

微观 ESG 发展对宏观经济的影响

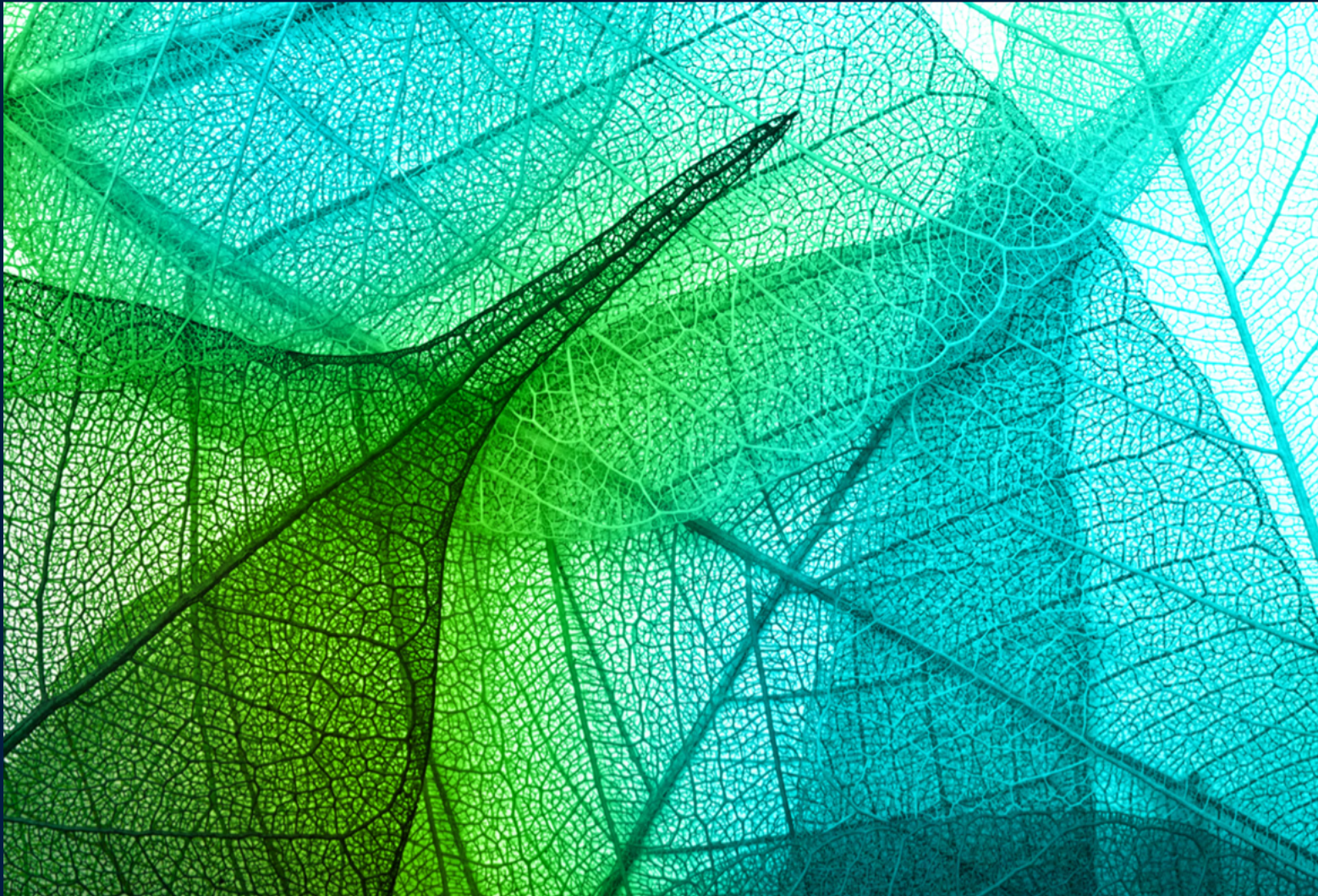
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牛津大学史密斯企业与环境学院的可持续金融项目是一个交叉学科研究部门，致力于成为世界领先可持续金融和投资最佳研究和教学中心。该部门成立于 2012 年，旨在将金融和投资的理论与实践与全球环境可持续发展相结合。

我们力图了解不同部门、不同资产类型和不同地域的环境相关风险和机遇：这些因素是怎样产生的并对资产价值如何产生积极或消极的影响？这些因素是怎样相互关联？它们的重要性（在规模、影响、时间和可能性方面）如何？谁会受到影响？哪些受到影响的群体可以进行有前瞻性的风险管理？自成立以来，我们对搁浅资产进行了开创性研究，并继续对该课题进行研究。

我们认识到关于环境相关因素的高质量研究成果是将这些因素成功整合到决策制订中的必要的、但非充分条件。因此，我们开发了这些数据、分析、框架和模型，使得这些信息能整合到决策制定中去。

我们是“空间金融”的先驱和倡导者，我们创造并第一个使用此术语，指的是将地理空间能力纳入财务分析。依次，我们通过数据科学开发新的资产数据集，并将其与空间分析，方案和压力测试的新方法相结合。

我们还研究了影响可持续金融和投资发展的诸多障碍。这包括公司治理，规范，行为和认知以及政策和金融法规在制定投资决策和资本配置方面的作用。

该部门成立于具有全球影响力和声誉的世界一流大学。我们与整个投资链上的一流从业者进行合作（包括精算师、资产所有者、资产管理者、会计师、银行、数据提供商、投资顾问、律师、评级机构、证券交易所），同时也与企业及其管理者，以及一大批相关学科领域的专家（包括金融、经济、管理、地理学、人类学、环境科学、法律、区域研究、心理学）在牛津大学进行合作。牛津大学可持续发展金融部门由 [Dr Ben Caldecott](#) 创立。

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微观 ESG 发展对宏观经济的影响

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摘要

本文探讨了微观层面公司的环境、社会和公司治理 (ESG) 发展水平是否会影响国家的宏观经济表现, 以及这种影响在发达国家和新兴市场国家的表现是否不同。使用动态面板技术——广义矩估计法 (GMM), 我们发现微观 ESG 绩效的提高可以提升国民生活水平, 即人均 GDP。并且, 无论是发达国家或是新兴经济体, 一个国家的企业层面上的社会绩效 (S) 都与人均 GDP 是正相关的。此外, 我们还发现, 企业层面 ESG 绩效的另外两个组成部分, 即环境 (E) 和公司治理 (G) 绩效会影响新兴市场国家的宏观经济表现, 但对发达国家的影响并不显著。尽管尚待进一步研究, 以上发现对政策制定者和中央银行来说具有一定意义, 这可以帮他们意识到, 鼓励企业层面 ESG 实践的实施能够改善整个国家的宏观经济表现。

执行摘要

本文通过 2002-2017 年间的区间样本，对企业环境、社会和治理（ESG）实践与所在国家宏观经济绩效之间的关系进行了研究。作为第一篇实证研究检验了企业层面 ESG 实施对发达经济体和新兴经济体的宏观经济绩效的影响，发现两者确实存在正相关关系（表 A）。但当单独研究 ESG 的三个主题，或将发达经济体或新兴经济体分开来看时，这种正相关的程度存在一定差异。

主要发现：

- 对于所有样本来说，一国之内企业 ESG 表现的改善与该国生活水平（以人均 GDP 衡量）的提高呈显著的正相关关系。
- 在发达和新兴经济体中，企业社会绩效对人均国内生产总值的增长都有显著的积极影响，而环境和治理绩效只对新兴经济体的人均国内生产总值增长有显著的积极影响，对发达经济体影响不显著。

实证结果：

本文所有样本组的实证结果表明，企业 ESG 绩效平均水平的提高会促进国家层面人均 GDP 的提升。在“E”（环境）的层面，企业平均绩效每增长一个单位值会促进国家人均 GDP 增长 0.06%，在“S”（社会）的层面，企业平均绩效每增长一个单位值会促进国家人均 GDP 提升 0.01%；在“G”（公司治理）的层面，企业平均绩效每提高一个单位值会推动国家人均 GDP 提高 0.19%¹。举例来说，如果印度尼西亚的公司（平均环境得分为 43.5 分）将其环境绩效提高到数据库中公司平均绩效最好的国家（法国，71.8 分）的水平，在其他条件不变的情况下，这将促进印度尼西亚人均 GDP 增长 15%，即从低于 4300 美元增加到 4900 美元以上。

从样本中的 11 个新兴经济体来看，我们发现，环境、社会和治理三种企业 ESG 的绩效与人均国民经济增长在统计上均呈现显著的联系。而对发达国家而言，环境和治理这两项企业 ESG 绩效对人均国民经济增长没有显著影响，但社会这项绩效对人均国民经济增长有着显著的正相关关系。平均企业社会绩效每增长一个单位值，人均 GDP 方面就增长 0.07%，这表明在其他条件不变的前提下，如果日本企业的平均社会绩效得分（44.56 分）提高到西班牙的水平（67.38 分）将会带动日本的人均 GDP 提高 18.48%。

政策建议：

总体来看，我们的研究表明，企业 ESG 实践水平越高，对宏观经济的积极效应越明显。因此，我们的研究结果驳斥了那些认为环境、社会或治理纳入企业决策后会降低 GDP 增长的观点，并向行业利益相关者、投资者和决策者提出了一个令人信服的理由，即：通过推动整个企业界实施 ESG 政策可以产生宏观经济效益。

这项研究对经济政策制定者和中央银行有重要参考意义。政策制定者有各种工具可供使用，以鼓励在企业层面采纳 ESG 实践。我们的结论为决策者们加强这方面的激励措施提供了理论支撑，证明相关 ESG 激励措施可以促进宏观经济表现的长足改善。研究结果对多边开发银行等国际发展机构也提供了参考。因为我们的研究表明，促进企业层面的 ESG 实践并不会加剧经济增长与社会发展之间的矛盾关系，而是同时加快经济增长和社会发展的一种方式。

¹ Following previous economic growth literature, we make use of the logarithmic transformation of GDP per capita, because GDP growth is approximately proportional, and log (GDP) grows linearly which fits into the linear regression model (Toya and Skidmore 2007).

在当前新冠疫情蔓延的形势下，本文企业层面的社会绩效与人均 GDP 正相关的结论似乎更有意义，疫情期间，企业员工就业问题受到了广泛关注。本文研究表明，如果疫情影响下的经济复苏策略将企业 ESG 绩效，尤其是“S”方面的绩效纳入考量，很可能会有效刺激经济增长。

表 A 微观 ESG 绩效对宏观经济增长的影响结果

E, S, G 绩效平均每增加一分（满分一百分）对应的人均 GDP 的自然对数百分比的变化			
	所有国家	发达国家	新兴经济体
环境绩效	增加 0.06% <i>统计显著</i>	增加-0.01% <i>统计不显著</i>	增加 0.12% <i>统计显著</i>
社会绩效	增加 0.10% <i>统计显著</i>	增加 0.07% <i>统计显著</i>	增加 0.11% <i>统计显著</i>
公司治理绩效	增加 0.19% <i>统计显著</i>	增加 0.03% <i>统计不显著</i>	增加 0.26% <i>统计显著</i>

1. 介绍

近年来，基于环境、社会和公司治理（ESG）因素对公司进行衡量和评估的做法在整个金融行业乃至更广泛的经济领域内变得越来越普遍。2015年通过的《巴黎气候协定》和《联合国可持续发展目标》（SDGs）成为促进可持续发展企业实践的催化剂。各种国际倡议，如2007年发起的“联合国负责任投资原则（UN PRI）”等，也推动了企业责任意识的提高，使他们将ESG纳入企业风险管理的范畴，而不再是单纯的企业社会责任（CSR）范畴（UN PRI, 2018）。许多公司已经开始将ESG主题纳入公司内部战略管理，具体实施举措包括：通过综合性年度报告或单独的可持续性报告合理披露环境影响和风险、提升ESG数据搜集、测量、和报告工作等（Skouloudis et al., 2016; IIRC, 2015; GRI, 2019）。越来越多的第三方机构也开始加强衡量和监测企业ESG表现，一些信用评级机构开发了ESG评分体系；一些国际倡议也有所作为，比如，碳披露计划（CDP）每年跟踪调查了7000多家公司在气候变化和水资源管理等领域做出的成绩（CDP, 2019）。

关于以上公司层面的绩效表现，学界已经有了比较丰富的研究。其中好几项研究都表明，那些过去几十年中，通过减少碳排放、推动性别或种族平等、提升利益相关者参与度等活动积极提升ESG表现的公司，在大多数情况下都已经获得了更高的公司价值（Yu et al., 2018）、更好的信用评级（Devalle et al., 2017年），更高的生产力（Kozluk and Zipperer, 2014; Abrizio et al., 2017），更强的竞争力（Dechezleprêtre and Sato, 2017; Madsen and Ulhøi, 2017），以及更强的总财务业绩（Friede et al., 2015; Lee et al., 2018）。除此之外，还有很多研究、报告和文章将关注点放在了环境与社会相关法律对公司表现的影响。（Ambec et al., 2010; Everett et al., 2010; Clark et al., 2014; Friede et al., 2015; Rubashkina et al., 2015; Cohen and Tubb, 2018; Lopez-Arceiz et al., 2017），以及宏观层面的经济因素对公司制定ESG政策的意愿和能力方面的影响。（Annicchiarico and Di Dio, 2015; Baldini et al., 2016; Mavragani et al., 2016; Lins et al., 2017; Banerjee et al., 2019）。

但是到目前为止，尚缺少相关文献研究企业ESG政策实施如何对国家宏观经济绩效造成影响。在波特假说（Porter and Van der Linde 1995）的理论基础上做的研究揭示了企业层面的ESG实施与提高经济竞争力或生产率之间的联系（Everett et al., 2010; Abrizio et al.,

2017; Dechezleprêtre and Sato, 2017; Cohen and Tubb, 2018)。以此将思路延伸，生产力的增长(Abrizio et al., 2017)和竞争力的增强(Dechezleprêtre and Sato, 2017; Cohen and Tubb, 2018)最终会转化为更强的净经济增长(Kordalska and Olczyk, 2016)。有趣的是，关于这一主题的实证研究仍然很少。根据目前的文献，只有 Skouloudis et al. (2016) 的研究着眼于企业社会责任(CSR)的实践与国家竞争力之间的潜在联系，但他的关注点仅限于欧洲国家。

因此，本文是首篇以发达经济体和新兴经济体为研究对象，研究企业层面 ESG 政策贯彻落实对宏观经济绩效影响的实证文章。时间方面，本文研究区间为 2002–2017 年。我们应用动态面板广义矩量法(GMM)技术来纠正因遗漏变量、同时性偏误或未观测到的特定国家极端数据带来的任何潜在偏差。本文采用了两种可用的动态面板广义矩量(GMM)估计：1) Arellano and Bond (1991) 提出的差分 GMM 估计；2) Blundell and Bond (1998) 和 Arellano and Bover (1995) 提出的系统 GMM 估计。两种参考方法产生了一致的结果。

我们的研究发现，微观 ESG 绩效的提高可以提升一国国民生活水平（以人均 GDP 衡量）。同时我们也研究了这种微观 ESG 实践与宏观经济表现的联系是否因不同发展水平的经济体而异。实证研究发现，对于本文样本中 19 个发达国家来说，“环境”与“公司治理”这两项 ESG 绩效对国家经济增长没有统计意义上的显著影响，但“社会”这项 ESG 绩效确实对人均 GDP 有显著的正相关影响。对样本中的新兴经济体来说，“环境”、“社会”、“公司治理”这三项 ESG 绩效均与国家经济增长有很强的显著关联。这些结果意味着，企业实施 ESG 政策不仅对发达国家（这些国家通常更广泛地整合了 ESG 政策）具有相关性，对新兴经济体改善宏观经济绩效来说也至关重要。本研究首次评估了企业层面的 ESG 绩效对全球主要经济体的宏观经济绩效的影响，拓展了以往相关研究的维度，同时也将 ESG 数据收集从时间上和颗粒度上都进行了进一步延伸和细化。

从论文的结构来看，笔者首先梳理了已有研究成果，对企业层面 ESG 的实施对经济参数的影响进行了文献综述；然后提出了核心假设，即企业层面的 ESG 实施绩效良好的国家，其宏观经济绩效也更为强劲；接下来对我们的数据库和方法论进行了说明，其中数据库的原始数据来源于汤森路透的 ESG 评分，方法论以动态面板广义矩估计法 GMM 为主，用于纠正某些由国家特性或解释变量内生性引起的潜在偏差。数据测试结果和紧随其后的稳定性测试结果都强有力地

证明了我们最初的假设，即总体而言，一个国家企业层面 ESG 绩效中的“社会”（“S”）绩效与国家的人均 GDP 呈正相关。这一结果对所有被纳入实验样本的国家都适用。最后，在结论章后，我们附加说明了该模型方法上有待改进的地方和不可控因素，以供后续研究参考，期待未来的研究能对我们的模型和方法进行提升。最后，我们总结了本文研究发现对政策制定者的参考意义。

2. 文献综述

2.1 为什么公司层面的 ESG 很重要？

在全球化、经济自由化和私有化的背景下，政府机构承担的若干种责任逐渐转移到企业领域(Hughes, Buttle, and Wrigley, 2007)。由于环境和公司治理问题经常导致一些大公司出现巨额亏损，甚至资不抵债，这使得 ESG 理念以及企业应采取更好的 ESG 实践这一论点获得了更多的关注(Ribando and Bonne, 2010)。ESG 是环境、社会和公司治理的简称；衡量一家公司的 ESG 绩效包括考虑公司业务和投资活动对环境和社会的影响（即“E”和“S”），以及考察该公司的内部治理结构（“G”）。ESG 越来越被视为是衡量企业非财务类绩效表现的重要方法(Atan et al. 2018)。人们普遍认为，在过去 20 年里，企业对 ESG 问题的关注急剧提升(PWC 2010; Murray, 2012)。在 2000 年启动的联合国全球契约(UN Global Compact)的框架下，160 多个国家的 14429 家公司承诺，将公司的运营与人权、劳工、环境、反腐败等 10 项原则结合起来²。企业可以通过生产特定的商品和服务对环境和社会产生影响，同样也能够影响消费者行为、投资科技创新或者游说政府在重要问题上采取行动。企业的供应链是产品的分销渠道，它包括从原材料的购买到交付给最终消费者的全过程。企业如果广泛应用 ESG 战略，主动使用比地方政府更高的环境与社会标准，有望使全球可持续发展水准得到提高。(Angel and Rock, 2005)。因此，企业是全球范围内是社会责任变革的关键参与者(Clark and Hebb, 2005; Porter and Kramer, 2006; Becker-Olsen, Cudmore, and Hill, 2006)，但企业的 ESG 实践是否也能对国家层面的生产力水平和竞争力产生影响？投资界认为 ESG 尤其重要，因为 ESG 问题逐渐被视为评估投资组合的财务类“客观”因素(Richardson 2009; Clark, Feiner, and Viehs, 2014)；如果这些因素对投资回报这么重要，那么它们与国家层面的经济风险和回报可能也是

² <https://www.unglobalcompact.org/what-is-gc/participants>. Accurate as of 27.05.2020.

相关的。

虽然现存文献倾向于将环境、社会和公司治理问题放在一起讨论，但对这种组合的合理性仍存在一些争议。比如，相关地理文献更关注 E（环境）和 S（社会），欧洲企业参与中心 (ECCE) 也发现，投资者在决策过程中最常使用的是“G”（公司治理）因素 (Jaworski, 2007)。因此，“G”可能确实应该与“E”和“S”分离。本研究承认“E”、“S”、“G”是独立的主题。虽然这三者不应该完全被分开，但为了对可持续性有更深刻的理解，需要对它们分别进行的研究，然而，在以上思路不变的前提下，为保持与大多数现有文献相一致以方便读者阅读，本文还是将使用“ESG”这个术语。针对以往一些 ESG 研究受到的批评，本文也将给与相应的关注，并试图在方法学上进行改进：许多研究文献都是从 ESG 的各个维度中都有倾向性的进行选择性的研究 (Uecker-Mercado and Walker, 2012)，然而本文将致力于对每个维度都进行单独的和整合性的分析。此外，大多数 ESG 研究使用的是美国的数据，其次使用较多的是英国的数据，(Renneboog, Horst, and Zhang, 2008)。这使得 ESG 的概况仅仅局限于极少数的国家，而在本文献中我们已经把 ESG 研究扩展到了全球范围内 38 个国家。

2.2 ESG 绩效与财务绩效之间的联系

很多学术研究探索了 ESG 在诸多方面对公司层面财务绩效的正面影响：例如，Porter and van der Linde (1995) 探讨了通过环境创新可以获得的竞争优势，Clark and Hebb (2005) 指出 ESG 责任感更强的公司具有更低的声誉风险和环境风险，而 Nahal and Lucas-Leclin (2013) 强调了气候异常对供应链的负面影响。Lee, Cin, and Lee (2016) 发现，企业的环境责任绩效、股权回报和资产回报之间有显著的正相关关系。在社会绩效方面，Barnett and Salomon (2012) 也发现社会责任方面表现好的企业会有更好的财务绩效。Nollet, Filis, and Mitrokostas (2016) 认为将履行社会责任整合入战略规划的企业能够更好吸引消费者和投资者，从而为其产品创造额外价值。在公司治理方面，Masulis, Wang, and Xie (2007) 发现公司治理不善与收购决策失误也有一定联系，会导致公司市值的降低。

另一方面，也有一些研究证明 ESG 实践会降低公司价值，因为遵守更高水平的 ESG 标准需要支付额外的成本。Brammer, Brooks, and Pavelin (2006) 发现企业社会责任绩效指标与股权回报之间存在负相关关系。Duque-Grisales and Aguilera-Caracuel (2019) 也认为 ESG 绩效，无论是单独来看还是整体来看，都与财务绩效有显著的负相关关系。

虽然现有文献的研究结果并不一致,但越来越多的证据表明 ESG 具有积极或非消极的财务影响。对于以往研究的系统性分析和总结,请参见 Friede et al. (2015)和 Clark et al. (2014)。尽管证据越来越多,但仍有一些学者质疑 ESG 与财务绩效间的这种联系,这些争论主要是围绕方法学和数据质量展开的。(Margolis et al. 2003; Garcia-Castro, Ariño, and Canela 2010)

此外,还有一些文献探讨了公司采用 ESG 原则的原因(Bansal and Roth, 2000; Hedberg and Von Malmborg, 2003; Kim and Statman, 2012), Porter 和 Kramer(2006)认为有道德、财务、品牌声誉和法律方面的原因, Milton Friedman(1970)认为企业采纳 ESG 原则是为股东获取最大化利润而驱动的,因为越来越多人认为强有力的 ESG 管理能够转化为好的商业价值(Wilmshurst and Frost, 2000; Clark and Hebb, 2005; Willard, 2012)。还有的认为注重可持续发展的公司风险因子相对更低,并有潜能制定更好的长线投资战略(MSCI, 2017a; Della Croce, Stewart, and Yermo, 2011; Clark and Hebb, 2004); Greenwald(2009)认为 ESG 还可以用来评估公司内部管理质量。

2.3 假说发展

迄今为止,很少有学术研究试图将企业层面的 ESG 绩效扩大至国家层面来考量其经济效益。先前倒是有研究证明企业社会责任(CSR)和国家竞争力之间存在正相关关系。如 Boulouta and Pitelis(2014)、欧盟委员会(2008a;2008b)和 Zadek(2006)(通过经验数据和理论讨论)等。Boulouta and Pitelis(2014)在计算竞争力时也确实将 GDP 纳入考量。但目前还没有研究像本文一样直接将企业层面的 ESG 表现与国家 GDP 增长这两者联系起来。有趣的是, Chapple and Moon (2005)在一些亚洲国家的样本中,研究发现国民生产总值(GNP)与企业社会责任活动之间无统计学显著相关性,即 ESG 不是经济发展的驱动力,在 Ringov and Zollo(2007)文献中也验证了这一观点。而 Boulouta and Pitelis (2011)证明企业层面的 CSR 实践和国家竞争力之间有正相关的关系,但他们的结果是基于问卷调查数据得出的,也就是用问卷调查的数据代表企业的社会责任绩效,此外这篇研究只针对处于企业社会责任发展初期的发达国家进行了为期六年的研究。

国家 GDP 是衡量一个国家生产的所有商品和服务的市场价值的指标。我们可以假设,一国公司如果将 ESG 纳入考量范围,有助于其提高业绩表现,进而促进该国 GDP 增长。这与“负责

任竞争力”概念相关联。“负责任竞争力”的定义是“一个经济体内的商业领域明确将社会、经济和环境绩效因素纳入考量进而提高整个经济体的生产效率” (MacGillivray, Sabapathy, 和 Zadek, 2003)。这些论点使我们提出了以下假设：

H1: 企业层面的环境绩效对一国的人均 GDP 有积极影响

H2: 企业层面的社会绩效对一国的人均 GDP 有积极影响

H3: 企业层面的治理绩效对一国的人均 GDP 有积极影响

已有学术文献中提到过的，开展这样的研究有一些困难。这其中包括将微观一级的因素扩大到国家一级所面临的挑战 (Swift and Zadek, 2002; Frynas, 2008; European Commission, 2008b; Kwarteng, Dadzie, and Famiyeh, 2016)，特别是，生产力往往是由复杂的跨国公司所推动的。有文献表明出于种种因素阻碍，研究者很难把微观层面的企业社会责任扩大到国民经济层面，这些因素包括：CSR 红利仅有利于单个公司的发展，而对整个国民经济的发展可能有损；CSR 标准导致贸易标准需要更新，客户和公司期望需要调整，这可能扰乱贸易流等 (Swift and Zadek, 2002; Boulouta and Pitelis, 2014)。因此，以往文献往往强调宏观层面的重要性，而不是基于企业层面的因素来解释国家生产力和竞争力，因为考虑到规模、产业领域、经营特点等因素的不同，聚合所有企业的表现并不容易 (Schwab, 2018; Aiginger, 2006)。此外，受制于国家层面对 ESG 绩效的定义和数据测量标准问题，一些研究人员只关注 ESG 的某些特定领域或维度，如只考虑环境绩效 (Porter and van der Linde, 1995; Etsy et al. 2005; Skouloudis, Isaac, and Evaggelinos, 2016) 等。应当指出的是，若干 ESG 数据提供者也已开始根据 ESG 表现指标总和来给国家级的宏观经济增长评分。例如，Beyond 评级机构 (Beyond Ratings) 表示，它们给出的国家增长潜力得分是建立在“使用 PCA 和 PLS 回归分析来确定 229 个 E、S 和 G 因子的重要性的计量模型” (Beyond Ratings, 2019) 之上的。我们的研究将针对企业级别的 ESG 整合和国家层面的宏观经济增长，力图对这二者之间的关系一探究竟。

3. 数据与方法学

本章节主要记录我们的研究所使用的变量、数据来源以及数据分析方法。虽然大多数数据来源是公开的，但就我们所知，我们是第一个研究全球范围内企业层面的非财务 ESG 绩效如何

影响经济增长的。

3.1 数据

3.1.1 微观 ESG 绩效

在进行这项研究时，我们使用一个国家的企业平均 ESG 评分作为微观 ESG 表现的指标。这些评分来自汤森路透数据库，该数据库在之前的研究中被广泛使用 (Eccles et al., 2014; Ioannou and Serafeim, 2012; Ioannou et al., 2014)。该数据库整合了超过 400 个 ESG 指标，涵盖了 10 个不同的 ESG 主题（如附录 1 所示），这些 ESG 主题主要来源于企业报告，具体包括年度报告、企业社会责任（CSR）报告、公司网站和媒体。汤森路透的 ESG 评分覆盖了全球 6500 多家公司从 2002 年到 2017 年的数据，这使我们能够在全球范围内对过去 15 年进行统计分析。公司级别的 E、S、G 表现分值范围为 0 到 100，满分是 100 分。我们使用 Asset4 公司数据，对观测样本里的每个国家在第 t 年的 E、S、G 分数做等权重加权平均来衡量该公司在该年度的平均微观经济 ESG 表现。

用一国上市公司 ESG 得分的均值来代表国家微观 ESG 绩效的指标并不严谨，但鉴于非上市公司 ESG 绩效数据的局限性，我们仍用这一方法来检验上文的假设。我们也承认，利用大型上市公司将微观经济因素扩大到国家一级可能会造成计量偏差，因为跨国公司往往在其他市场开展部分业务活动。然而，制度理论认为，在本土以外经营的组织需要在其所在的外国市场获得合法性 (Kostova and Zaheer 1999)。这些组织必须适应其所在地区的期望，这使得公司往往会采纳当地的 ESG 实践和要求 (Berrone and Gomez-Mejia 2009; Deephouse and Suchman 2008)。因此，Asset4 数据库中，一国企业层面的 ESG 得分很可能在很大程度上恰好代表了该国企业的 ESG 绩效水平。

总得来说，剔除匈牙利和捷克共和国（这两国公司太少，每个国家的公司总数不到 10 个）之后，我们总共记录了 30 个国家 2002–2017 年期间的 E、S 和 G 得分的平均值。依据 MSCI 国家分类标准 (MSCI, 2017b)，这些国家包括 19 个发达国家和 11 个新兴国家。表 1 列出了国家名单和每个国家评级所包含的公司数量。其中，第 (1) 和 (2) 列统计了 2002–2017 年样本期间各国企业在“环境”（E）方面得分的均值和标准差。第 (3) 至第 (6) 列分别表示“社会”（S）和“公司治理”（G）得分的均值和标准差。第 (7) 列展示了汤森路透 Asset4 数据库中包含的上

市公司数量。值得注意的是，总体而言，发达国家“环境”和“社会”两项绩效水平比新兴市场高得多，而在我们的样本期内，新兴市场的波动性比发达国家大得多，这表明发达市场企业的“E”和“S”表现要比新兴市场企业好得多。“公司治理”（G）这项绩效也呈现类似的模式，但不同的是，发达国家与发展中国家在“治理”（G）方面的表现差异相对较小。

3.1.2 宏观经济绩效

本文重点关注了使用广泛的宏观经济表现衡量指标：人均国内生产总值（GDP）（Barro, 2006; Grossman and Krueger, 2006; Jones, 2016; Wong et al., 2005）。数据是从世界银行数据库下载的³。人均 GDP 是 GDP 占年中人口的比率，衡量一个国家随时间变化的国民生活水平及其发展趋势。尽管基于 GDP 的衡量指标可能并不是与经济体发展最具有代表性的经济绩效指标，但有人认为，由于定义、方法和报告标准的差异，GDP 数据可能比国民经济核算数据更可靠。

3.1.3 控制变量

为提高稳健性，我们选择了一些宏观因素进行控制，这些宏观因素与国民经济增长有着高度的相关性。之前的理论和实证研究都表明，金融发展与经济增长如人均 GDP 之间存在正相关关系（Arestis et al., 2006; Durusu-Ciftci et al., 2017; Arellano and Bover, 1995），因此我们将总市值，即一个国家境内上市公司的总市值作为控制变量。同时，根据已有研究，外国直接投资（FDI）与经济增长有高度相关性（Alfaro et al. 2004; E. Borensztein and De Gregorio, 2013; De Mello, 2002），因此净 FDI 也作为数据分析时的控制变量。为控制通货膨胀，消费者物价指数（CPI）也被我们纳入控制变量中。表 2 总结了本研究中使用的变量。第(1)至(4)列分别展示了变量名、定义、度量单位和数据来源。

3.2 研究方法

本文需解决的问题是在面板数据中未观察到的异质性带来的潜在影响。将组内变化（eg. 固定效应、一阶差分）应用于回归模型可以对数据特性加以考虑，但是数据中心化过程会引入

³ The World Bank measures GDP at purchasing price parity (PPP). Further, the calculation includes gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. See: <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>

因变量滞后阶和误差之间的相关性，进而导致系统估计值有偏。(Nickell, 1981)。因此，对于未观察到的由特殊国情和解释变量内生性所引起的潜在偏差，我们将使用动态面板广义矩估计法 GMM 技术来纠正。

动态面板 GMM 方法分为两种，一种是 Arellano and Bond(1991)开发的“差分 GMM”估计，另一种是 Blundell and Bond(1998)，和 Arellano and Bover(1995)开发的“系统 GMM 估计”。在“差分 GMM”估计中，Arellano and Bond(1991)通过部分分解回归方程来去除不随时间改变的固定效应，然后使用原始回归变量及其滞后阶的一阶差分作为工具变量来消除由联立性偏误产生的潜在参数估计不一致性。自从 Caselli, Esquivel, and Lefort (1996)第一次应用以来，这种方法越来越多地用于宏观经济研究(Benhabib and Spiegel 2000; Banerjee and Duflo 2003; Easterly and Levine 1997)。在 Arellano and Bover(1995)的基础上，为解决弱工具变量的担忧，Blundell and Bond(1998)提出了一种“系统 GMM”估计，旨在解决因变量接近随机游走和金融发展的滞后值几乎无法获取有关未来变化的信息时工具变量变弱的问题。

基于 Arellano and Bond(1991)的工作，我们首先对动态面板数据模型进行估计，如下：

$$\begin{aligned} \text{宏观绩效}_{i,t} = & \beta_1 \text{宏观绩效}_{i,t-1} + \beta_2 \text{ESG_评分}_{i,t} + \beta_3 \text{控制变量}_{i,t} + \beta_4 \text{Yr2008}_i + \beta_5 \text{Yr2009}_i \\ & + \beta_6 \text{年份}_{i,t} + \sigma_i + \varepsilon_{i,t} \end{aligned}$$

宏观绩效_{i,t}是因变量，即一个国家 i 在第 t 年人均 GDP 的自然对数，宏观绩效_{i,t-1} 是一个国家 i 在第 t-1 年人均 GDP 的自然对数。我们用人均 GDP 指标来衡量宏观经济表现控制变量_{i,t} 包括一系列可能影响国家经济表现的因素，具体包括总市值、外国直接投资(FDI)净额和 CPI 等指标的对数。Yr2008和 Yr2009作为虚拟变量控制 2008 年金融危机和随后的经济衰退期间独特的宏观经济状况。时间序列变量年份_{i,t}用来捕捉宏观经济周期效应。 σ_i 是不可观测的常量， $\varepsilon_{i,t}$ 是一个随时间变化的不可观测值。最后，我们利用一阶差分去除国别固定效应，然后利用一个滞后的外生变量作为工具集。

4. 结果

我们首先对上述变量的基本汇总统计数据（表 3）进行描述。我们的面板数据包括了 30 个国家从 2002-2017 年的数据，共有 450 个观测数据。首先我们按照同一年国家截面和一个国家时间序列取我们将所有变量的标准差、最小值和最大值。环境评分的均值为 55.556，最小值为 31.697，最大值为 81.940。国与国之间和一国内样本期的标准差分别为 7.534 和 7.796，这表明各国之间的环境得分水平差异较大，同一国家在 2002 到 2017 年间的环境水平差异也较大。社会绩效得分水平的分布呈现出相似的特征。与环境和社会绩效水平不同，公司治理水平在国家之间和国家内部的波动性要小得多。从人均国内生产总值来看，各国之间的标准差和一国内部的标准差分别为 2.045 和 0.123，这表明各国之间的人均 GDP 的差异大于一国内部的差异。所有变量的相关矩阵如表 4 所示。

表 5 显示了全球范围内微观 ESG 水平对宏观经济绩效的总体影响。动态面板“差分 GMM”估计结果表明，E、S、G 各方面每提高一个单位值，会分别导致人均 GDP 对数 0.06%、0.09% 和 0.16% 的增长。与“系统 GMM”分析结果一致，即 E、S、G 各方面每提高一个单位值，会分别引起人均 GDP 对数 0.06%、0.10% 和 0.19% 的增长。我们的研究表明，企业层面的环境、社会或公司治理绩效的提高可以分别促进生活水平（以人均 GDP 衡量）的提高。且这种提高在经济学上和统计学上都是显著的。最后，在控制了国别效应、内生性和宏观经济周期的影响之后，面板数据表明，企业层面的 ESG 实践对宏观经济发展具有积极的影响。

在表 6 中，我们进一步观测了发达国家在 2002-2017 年期间，企业层面 ESG 绩效的增长是否与宏观经济增长有关。(1) — (3) 列的结果表明在观察到的 19 个发达国家中，微观层面的环境和公司治理绩效对国民经济增长没有显著影响，而社会绩效对人均 GDP 有显著影响。在样本期内，微观社会绩效平均每增加一个单位，人均 GDP 增长 0.07%。这些结果证实了我们最初的假设，并进一步展示了企业层面微观 ESG 因素对宏观经济绩效影响。本文的研究结果与 Skouloudis et al (2016) 一致，他们发现微观层面的企业社会责任 (CSR) 政策与 GDP 增长之间存在相关性，尽管这种相关性较弱。Skouloudis 等人的研究由于较小的覆盖范围和较短的涵盖时间，观察对象的数量较少，大大降低了研究结果的解释价值。我们的研究结果进一步确认了先前的论据，即环境和社会绩效确实会影响宏观经济绩效指标。Abrizio et al (2017) 和 Dechezleprêtre and Sato (2017) 透露，他们的研究结果也可能与整体 GDP 增长相关，但

他们的研究的因变量只包括竞争力和生产力。

在分析完发达国家进行之后，我们接着将问题放到新兴市场的背景下进行研究。与以往文献相比，这就显著扩大了研究范围，不在仅限于发达国家以内（Rubashkina et al., 2015; Ahn and Kim, 2015; Skoudis et al., 2016; Korez Vide and Tominc, 2016; Abrizio et al., 2017）、发展中国家以内（Ngobo and Fouda, 2012; Fayissa and Nsiah, 2013），或局限于某个国家或地区的个案情况（Zarate Marco and Vallés-Giménez, 2015; Lee et al., 2016年; Devalle et al., 2017年）。表6的（4）-（6）列展示了我们的研究结果，表明微观环境、社会和公司治理发展与宏观国民经济效益（以人均GDP作为衡量单位）两者之间具有很强的显著关系。研究结果证实：ESG政策不仅能对更广泛地融合了ESG政策的发达国家产生影响，同时也有助于改善发展中国家的宏观经济表现。Ngobo and Fouda（2012）以及Fayissa and Nsiah（2013）观察到非洲国家类似的宏观经济趋势，其中，公司治理是首要决定因素。此外，Kordalska and Olczyk（2016）发现，竞争力水平得分可以成功地预测大多数低收入国家以及中国和印度等几个中等收入大国的经济增长。

如何解释我们观察到的ESG对GDP的积极影响？为回答这个问题，我们研究了几个潜在的核心因素，其中一个失业问题。我们同时使用了“差分GMM”和“系统GMM”方法，检验了企业ESG绩效对失业率的影响，结果如表7所示。我们发现企业E和S得分平均每增长一分，对应的社会层面的失业率分别会降低2.1%和3.5%，这表明更好的环境和社会绩效能够显著降低失业率。环境和社会评分与失业率之间的相关性可能有助于解释我们的主要发现，即企业层面的ESG实践有助于提高人均GDP。传统经济学认为失业率与GDP增长是负相关的：奥肯定律（Okun's law）指出失业率下降一个百分点对应导致GDP增长两个百分点（Knotek 2007）。虽然这种联系因国别和时间周期而不同，但我们认为，总体来说，微观环境和社会绩效有助于降低失业率，进而促进GDP增长。

5. 稳健性测试

我们进行了一系列的稳健性测试。如表8所示，我们使用两年滞后动态GMM报告了整个样本的企业层面的ESG绩效对宏观经济发展的影响结果。结果与一年滞后GMM估计量检验结果一致。此外，我们在GMM估计中还包括了政府支出、研发支出和财务结构等控制因素。通过这些额外的对照，我们得到了与表5和表6中报告的相同的、具有统计学意义的估计值。我们还

进行了一系列相关性检验，结果表明没有二阶序列相关的证据，因此满足 Arellano-Bond 模型的假设。

6. 结论与政策启示

本文的结论最为全面地展现了微观 ESG 发展与宏观经济绩效之间的联系。由于所观测的数据较为稳健，在数据观测涵盖的时间段和管辖范围内，研究结果不仅考察了微观层面的绩效如何影响竞争力或生产率等宏观经济表现，而且考察了微观层面的绩效如何影响国家整体增长，从这两个角度上，本文为学界已有研究贡献了新的价值。本文综合考虑了以往文献中提出的因素和变量 (Eccles et al., 2014; Friede et al., 2015; Skouloudis et al., 2016; Kordalska and Olczyk, 2016; Cohen and Tubb, 2018)，正如文献综述中所述，在企业层面的 ESG 实施与宏观经济绩效之间的联系方面的研究仍然不完整。本文的结果进一步证实了以往一些研究的理论，进一步支持了 Arellano and Bover (1995), Eccles et al. (2014), Friede et al. (2015), Skouloudis et al. (2016), 和 Cohen and Tubb (2018) 的研究结论，驳斥了“将环境或社会政策积极整合到企业决策中会阻碍 GDP 增长”这一错误观念。虽然本文通过合并综合指数之外的其他来源的数据，使用了比 Skouloudis et al. (2016) 更精细的方法，但本文尚未能将观测对象细化到每一个国家的经济增长概况。而是选择将所有的国家分为三组，第一个组是发达国家 (表 6)，第二个组是发展中国家 (表 6)，最后一组是所有国家的综合情况 (表 5)。

本文的研究结果为产业利益相关方、投资者和政策制定者提供了令人信服的证据，证明了 ESG 政策在整个企业界的实施会产生宏观经济效益。改善 ESG 政策实施的业务和监管环境将带来比普通业务场景更高的增长。这一领域的理论革新者，例如 Porter and Van der Linden (1995), Wilmschurst and Frost (2000), 和 Clark and Hebb (2005)，已经表明，无论是在微观还是宏观层面，严格的经济政策未必会抑制经济增长。从中长期来看，那些积极采用更先进的内部 ESG 政策的公司，将在经济衰退期遭受较少的经济波动，在经济加速期保持更加稳定的增长 (Harrison and Berman, 2015; Annicchiarico and Di Dio, 2015; Lins et al., 2017)。此外，我们的研究结果确实表明，在整个国民经济中，企业实施 ESG 的范围越广，宏观经济的杠杆效应就越明显。

对发达国家和发展中国家的政策制定者来说，我们的结论尤其具备参考价值。他们肩负着长期经济绩效的责任。此外，本研究对关注宏观经济运行和货币政策影响的中央银行也有参考意义。

政策制定者有多种鼓励企业实施 ESG 的工具，我们的结论为决策者提供理论支持，鼓励他们加强激励措施，以促进长期宏观经济绩效的改善。本文发现不管是发达国家还是新兴经济体，企业层面的社会绩效与国家层面人均 GDP 都呈正相关。这一发现在当前新冠疫情形势下尤为相关。当下，就业问题和企业对当地社群的关注问题都受到热议。本文建议政策制定者利用后疫情时期的经济恢复和经济复苏计划，通过优惠性贷款政策刺激企业提高 ESG 表现，特别是发达经济体的企业社会绩效表现。

本文结果还对一些国家开发性机构有潜在启示。这些机构包括多边开发银行（如世界银行、亚洲开发银行、美洲开发银行）、国际金融机构（如货币基金组织），以及多边发展机构（如开发计划署）、政策论坛（如经合组织）等。我们的结论证明：促进企业层面的 ESG 实践并不会加剧经济增长和社会发展之间的矛盾，反之，企业 ESG 水平提高同时能够促进社会发展和经济增长。

很多重要问题仍有待政策制定者和研究人员进一步探讨：企业层面的 ESG 实践如何影响宏观经济表现的其他方面，包括失业率？哪些 ESG 实践能最有效最快速地改善宏观经济绩效，这在不同国家背景下有何不同？更好的 ESG 实践的结果，是更低的污染以及更好的宏观经济表现，还是公司业绩的改善，或者两者皆有之？

除了本文关注的领域，还有很多问题需要关注。但我们相信本文的发现是对政策制定有最直接影响的，也是对当下时情最为相关的。因为在当下，这场全球性的健康危机造成了前所未有的供需失衡，全世界的政府机构都在寻求尽快恢复增长的答案。

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附录

表 1 不同国家微观 ESG 得分汇总

Country	Environmental score		Social score		Governance score		No. firms
	Mean	St. d	Mean	St. d	Mean	St. d	
UNITED STATES	46.09	2.37	50.33	2.91	49.98	0.32	2520
JAPAN	56.89	3.71	44.56	2.70	50.09	0.25	430
UNITED KINGDOM	59.02	2.75	56.87	1.60	50.44	1.00	402
AUSTRALIA	49.27	9.38	51.22	4.90	51.87	2.30	383
CANADA	46.87	6.64	49.64	4.92	48.66	1.55	311
CHINA	40.05	5.99	37.27	7.99	49.91	0.80	241
SOUTH AFRICA	61.36	11.96	67.29	10.17	50.53	0.85	127
SOUTH KOREA	58.05	5.99	55.05	5.89	49.95	2.20	120
INDIA	51.83	5.27	58.23	6.44	49.55	0.40	103
FRANCE	71.78	6.40	65.85	4.40	49.70	0.58	102
GERMANY	61.90	3.93	62.45	5.39	50.00	1.23	102
BRAZIL	60.50	8.00	63.58	11.45	49.22	1.97	92
SWEDEN	62.81	7.16	59.53	3.22	50.53	0.76	72
SWITZERLAND	56.18	4.09	53.33	3.41	47.83	1.49	69
ITALY	54.97	6.84	57.73	4.89	48.35	1.37	51
SPAIN	66.80	6.88	67.38	6.40	49.95	1.39	47
MEXICO	51.76	14.62	50.12	14.50	50.11	1.83	43
INDONESIA	43.46	4.31	55.73	4.19	50.24	1.01	40
NETHERLANDS	63.75	4.06	65.66	2.88	52.36	2.03	40
POLAND	44.28	10.75	39.66	4.68	49.88	0.69	34
RUSSIAN	51.25	10.63	45.57	8.98	49.19	2.25	33
BELGIUM	55.97	3.62	49.98	2.62	48.57	1.12	29
DENMARK	53.56	8.58	49.25	8.67	49.46	0.78	28
TURKEY	53.55	9.82	54.66	7.01	50.46	0.50	28
NORWAY	56.56	5.64	59.18	3.95	49.51	1.58	27
FINLAND	63.51	9.01	57.67	4.74	51.58	0.93	26
GREECE	53.71	5.97	48.28	3.50	49.21	1.78	18
AUSTRIA	52.79	7.36	53.84	4.95	50.14	2.89	16
IRELAND	50.75	5.23	49.77	5.19	41.06	2.75	14
PORTUGAL	58.62	10.89	59.51	11.23	48.62	6.14	10

表 2 变量的定义

Variable (1)	Definition (2)	Measurement (3)	Data source (4)	
Asset4 ESG Score	Environmental Score	We use Thomson Reuters Asset4 Environmental scores as indicators of microeconomic environmental performance. The environmental score covers 3 categories: resource use, emissions, and innovation, which largely come from corporate, public reporting (annual reports, corporate social responsibility (CSR) reports, company websites, and global media sources).	Thomson Reuters ESG scores cover over 6,500 companies globally for the period of 2002-2017, which allows us to conduct micro-economic ESG performance analysis in a global context in the last 15 years. We construct an equal weighted mean of E scores separately by country at year t that measures the average micro-economic environmental performance of firms based in a given country, for all observed countries and times.	Thomson Reuters
	Social Score	We use Thomson Reuters Asset4 Social scores as indicators of micro-economic social performance. The social score covers 4 categories: work force, human rights, community and product responsibility. Data largely derives from corporate, public reporting (annual reports, corporate social responsibility (CSR) reports, company websites, and global media sources).	Thomson Reuters ESG score covers over 6,500 companies globally for the period of 2002-2017, which allows us to conduct micro-economic ESG performance analysis in a global context in the last 15 years. We construct an equal weighted mean of S scores separately by country at year t that measures the average micro-economic social performance of firms based in a given country, for all observed countries and times.	Thomson Reuters
	Governance score	We use Thomson Reuters Asset4 Governance scores as indicator of microeconomic governance performance. The governance score covers 3 categories: management, shareholders, and CSR strategy. Data largely derives from corporate, public reporting (annual reports, corporate social responsibility (CSR) reports, company websites, and global media sources).	Thomson Reuters ESG score covers over 6,500 companies globally for the period of 2002-2017, which allows us to conduct micro-economic ESG performance analysis in a global context in the last 15 years. We construct an equal weighted mean of G scores separately by country at year t that measures the average micro-economic governance performance of firms based in a given country, for all observed countries and times.	Thomson Reuters
Dependent variable	Gross Domestic Product per Capita	Gross domestic product per Capita is the change or trend in a nation's living standards over time. It is often used as an informal measure of a nation's prosperity.	GDP per capita is gross domestic product (GDP) divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. Data are in constant local currency.	World Bank
Controls	Total MV (logged)	Total market value (MV) refers to the total market capitalization of listed domestic companies (US\$) in a country.	Market capitalization (also known as market value) is the share price times the number of shares outstanding (including their several classes) for listed domestic companies. Investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies are excluded. Data are end of year values converted to U.S. dollars using corresponding year-end foreign exchange rates.	World Bank
	FDI (logged net inflows)	Foreign direct investment refers to direct investment equity flows in an economy. In this study (US\$), we use net inflows (inward investment less outward investment) as an indicator of investment.	FDI is calculated as the aggregate equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership equal to or above 10% of the ordinary shares of voting stock is included.	World Bank
	Inflation	Inflation is measured by consumer price index (CPI). It is defined as the change in the prices of a basket of goods and services that are typically purchased by specific groups of households	Inflation is measured in terms of the annual growth rate and in index, 2015 base year. Inflation measures the erosion of living standards.	OECD

表 3 汇总统计

下表列出了 2002 年至 2017 年期间使用的所有变量的基本汇总统计数据。我们感兴趣的变量是按国家划分的企业级 ESG 得分的平均值：即环境得分、社会得分和公司治理得分的平均值。结果变量为人均 GDP。控制变量包括总市值、外国直接投资净额和 CPI。第 1 列至第 5 列分别报告总观察值、平均值、标准差、最小值和最大值。

Variables	Obs (1)	Mean (2)	Std. Dev. (3)	Min (4)	Max (5)	
Micro-ESG scores						
	overall	N = 450	55.556	10.764	31.697	81.940
Environment score	between	30 countries		7.534	40.015	71.783
	within	2002-2017		7.796	28.636	84.096
	overall	N = 450	55.014	10.087	26.882	84.593
Social score	between	30 countries		7.840	37.270	69.740
	within	2002-2017		6.488	31.208	84.957
	overall	N = 450	49.633	2.607	34.199	57.079
Governance score	between	30 countries		1.869	41.064	52.364
	within	2002-2017		1.846	35.215	58.095
Outcome Variables						
	overall	N = 450	11.530	2.019	8.846	17.441
GDP per capita (logged)	between	30 countries		2.045	9.012	17.139
	within	2002-2017		0.123	10.835	12.102
Control Variables						
	overall	N = 450	26.805	1.499	23.051	30.940
Total MV (logged)	between	30 countries		1.452	23.858	30.546
	within	2002-2017		0.446	24.950	28.057
	overall	N = 450	24.741	0.734	20.538	27.362
FDI (logged)	between	30 countries		0.555	24.155	26.370
	within	2002-2017		0.490	20.791	26.372
	overall	N = 450	3.016	3.492	-4.478	44.964
CPI	between	30 countries		2.654	0.130	11.579
	within	2002-2017		2.314	-3.217	36.402

表 4 相关矩阵

	GDP per Capita	Environment score	Social score	Governance score	Total MV (logged)	Net FDI	CPI
GDP per Capita	1						
Environment score	-0.082	1					
Social score	-0.048	0.741	1				
Governance score	0.081	0.118	0.136	1			
Total MV (logged)	-0.097	-0.068	-0.092	0.072	1		
Net FDI	-0.220	-0.129	-0.058	-0.004	0.502	1	
CPI	0.030	-0.221	-0.072	0.015	-0.112	-0.037	1

表 5 企业层面的 ESG 绩效对宏观经济表现影响的主要结果

下表显示了整个样本中企业 ESG 绩效对国民经济增长影响的估计值。第 (1) 至 (3) 列报告了一年滞后差分 GMM 估计器的估计系数和 t 统计量，第 (4) 至 (6) 列报告了一年滞后系统 GMM 估计量的估计系数和 t 统计。我们感兴趣的核心变量是按国家平均的企业层面的 ESG 绩效指标，即分别来自 Asset4 数据库的，环境、社会和公司治理得分。结果变量为人均 GDP 的自然对数。控制措施包括总市值、外国直接投资净额和 CPI。表 2 中定义了所有变量。*、**和***分别表示 10%、5%和 1%的显著性水平。

Dependent variable	GDP per Capita (log)					
	Difference GMM Estimator			System GMM Estimator		
	(1)	(2)	(3)	(4)	(5)	(6)
Environment score	0.0006*** (3.02)			0.0006*** (3.09)		
Social score		0.0009*** (3.94)			0.0010*** (3.89)	
Governance score			0.0016** (2.03)			0.0019*** (1.89)
Lagged one-year GDP	0.906*** (61.63)	0.913*** (60.52)	0.899*** (62.82)	1.032*** (221.38)	1.033*** (220.24)	1.029*** (229.40)
Total MV (logged)	0.026*** (6.37)	0.027*** (6.55)	0.026*** (6.36)	0.013*** (3.83)	0.014*** (3.91)	0.011*** (3.28)
FDI (logged)	0.006** (2.55)	0.006** (2.41)	0.006** (2.40)	0.011*** (4.42)	0.011*** (4.32)	0.011*** (4.36)
CPI	-0.004*** (-5.37)	-0.004*** (-5.22)	-0.004*** (-5.80)	-0.001* (-1.68)	-0.001* (-1.70)	-0.002** (-2.40)
Year08	0.001 (0.29)	0.002 (0.38)	0.001 (0.17)	-0.010*** (-2.70)	-0.009** (-2.55)	-0.011*** (-3.13)
Year09	-0.056*** (-14.83)	-0.056*** (-14.56)	-0.056*** (-15.07)	-0.060*** (-15.88)	-0.060*** (-15.73)	-0.061*** (-16.53)
Year	-0.001** (-2.18)	-0.001** (-2.39)	-0.000 (-1.52)	-0.003*** (-9.84)	-0.003*** (-9.98)	-0.002*** (-9.58)
Observations	450	450	450	450	450	450
No. of Country	30	30	30	30	30	30

表 6 按市场划分的企业 ESG 绩效对宏观经济增长的影响结果

下表显示了使用 GMM 系统估计值按国家类型对企业 ESG 绩效对国民经济增长的影响的估计值。第 (1) 至 (3) 列报告了发达市场的估计系数和 t 统计量，第 (4) 至 (6) 列报告了新兴经济体的估计系数和 t 统计量。我们感兴趣的核心变量是按国家平均计算的企业 ESG 绩效指标，分别来自 Asset4 数据库，环境、社会和公司治理得分。结果变量为人均 GDP 的自然对数。控制变量包括总市值、外国直接投资净额和 CPI。表 2 中定义了所有变量。*、**和***分别表示 10%、5%和 1%的显著性水平。

Dependent variable	GDP per Capita (log)					
	Developed markets			Emerging market		
	(1)	(2)	(3)	(4)	(5)	(6)
Environment score	-0.0001 (-0.22)			0.0012*** (3.80)		
Social score		0.0007** (2.21)			0.0011*** (3.14)	
Governance score			0.0003 (0.48)			0.0026** (2.20)
Lagged one-year GDP	0.987*** (26.27)	0.991*** (26.51)	0.991*** (26.43)	0.863*** (35.46)	0.876*** (36.22)	0.886*** (37.08)
Total MV (logged)	0.019*** (3.51)	0.021*** (3.90)	0.019*** (3.53)	0.024*** (4.17)	0.025*** (4.20)	0.022*** (3.84)
FDI (logged)	0.006*** (2.91)	0.006*** (3.01)	0.006*** (2.93)	0.012 (1.45)	0.008 (1.01)	0.011 (1.34)
CPI	-0.004*** (-3.58)	-0.004*** (-3.49)	-0.004*** (-3.59)	-0.004*** (-4.35)	-0.004*** (-4.51)	-0.005*** (-5.10)
Year08	-0.008* (-1.75)	-0.008* (-1.73)	-0.009* (-1.83)	0.012 (1.48)	0.010 (1.30)	0.007 (0.94)
Year09	-0.065*** (-14.34)	-0.065*** (-14.54)	-0.065*** (-14.52)	-0.046*** (-6.30)	-0.050*** (-6.89)	-0.052*** (-7.43)
Year	-0.001* (-1.77)	-0.001*** (-3.18)	-0.001** (-2.44)	0.001 (1.13)	0.001 (0.70)	-0.000 (-0.55)
Observations	285	285	285	165	165	165
No. of Country	19	19	19	11	11	11

表 7 企业 ESG 绩效对失业率的影响结果

本表报告了企业 ESG 绩效对整个样本国家失业率的影响结果，使用一年滞后的动态 GMM 估计值。第 (1) 至 (3) 列报告来自差分 GMM 估计器的估计系数和 t 统计量，第 (4) 至 (6) 列报告来自系统 GMM 估计器的估计系数和 t 统计量。我们感兴趣的核心变量是按国家平均计算的企业层面的 ESG 绩效指标，分别来自 Asset4 数据库，环境、社会和公司治理得分。结果变量是失业率。控制变量包括总市值、外国直接投资净额和 CPI。表 2 中定义了所有变量。*、**和***分别表示 10%、5%和 1%的显著性水平。

Dependent variable	GDP per Capita (log)					
	Difference GMM Estimator			System GMM Estimator		
	(1)	(2)	(3)	(4)	(5)	(6)
Environment score	0.001** (2.26)			0.001** (2.20)		
Social score		0.001*** (3.39)			0.001*** (2.92)	
Governance score			0.002** (2.07)			0.002** (2.03)
Lagged one-year GDP	1.110*** (23.69)	1.108*** (23.55)	1.110*** (23.82)	1.338*** (42.19)	1.331*** (41.90)	1.339*** (42.20)
Lagged two-year GDP	-0.195*** (-4.63)	-0.186*** (-4.39)	-0.204*** (-4.89)	-0.304*** (-9.16)	-0.295*** (-8.84)	-0.308*** (-9.25)
Total MV (logged)	0.022*** (4.55)	0.022*** (4.66)	0.022*** (4.62)	0.002 (0.43)	0.002 (0.56)	-0.001 (-0.28)
FDI (logged)	0.005** (2.09)	0.005* (1.93)	0.005** (2.01)	0.004 (1.46)	0.004 (1.34)	0.004 (1.46)
CPI	-0.005*** (-6.49)	-0.005*** (-6.42)	-0.006*** (-6.73)	-0.003*** (-3.98)	-0.003*** (-3.97)	-0.004*** (-4.54)
Year08	-0.001 (-0.17)	-0.001 (-0.13)	-0.001 (-0.18)	-0.014*** (-3.56)	-0.013*** (-3.38)	-0.015*** (-3.91)
Year09	-0.058*** (-14.73)	-0.058*** (-14.72)	-0.057*** (-14.68)	-0.060*** (-14.87)	-0.060*** (-14.93)	-0.061*** (-15.27)
Year	-0.001** (-2.04)	-0.001** (-2.38)	-0.001 (-1.49)	-0.003*** (-8.23)	-0.003*** (-8.60)	-0.002*** (-8.15)
Observations	420	420	420	420	420	420
No. of Country	30	30	30	30	30	30

表 8 企业 ESG 绩效对宏观经济增长影响的结果：稳健性检验

本表采用两年滞后动态 GMM 估计值，报告了企业 ESG 绩效对整个样本宏观经济增长的影响结果。第（1）至（3）列报告来自差分 GMM 估计器的估计系数和 t 统计量，第（4）至（6）列报告来自系统 GMM 估计器的估计系数和 t 统计量。我们感兴趣的核心变量是按国家平均计算的企业层面的 ESG 绩效指标，分别来自 Asset4 数据库，环境、社会和公司治理得分。结果变量是失业率。控制变量包括总市值、外国直接投资净额和 CPI。表 2 中定义了所有变量。*、**和***分别表示 10%、5%和 1%的显著性水平。

Dependent variable	Unemployment Rate					
	Difference GMM Estimator			System GMM Estimator		
	(1)	(2)	(3)	(4)	(5)	(6)
Environment score	-1.751** (-2.08)			-2.058** (-2.46)		
Social score		-2.062** (-2.25)			-3.517*** (-3.80)	
Governance score			1.340 (0.50)			-2.864 (-1.09)
Lagged one year unemployment rate	0.730*** (25.04)	0.730*** (24.92)	0.722*** (24.80)	0.957*** (61.89)	0.962*** (61.94)	0.947*** (64.80)
Total MV (logged)	-0.065 (-0.40)	-0.076 (-0.46)	-0.015 (-0.09)	-0.633*** (-7.47)	-0.615*** (-7.09)	-0.613*** (-7.20)
FDI (logged)	-0.368*** (-4.73)	-0.369*** (-4.73)	-0.365*** (-4.73)	-0.449*** (-5.71)	-0.452*** (-5.63)	-0.462*** (-5.90)
CPI	0.034 (1.12)	0.034 (1.12)	0.039 (1.30)	0.033 (1.19)	0.034 (1.20)	0.041 (1.52)
Year08	-0.569*** (-2.97)	-0.586*** (-3.05)	-0.556*** (-2.92)	-0.612*** (-3.43)	-0.658*** (-3.62)	-0.621*** (-3.52)
Year09	1.310*** (7.18)	1.293*** (7.05)	1.312*** (7.25)	1.626*** (8.89)	1.604*** (8.60)	1.611*** (8.96)
Year	0.002 (0.18)	0.000 (0.03)	-0.005 (-0.36)	-0.024** (-1.98)	-0.026** (-2.15)	-0.027** (-2.27)
Observations	313	313	313	313	313	313
No. of Country	29	29	29	29	29	29



表 9 汤森路透 Asset 4 数据库 ESG 评分构成

Pillar	Categories	Theme	Indicator Description
Corporate Governance	Management	Board Functions	Does the company have a policy for maintaining effective board functions?
Corporate Governance	Management	Board Functions	Does the company have a corporate governance committee?
Corporate Governance	Management	Board Functions	Percentage of independent board members on the audit committee as stipulated by the company.
Corporate Governance	Management	Board Functions	Percentage of non-executive board members on the audit committee as stipulated by the company.
Corporate Governance	Management	Board Functions	Percentage of independent board members on the compensation committee as stipulated by the company.
Corporate Governance	Management	Board Functions	Percentage of non-executive board members on the compensation committee as stipulated by the company.
Corporate Governance	Management	Board Functions	Percentage of independent board members on the nomination committee as stipulated by the company.
Corporate Governance	Management	Board Functions	Percentage of non-executive board members on the nomination committee as stipulated by the company.
Corporate Governance	Management	Board Functions	The number of board meetings during the year.
Corporate Governance	Management	Board Functions	The average overall attendance percentage of board meetings as reported by the company.
Corporate Governance	Management	Board Functions	The average overall attendance percentage of board committee meetings as reported by the company.
Corporate Governance	Management	Board Functions	Does the company have a succession plan for executive management in the event of unforeseen circumstances?
Corporate Governance	Management	Board Functions	Does the board or board committees have the authority to hire external advisers or consultants without management's approval?
Corporate Governance	Management	Board Functions	Percentage of independent board members on the audit committee as stipulated by the company.
Corporate Governance	Management	Board Functions	Does the company report that all audit committee members are non-executives?
Corporate Governance	Management	Board Functions	Does the company have an audit committee with at least three members and at least one "financial expert" within the meaning of Sarbanes-Oxley?
Corporate Governance	Management	Board Functions	Percentage of independent board members on the compensation committee as stipulated by the company.
Corporate Governance	Management	Board Functions	Does the company report that all compensation committee members are non-executives?
Corporate Governance	Management	Board Functions	Percentage of non-executive board members on the nomination committee.
Corporate Governance	Management	Board Functions	Are the majority of the nomination committee members non-executives?
Corporate Governance	Management	Board Functions	Percentage of nomination committee members who are significant shareholders (more than 5%).
Corporate Governance	Management	Board Functions	Does the company publish information about the attendance of the individual board members at board meetings?
Corporate Governance	Management	Board Structure	Does the company have a policy for maintaining a well-balanced membership of the board?
Corporate Governance	Management	Board Structure	Does the company have a policy regarding the size of its board?
Corporate Governance	Management	Board Structure	Does the company have a policy regarding the independence of its board?
Corporate Governance	Management	Board Structure	Does the company have a policy regarding the diversity of its board?
Corporate Governance	Management	Board Structure	Does the company have a policy regarding the adequate experience on its board?
Corporate Governance	Management	Board Structure	Does the company have a nomination committee?
Corporate Governance	Management	Board Structure	Does the company have a unitary board structure, a two-tier board structure with a supervisory board or a mixed board structure with a board of directors and a supervisory board?
Corporate Governance	Management	Board Structure	Has the chairman previously held the CEO position in the company?
Corporate Governance	Management	Board Structure	The total number of board members at the end of the fiscal year.
Corporate Governance	Management	Board Structure	Is the board member the CEO?
Corporate Governance	Management	Board Structure	The maximum number of years a board member can be on the board as stipulated by the company.
Corporate Governance	Management	Board Structure	The smallest interval of years in which the board members are subject to re-election.
Corporate Governance	Management	Board Structure	Total number of board members which are in excess of ten or below eight.
Corporate Governance	Management	Board Structure	Does the company describe the professional experience or skills of every board member? OR Does the company provide information about the age of individual board members?



Corporate Governance	Management	Board Structure	Percentage of female on the board.
Corporate Governance	Management	Board Structure	Percentage of board members who have either an industry specific background or a strong financial background.
Corporate Governance	Management	Board Structure	Average number of years each board member has been on the board.
Corporate Governance	Management	Board Structure	Percentage of non-executive board members.
Corporate Governance	Management	Board Structure	Percentage of independent board members as reported by the company.
Corporate Governance	Management	Board Structure	Percentage of strictly independent board members (not employed by the company; not representing or employed by a majority shareholder; not served on the board for more than ten years; not a reference shareholder with more than 5% of holdings; no cross-board membership; no recent, immediate family ties to the corporation; not accepting any compensation other than compensation for board service).
Corporate Governance	Management	Board Structure	Does the CEO simultaneously chair the board or has the chairman of the board been the CEO of the company?
Corporate Governance	Management	Board Structure	Average number of other corporate affiliations for the board member.
Corporate Governance	Management	Board Structure	Are all board member individually subject to re-election (no classified or staggered board structure)?
Corporate Governance	Management	Compensation Policy	Does the company have a policy for performance-oriented compensation that attracts and retain the senior executives and board members?
Corporate Governance	Management	Compensation Policy	Does the company have a performance oriented compensation policy?
Corporate Governance	Management	Compensation Policy	Does the company have an ESG related compensation policy?
Corporate Governance	Management	Compensation Policy	Does the company have a compensation policy to attract and retain executives?
Corporate Governance	Management	Compensation Policy	Does the company have a compensation committee?
Corporate Governance	Management	Compensation Policy	Does the company have the necessary internal improvement and information tools for the board members to develop appropriate compensation/remuneration to attract and retain key executives?
Corporate Governance	Management	Compensation Policy	The maximum time horizon of targets to reach full senior executives' compensation.
Corporate Governance	Management	Compensation Policy	Is the CEO's compensation linked to total shareholder return (TSR)?
Corporate Governance	Management	Compensation Policy	The maximum time horizon of the board member's targets to reach full compensation.
Corporate Governance	Management	Compensation Policy	The total compensation of non-executive board members (if total aggregate is reported by the company).
Corporate Governance	Management	Compensation Policy	The total compensation paid to all senior executives (if total aggregate is reported by the company).
Corporate Governance	Management	Compensation Policy	Does the company require that shareholder approval is obtained prior to the adoption of any stock based compensation plans?
Corporate Governance	Management	Compensation Policy	Number of controversies published in the media linked to high executive or board compensation.
Corporate Governance	Management	Compensation Policy	Number of controversies published in the media linked to high executive or board compensation published since the last fiscal year company update..
Corporate Governance	Management	Compensation Policy	Does the company provide information about the total individual compensation of all executives and board members?
Corporate Governance	Management	Compensation Policy	Highest remuneration package within the company in US dollars.
Corporate Governance	Management	Compensation Policy	Total compensation of the non-executive board members in US dollars.
Corporate Governance	Management	Compensation Policy	Is the management and board members remuneration partly linked to objectives or targets which are more than two years forward looking?
Corporate Governance	Management	Compensation Policy	Is the company under the spotlight of the media because of a controversy linked to high executive or board compensation?
Corporate Governance	Management	Compensation Policy	Is the senior executive's compensation linked to CSR/H&S/Sustainability targets?
Corporate Governance	CSR strategy	Vision & Strategy	Does the company have a CSR committee or team?
Corporate Governance	CSR strategy	Vision & Strategy	Does the company explicitly integrate financial and extra-financial factors in its management discussion and analysis (MD&A) section in the annual report?
Corporate Governance	CSR strategy	Vision & Strategy	Has the company signed the UN Global Compact?
Corporate Governance	CSR strategy	Vision & Strategy	Does the company explain how it engages with its stakeholders?
Corporate Governance	CSR strategy	Vision & Strategy	Does the company publish a separate sustainability report or publish a section in its annual report on sustainability?
Corporate Governance	CSR strategy	Vision & Strategy	Is the company's sustainability report published in accordance with the GRI guidelines?
Corporate Governance	CSR strategy	Vision & Strategy	Does the company's sustainability report take into account the global activities of the company?
Corporate Governance	CSR strategy	Vision & Strategy	Does the company have an external auditor of its sustainability report?
Corporate Governance	CSR strategy	Vision & Strategy	The name of the external auditor of the sustainability report.
Corporate Governance	CSR strategy	Vision & Strategy	The percentage of the company's activities covered in its Environmental and Social reporting.
Corporate Governance	Shareholders	Shareholder Rights	Does the company have a policy for ensuring equal treatment of minority shareholders, facilitating shareholder engagement or limiting the use of anti-takeover devices?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have a policy to apply the one-share, one-vote principle?



Corporate Governance	Shareholders	Shareholder Rights	Does the company have a policy to facilitate shareholder engagement, resolutions or proposals?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have different class stocks with different voting rights?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have shares with a voting cap (ceilings) clause, ownership ceilings or control share acquisition provision?
Corporate Governance	Shareholders	Shareholder Rights	The percentage of maximum voting rights allowed or ownership rights.
Corporate Governance	Shareholders	Shareholder Rights	Has the company set requirements for a minimum number of shares to vote?
Corporate Governance	Shareholders	Shareholder Rights	Are the company's board members elected with a majority vote?
Corporate Governance	Shareholders	Shareholder Rights	Do the company's shareholders have the right to vote on executive compensation?
Corporate Governance	Shareholders	Shareholder Rights	Are the company's articles of association, statutes or bylaws publicly available?
Corporate Governance	Shareholders	Shareholder Rights	Does the biggest owner (by voting power) hold the veto power or own golden shares?
Corporate Governance	Shareholders	Shareholder Rights	Is the company a State Owned Enterprise (SOE)?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have a poison pill (shareholder rights plan, macaroni defense, etc.)?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have unlimited authorized capital or a blank check?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have a classified board structure?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have a staggered board structure?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have a supermajority vote requirement or qualified majority (for amendments of charters and bylaws or lock-in provisions)?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have a golden parachute or other restrictive clauses related to changes of control (compensation plan for accelerated pay-out)?
Corporate Governance	Shareholders	Shareholder Rights	Has the company limited the rights of shareholders to call special meetings?
Corporate Governance	Shareholders	Shareholder Rights	Has the company reduced or eliminated cumulative voting in regard to the election of board members?
Corporate Governance	Shareholders	Shareholder Rights	Does the company grant pre-emptive rights to existing shareholders?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have significant cross shareholding that can prevent takeovers?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have a confidential voting policy (i.e., management cannot view the results of shareholder votes)?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have a limitation of director liability?
Corporate Governance	Shareholders	Shareholder Rights	Number of controversies linked to shareholder rights infringements published in the media.
Corporate Governance	Shareholders	Shareholder Rights	Number of controversies linked to shareholder rights infringements published since the last fiscal year company update.
Corporate Governance	Shareholders	Shareholder Rights	Limitations to the shareholders right to approve significant company transitions such as M&As (no rights to vote or supermajority required)?
Corporate Governance	Shareholders	Shareholder Rights	Is the company subject to fair price provision, either under applicable law or as stated in the company documents (charter or bylaws)?
Corporate Governance	Shareholders	Shareholder Rights	Are there limitations on the shareholders' right to remove board members (i.e., only for cause, supermajority vote required, etc.)?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have deadlines relating to shareholder proposals?
Corporate Governance	Shareholders	Shareholder Rights	What is the minimum interval (in days) prior to the next shareholder meeting beyond which a shareholder proposal will not be accepted?
Corporate Governance	Shareholders	Shareholder Rights	Does the company permit actions to be taken without meeting by written consent?
Corporate Governance	Shareholders	Shareholder Rights	Does the company have expanded-constituency provisions in place?
Corporate Governance	Shareholders	Shareholder Rights	The adoption date of the poison pill.
Corporate Governance	Shareholders	Shareholder Rights	The expiration date of the poison pill.
Corporate Governance	Shareholders	Shareholder Rights	Are all shares of the company providing equal voting rights?
Corporate Governance	Shareholders	Shareholder Rights	The number of anti-takeover devices in place in excess of two.
Environmental	Emission	Emission Reduction	Does the company have a policy to improve emissions reduction?
Environmental	Emission	Emission Reduction	Has the company set targets or objectives to be achieved on emissions reduction?
Environmental	Emission	Emission Reduction	Does the company report on its impact or on activities to reduce its impact on biodiversity?
Environmental	Emission	Emission Reduction	Total CO2 and CO2 equivalents emissions
Environmental	Emission	Emission Reduction	Direct CO2 and CO2 equivalents emissions
Environmental	Emission	Emission Reduction	Indirect of CO2 and CO2 equivalents emissions
Environmental	Emission	Emission Reduction	Total direct flaring or venting of natural gas emissions



Environmental	Emission	Emission Reduction	Total CO2 and CO2 equivalents emission in tonnes per tonne of cement produced.
Environmental	Emission	Emission Reduction	Total amount of ozone depleting (CFC-11 equivalents) substances emitted
Environmental	Emission	Emission Reduction	Does the company report on initiatives to reduce, reuse, recycle, substitute, or phase out SOx (sulfur oxides) or NOx (nitrogen oxides) emissions?
Environmental	Emission	Emission Reduction	Total amount of NOx emissions emitted
Environmental	Emission	Emission Reduction	Total amount of SOx emissions emitted
Environmental	Emission	Emission Reduction	Does the company report on initiatives to reduce, substitute, or phase out volatile organic compounds (VOC)?
Environmental	Emission	Emission Reduction	Does the company report on initiatives to reduce, substitute, or phase out particulate matter less than ten microns in diameter (PM10)?
Environmental	Emission	Emission Reduction	Total amount of volatile organic compounds (VOC) emissions
Environmental	Emission	Emission Reduction	Total amount of waste produced
Environmental	Emission	Emission Reduction	Total amount of non-hazardous waste produced
Environmental	Emission	Emission Reduction	Total recycled and reused waste
Environmental	Emission	Emission Reduction	Total amount of hazardous waste produced
Environmental	Emission	Emission Reduction	Total volume of water discharged
Environmental	Emission	Emission Reduction	Total weight of water pollutant emissions
Environmental	Emission	Emission Reduction	Does the company report on initiatives to recycle, reduce, reuse, substitute, treat or phase out any type of waste?
Environmental	Emission	Emission Reduction	Does the company report on initiatives to recycle, reduce, reuse, substitute, treat or phase out e-waste?
Environmental	Emission	Emission Reduction	Does the company participate in any emissions trading initiative, as reported by the company?
Environmental	Emission	Emission Reduction	Does the company report on partnerships or initiatives with specialized NGOs, industry organizations, governmental or supra-governmental organizations, which are focused on improving environmental issues?
Environmental	Emission	Emission Reduction	Does the company claim to have a certified Environmental Management System?
Environmental	Emission	Emission Reduction	The percentage of company sites or subsidiaries that are certified with any environmental management system.
Environmental	Emission	Emission Reduction	Does the company report or provide information on sizable company-generated initiatives to restore the environment?
Environmental	Emission	Emission Reduction	Does the company report on initiatives to reduce the environmental impact of transportation used for its staff?
Environmental	Emission	Emission Reduction	Direct and accidental oil and other hydrocarbon spills
Environmental	Emission	Emission Reduction	Is the company aware that climate change can represent commercial risks and/or opportunities?
Environmental	Emission	Emission Reduction	Total amount of environmental expenditures.
Environmental	Emission	Emission Reduction	Environmental provisions as reported within the balance sheet.
Environmental	Emission	Emission Reduction	Does the company report on making environmental investments to reduce future risks or increase opportunities?
Environmental	Emission	Emission Reduction	Total CO2 and CO2 equivalent Scope Three emissions
Environmental	Emission	Emission Reduction	The equivalent of the CO2 offsets, credits and allowances purchased and/or produced by the company during the fiscal year.
Environmental	Emission	Emission Reduction	The waste recycling ratio as reported by the company.
Environmental	Emission	Emission Reduction	Environmental fines as reported by the company
Environmental	Emission	Emission Reduction	The estimated total CO2 and CO2 equivalents emission in tonnes.
Environmental	Emission	Emission Reduction	CO2 estimate method
Environmental	Emission	Emission Reduction	TRBC code used to calculate estimate if the Median model is used
Environmental	Emission	Emission Reduction	Total CO2 and CO2 equivalents emission in tonnes divided by net sales or revenue in US dollars.
Environmental	Emission	Emission Reduction	Does the company report on initiatives to reduce, substitute, or phase out volatile organic compounds (VOC) or particulate matter less than ten microns in diameter (PM10)?
Environmental	Emission	Emission Reduction	Total amount of waste produced in tonnes divided by net sales or revenue in US dollars.
Environmental	Emission	Emission Reduction	Total recycled and reused waste produced in tonnes divided by total waste produced in tonnes.
Environmental	Emission	Emission Reduction	Total amount of hazardous waste produced in tonnes divided by net sales or revenue in US dollars.
Environmental	Emission	Emission Reduction	Total weight of water pollutant emissions in tonnes divided by net sales or revenue in US dollars.
Environmental	Emission	Emission Reduction	Does the company report on its environmental expenditures or does the company report to make proactive environmental investments to reduce future risks or increase future opportunities?



Environmental	Innovation	Product Innovation	Does the company report on at least one product line or service that is designed to have positive effect on the environment or which is environmentally labeled and marketed?
Environmental	Innovation	Product Innovation	Total amount of environmental R&D costs (without clean up and remediation costs).
Environmental	Innovation	Product Innovation	Does the company develop new products that are marketed as reducing noise emissions?
Environmental	Innovation	Product Innovation	Total fleet's average fuel consumption in l/100km.
Environmental	Innovation	Product Innovation	Is the company developing hybrid technology?
Environmental	Innovation	Product Innovation	Total fleet's average CO2 and CO2 equivalent emissions in g/km.
Environmental	Innovation	Product Innovation	Does the company report on ESG screened Assets Under Management?
Environmental	Innovation	Product Innovation	Is the company a signatory of the Equator Principles (commitment to manage environmental issues in project financing)?
Environmental	Innovation	Product Innovation	Does the company claim to use ESG criteria as part of its investment or lending or underwriting decisions?
Environmental	Innovation	Product Innovation	Does the company construct nuclear reactors, produce nuclear energy or extract uranium?
Environmental	Innovation	Product Innovation	Percentage of total energy production from nuclear energy.
Environmental	Innovation	Product Innovation	The percentage of labeled wood or forest products from total wood or forest products.
Environmental	Innovation	Product Innovation	Does the company claim to produce or distribute wood or forest products that are labeled?
Environmental	Innovation	Product Innovation	Does the company report or show initiatives to produce or promote organic food or other products?
Environmental	Innovation	Product Innovation	Does the company reports about take-back procedures and recycling programs to reduce the potential risks of products entering the environment?
Environmental	Innovation	Product Innovation	Does the company report about product features and applications or services that will promote responsible and environmentally preferable use?
Environmental	Innovation	Product Innovation	Does the company produce or distribute genetically modified organisms (GMO)?
Environmental	Innovation	Product Innovation	Does the company produce or distribute agrochemicals like pesticides, fungicides or herbicides?
Environmental	Innovation	Product Innovation	Are the revenues generated by the company from agrochemicals 5% or more of company sales?
Environmental	Innovation	Product Innovation	Is the company involved in animal testing?
Environmental	Innovation	Product Innovation	Is the company involved in animal testing for cosmetics?
Environmental	Innovation	Product Innovation	Has the company established a program or an initiative to minimize or phase out animal testing?
Environmental	Innovation	Product Innovation	Is the company developing clean technology (wind, solar, hydro and geo-thermal and biomass power)?
Environmental	Innovation	Product Innovation	Does the company develop products or technologies that are used for water treatment, purification or that improve water use efficiency?
Environmental	Innovation	Product Innovation	Does the company develop products and services that improve the energy efficiency of buildings?
Environmental	Innovation	Product Innovation	Does the company report on specific products which are designed for reuse, recycling or the reduction of environmental impacts?
Environmental	Innovation	Product Innovation	Does the company claim to lease, rent or market buildings that are certified by BREEAM, LEED or any other nationally recognized real estate certification?
Environmental	Innovation	Product Innovation	Total amount of environmental R&D costs (without clean up and remediation costs) divided by net sales or revenue.
Environmental	Innovation	Product Innovation	Is the company a signatory of the Equator Principles (commitment to manage environmental issues in project financing)? OR Does the company claim to evaluate projects on the basis of environmental or biodiversity risks as well?
Environmental	Innovation	Product Innovation	Total energy distributed or produced from renewable energy sources divided by the total energy distributed or produced.
Environmental	Innovation	Product Innovation	Does the company reports about take-back procedures and recycling programs to reduce the potential risks of products entering the environment? OR Does the company report about product features and applications or services that will promote responsible, efficient, cost-effective and environmentally preferable use?
Environmental	Resources	Resource Reduction	Does the company have a policy for reducing the use of natural resources or to lessen the environmental impact of its supply chain?
Environmental	Resources	Resource Reduction	Does the company set specific objectives to be achieved on resource efficiency?
Environmental	Resources	Resource Reduction	Does the company have an environmental management team?
Environmental	Resources	Resource Reduction	Does the company train its employees on environmental issues?
Environmental	Resources	Resource Reduction	Does the company have a policy to improve its water efficiency?
Environmental	Resources	Resource Reduction	Does the company have a policy to improve its energy efficiency?
Environmental	Resources	Resource Reduction	Does the company have a policy to improve its use of sustainable packaging?
Environmental	Resources	Resource Reduction	Does the company have a policy to include its supply chain in the company's efforts to lessen its overall environmental impact?
Environmental	Resources	Resource Reduction	Has the company set targets or objectives to be achieved on water efficiency?
Environmental	Resources	Resource Reduction	Has the company set targets or objectives to be achieved on energy efficiency?



Environmental	Resources	Resource Reduction	Does the company claim to use environmental criteria to source materials?
Environmental	Resources	Resource Reduction	Does the company report on initiatives to reduce, reuse, substitute or phase out toxic chemicals or substances?
Environmental	Resources	Resource Reduction	Total direct and indirect energy consumption
Environmental	Resources	Resource Reduction	Direct energy purchased
Environmental	Resources	Resource Reduction	Direct energy produced
Environmental	Resources	Resource Reduction	Indirect energy consumption
Environmental	Resources	Resource Reduction	Electricity purchased
Environmental	Resources	Resource Reduction	Electricity produced
Environmental	Resources	Resource Reduction	Total energy use in gigajoules per tonne of clinker produced.
Environmental	Resources	Resource Reduction	Total primary renewable energy purchased
Environmental	Resources	Resource Reduction	Total primary renewable energy produced
Environmental	Resources	Resource Reduction	Does the company make use of renewable energy?
Environmental	Resources	Resource Reduction	Does the company report about environmentally friendly or green sites or offices?
Environmental	Resources	Resource Reduction	Total water withdrawal
Environmental	Resources	Resource Reduction	Total fresh water withdrawal
Environmental	Resources	Resource Reduction	Amount of water recycled or reused
Environmental	Resources	Resource Reduction	Does the company use environmental or sustainable criteria in the selection process of its suppliers or sourcing partners?
Environmental	Resources	Resource Reduction	Does the company report or show to be ready to end a partnership with a sourcing partner, in the case of severe environmental negligence and failure to comply with environmental management standards?
Environmental	Resources	Resource Reduction	Does the company report on initiatives to reduce the environmental impact on land owned, leased or managed for production activities or extractive use?
Environmental	Resources	Resource Reduction	Amount of Coal produced in tonnes (raw material)
Environmental	Resources	Resource Reduction	Amount of Natural Gas produced in million m3 (raw material)
Environmental	Resources	Resource Reduction	Amount of Oil Produced in barrels (raw material)
Environmental	Resources	Resource Reduction	Does the company conduct surveys of the environmental performance of its suppliers?
Environmental	Resources	Resource Reduction	Number of controversies related to the environmental impact of the company's operations on natural resources or local communities.
Environmental	Resources	Resource Reduction	Number of controversies related to the environmental impact of the company's operations on natural resources or local communities since the last fiscal year company update.
Environmental	Resources	Resource Reduction	Total direct and indirect energy consumption in gigajoules divided by net sales or revenue in US dollars.
Environmental	Resources	Resource Reduction	Total energy generated from primary renewable energy sources divided by total energy.
Environmental	Resources	Resource Reduction	Total water withdrawal in cubic meters divided by net sales or revenue in US dollars.
Environmental	Resources	Resource Reduction	Is the company under the spotlight of the media because of a controversy linked to the environmental impact of its operations on natural resources or local communities?
Social	Product responsibility	Product Responsibility	Does the company have a policy to protect customer health & safety?
Social	Product responsibility	Product Responsibility	Does the company have a policy to protect customer and general public privacy and integrity?
Social	Product responsibility	Product Responsibility	Does the company have a policy on responsible marketing ensuring protection of children?
Social	Product responsibility	Product Responsibility	Does the company have a policy on fair trade?
Social	Product responsibility	Product Responsibility	Does the company monitor the impact of its products or services on consumers or the community more generally?
Social	Product responsibility	Product Responsibility	Does the company claim to have an ISO 9000 certification or any industry specific certification (QS-9000-automotive, TL 9000-telecommunications, AS9100-aerospace, ISO/TS 16949-automotive, etc.)?
Social	Product responsibility	Product Responsibility	Does the company claim to apply the Six Sigma, Lean Manufacturing, Lean Sigma, TQM or any other similar quality principles?

Social	Product responsibility	Product Responsibility	Does the company distribute any low-priced products or services specifically designed for lower income categories?
Social	Product responsibility	Product Responsibility	Does the company reportedly develop or market products and services that foster specific health and safety benefits for the consumers (healthy, organic or nutritional food, safe cars, etc.)?
Social	Product responsibility	Product Responsibility	Is the company directly or indirectly involved in embryonic stem cell research?
Social	Product responsibility	Product Responsibility	Does the company claim to retail Alcohol or Tobacco?
Social	Product responsibility	Product Responsibility	Does the company produce alcoholic beverages?
Social	Product responsibility	Product Responsibility	The revenues generated by the company from the sale of alcohol.
Social	Product responsibility	Product Responsibility	Does the company generate revenues from gambling?
Social	Product responsibility	Product Responsibility	The revenues generated by the company from gambling.
Social	Product responsibility	Product Responsibility	Does the company produce tobacco?
Social	Product responsibility	Product Responsibility	The revenues generated by the company from the sale of tobacco.
Social	Product responsibility	Product Responsibility	Does the company produce vehicles, planes, armaments or any combat materials used by the military?
Social	Product responsibility	Product Responsibility	The revenues generated by the company from the sale of vehicles, planes, armaments and combat materials used by the military.
Social	Product responsibility	Product Responsibility	Does the company produce or distribute pornography?
Social	Product responsibility	Product Responsibility	Does the company produce hormonal contraceptives?
Social	Product responsibility	Product Responsibility	Does the company claim to fight against the obesity risk?
Social	Product responsibility	Product Responsibility	Number of controversies published in the media linked to customer health & safety.
Social	Product responsibility	Product Responsibility	Number of controversies published in the media linked to responsible R & D.
Social	Product responsibility	Product Responsibility	Number of controversies published in the media linked to employee or customer privacy and integrity.
Social	Product responsibility	Product Responsibility	Number of controversies published in the media linked to the company's marketing practices, such as over marketing of unhealthy food to vulnerable consumers.
Social	Product responsibility	Product Responsibility	Number of controversies published in the media linked to product access.
Social	Product responsibility	Product Responsibility	Number of FDA warning letters received by the company.
Social	Product responsibility	Product Responsibility	Total number of products or services which have been delayed.
Social	Product responsibility	Product Responsibility	Total number of drugs which have not been approved by regulators or similar official bodies.
Social	Product responsibility	Product Responsibility	Has the company announced a mass recall of products or has completely withdrawn a product due to defects or safety reasons?
Social	Product responsibility	Product Responsibility	Are revenues generated from armaments larger than 5% of the total net revenues?
Social	Product responsibility	Product Responsibility	Are revenues/energy generated from nuclear energy activities larger than 5% of the total revenues/energy?
Social	Product responsibility	Product Responsibility	Are revenues generated from gambling activities larger than 5% of the total net revenues?



Social	Product responsibility	Product Responsibility	Are revenues generated from tobacco production larger than 5% of the total net revenues?
Social	Product responsibility	Product Responsibility	Are revenues generated from alcohol production larger than 5% of the total net revenues?
Social	Product responsibility	Product Responsibility	Does the company produce cluster bombs?
Social	Product responsibility	Product Responsibility	Does the company produce Anti-Personnel Landmines?
Social	Product responsibility	Product Responsibility	Number of controversies linked to the elements driving product quality and responsibility published since the last fiscal year company update.
Social	Product responsibility	Product Responsibility	Number of controversies linked to the elements driving product quality and responsibility published since the last fiscal year company update.
Social	Product responsibility	Product Responsibility	Number of controversies linked to the elements driving product quality and responsibility published since the last fiscal year company update.
Social	Product responsibility	Product Responsibility	Number of controversies linked to the elements driving product quality and responsibility published since the last fiscal year company update.
Social	Product responsibility	Product Responsibility	Number of FDA Warning letters since the last fiscal year company update.
Social	Product responsibility	Product Responsibility	The percentage of company sites or subsidiaries that are certified with any widely acknowledged quality management system.
Social	Product responsibility	Product Responsibility	Does the company produce abortifacients?
Social	Product responsibility	Product Responsibility	Does the company claim to apply quality management systems, such as ISO 9000, Six Sigma, Lean Manufacturing, Lean Sigma, TQM or any other similar quality principles?
Social	Product responsibility	Product Responsibility	Is the company under the spotlight of the media because of a controversy linked to the company's marketing practices, such as over marketing of unhealthy food to vulnerable consumers?
Social	Product responsibility	Product Responsibility	Is the company under the spotlight of the media because of a controversy linked to its products or services quality and responsibility?
Social	Product responsibility	Product Responsibility	Total number of products or services which have been delayed or drugs which have not been approved by regulators or similar official bodies.
Social	Community	Community	Does the company describe in the code of conduct that it strives to be a fair competitor?
Social	Community	Community	Does the company describe in the code of conduct that it strives to avoid bribery and corruption at all its operations?
Social	Community	Community	Does the company describe in the code of conduct that it strives to maintain the highest level of general business ethics?
Social	Community	Community	Does the company have appropriate communication tools to improve general business ethics?
Social	Community	Community	Does the company have a provision for protecting whistleblowers?
Social	Community	Community	Does the company have a policy to be involved in the local community in the countries of operation?
Social	Community	Community	Does the company claim to follow the OECD Guidelines for Multinational Enterprises?
Social	Community	Community	Is the company a supporter of the "Extractive Industries Transparency Initiative (EITI)"?
Social	Community	Community	Total amount of all donations by the company.
Social	Community	Community	Total community lending, financing and investments which are not considered donations.
Social	Community	Community	Total amount of political donations, support of political candidates or contributions to parties as reported by the company.
Social	Community	Community	Does the company foster employee engagement in voluntary community work?
Social	Community	Community	Is the company selling some products or services at a discount to normal retail prices in emerging markets?
Social	Community	Community	Does the company claim to conduct research and development on drugs for diseases in the developing world?
Social	Community	Community	Number of controversies published in the media linked to patents and intellectual property infringements.
Social	Community	Community	Does the company report on crisis management systems or reputation disaster recovery plans to reduce or minimize the effects of reputation disasters?
Social	Community	Community	Number of controversies published in the media linked to public health or industrial accidents harming the health & safety of third parties (non-employees and non-customers).
Social	Community	Community	Number of controversies published in the media linked to business ethics in general, political contributions or bribery and corruption.



Social	Community	Community	Number of controversies published in the media linked to tax fraud, parallel imports or money laundering.
Social	Community	Community	Number of controversies published in the media linked to anti-competitive behavior (e.g., anti-trust and monopoly), price-fixing or kickbacks.
Social	Community	Community	Number of controversies published in the media linked to activities in critical, undemocratic countries that do not respect fundamental human rights principles.
Social	Community	Community	Does the company have operations in Burma (Myanmar), Cuba, Iran, Sudan, or Syria (the US sanction regime)?
Social	Community	Community	Number of controversies linked to public health or industrial accidents harming the health & safety of third parties (non-employees and non-customers) published since the last fiscal year company update.
Social	Community	Community	Number of controversies linked to business ethics in general, political contributions or bribery and corruption published since the last fiscal year company update.
Social	Community	Community	Number of controversies linked to tax fraud, parallel imports or money laundering published since the last fiscal year company update.
Social	Community	Community	Number of controversies linked to anti-competitive behavior (e.g., anti-trust and monopoly), price-fixing or kickbacks published since the last fiscal year company update.
Social	Community	Community	Number of controversies linked to activities in critical, undemocratic countries that do not respect fundamental human rights principles published since the last fiscal year company update.
Social	Community	Community	Number of controversies linked to patents and intellectual property infringements published since the last fiscal year company update.
Social	Community	Community	Has the company received an award for its social, ethical, community, or environmental activities or performance?
Social	Community	Community	The total amount of lobbying contributions made by the company or its employees and representatives during the fiscal year.
Social	Community	Community	Total amount of all donations divided by net sales or revenue.
Social	Community	Community	Is the company under the spotlight of the media because of a controversy linked to bribery and corruption, political contributions, improper lobbying, money laundering, parallel imports or any tax fraud?
Social	Community	Community	Does the company have a policy for the exclusion of child, forced or compulsory labour, or to guarantee the freedom of association universally applied independent of local laws?
Social	Human rights	Human Rights	Does the company have a policy to ensure the freedom of association of its employees?
Social	Human rights	Human Rights	Does the company have a policy to avoid the use of child labor?
Social	Human rights	Human Rights	Does the company have a policy to avoid the use of forced labor?
Social	Human rights	Human Rights	Does the company have a policy to ensure the respect of human rights in general?
Social	Human rights	Human Rights	Does the company claim to comply with the fundamental human rights convention of the ILO or support the UN declaration of human rights?
Social	Human rights	Human Rights	Does the company report or show to use human rights criteria in the selection or monitoring process of its suppliers or sourcing partners?
Social	Human rights	Human Rights	Is the company a member of the Ethical Trading Initiative (ETI)?
Social	Human rights	Human Rights	Does the company report or show to be ready to end a partnership with a sourcing partner if human rights criteria are not met?
Social	Human rights	Human Rights	Number of controversies published in the media linked to human rights issues.
Social	Human rights	Human Rights	Number of controversies published in the media linked to freedom of association issues.
Social	Human rights	Human Rights	Number of controversies published in the media linked to use of child labor issues.
Social	Human rights	Human Rights	Number of controversies linked to human rights issues published since the last fiscal year company update.
Social	Human rights	Human Rights	Number of controversies linked to use of child labor issues published since the last fiscal year company update.
Social	Workforce	Diversity & Opportunity	Does the company have a policy to drive diversity and equal opportunity?
Social	Workforce	Diversity & Opportunity	Has the company set targets or objectives to be achieved on diversity and equal opportunity?
Social	Workforce	Diversity & Opportunity	Percentage of women employees.
Social	Workforce	Diversity & Opportunity	Percentage of new women employees.
Social	Workforce	Diversity & Opportunity	Percentage of women managers.
Social	Workforce	Diversity & Opportunity	The score of the company in the HRC corporate equality index from the Human Rights Campaign Foundation.
Social	Workforce	Diversity & Opportunity	Does the company provide flexible working schemes?
Social	Workforce	Diversity & Opportunity	Does the company claim to provide day care services for its employees?



Social	Workforce	Diversity & Opportunity	Number of controversies published in the media linked to workforce diversity and opportunity (e.g., wages, promotion, discrimination and harassment).
Social	Workforce	Diversity & Opportunity	Percentage of employees with disabilities or special needs.
Social	Workforce	Diversity & Opportunity	Number of controversies linked to workforce diversity and opportunity (e.g., wages, promotion, discrimination and harassment) published since the last fiscal year company update.
Social	Workforce	Employment Quality	Total value of salaries and wages paid to all employees and officers, including all benefits, as reported by the company in its CSR reporting.
Social	Workforce	Employment Quality	Number of employees as reported by the company in its CSR reporting.
Social	Workforce	Employment Quality	Total value of the stock based compensation of employees during the year as reported by the company.
Social	Workforce	Employment Quality	Percentage of employees represented by independent trade union organizations or covered by collective bargaining agreements.
Social	Workforce	Employment Quality	Percentage of employee turnover.
Social	Workforce	Employment Quality	Total number of announced layoffs by the company.
Social	Workforce	Employment Quality	Has an important executive management team member or a key team member announced a voluntary departure (other than for retirement) or has been ousted?
Social	Workforce	Employment Quality	Has there has been a strike or an industrial dispute that led to lost working days?
Social	Workforce	Employment Quality	Number of part-time employees.
Social	Workforce	Employment Quality	Number of controversies published in the media linked to the company's relations with employees or relating to wages or wage disputes.
Social	Workforce	Employment Quality	Number of controversies linked to the company's relations with employees or relating to wages or wage disputes published since the last fiscal year company update.
Social	Workforce	Employment Quality	CEO's total salary (or other highest salary) divided by average wage (Highest Salary (US dollars) /Average Salaries and Benefits in (US dollars)).
Social	Workforce	Employment Quality	Employment growth over the last year.
Social	Workforce	Employment Quality	Total number of announced lay-offs by the company divided by the total number of employees.
Social	Workforce	Employment Quality	Is the company under the spotlight of the media because of a controversy linked to the company's employees, contractors or suppliers due to wage, layoff disputes or working conditions?
Social	Workforce	Health & Safety	Does the company have a policy to improve employee health & safety within the company and its supply chain?
Social	Workforce	Health & Safety	Does the company have an employee health & safety team?
Social	Workforce	Health & Safety	Does the company train its executives or key employees on health & safety?
Social	Workforce	Health & Safety	Does the company train its executives or key employees on employee health & safety in the supply chain?
Social	Workforce	Health & Safety	Total hours of health & safety training
Social	Workforce	Health & Safety	Does the company have a policy to improve employee health & safety?
Social	Workforce	Health & Safety	Does the company have a policy to improve employee health & safety in its supply chain?
Social	Workforce	Health & Safety	Does the company have health and safety management systems in place like the OHSAS 18001 (Occupational Health & Safety Management System)?
Social	Workforce	Health & Safety	Does the company show through the use of surveys or measurements that it is improving the level of employee health & safety in its supply chain?
Social	Workforce	Health & Safety	Total number of injuries and fatalities including no-lost-time injuries relative to one million hours worked.
Social	Workforce	Health & Safety	Number of injuries and fatalities including no-lost-time injuries reported for contractors relative to one million hours worked.
Social	Workforce	Health & Safety	Number of injuries and fatalities including no-lost-time injuries reported for employees relative to one million hours worked.
Social	Workforce	Health & Safety	Number of injuries and fatalities reported by employees and contractors while working for the company.
Social	Workforce	Health & Safety	Number of injuries and fatalities reported for contractors while working for the company.
Social	Workforce	Health & Safety	Number of injuries and fatalities reported for employees while working for the company.
Social	Workforce	Health & Safety	Number of occupational diseases or any disease caused by continued exposure to conditions inherent in a person's occupation reported relative to one million hours worked
Social	Workforce	Health & Safety	Number of employee fatalities resulting from operational accidents.
Social	Workforce	Health & Safety	Number of contractor fatalities resulting from operational accidents.
Social	Workforce	Health & Safety	Total number of injuries that caused the employees and contractors to lose at least a working day relative to one million hours worked.
Social	Workforce	Health & Safety	Number of injuries that caused the contractors to lose at least a working day relative to one million hours worked.
Social	Workforce	Health & Safety	Number of injuries that caused the employees to lose at least a working day relative to one million hours worked.
Social	Workforce	Health & Safety	Number of lost working days of the employees and contractors.



Social	Workforce	Health & Safety	Number of lost working days of the employees only.
Social	Workforce	Health & Safety	Number of lost working days of the contractors only.
Social	Workforce	Health & Safety	Does the company report on policies or programs on HIV/AIDS for the workplace or beyond?
Social	Workforce	Health & Safety	Number of controversies published in the media linked to workforce health and safety.
Social	Workforce	Health & Safety	Number of controversies linked to workforce health and safety published since the last fiscal year company update.
Social	Workforce	Health & Safety	Total number of injuries and fatalities including no-lost-time injuries relative to one million hours worked. Total lost days at work divided by total working days. (Refers to an employee absent from work because of incapacity of any kind, not just as the result of occupational injury or disease)
Social	Workforce	Health & Safety	
Social	Workforce	Training & Development	Does the company have a policy to support the skills training or career development of its employees?
Social	Workforce	Training & Development	Does the company have a policy to improve the skills training of its employees?
Social	Workforce	Training & Development	Does the company have a policy to improve the career development paths of its employees?
Social	Workforce	Training & Development	Average hours of training per year per employee.
Social	Workforce	Training & Development	Total training hours performed by all employees.
Social	Workforce	Training & Development	Total training costs from all the training performed by all employees.
Social	Workforce	Training & Development	Does the company claim to favor promotion from within?
Social	Workforce	Training & Development	Does the company claim to provide regular staff and business management training for its managers?
Social	Workforce	Training & Development	Does the company provide training in environmental, social or governance factors for its suppliers?
Social	Workforce	Diversity & Opportunity	Training costs per employee in US dollars.