originals but with carbon footprints which are typically lower by 25%. Fund managers may reduce exposure to carbon liabilities while maintaining financial returns. Trucost conducted a back-test over the period from 21 March 2005 to 31 March 2011, and the findings show that returns of the FTSE/JSE Top 40 Index Carbon Optimized Fund closely matched those of the FTSE/JSE Top 40 Index (see Chart 5).

Chart 5:
Returns of the JSE 40 Optimised fund vs. FTSE/JSE Top 40 Index (historical performance 21 March 2005 and 31 March 2011)



Source: Dirty Feet: Portfolio Carbon, January 2012; Trucost; JSE; SinCo

75 Climate Change And Shareholder Value, Investec Asset Management, 23 November 2011, prepared for Investec Asset Management Climate by Irbaris & Incite Sustainability. A white paper spotlighting material ESG issues selected on the basis of their relevance to the South African economy and the sector weighting of the JSE Top 100.

WHAT INVESTORS WANT

"Irrespective of a global agreement, investors need to be alert to the portfolio impacts on their investment holdings and the underlying supply and value chains they represent. Some countries are moving forward without waiting for the politics to be solved at the UN level."

Graham Sinclair & Cecilia Bjerborn, Green Returns[86]

"It is imperative for Africa that we change how we do business and how we invest. Sustainability is the way forward."

AfricaSIF.org supporter[87]

The IIGCC Global Investor Statement on Climate Change[76] emphasized that investors "need long-term policy certainty." Countries participating in the UNFCCC climate talks to agree long-term action to address climate change "recognize that deep cuts in global greenhouse gas emissions are required according to science".[77] Climate science is clear. New evidence includes a study by former climate sceptics the Berkeley Earth Surface Temperature team. Their preliminary findings, published in October 2011, verified data from other sources – the global climate is warming.[78]

Climate change presents major long-term risks to the global economy and to the assets held by institutional investors, illustrated in research into the South African context by investors ranging from UBS[79] (2010) to Investec[80] (2011). Governments will need to step up action to reduce emissions to avert risks – existing aggregated emissions reduction targets for 2020 fall short of what is needed to limit the global average temperature rise to 2°C. UNFCCC Executive Secretary Christiana Figueres has warned that commitments to date amount to "60% of what science says is required to have a medium chance" of achieving this goal.[81] Are investors prepared for climate change mitigation and adaptation?

South Africa has one of the most advanced financial services sectors in emerging markets, with well-developed banking, asset management, bond and insurance markets, along with advisory services and a liquid major stock exchange in the JSE. ASISA[82] reports that the Collective Investment Schemes (CIS) industry attracted net inflows of R36 billion (US$4.5 bn) in the nine months ending September 2011, bringing total assets under management to R960 billion (US$119 bn) in 953 funds. A greater share of assets therefore continues to be allocated to carbon-intensive, long-lived infrastructure such as fossil fuel-based power stations, energy-intensive buildings and high-carbon industrial plants. The CDP 2011 report[83] suggests all companies in the JSE 100, together with the non-listed state owned Utilities firm Eskom, account for 65% of the country's emissions. By default – without testing for carbon footprints of investment portfolios or carbon intensity of investee portfolio companies – asset owners invested in broad, carbon-intensive funds are exposed to rising carbon costs under government policies that price carbon (whether or not they accept that climate change is being driven largely by anthropogenic emissions).

The *Dirty Feet: Portfolio Carbon* report shows how equity funds in South Africa invested in the largest capitalization companies can manage exposure to carbon risk from major emitters. Investors, and their portfolio companies, can use tools highlighted in this study to assess carbon-related risks and opportunities. Sustainable investment will require sharper modeling to assess the likely impact of climate change impacts and policies on business models. The first step is getting a clear picture of the data.

Integrating ESG data

Sustainability reporting is relatively well developed and widespread in South Africa.[85] Transparency is supported by strong corporate governance rules and voluntary drivers such as an Integrated Reporting Initiative (see Appendix 1). South African companies "set the bar" for governance in

76 www.iigcc.org/iigcc-investor-statement, accessed 9 December 2011.
77 http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf, accessed 7 December 2011.
78 http://berkeleyearth.org/resources/berkeley_earth_summary_20_oct.pdf, accessed 7 December 2011.
79 ESG Analyser, Global Equity Research South Africa, SRI & Sustainability Theme Piece, by Julie Hudson, CFA, UBS Investment Research, 3 September 2010.
80 Climate Change And Shareholder Value, Investec Asset Management, 23 November 2011.
81 http://www.voanews.com/english/news/environment/un-climate-chief-emission-reduction-targets-lacking-119181489.html, accessed 7 December 2011.
82 According to statistics compiled by the unit trust industry body ASISA (Association for Savings and Investment South Africa), 1 November 2011.
83 CDP South Africa JSE 100 Report 2011, Partnering for a low carbon future, December 2011.
84 Green Returns by Graham Sinclair and Cecilia Bjerborn, Africa Investor Magazine, November-December 2011.
85 http://www.unpri.org/collaborations/em.php, accessed 7 December 2011.
86 Green Returns by Graham Sinclair and Cecilia Bjerborn, Africa Investor Magazine, November-December 2011.
87 Verbatim quote from AfricaSIF.org supporter, www.africasif.org accessed 12 December 2011.

Dirty Feet: Portfolio Carbon

"Good governance practices are critical if we are to promote Africa as the preferred destination for investment capital…it is the basic ingredient needed to address economic inequalities and poverty affecting our continent."

John Oliphant, Head: Actuarial and Investments, GEPF[95]

"In order to guide the [PIC] investment process, a four pillar approach has been adopted. The first two pillars cover economic and social infrastructure. The third, is the green economy and lastly SMME development. These are extremely important investment areas for us. If we are to contribute towards the improvement of the continent's economic efficiency, this is where we all have to focus… The success of the continent is critical for the success of the South African economy. …This poses a very important challenge for the owners of capital – the pension funds of the continent. How do we mobilise these funds to collaborate in the delivery of a more successful and poverty free continent?"

Elias Masilela, CEO, Public Investment Corporation[96]

emerging markets according to analysis by UBS in 2010, which found that 17 of the 34 global emerging markets (GEM) stocks with governance ratings higher than the global average are listed in South Africa.[88] ESG data from Bloomberg (November 2011) reflect that company disclosure levels in South Africa are above global averages (37.9% vs. 24.3% average of 5,181 companies globally).[89]

Globally, sell-side research and broker reports are increasingly covering ESG issues in company evaluations, and some reports even focus on ESG issues exclusively. In addition, some investment teams have established dedicated ESG research departments, but data and analysis in S.A. are still limited. High-impact, high-visibility industries such as mining and oil & gas that dominate in Africa have had stakeholder pressure to be more transparent for years. But a focus on ESG data reporting by investors and financers is still gaining momentum.

In 2011, the first-ever multi-country sustainable investment and private equity (PE) study[90] concluded that there will be considerable growth of ESG factors in investment management in South Africa, Kenya, and Nigeria over the next five years. Growth of ESG investment will be driven by demand from asset owners, general expansion of PE in Africa, expectations of asset managers and new legislative and regulatory initiatives. In South Africa, retirement fund assets, including unit trust funds, will come under Pension Funds Act Regulation 28 from 1 January 2012 (see page 10). For the first time, ESG sits among nine prudent investment principles[91] required for asset management of retirement funds in South Africa.

Barriers to growth in sustainable investment over the next five years identified in the Sustainable Investment in Sub-Saharan Africa report (IFC-SinCo, July 2011) include lack of adequate information to evaluate investment targets, lack of evidence that ESG factors will increase financial returns and /or reduce risks, and lack of skilled advisors and necessary expertise. Understanding of ESG factors is likely to grow as investors develop investment analysis and practices in line with the Code for Responsible Investment in South Africa (CRISA), launched in July 2011. The multi-stakeholder investor initiative, which outlines five principles to make institutional investment more accountable,[92] is an important next step in Africa for investors. The principles were developed with the help of major capital owners that represent around R2 trillion (US$300 bn) in assets, which reflects a major portion of Africa's R7 trillion (US$1.01 trillion) Gross Domestic Product (GDP).

While enabling regulations and voluntary frameworks to invest responsibly are now in place, gaps in institutional investors' understanding of ESG issues, and a lack of action, create risks. For instance, most investors still lack an understanding of their carbon and/or water footprints, and are therefore unlikely to be adequately taking account of portfolio exposure to carbon pricing and water scarcity. Important framing for ESG integration – and the pricing of carbon risks – is to have investors thinking longer-term. Companies are likely to pay more to emit carbon within 3-5 years. The *Sustainable Investment in Sub-Saharan Africa*[93] report found that the expression of ESG risks differs amongst asset classes, and carbon risks themselves are not explicitly framed.[94]

88 "The Return Of The Political Economy: What Is Corporate Governance Worth In Gem?", Smithie, N. Et al, UBS Global Equity Research, Emerging Markets, Equity Strategy, 5 May 2011.
89 Bloomberg ESG disclosure map from Barbara Evans, Bloomberg ESG, correspondence with author, 15 November 2011.
90 Sustainable Investment in Sub-Saharan Africa report (IFC-SinCo, July 2011).
91 Developed in part by ASISA Investment Committee Responsible Investment Sub-Committee Prudential Assets Working in 2009 – 2011, including Malcolm Gray, Heather Jackson, Loyiso Mabece, David Coulridge, Kelebogile Moloko, Angelique Kalam and Graham Sinclair, with support of ASISA Board and CEO, Leon Campher.
92 http://www.iodsa.co.za/portals/0/library/documents/crisa_19_july_2011.pdf, accessed 7 December 2011.
93 Sustainable Investment in Sub-Saharan Africa (IFC-SinCo, July 2011). SinCo analysis from SinCo + RisCura data (2010-2011) (c) International Finance Corporation 2011.
94 http://www.ifc.org/ifcext/sustainability.nsf/content/publications_report_si-subsaharanafrica, accessed 7 December 2011.
95 Comments on launch of CRISA, 19 July 2011, Sandton, South Africa.
96 Is It Africa's Time? by Elias Masilela, CEO, Public Investment Corporation (PIC); keynote speech to Institute of Retirement Funds of Southern Africa, Durban, South Africa, 1 September 2011.

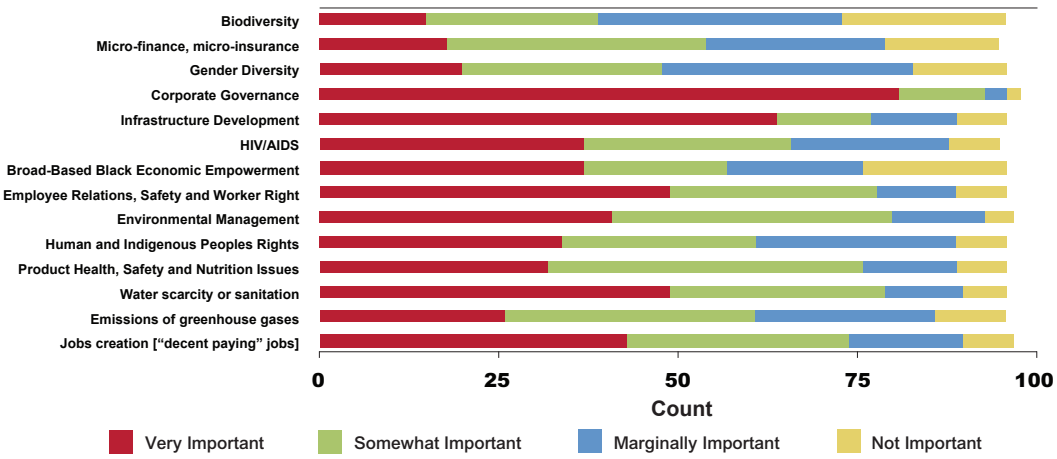
Dirty Feet: Portfolio Carbon

"Investors and companies interested in long-term investment and joint ventures (especially those using locally available resources) may find opportunities in the large African markets. The investment opportunities, however, all need thorough due diligence and are enhanced by considerations of sustainability risk factors."

Graham Sinclair and Roselyne Yao, Sustainable Investing in Africa's Frontier Markets[98]

Broader climate risks are expected to generate a greater investment impact, within 3-10 years. Both general asset management and stakeholder interviewees were more likely than their peers in PE to flag climate-related risks – such as water scarcity and sanitation – as relatively important, perhaps reflecting that systemic risks may be more appreciated by those with a wider range of investment holdings, or with less influence over companies. Different investors will have different perspectives on which ESG factors will impact investment performance (see Chart 6 below).

Chart 6:
Investor perceptions of ESG impacting on long-term performance



4-scale; forced ranking of "very/somewhat/marginally/not important"; n=98 PE investors/asset managers/owners; Jan 2010 - May 2011. SinCo analysis from SinCo+RisCura data. Source: IFC-SinCo, Sustainable Investment in Sub-Saharan Africa report, July 2011

Dirty Feet: Portfolio Carbon is a new research and analysis paper that improves investor understanding of carbon risk. Data show that the main greenhouse gas emitted by business activities is carbon dioxide from fossil fuel combustion. Managing exposure to carbon risk in effect reduces exposure to fossil fuel supply risks (see box, Resource Challenge). Investors can use carbon data to find out whether portfolio companies are most exposed to carbon costs through their operations, or more likely to pick up carbon costs passed on through their supply chains (see page 15). They can model carbon pricing using scenarios with different prices and time horizons.

Resource challenge

Carbon is just one of the emerging resource constraints that will affect business bottom lines. The sustainability meta-trend plays out in themes such as demographics, infrastructure, energy, mobility, nutrition and urbanisation. The long-term dangers to investors flagged by iconic Boston-based investor Jeremy Grantham in his 2011 newsletters to investors, covered the transition from hydrocarbons – oil, coal, gas – to solar, wind, nuclear and other energy sources over the next 50 years.[97] Grantham is particularly alarmed about limits to producing enough food for seven billion people due to finite mined resources of potassium and phosphorous.

97 Grantham, J., Time to Wake Up; Days of Abundant Resources and Falling Prices are Over Forever, Quarterly Letter, April 2011.
98 Evolutions in Sustainable Investing: Strategies, Funds and Thought Leadership (Wiley Finance, December 2011) edited by Cary Krosinsky, Nick Robins, and Stephen Viederman.

Dirty Feet: Portfolio Carbon

"It is fully consistent with the primary objective that trustees look at long-term growth of the fund they are responsible for, and not fall for short-term growth (which is unsustainable), long-term objectives would include ESG factors, and include long-term investments to promote economic growth, jobs and also, environmental factors like climate change."

Ismail Momoniat, Deputy Director-General, South African National Treasury[104]

"Agreeing a carbon price is essential. Durban outcomes must pave the way for greater progress in Rio. Case studies and best practices in mitigation and adaptation are emerging so is experience from public-private partnerships."

Deutsche Bank Climate Change Advisors[105]

While South Africa dominates production of minerals including platinum for industrial use, 50% to 75% of the known reserves of phosphate (the source of phosphorus) are located in Morocco and the western Sahara. Grantham rates soil erosion as the biggest threat of all. Pressures from greater demand for materials, food and water coinciding with environmental damage and resource depletion are driving a "new era" of high and volatile resource prices, according to a study by consultants McKinsey & Company published in November 2011. It urges companies to make resource productivity central to business strategies in order to sustain growth. Investors that manage their exposure to companies that have more resource-intensive production and supply chains than sector peers will be better positioned under resource constraints.

Managing carbon risk to unlock opportunities

Investors in South Africa, have the opportunity to encourage growth of new clean and resource-efficient sectors and a 'green job' economy.[99] Mitigation and adaptation to climate change by developing countries will require considerable investments, estimated by the World Bank to be as much as US$4.6 trillion per year. On the opportunity side, the clean tech sector has attracted huge sums of investment. Bloomberg New Energy Finance estimates US$243 bn of assets in the sector in 2010. Robust environmental policies that include carbon pricing and regulations are needed to drive the development and deployment of clean technologies and reduce risks in the sector.

It will become increasingly difficult for investors to maximize opportunities from climate finance without also understanding and addressing the carbon footprints of their portfolios. Investors diversified across asset classes, including equities, PE, fixed income (FI), real estate and infrastructure funds, can play a positive role in emerging markets climate finance while also addressing risks.[100]

South Africa's carbon emissions are dominated by a few large players including Sasol, BHP Billiton and Anglo American, which are listed companies, and Eskom, the State-Owned Enterprise electricity utility which is exposed to capital markets, and therefore institutional investors, through the fixed income asset class. Owning Eskom fixed income securities would expose investors to an energy Utilities firm that reported carbon dioxide emissions of more than 230 million metric tonnes in 2011,[101] representing 45% of South Africa's total emissions. Investors can provide the finance to help ensure Eskom addresses carbon risks by switching to renewable energy and improving the efficiency of electricity transmission and distribution.

Carbon footprinting of the fixed income asset class[102] is the work of a future study, but it is likely that the modeling of emissions linked to fixed income would also reveal further carbon risks. For example, studies by Standard & Poor's (S&P) in 2011 found that carbon-intensive Utilities with greater EBITDA exposure to carbon costs could see their creditworthiness downgraded as carbon liabilities are included in corporate credit assessments, making it more difficult for them to borrow money,[103] with carbon costs becoming significant when they equate to 10% of EBITDA.

99 Carbon And ESG –What Does It Mean For Portfolio Managers? Presentation By Corli Le Roux, Head Of SRI Index And Shameela Ebrahim, Senior Strategist, JSE, 10 September 2009.

100 Climate Friendly Investments: Assessing the Opportunities for Private Equity and Venture Capital Investors, ICF International by Doug Morrow, Edited by Euan Marshall, 2011.

101 Eskom Integrated Report 2011: Partnering For A Sustainable Future., financialresults.co.za/2011/eskom_ar2011 accessed 19 December 2011.

102 See also work of Initiative for Responsible Investment (IRI) at Harvard Kennedy School including Handbook on Responsible Investment across Asset Classes (pdf) November 2007 and Handbook on Climate Related Investing Across Asset Classes (pdf) April 2009.

103 Utilities Will Feel The Squeeze As Europe Tightens Its Grip On CO_2 Emissions In 2013, S&P, Global Credit Portal, Ratings Direct, 1 July 2011, How U.S. Federal Climate Policy Could Affect Chemicals' Credit Risk, Standard & Poor's, World Resources Institute, APG, February 2011.

104 Comments on launch of Sustainable Investment in Sub-Saharan Africa report, July 2011.

105 Durban Must Clear the Path for More Low Carbon Investment, Deutsche Bank, Caio Koch-Weser, Mark Fulton, Sabine Miltner and Murray Birt, 29 November 2011.

CONCLUSIONS

"We expect to see a further transition to a global climate change process that focuses on voluntary national pledges and international support through financing and technology transfer… High-growth nations are generating both emissions and solutions."

Abbey Joseph Cohen, Goldman Sachs[109]

The *Dirty Feet: Portfolio Carbon 2012* report by SinCo and Trucost introduces new critical thinking for investors and companies; it maps the carbon footprints of portfolios and potential impacts of carbon pricing on company profits, with implications for market valuations of the FTSE/JSE Top 40 in South Africa. For investors, analysis of high-emitting major companies that form part of any country large cap portfolio will increasingly need to take account of valuation risk from carbon. Specifically, testing the 10 major pooled investment vehicles (unit trusts, mutual funds) reveals the difference between the portfolio and benchmark carbon exposure as a proxy for relative carbon risk.

Each country has its history of society picking up the costs of economic development. Most sharply in South Africa, the saga of acid mine drainage (AMD) is the most recent example of next generations paying for the costs of badly executed economic development. Acid mine drainage is polluted water that normally contains high levels of iron, aluminum, and acid. Through regulatory failure, company action/inaction, media oversight and investor omissions, the polluted effluent from mining in the Gauteng region is polluting the groundwater. The long-term management of acid mine water and its impact will have to continue for many years. South Africa will spend an estimated R1,2-billion to clean up acidic water.[106] Companies and their investors can no longer easily externalise their negative ESG costs onto society. Climate risks will be factored into future regulations at company, country and investor levels. Therefore pricing carbon emissions will have a direct effect on African economies, from long-haul aviation for tourism to freighting of fresh-cut flowers. South Africa already has some forms of carbon pricing, and further carbon taxes are planned. Active lobbying of the the Energy Intensive User Group (EIUG) of South Africa[107], will likely influence when, at what price and how carbon taxes finally play out. Pricing carbon emissions will have a direct effect on South Africa's resource-intensive economy powered by coal.

Moving towards a sharper understanding of the pricing of externalities, starting with carbon emissions, is the first step for many companies and/or investors to understand what impact climate risks may have. Options to manage related risks can include carbon optimized funds and sustainable investment architecture by SinCo, and the review of asset management processes to achieve that. Trucost's detailed company-by-company analysis of fund holdings helps to show how investment choices between stocks can affect a fund's carbon performance.

The *Dirty Feet: Portfolio Carbon* report provides evidence-based research to help overcome barriers to addressing carbon impacts in sustainable investment. The report should be seen as much for the risks as for the opportunities. It addresses challenges inherent in measuring carbon footprints, including variability in the scope and quality of company disclosures of carbon and energy data, sector comparability, and the need for reliable measurement, reporting and verification processes. Carbon analysis and quantitative data can be fed into investment decision-making processes to enable risk management, portfolio footprinting, sector and stock-level analysis and the simulation of climate change strategies across asset classes.

Improving diagnostics around ESG factors along the investment value chain is a major driver for the growth of sustainable investment.[108] Investors and companies will benefit from more detailed analysis of climate risks such as water scarcity or food security, beyond just carbon emissions-related risks. In the next section (Next Steps) we offer action steps for how investment funds and portfolio investee companies might understand and manage their positioning for low-carbon, climate-resilient growth in Africa's largest economy.

106 www.dwa.gov.za/minister/qas2011.aspx, accessed 20 December 2011.
107 EIUG is a voluntary, non-profit association of large-scale, high-intensity energy consumers whose members currently account for approximately 44% of the electrical energy consumed in South Africa.
108 Accelerating the Transition towards Sustainable Investing Strategic Options for Investors, Corporations and other Key Stakeholders, World Economic Forum White Paper, January 2011.
109 Next Stop: Durban, Moving beyond the Kyoto Protocol, Goldman Sachs Global Markets Institute, 29 November 2011.

Dirty Feet: Portfolio Carbon

"Integrating ESG factors into investment is particularly important for developing countries, which have limited resources to mitigate or adapt to rapid urbanization, agricultural production swings, food price volatility, or the anticipated effects of climate change."

Graham Sinclair and Roselyne Yao, Sustainable Investing in Africa's Frontier Markets[114]

Deutsche Asset Management (DeAM) Climate Change Advisors (DBCCA) sought to enhance public awareness of climate change by creating a public carbon counter in June 2009 for display in New York City and on the web globally. The Carbon Counter is the world's first real-time electronic display showing the forecasted amount of greenhouse gas concentrations in the atmosphere. To do so, DBCCA partnered with scientists at the Massachusetts Institute of Technology's (MIT) Global Change Program to track the greenhouse gas concentration data on a monthly basis.

Next steps

Sustainable investment seeks to drive capital toward investment in low-carbon, water-efficient, climate-resilient economic growth that delivers an inclusive and stable future. It is a huge aspiration. A small but growing number of investors are increasingly demanding a better understanding of how ESG issues in their portfolios impact financial performance.[110] In South Africa, investors can start to understand a more granular approach to mapping risks and opportunities from climate change.

Investors and companies should expect that a future compulsory measuring, reporting and verification system will emerge in this decade (see page 6). Growing transparency, institutional investor demand, stakeholders such as non-governmental organizations (NGOs) and changing expectations and reputational risks in a world tracked by social media are among factors nudging the institutional investment industry to develop a more advanced approach to investment decision-making.

More still needs to be done to reduce barriers to sustainable investment in the region, such as effective implementation of commitments at an investment policy level into the investment marketplace. Investment practitioners can also profile ESG risks that could be material to long-term returns and/or systemic socio-economic country risk. Integrating ESG factors is designed to reduce risks and maximize opportunities. Unit trust (mutual) funds that will need to comply with Regulation 28[111] can use findings in this report to help update their prospectus or fund philosophy to explicitly consider ESG factors from 1 January 2012.

Markets where carbon pricing is universal and automatically factored into decision-making are still to come for investors, but that day will certainly come. With varied emissions reductions targets over the next decade among major emitters under UN climate agreements,[112] investors will be seeking ways to invest within a marketplace of bilateral, regional and country-level carbon pricing.[113] Estimates that aggregated emissions reduction targets by 2020 will fall short of the 2°C climate stabilisation pathway raise the need for adaptation actions. The performance impact could be in the billions of dollars. With externalities of carbon-intensive industries properly priced in for the first time, many company market valuations could be under water. Modeling used in this study shows that carbon costs could cut corporate profits significantly in South Africa, unless companies reduce emissions.

Diagnosing carbon footprints, and tilting portfolios to minimize exposure to carbon-intensive companies, provides long-term investors with access to carbon-efficient companies to help manage financial risk from corporate greenhouse gas emissions. Prices may be applied to carbon data and included in valuation risk analysis. Institutional investors may assess fund managers on portfolio exposure to carbon costs for every million dollars invested in JSE All-Share companies. ***Dirty Feet: Portfolio Carbon*** and the carbon footprinting approach, should assist investors and portfolio investee companies to better understand the opportunity for tilts away from carbon intensity.

110 A Case For: Sustainability Investing, Chris Mcknett, State Street Global Advisors, 2010.

111 The funds listed by ASISA have been listed on the strength of either an audit certificate issued by the auditors of the fund or a compliance letter issued by the compliance officer of the fund, supplied to ASISA certifying that the fund in question is managed in accordance with Regulation 28 of the Pension Funds (Act 24 of 1956).

112 According to Bloomberg utilities sector team; "The critical part here is the commitment to continuing climate commitments long term. The recent weakness in CO_2 prices has been partly driven by low industrial emissions, and partly due to worries about the sustainability of long term carbon markets, even in Europe. The declaration, whilst not carrying detailed targets, is at least a positive but early step along the road to new global agreements." Chris Rogers, senior European utilities analyst in Bloomberg Industries team, correspondence with author, 13 December 2011.

113 Government officials have wrangled an "overtime" deal at COP17 that keeps some of the Kyoto rules in play, and business leaders are now looking ahead to Rio +20, the June 2012 Conference on Sustainable Development (uncsd2012.org), as a next major platform to develop sustainability. The "Durban Platform for Enhanced Action", will see the EU and a handful of other countries extend the Kyoto Protocol into a second commitment period, allowing for the continuation of emission reduction initiatives enabled by the treaty such as the Clean Development Mechanism (CDM). In return all countries agreed to deliver a new protocol, another legal instrument, or an "agreed outcome with legal force" by 2015 that will then be enacted by 2020.

114 Evolutions in Sustainable Investing: Strategies, Funds and Thought Leadership (Wiley Finance, December 2011) edited by Cary Krosinsky, Nick Robins, and Stephen Viederman.

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Denmark, the UK, South Africa and the U.S. are among countries that have led global best practice in investment legislation and/or regulation encouraging greater ESG integration and transparency in reporting by investors, and the reporting of material ESG issues by companies to their investors.

CRISA consists of five principles:

- **Principle 1 –** An institutional investor should incorporate sustainability considerations, including ESG, into its investment analysis and investment activities as part of the delivery of superior risk-adjusted returns to the ultimate beneficiaries.
- **Principle 2 –** An institutional investor should demonstrate its acceptance of ownership responsibilities in its investment arrangements and investment activities.
- **Principle 3 –** Where appropriate, institutional investors should consider a collaborative approach to promote acceptance and implementation of the principles of CRISA and other codes and standards applicable to institutional investors.
- **Principle 4 –** An institutional investor should recognise the circumstances and relationships that hold a potential for conflicts of interest and should pro-actively manage these when they occur.
- **Principle 5 –** Institutional investors should be transparent about the content of their policies, how the policies are implemented and how CRISA is applied to enable stakeholders to make informed assessments.

With this new insight into the potential impacts of externalities being priced into company valuations of South Africa large caps, and the impact on major South African pooled investment funds investing in the FTSE/JSE Top 40 Index, some important takeaways for investors and companies are outlined below. Based on the carbon analysis of the FTSE/JSE Top 40 Index and large equity portfolios, suggestions include considering 10 questions for:

INVESTORS (10 questions prepared by SinCo)

Pension funds and unit trust owners

1. How do you plan to measure and manage your fund's exposure to carbon risks based on investments in South Africa and other developed and emerging markets?
2. What are the implications of findings for your investment mandates? How does the exposure of your major investment funds compare against benchmark indices on relative carbon risk? Would your fund's exposure be closer to the "carbon-optimized" portfolio, or to the existing FTSE/JSE Top 40 Index benchmark? How does your carbon risk compare with that of the 10 major funds analyzed in this study?
3. How do your asset allocations and stock selections contribute to carbon risks in your portfolios? Do your fund managers understand how companies held compare with sector peers on carbon performance?
4. How could carbon analysis inform your fund investment policy statement?
5. Are you aware of your fund, your asset manager or any pooled investment vehicle conducting investment engagement or proxy voting action to increase the monitoring, reporting and verification of carbon exposure? And has your fund been informed in 2010/2011 of the results of this action?
6. Are companies held in your fund lobbying policymakers on climate change issues negatively in order to continue externalising carbon costs, potentially on to other portfolio companies?
7. Using the results of this kind of analysis, and in terms of voluntary investor initiatives such as CRISA or the UN-backed PRI, how do you expect that your fund and/or your manager may improve their understanding of the risks and mitigate them at the portfolio level going forward in 2012?
8. Understanding the requirement to manage the fund's assets in the context of prudent, long-term sustainable investment integrating ESG factors under Regulation 28, how could your fund improve monitoring, reporting and verification of carbon footprint risks and opportunities in 2012?
9. What new skills, education and information will benefit your fund in 2012 in improving its ESG activities? What mix of internal specialist and external expert will best support your fund's activities? Are you aware of the fund investment policy statement (IPS) and/or fund prospectus description of the approach to investment integrating ESG factors, and assumptions regarding forward interest rates, assumed rates of return, and pricing of externalities? Understanding the new reporting requirements of Regulation 28 of the Pension Funds Act 24/1956, how better should ESG factors be integrated into investment approaches?
10. Do you have a plan in place for 2012 and beyond on tracking upcoming carbon pricing rules in South Africa and globally, and if/when your fund managers will integrate that pricing into their investment models and forecasts?

Asset managers and investment analysts

1. How does your investment philosophy and asset management approach take account of ESG factors?
2. How might carbon analysis on all or some of your funds in 2012 be used to identify, address, and communicate to investors your management of portfolio exposure to corporate emissions under changes in the legal and regulatory environment?

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Are there opportunities for investment approaches in climate finance and mitigation and adaptation strategies at country or company levels? Are there further opportunities to invest in low-carbon technologies and business models?

"There is a general sense that it's something that we have to do – the question that comes in is "how?" The question is "what do you need to mobilise in order to make that happen, and over what period of time is it going to happen?"

Joanne Yawitch, CEO of National Business Initiative, former deputy DG at Department of Environmental Affairs[116]

3. How might a company's or portfolio's reputation on ESG impacts affect its value and what measures that company and/or portfolio manager take to deal with this risk?
4. Do you have sufficient processes to identify and interpret carbon and ESG-related pricing of externalities when they become internalized at a company, industry, sector or systemic level?
5. How best could you integrate carbon performance into investment analysis?
6. Understanding commitments to voluntary associations such as PRI or CRISA, how could you collaborate with other investors to promote better ESG analysis and application?
7. Understanding opportunities to improve reporting in the revised JSE Integrated Reporting Initiative (IRI)[115] from 2011, and the work of organizations such as the CDP, how can asset managers encourage portfolio companies to improve their GHG reporting to facilitate carbon risk management?
8. Understanding the new reporting requirements of Regulation 28 of the Pension Funds Act 24/1956, how could integration of ESG factors into investment approaches be improved and better communicated?
9. Are there opportunities for investment approaches in climate finance and mitigation and adaptation strategies at country or company levels? Are there further opportunities to invest in low-carbon technologies and business models?
10. How best might a fund manager engage with firms with large carbon footprints and how should this be reported to institutional investors? Would publishing voting plans and voting decisions in 2012 help with reporting on processes and performance in engaging firms on climate-related risk?

COMPANIES (10 questions prepared by Trucost)

1. Have you conducted carbon and water footprint risk analysis?
2. Are the main sources of emissions from your business activities in operations, supply chains or products? Where are the "carbon hotspots"?
3. How do you monitor, manage and report on your carbon performance and related exposure to carbon costs, brand damage and changes in the marketplace?
4. Do your carbon management plans and emissions reduction targets take account of likely limits on emissions in your sector and emerging sector-specific abatement opportunities? Do you support policymaking that enables cost-effective mitigation of greenhouse gas emissions?
5. How does your carbon management strategy, performance and exposure to abatement costs or carbon pricing compare with that of sector peers?
6. What processes do you have to track emissions in your value chain and potential cost savings from measures to reduce emissions, such as energy savings and fuel switching?
7. Do you include Treasury forecasts of potential carbon prices under emissions trading or taxes in capital expenditure and procurement decision-making to help manage exposure to future carbon costs in operations and supply chains?
8. Have you identified potential business risks and opportunities from a shift to more resource-efficient, low-carbon goods and services over the next 5-10 years, taking account of measures outlined in the S.A. Government's Climate Change Response White Paper?
9. Do you have a water management strategy that takes account of supply chain risks and local water pressures?
10. Do you have management systems that will enable carbon, water, pollution or resource-related risks to be recognised and addressed before they become financially material?

115 Integrated Reporting Initiative, http://www.theiirc.org/ accessed 9 December 2011.
116 Business Day Dialogues: Challenges Faced by SA in the Transition to a Lower-Carbon Economy, http://www.businessday.co.za/opinionanalysis/dialogues.aspx?did=6 accessed 20 December 2011.

APPENDICES

Appendix 1: Other factors driving sustainable investment

Soft rules, particularly initiatives to increase investor transparency, are helping to drive ESG integration. For instance, voluntary investor initiatives such as the UN-backed Principles for Responsible Investment (PRI)[117] are promoting more explicit recognition of risks and opportunities from ESG factors, including systematic risk. Other investor industry initiatives include the Code for Responsible Investment in South Africa (CRISA),[118] Extractive Industries Transparency Initiative and the Equator Principles. The Equator Principles[119] have attracted five African banks, including four major South African banks – Nedbank Ltd, Standard Bank of South Africa Ltd, Absa Bank Ltd and FirstRand Ltd.

Increasing governance and reporting requirements has raised the profile of ESG factors. Denmark, the UK, South Africa and the U.S. are among countries that have led global best practice in investment legislation and/or regulation encouraging greater ESG integration and transparency in reporting by investors, and the reporting of material ESG issues by companies to their investors. South African-listed companies have been required to report using "integrated reporting standards"[120] since 1 January 2011. The revised rules on corporate governance (King III), introduced by the Institute of Directors in 2009, has led to the JSE tightening reporting requirements of listed companies. The King Code for Corporate Governance,[121] first published in 1994, was updated in 2009.

The JSE has been active with the King Commission to improve corporate governance and sustainability, building the first-ever emerging markets SRI index in 2003/4, and as a stakeholder of CRISA. Three iterations of the King Commission have ratcheted up pressure on companies to be better governed and improve reporting on sustainability in S.A., including applying the guidelines of the Global Reporting Initiative (GRI) and contributing to an Integrated Reporting Initiative, which aims to link business strategy, governance and financial performance with social, environmental and economic factors.[122]

The primary drivers of SI identified by over 160 investors and investment stakeholders in Sub-Saharan Africa in interviews Jan 2010 - May 2011 were:

- Good investment returns (a record of premium from ESG integration)
- Explicit and tangible ESG benefits/impact
- More information
- Government/regulator incentives
- Demands from clients/investor mandate/shareholder pressure.[123]

117 www.unpri.org.

118 CRISA has been endorsed by the Institute of Directors in Southern Africa, the Principal Officers Association, and the Association for Savings and Investment South Africa. The principles of CRISA are supported by the Financial Services Board and the Johannesburg Stock Exchange. http://asisa.org.za/index.php/info-centre/responsible-investment.html, accessed 12 December 2011.

119 Equator Principles, Muziwandile Chonco, "Assessing the Adoption of the Equator Principles by financial institutions in South Africa," Gordon Institute of Business Science – University of Pretoria, 11 November 2009.

120 In January 2011, the Integrated Reporting Committee released the *Framework for Integrated Reporting and the Integrated Report*. http://www.sustainabilitysa.org/integratedreporting/theintegratedreportingcommitteeirc.aspx.

121 The King Codes have been hosted by the Institute of Directors of South Africa as a multi-stakeholder task team over 3 iterations since 1994.

122 http://www.theiirc.org/about/, accessed 7 December 2011.

123 IFC-SinCo Sustainable Investment in Sub-Saharan Africa report, July 2011.

Appendix 2: Trucost methodology

Trucost has developed a comprehensive approach to quantify environmental impacts across organizations, supply chains and investment portfolios. Trucost maintains a database that includes company-specific environmental data. This includes greenhouse gas (GHG) emissions data provided through direct communications with companies, or disclosed publicly. To analyze carbon emissions from companies, Trucost reviews company annual reports and accounts, environmental/sustainability reports, corporate websites and other public disclosures, such as responses to the Carbon Disclosure Project (CDP). Trucost included CDP corporate carbon data published in 2011 in this study. Where a company only discloses data for part of its overall activities, Trucost might standardize or normalize quantities in order to calculate the carbon impacts of the business's entire operations in line with the Greenhouse Gas Protocol corporate accounting standard. Where reported, Scope 1 and 2 emissions data are included in Trucost's database. Where companies only disclose resource use such as fuel consumption, this information is used to derive environmental data where possible. Where companies do not disclose adequate data, impacts are calculated using Trucost's environmental profiling model (see below).

Where companies report on supply chain emissions, data is usually only provided for business travel or logistics. For other supply chain impacts and where companies do not disclose adequate data, GHG emissions are calculated using Trucost's advanced environmental profiling model. This describes resources used through economic interactions between each sector based on census data from the U.S. Bureau of Economic Analysis, adapted to generate global input-output modeling. Quantitative data on industrial facilities' economic productivity and resource use is combined with information on environmental indicators such as pollutant releases from national emissions registries. Production data on business activities in 464 sectors is used to calculate corporate environmental impacts including GHG emissions. Information on a company's revenues in different industries is used to model its likely direct and supply chain emissions, based on industry averages. Calculations incorporate disclosed quantitative data on industrial facilities' actual resource use and pollutant releases where available.

Trucost engages with companies so that they have the opportunity to verify environmental profiles created by Trucost and provide additional information. Analysts quality check any further disclosures made, which are exclusive to Trucost and further augment the database. Environmental profiling using an input-output model is a "best efforts" attempt to understand environmental impacts in the absence of sufficient and comparable company disclosures on the environmental impacts of operations and supply chains. Adopting this method prevents companies effectively outsourcing environmental external costs. Trucost's comprehensive coverage ensures that all companies in an index or portfolio are analyzed, not just those that disclose environmental information.

Appendix 3: Terminology

Baseline year	An historical year used to set targets to reduce emissions and track performance against targets.
Carbon intensity	To compare the carbon efficiency of companies of all sizes and sectors, Trucost normalizes greenhouse gas emissions from operations and direct (first-tier) suppliers by revenue (tonnes of CO_2e per US$m revenue).
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent – standardization of all greenhouse gases to reflect the global warming potential relative to carbon dioxide. The analysis includes the six greenhouse gases covered by the UN Kyoto Protocol: Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), which are measured in tonnes of carbon dioxide equivalents (CO_2e). Each gas has a different ability to trap heat and a different lifetime in the atmosphere relative to carbon dioxide. Each greenhouse gas has a global warming potential (GWP) measured as the ratio of heat trapped by one metric tonne of the gas to that of one tonne of CO_2 over a specified time period. The emission of a GHG is multiplied by its GWP to calculate the equivalent level of CO_2 emissions. For example, one tonne of SF6 equates to 23,900 tonnes of CO_2. Conversions of greenhouse gases to CO_2e are based on the GWP index published by the Intergovernmental Panel on Climate Change (IPCC), which assesses the effect of the emissions of different gases over a 100-year time period relative to the emission of an equal mass of CO_2.
CDP	Carbon Disclosure Project
Defra	United Kingdom Department for Environment, Food and Rural Affairs.
Direct emissions	Greenhouse gas emissions from facilities/sources owned or controlled by a reporting company, e.g. generators, boilers, vehicle fleets. Ie. Generated from activities or sources within the reporting company's organizational boundary.
Emission factors	Specific values used to convert physical data on activities such as fuel use into greenhouse gas emission values. For example 1 tonne of fuel oil = 33212.5 kg CO_2, based on Defra GHG conversion factors (August 2011).
GHG	Greenhouse gas

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GHG Protocol	Greenhouse Gas Protocol – the most widely-used international corporate accounting and reporting standard used to calculate quantities of carbon emitted by an organization. The GHG Protocol is led by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). The GHG Protocol underpins most mandatory and voluntary carbon reporting guidance, as well as other international GHG standards such as ISO 14064. The GHG Protocol categorizes emissions into Scopes 1, 2 and 3.
GWP	Global Warming Potential – an indication of the global warming effect of a greenhouse gas in comparison to the same weight of carbon dioxide.
IPCC	Intergovernmental Panel on Climate Change
Indirect emissions	Greenhouse gas emissions from facilities/sources that are not owned or controlled by the reporting company, but for which the activities of the reporting company are responsible, e.g. purchasing of electricity, air travel, packaging and logistics.
Organizational boundary	Determination of which business units of an organization will be included in a carbon footprint calculation.
Relevant emissions	Emissions generated as a result of the business activities of the reporting company.
Required information	Information relating to emissions that are compulsory under the GHG Protocol, namely direct emissions and indirect emissions from purchased electricity.
Scope 1 emissions	Emissions from sources owned or controlled by the reporting company, e.g. vehicles, blast furnaces, generators, refrigeration, air-conditioning units.
Scope 2 emissions	Emissions resulting from consumption of electricity, heat or steam purchased by a reporting company. E.g. From an electricity utility such as Eskom.
Scope 3 emissions	Scope 3 is an optional reporting category covering all other indirect emissions (excluding Scope 2). Scope 3 emissions are caused by business activities, but are released from sources not owned or controlled by the company. Examples of Scope 3 activities upstream in supply chains include business travel such as flights and car rentals; freight transport services; and the extraction and production of purchased materials. Scope 3 also includes emissions from sold products and services, excluded from this analysis. And it covers emissions from investment portfolios.
SSA	Sub-Saharan Africa
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WBCSD	World Business Council for Sustainable Development
WRI	World Resources Institute

Appendix 4: Carbon intensity ranking

The FTSE/JSE Top 40 companies analyzed in this study are ranked on their carbon intensity, measured as Scope 1 and direct (first-tier) supplier emissions relative to revenue. Revenue is shown for the financial year 2010. Market cap data are as of the end of June 2011. Funds are described as medium where the market cap is lower than US$10 bn, and large where market cap is larger than US$10 bn. Companies are ranked from lowest (No. 1) to highest carbon intensities.

Rank	Company	Company identifier (ISIN)	ICB Super Sector	Market cap (US$m)	Revenue (US$) mn
1	MMI Holdings Ltd	ZAE000149902	Insurance	Medium	2,773
2	Sanlam Ltd	ZAE000070660	Insurance	Medium	6,985
3	Standard Bank Group Ltd	ZAE000109815	Banks	Large	15,554
4	Investec Ltd	GB0031773103	Financial Services	Medium	2,941
5	Old Mutual Plc	GB0007389926	Insurance	Large	29,745
6	FirstRand Ltd	ZAE000066304	Banks	Large	9,368
7	Naspers Ltd	ZAE000015889	Media	Large	3,582
8	Imperial Holdings Ltd	ZAE000067211	Industrial Goods & Services	Medium	44,296
9	Nedbank Group Ltd	ZAE000004875	Banks	Medium	4,922
10	RMB Holdings Ltd	ZAE000024501	Banks	Medium	738
11	Compagnie Financiere Richemont S.A.	CH0045039655	Personal & Household Goods	Large	7,390
12	Vodacom Group Ltd	ZAE000132577	Telecoms	Large	7,489
13	Aspen Pharmacare Holdings Ltd	ZAE000066692	Healthcare	Medium	1,344
14	Capital Shopping Centres Group Plc	GB0006834344	Real Estate	Medium	793
15	ABSA Group Ltd	ZAE000067237	Banks	Large	6,621
16	Shoprite Holdings Ltd	ZAE000012084	Retail	Medium	8,879
17	African Bank Investments Ltd	ZAE000030060	Financial Services	Medium	1,290
18	Mr. Price Group Ltd	ZAE000026951	Retail	Medium	1,237
19	Growthpoint Properties Ltd	ZAE000037669	Real Estate	Medium	554
20	Redefine Properties Ltd	ZAE000143178	Real Estate	Medium	418
21	MTN Group Ltd	ZAE000042164	Telecoms	Large	15,675

22	Bidvest Group Ltd	ZAE000117321	Industrial Goods & Services	Medium	14,462
23	Truworths International Ltd	ZAE000028296	Retail	Medium	1,009
24	Netcare Ltd	ZAE000011953	Healthcare	Medium	3,010
25	Foschini Group Ltd	ZAE000148466	Retail	Medium	1,379
26	Woolworths Holdings Ltd	ZAE000063863	Retail	Medium	2,593
27	Steinhoff International Holdings Ltd	ZAE000016176	Personal & Household Goods	Medium	6,328
28	SABMiller Plc	GB0004835483	Food & Beverage	Large	18,020
29	Kumba Iron Ore Ltd	ZAE000085346	Basic Resources	Large	5,290
30	Remgro Ltd	ZAE000026480	Industrial Goods & Services	Medium	1,516
31	Tiger Brands Ltd	ZAE000071080	Food & Beverage	Medium	2,587
32	Anglo American Plc	GB0004901517	Basic Resources	Large	32,929
33	Mondi Group	ZAE000097051	Basic Resources	Medium	8,254
34	AngloGold Ashanti Ltd	AU000000AGG7	Basic Resources	Large	5,486
35	BHP Billiton Ltd	GB0000566504	Basic Resources	Large	52,798
36	Anglo American Platinum Ltd	ZAE000013181	Basic Resources	Large	6,335
37	Impala Platinum Holdings Ltd	ZAE000003554	Basic Resources	Large	3,352
38	Gold Fields Ltd	ZAE000018123	Basic Resources	Large	4,314
39	Harmony Gold Mining Co. Ltd	ZAE000015228	Basic Resources	Medium	1,486
40	Sasol Ltd	US8038663006	Oil & Gas	Large	16,104

Appendix 5: Top ten unit-trust managers

Ranked by assets at end-June 2011—R m

Company	Assets	Market share (%)
Stanlib	125,192	15.2
Allan Gray	111,140	13.5
Investec	83,360	10.1
ABSA	79,259	9.6
Prudential	66,965	8.1
Old Mutual	52,265	6.3
Sanlam	47,758	5.8
Nedgroup	41,599	5.1
Coronation	37,587	4.6
RMB	36,304	4.4
Total market	**823,164**	**100.0**

Source: Association of Savings and Investments South Africa, 2011

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"There is broad scope to increase sustainable investment in Sub-Saharan Africa over the next decade. Such investment will support a wide range of activities, from boosting energy sources that reduce pressure on the environment, to financing the infrastructure that the continent requires to enhance trade and development. Given Africa's strong economic growth prospects and rapidly expanding middle class, there is perhaps greater scope than ever before for such investment, with sound prospects for long-term returns."

Rachel Kyte, IFC[126]

Appendix 6: Growing sustainable investment in Sub-Saharan Africa Report

Sustainable investment (SI) is an established niche in Sub-Saharan Africa, and predominantly in its largest institutional investment market – South Africa. The IFC-SinCo report published in July 2011[124] forecasts that over the next 10 years, there will be considerable growth of ESG considerations in investment management in South Africa, Kenya, and Nigeria. The strongest growth will be in the ESG-integrated segment driven by major asset owners, development financing institutions (DFIs) led PE investment, regulatory changes, and activities of SI/ESG-specialist investment boutiques. The report recommends five measures to expand sustainable investment through 2020 through a systematic approach in Kenya, Nigeria and South Africa:

1. **Key influencers to drive messaging:** The SI message should be presented in the language of investors, and should be driven by the end clients – the asset owners – appealing to advisors and leading asset managers open to exploring advances in institutional investment practice.
2. **Streamline ESG reporting:** Reduce information gathering and execution costs by streamlining the ESG reporting approaches of major investors (especially the development finance institutions), and increasing comparability of ESG impacts (and therefore the utility) through common reporting guidelines for PE.
3. **Leverage local knowledge:** Leverage local and regional insights in sustainable investment to integrate into new global best practices, profiling advances in integrating ESG factors into investment practice in frontier and emerging markets by asset owners and asset managers in the region.
4. **Make the sustainable investment case:** Presenting the sustainable investment case to make the proposition that SI has the potential to generate increased returns and/or reduced risks across all asset classes.
5. **Keep score:** Performance metrics and analysis is fundamental to investment. Investors need to measure investment performance and ESG impact. Regular Africa and SSA surveys of sustainable investment products, portfolios, and performance are required, along with benchmarking through a regional sustainability index.

An important new initiative for retirement fund investment is the adult education project by IFC and POA, aimed at developing a retirement fund trustee ESG toolkit over a 4 phase project 2012 -2013. SinCo is leading the investment value chain analysis with UNISA, IFC, POA and other stakeholders beginning December 2011.[125]

124 The Sustainable Investment in Sub-Saharan Africa report (July, 2011) has been prepared by SinCo for IFC. The findings are based on research conducted by SinCo and RisCura, encompassing a literature review and empirical analysis, including interviews with investment practitioners. Primary research was conducted in 2010 and 2011. The authors conducted interviews and corresponded with over 160 investors, lawyers, analysts, consultants, academics, and advisors active in investment in South Africa, Nigeria, and Kenya (13 asset owners, 37 asset managers, 52 private equity investors, and 59 investment stakeholders). Sustainable Investment in Sub-Saharan Africa, IFC-SinCo, July 2011. See also sincosinco.com/siinssa.

125 Sustainable Returns for Pensions and Society is an industry-led initiative to integrate environmental, social, and corporate governance considerations into the mainstream of retirement industry investment practices in Southern Africa. Convened by the Principal Officers Association of South Africa (POA), IFC, the Government Employees Pension Fund (GEPF), and the Association for Savings and Investment South Africa (ASISA), the project Steering Committee includes high-level representatives of the Financial Services Board (FSB), National Treasury of South Africa, Banking Association of South Africa (BASA), Botswana Public Officers Pension Fund, Congress of South African Trade Unions (COSATU), Debswana Pension Fund, Federation of Unions of South Africa (FEDUSA), Financial Planning Institute (FPI), Government Institutions Pension Fund Namibia (GIPF), Institute of Directors (IoD), Institute of Retirement funds (IRF), National Council of Trade Unions (NACTU), Pension Lawyers Association, South African Institute of Chartered Accountants (SAICA), Southern Africa Venture Capital Association (SAVCA), Telkom Pension Fund, and the UN-backed Principles for Responsible Investment (PRI). This project is supported by funding from the Norwegian Government. Source: http://ifcext.ifc.org/ifcext/media.nsf/content/SelectedPressRelease?OpenDocument&UNID=37B46A7E73BB249D42257958003C8657, accessed 12 December 2011.

126 Foreword to IFC-SinCo Sustainable Investment in Sub-Saharan Africa, July 2011.

Appendix 7: Synopsis of pooled investment vehicles: Unit Trusts in South Africa

Fund Name		Allan Gray Balanced	Allan Gray Equity	Allan Gray Stable	Coronation Balanced Plus	Coronation Top 20	Investec Opportunity Fund	Investec Value	Nedgroup Investments Rainmaker Fund	Old Mutual Investors' Fund	Satrix 40
Fund Objective		The Fund aims to create long-term wealth for investors within the constraints governing retirement funds	The Fund aims to outperform the South African equity market over the long term, without taking on greater risk	The Fund aims to provide a high degree of capital stability and to minimise the risk of loss over any two-year period, while producing long-term returns that are superior to bank deposits on an after-tax basis"	The Fund aims to achieve long-term capital growth and moderate income generation	The Fund aims to outperform the FTSE/ JSE Top 40 Index, is actively managed and typically holds no more than 20 large cap stocks at any point in time	The Fund aims to produce dependable inflation-beating returns, while minimising downside risk. The objective is to achieve returns well in excess of inflation measured over three to five year periods	The Fund aims to provide investors with capital growth over the long term. The objective is to achieve returns well in excess of the FTSE/ JSE All Share Index, measured over three year periods	The Fund seeks to offer investors long-term capital growth through active stock selection within the South African equity market. A minimum of 75% of the portfolio's assets will be invested in domestic equities at all times	The Fund aims to offer superior returns over the medium to longer term through investing in a broad spectrum of mostly local shares	The mandate of the Satrix 40 portfolio is to track as closely as possible the value of the FTSE/JSE Top 40 index. Satrix 40 is an index tracking fund, registered as a Collective Investment Scheme and is also listed on the JSE Securities Exchange as an Exchange Traded Fund
Inception date		1 October 1999	1 October 1998	1 July 2000	15 April 1996	1 October 2000	2 May 1997	2 May 1997	3 July 2000	1 October 1966	1 November 2000
Fund Manager(s)		Ian Liddle, Duncan Artus, Delphine Govender, Andrew Lapping, Simon Raubenheimer	Ian Liddle, Duncan Artus, Delphine Govender, Andrew Lapping, Simon Raubenheimer	Ian Liddle	Karl Leinberger and Quinton Ivan	Neville Chester and Pallavi Ambekar	Clyde Rossouw	John Biccard	Tim Allsop and Omri Thomas	Peter Linley	Satrix
Fund Category		Domestic Asset Allocation - Prudential - Variable Equity	Domestic - Equity - General	Domestic Asset Allocation - Prudential - Low Equity	Domestic - Asset Allocation - Prudential Variable Equity	Domestic - Equity - Large Cap	Domestic-Asset Allocation-Flexible	Domestic - Equity - Value	Domestic - Equity - General	Domestic - Equity - General	Exchange Traded Funds
Benchmark		The Fund's benchmark is the market value-weighted average return of funds in both the Prudential Medium Equity category and the Prudential Variable Equity category (excluding the Allan Gray Balanced Fund)	FTSE/JSE All Share Index including income	The Fund's benchmark is the return of call deposits (for amounts in excess of R5m) with FirstRand Bank Limited plus 2%, on an after-tax basis at an assumed tax rate of 25%	Composite (63% equity, 22% bonds, 10% international, 5% cash)	FTSE/JSE Africa Top 40 Index	CPIX plus 6% (net of fees) over a 3 to 5-year rolling period	FTSE/JSE All Share Index (ALSI)	General Equity Unit Trust Mean	Shareholder Weighted Index (SWIX)	FTSE/JSE Africa Top 40 Index
Income Distribution		Biannually	Biannually	Quarterly	Biannually	Biannually	Biannually	Biannually	Annually	Biannually	Quarterly
AUM		R47,462m	R27,623m	R27,270m	R16,400m	R8,720m	R20,200m	R7,800m	R12,830m	R7,400m	R6,250m
Annualised performance for various periods (%) [since inception to 31 October 2011]	1 Year	14.6	14.6	11.7	9.0	11.4	14.1	9.4	8.8	0.2	3.14
	3 Years	13.3	17.8	7.9	15.5	22.1	14.3	19.6	17.1	9.0	8.89
	5 Years	10.9	11.6	9.0	10.9	14.5	11.6	11.6	10.3	8.3	7.57
	10 Years	18.2	21.7	12.2	17.3	22.5	17.7	25.9	22.9	17.3	
Total equity return (including performance fee) [30 September 2011]		1.10%	1.56%	1.25%	1.45%	1.84%	2.56%	1.41%	1.72%	1.14%	0.46%
Risk measures (since inception) *Red are 3 year statistics; OM is 5 years annualised	**Annualised Volatility**	9.90%	17.30%	4.20%	15%	18.10%	8.81%	15.31%	17.70%	16.80%	
	Maximum drawdown	-15.40%	-31.30%	-4.30%	-34.30%	-31.70%	-7.76%	-18.10%	Not Available	Not Available	Not Available
	Percentage positive months	69.00%	66.20%	80.90%	66.70%	61.70%	71.50%	Not Available	Not Available	Not Available	Not Available
URL		www.allangray.co.za/ IndividualInvestors. aspx?id=23#Individual-fundfactsheets	www.allangray.co.za/ IndividualInvestors. aspx?id=23#equity	www.allangray.co.za/ IndividualInvestors. aspx?id=23#stable	www.coronation.com/ assets/factsheet/2011/ October/ CORONATION%20 BALANCED%20 PLUS%20FUND.pdf	www.investonline. co.za/pdfs/fact-sheets/ 20111116101530.pdf	www.investecasset management.com/ south-africa/upload/ pdf/SA_Fact_Sheet_ Opportunity_Fund.pdf	www.investecasset management.com/ south-africa/upload/pdf/ SA_Fact_Sheet_Value_ Fund.pdf	www. nedgroupinvestments. co.za/Fund/Details/59	www.oldmutual. co.za/documents/ UT08Factsheets/ OldMutualInvestors Fund.pdf	www.satrix.co.za/ documents/ september%20 2011%20-%20 september%20 2011%20-%20 satrix%2040%20-%20 2011/10/24%20-%20 quarterly%20fact%20 statement.pdf

Source: RisCura, ASISA, Company websites, SinCo, 2011

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