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CORRELACIÓN ENTRE LA IMPLEMENTACIÓN DE INICIATIVAS Y DESEMPEÑO AMBIENTAL SOBRE EL VALOR GLOBAL DE UNA EMPRESA.

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CONTENIDO

ÍNDICE DE TABLAS

ÍNDICE DE FIGURAS

INTRODUCCION

La sostenibilidad corporativa se ha consolidado como un pilar esencial para el éxito y la resiliencia de las empresas en el siglo XXI (Weinmayer et al., 2023). Este concepto abarca una amplia gama de prácticas y estrategias orientadas a asegurar que las operaciones empresariales se realicen de manera responsable, teniendo en cuenta no solo la rentabilidad económica sino también el bienestar ambiental y social (Oprean-Stan et al., 2020). La revisión de la literatura sobre sostenibilidad corporativa revela un creciente consenso sobre su importancia para las empresas modernas. Integrar la sostenibilidad dentro de las operaciones y estrategias empresariales no solo contribuye a mitigar los impactos negativos sobre el medio ambiente y la sociedad, sino que también ofrece oportunidades para innovar, mejorar la eficiencia, y fortalecer la reputación corporativa.

Por otra parte, el desempeño ambiental de una empresa se refiere al cómo las operaciones de una organización impactan al medio ambiente y las medidas que se toman para minimizar esos impactos. Este concepto se manifiesta a través de diversas iniciativas como programas de sostenibilidad, prácticas de producción más limpia, reducción de emisiones de gases de efecto invernadero, gestión eficiente de residuos, y uso racional de los recursos naturales (Wang et al., 2022).

En este contexto, la integración de la sostenibilidad corporativa y el desempeño ambiental en el modelo de negocio de una empresa implica una transformación profunda que va desde la cadena de suministro hasta el producto final y su disposición. El desempeño ambiental en empresas se ha convertido en un indicador crítico de sostenibilidad corporativa, reflejando la capacidad de una organización para operar de manera eficiente y responsable en relación con el medio ambiente (Xin et al., 2023). Este enfoque no solo asegura la viabilidad a largo plazo de la empresa, sino que también contribuye a la construcción de un futuro sostenible, aspecto que entra dentro de los Objetivos de Desarrollo Sostenible y compromete a empresas y gobiernos a tomar acciones para reducir el impacto ambiental de sus operaciones a 2030 (ONU, 2023).

Es así como la adopción de estas iniciativas no solo ayuda a las empresas a cumplir con regulaciones ambientales cada vez más estrictas, sino que también responde a las expectativas de consumidores, inversores y otros stakeholders que demandan un compromiso real con la sostenibilidad (Clarkson et al., 2008) y en este sentido se ha buscado como cuantificar el impacto de las iniciativas sobre el desempeño financiero de las organizaciones.

La interacción entre el desempeño financiero y la sostenibilidad de las empresas ha capturado el interés de académicos, inversionistas y líderes empresariales. Este interés se fundamenta en la hipótesis de que las prácticas sostenibles no solo son beneficiosas para el medio ambiente y la sociedad, sino que también pueden influir positivamente en el rendimiento financiero de una organización. Para comprender y cuantificar esta relación, se han desarrollado diversos modelos y ecuaciones que vinculan las variables de sostenibilidad con los indicadores financieros clave.

Los modelos de correlación entre el desempeño financiero y la sostenibilidad suelen incorporar indicadores financieros tradicionales como el retorno sobre el capital (ROE), el retorno sobre los activos (ROA), el crecimiento de los ingresos y el valor de mercado, entre otros (Alam & Tariq, 2023; Aydoğan & Kara, 2023; Weinmayer et al., 2023). Estos indicadores se comparan o se correlacionan con métricas de desempeño ambiental, como la reducción de emisiones de carbono, el uso eficiente de los recursos, la inversión en energías renovables y el cumplimiento de estándares de sostenibilidad reconocidos (Dmuchowski et al., 2023; GRI, 2022).

Un modelo comúnmente utilizado es la regresión lineal, donde se busca establecer una relación directa entre las inversiones en sostenibilidad y el desempeño financiero de la empresa. Otros modelos pueden incluir análisis multivariables que consideran múltiples factores de sostenibilidad y su impacto combinado en diferentes indicadores financieros (Dmuchowski et al., 2023; Hoang et al., 2023).

Otro enfoque es el análisis de datos de panel, que permite a los investigadores observar múltiples entidades (empresas) a lo largo del tiempo y controlar la heterogeneidad no observada. Esto es particularmente útil para estudiar el impacto de las prácticas de sostenibilidad, ya que permite distinguir entre efectos a corto y largo plazo (Ben Lahouel et al., 2020).

La integración de factores ambientales en los modelos de correlación implica un análisis detallado sobre cómo las iniciativas de sostenibilidad específicas impactan en los indicadores financieros. Esto requiere no solo la recopilación de datos precisos y relevantes sobre las prácticas ambientales de una empresa, sino también el desarrollo de metodologías para cuantificar su impacto financiero (Clarkson et al., 2008).

Los estudios que han aplicado estos modelos generalmente encuentran una relación positiva entre las prácticas sostenibles y diversos indicadores de desempeño financiero. Las empresas con fuertes credenciales en sostenibilidad a menudo experimentan una mayor lealtad de los clientes, menores costos operativos debido a la eficiencia energética y una mejor gestión de los riesgos ambientales y regulatorios (Tabla 1). Además, la sostenibilidad puede mejorar la

imagen y la reputación de la empresa, atrayendo a inversores conscientes de estos factores y potencialmente mejorando las condiciones de financiamiento.

Sin embargo, es importante destacar que la correlación entre sostenibilidad y desempeño financiero puede ser influenciada por múltiples factores, incluido el sector de la industria, la geografía y el horizonte temporal considerado (Dincer et al., 2023). Por lo tanto, mientras que los modelos de correlación proporcionan herramientas valiosas para entender esta relación, su aplicación debe ser cuidadosamente adaptada al contexto específico de cada empresa.

Es así como esta investigación, buscó evaluar la correlación existente entre los indicadores financieros y las iniciativas de sostenibilidad de las empresas ubicadas específicamente en el bloque de la Alianza del Pacífico, ya que a la fecha de realización del proyecto de tesis no se evidenciaron documentos publicados que evaluaran esta relación para las empresas de los países del bloque mencionado.

La Alianza del Pacífico (AP) es una iniciativa de integración regional establecida en 2011 por cuatro países latinoamericanos: Chile, Colombia, México y Perú. Su principal objetivo es fomentar el crecimiento, desarrollo y competitividad de las economías participantes, facilitando la libre circulación de bienes, servicios, capitales y personas. Además de buscar una mayor integración económica entre sus miembros, la AP aspira a ser una plataforma de proyección económica y comercial hacia el Asia-Pacífico, reconociendo la importancia estratégica de esta región en el comercio global (Alianza del Pacífico, 2024).

La importancia del mercado de valores en la región latinoamericana, en el contexto de la AP, es notable. Los mercados de valores de estos países no solo ofrecen oportunidades de inversión diversificadas y acceso al capital para las empresas locales, sino que también actúan como indicadores de la salud económica y la confianza inversora en la región (Manffer, 2022). La integración de los mercados de valores entre los países miembros es un objetivo clave de la AP, buscando facilitar el acceso de inversionistas a un mercado más amplio y diversificado, promoviendo así una mayor liquidez y estabilidad financiera. Esto ha llevado a que la Alianza del Pacífico constituya la octava economía del mundo y la sexta potencia exportadora a nivel mundial, adicional a que, en la región de América Latina y el Caribe, representa el 42.9% del PIB y atrae el 45% de los flujos de Inversión Extranjera Directa (Alianza del Pacífico, 2024; Morales, 2022).

La relación entre las políticas ambientales, las iniciativas sostenibles y los mercados de valores es cada vez más relevante, especialmente en el contexto de la Alianza del Pacífico. Los inversores y los mercados financieros están comenzando a reconocer que el desempeño ambiental de las empresas puede tener un impacto significativo en su desempeño financiero y, por lo tanto, en su valoración de mercado.

Tabla 1. Artículos publicados sobre la correlación entre desempeño financiero y ambiental

Artículo	**Autor**	**Hallazgos**
Financing For Sustainability and Bank Performance: Case of G-20 Countries	(School of Business and Management, Institut Teknologi Bandung, Indonesia et al., 2023)	La financiación sostenible repercute positivamente en los resultados de los bancos, ya que mejora los márgenes de interés neto y la adecuación del capital, al tiempo que reduce la morosidad, atrae a los inversores y mejora los resultados en materia de ASG.
The Analysis of The Dynamic Relationship between Corporate Sustainability and Financial Performance	(Aydoğan & Kara, 2023)	Las prácticas de sostenibilidad empresarial influyen positivamente tanto en los indicadores de rendimiento financiero basados en el mercado como en los basados en la contabilidad, y las inversiones en sostenibilidad influyen en el valor de mercado más rápidamente que el rendimiento de los activos.
Corporate Sustainability Performance Evaluation and Firm Financial Performance: Evidence from Pakistan	(Alam & Tariq, 2023)	La sostenibilidad empresarial se correlaciona positivamente con los resultados financieros en Pakistán. Las empresas con puntuaciones más altas en sostenibilidad muestran mejores resultados financieros contables y de mercado, lo que respalda la teoría de las partes interesadas.
Impact of Sustainability Reporting on Financial Performance	(Celik, 2023)	Los informes de sostenibilidad repercuten positivamente en los resultados financieros, y las empresas más grandes están más comprometidas con las actividades de

		sostenibilidad, destacando la importancia estratégica por encima de la presión de las partes interesadas.
Do Sustainability Activities Affect the Financial Performance of Banks? The Case of Indonesian Banks	(Gutiérrez-Ponce & Wibowo, 2023)	Las actividades de sostenibilidad repercuten en los resultados financieros de los bancos indonesios. Los pilares ESG muestran efectos variados: lo social afecta positivamente al ROA y al ROE, la gobernanza repercute negativamente en la Q de Tobin, mientras que el entorno empresarial no tiene efectos significativos.
Nexus between Sustainability Reporting and Firm Performance: Considering Industry Groups, Accounting, and Market Measures	(Dincer et al., 2023)	Los informes de sostenibilidad influyen positivamente en los resultados financieros de las empresas, especialmente en las de mayor impacto ambiental, en los países en desarrollo, como demuestran los modelos ROA y Q de Tobin.

Además, la transparencia en la divulgación de información relacionada con la sostenibilidad se está convirtiendo en un factor cada vez más importante para los inversores a la hora de tomar decisiones de inversión. En este sentido, los mercados de valores de los países de la AP están comenzando a integrar criterios ambientales, sociales y de gobernanza (ESG) en sus prácticas de evaluación y listado, lo que refleja una creciente conciencia sobre la importancia de estos factores en la creación de valor a largo plazo (Arruti, 2023; Pereira, 2019).

En este contexto, esta investigación tuvo como objetivos:

General:

Evaluar la correlación entre las iniciativas y desempeño ambiental y el valor global de las empresas listadas en las bolsas de valores de países miembros de la Alianza del Pacífico.

Específicos:

1. Determinar las metodologías y modelos utilizados en la valoración de empresas que consideran las iniciativas y el desempeño ambiental.
2. Cuantificar las iniciativas y desempeño ambiental que tienen las empresas listadas en bolsa de los países que conforman la AP.
3. Determinar las correlaciones entre los indicadores ambientales y el valor de las empresas.

Para alcanzar estos objetivos, se plantean las siguientes preguntas de investigación:

1. **¿Cuál es el impacto de las iniciativas y desempeño ambiental en el valor global de las empresas listadas en las bolsas de valores de los países miembros de la Alianza del Pacífico?**

   Esta pregunta busca evaluar directamente el objetivo general de la investigación. Se centra en identificar y cuantificar la relación entre las prácticas ambientales de las empresas y sus indicadores financieros, proporcionando una visión amplia de cómo la sostenibilidad afecta a la percepción y el rendimiento financiero de las empresas en un contexto específico, el de la Alianza del Pacífico.

2. **¿Qué metodologías y modelos son más efectivos para valorar empresas considerando sus iniciativas y desempeño ambiental en las organizaciones?**

   Esta pregunta se dirige al primer objetivo específico y tiene el propósito de explorar y analizar críticamente las diversas herramientas y enfoques metodológicos disponibles para integrar factores ambientales en la evaluación del valor empresarial. Busca identificar cuáles son las prácticas más avanzadas y cómo se pueden aplicar efectivamente en el contexto de las organizaciones.

   Para responder a esta pregunta, se realizó una revisión bibliográfica en donde se analizaron artículos científicos de los últimos 5 años, en donde se analizó la relación entre el desempeño ambiental y sus diferentes formas de abordarlo y los diferentes indicadores financieros y modelos usados para establecer estas relaciones.

3. **¿Existe una correlación significativa entre los indicadores ambientales específicos y el valor de mercado de las empresas en la Alianza del Pacífico, y cómo varía esta relación entre los diferentes países que la conforman?**

   Orientada hacia el segundo y tercer objetivo específico, esta pregunta investiga de manera más detallada la relación entre variables ambientales y los indicadores

financieros.

Además, busca comprender si esta relación es consistente a través de los distintos países miembros de la Alianza del Pacífico y sectores a los que pertenecen las diferentes empresas, permitiendo identificar posibles patrones o diferencias regionales que puedan influir en cómo se valoran estas iniciativas y desempeños ambientales a nivel de mercado.

La investigación quedó estructurada en cuatro capítulos, en el primero se realiza una revisión de la literatura sobre la relación entre el desempeño ambiental y los indicadores financieros de las organizaciones, modelos para correlacionar estas variables y principales resultados obtenidos en publicaciones científicas en los últimos 5 años.

En el segundo capítulo se analiza la correlación entre indicadores financieros retorno sobre los activos (ROA) y beneficio antes de intereses, impuestos, depreciaciones y amortizaciones (EBITDA); y ambientales (ESG y EP Score) en las empresas de la Alianza del Pacífico mediante un modelo de regresión lineal.

En el tercer capítulo, se analizan otros indicadores financieros como Market Cap, Margen de Utilidad Neta, Ingresos Netos más ajustados a la región, teniendo en cuenta los resultados obtenidos en el capítulo 2 y se plantea una ecuación de regresión con efectos fijos, buscando determinar los efectos que tiene cada país y cada sector en la correlación de las variables.

La investigación se basó en la construcción de datos de panel para una línea temporal de cinco años que incluyó un total de 86 empresas pertenecientes a los países que integran la Alianza del Pacífico, para el periodo 2016 a 2022.

Finalmente, en un cuarto capítulo se exponen los resultados y las consideraciones finales de la investigación, se identifican las limitaciones del estudio y se trazan las futuras líneas de investigación.

CAPITULO 1. Going Green and Firm Value: Mapping the Relationship Through a Literature Review

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DOI: https://doi.org/10.24857/rgsa.v18n6-169

Abstract

Objective: The purpose of this paper is to do a literature review of articles that study the effect of environmental initiatives and firm value.

Theoretical Framework: In recent years, there has been a growing global interest in sustainability and environmental care. Companies have developed initiatives such as Corporate Social Responsibility (CSR) strategies, and Environmental Performance (EP) indicators to demonstrate their commitment to sustainability.

Method: The analysis includes publications on Environmental, Social, and Governance (ESG), CSR, EP, and environmental disclosure published between 2017 and early 2023.

Results and Discussion: The findings show a positive relationship between firm value and CSR, EP, ESG, and environmental disclosure. Companies that adopt environmental initiatives tend to have greater protection against market uncertainty and generate greater stakeholder confidence. This positive relationship is more significant in developed countries than in developing countries.

Research Implications: An opportunity for further research on this topic is identified due to the relatively low number of studies that explore the relationship between environmental behavior and firm value in Latin America and the Caribbean.

Keywords: *ESG; environmental performance; firm value; corporate social responsibility; environmental disclosure.*

JEL Codes*: G11, G12, G32, Q56*

1. Introduction

Sustainability particularly the environmental aspect, has become relevant for several decades, especially since the 1960s when several groups of scientists and activists began to warn about the problems of environmental pollution (Zalasiewicz, J., & Williams, M., 2021). Since this time, several conventions and agreements have been made between countries and organizations, which seek to reduce the different environmental impacts generated by human activity on the ecosystem and specially to reduce greenhouse gas (GHG) emissions (Calculli et al., 2021; Fernandes, 2019).

In 2015, several UN member countries decided to propose 17 goals to ensure sustainability by 2030, among which some (7, 9, 11, 12, 13, 14, and 15) aimed at caring for the environment and reducing sources of pollution. On the other hand, initiatives such as the Paris Agreement and the Kyoto Protocol also seek to limit GHG emissions in signatory countries and thus mitigate the effects of global warming (United Nations Climate Change, 2022b, 2022a).

In this context, governments are faced with the challenge of minimizing environmental impacts on their ecosystems. In addition to generating policies, regulations, and interventions that regulate emissions, discharges, de- forestation, and waste treatment in the different industries and that promote the generation of initiatives to care for the environment (Albitar et al., 2023). Organizations have the duty to comply with the regulations of each country in which they operate, but at the same time, to promote and demonstrate environmental corporate responsibility to stakeholders (Clarkson et al., 2008). Companies can demonstrate their commitment to protecting and caring for the environment and man- aging the environmental risks generated by their operations through CSR strategies and practices, eco-innovation, and EP indicators (Kuzey & Uyar, 2017; Sardana et al., 2020).

Several studies have been conducted relating the effects of implementing environmental initiatives on firm value, to quantify this type of action, maximize profits, and ensure firm sustainability and market competitiveness (Khanifah et al., 2020). Empirical and structural equation models correlating a firm value with the quality of environmental initiatives have been developed for more than 20 years (Clarkson et al., 2008; Iqbal et al., 2022; Perez-Calderon et al., 2011; Plumlee et al., 2015) mentioned that there is still a gap in the reported literature, in which most studies treat variables such as ESG, CSR, and EP as synonyms; however, these concepts differ theoretically and should be analyzed separately.

In recent years, there has been a notable uptick in the number of publications focusing on the inclusion of new variables in models and the examination of moderating effects. However, it is worth noting that research in Latin American and Caribbean countries in this area remains at a nascent stage. Similarly, comprehensive reviews that encompass various environmental initiatives and sustainability practices, along with their correlations with firm value, are scarce in this region.

In this context, the objective of this paper is to review the literature on the correlation between the implementation of environmental initiatives by firms and their value. In short, it provides a global perspective on the quality of environmental initiatives adopted by different organizations in the frame- work of CSR, ESG, voluntary and involuntary disclosure, and environmental performance strategies and how these can influence the value of companies.

2. Theoretical Framework

CSR is defined as actions that are not mandatory by law but reflect corporate social responsibility practices in response to the interests and expectations of stakeholders (employees, the community at large, customers, government, investors, suppliers, and shareholders) and the firm itself (Kong et al., 2019; Saridakis et al., 2020).

According to the theoretical aspects of CSR, it is divided into economic, regulatory, and normative, ethical, and charitable (Tarjo et al., 2022). Thus, the dimensions addressed by companies in CSR practices include diversity, relationships, products, environment, and community. These dimensions promote practices such as hiring women and minorities, labor benefits, inclusion policies, health and safety of workers, reduction of corruption, reduction of waste, recycling, use of clean energy, community activities, education, volunteer programs, product safety, innovation, and development (Sardana et al., 2020) (Figure 1).

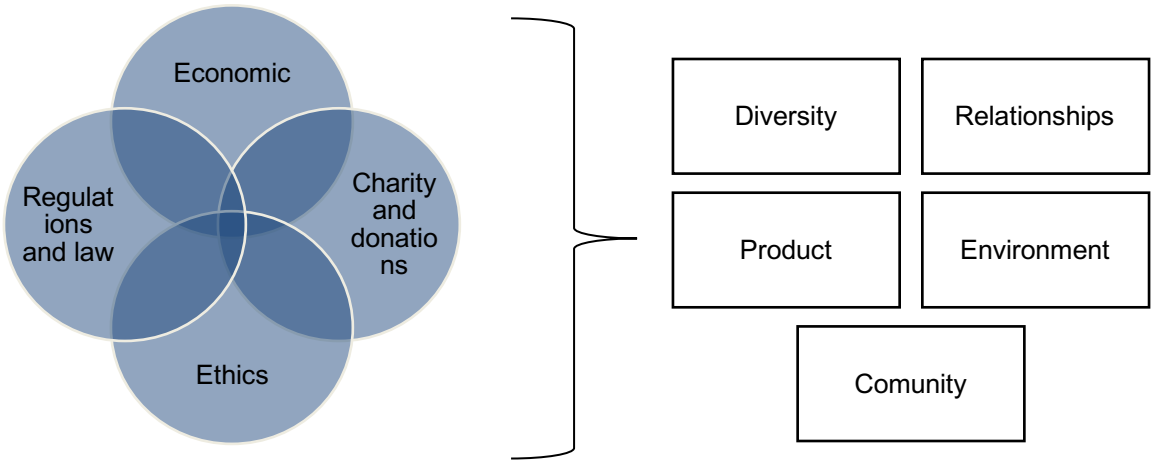

Figure 1. CSR aspects and their practical dimensions.

CSR practices, in turn, can allow companies to reduce the damages and threats that may arise due to negative reports, regulatory actions, uncertain environments, and consumer complaints, thus managing to generate a mediating and protective effect for firms (Cooper et al., 2018; Kong et al., 2019).

In this sense, reasoning points out that firms that implement CSR practices increase their financial value; however, several studies have shown that the relationship between the two variables follows a quadratic shape, either U-shaped or U-inverted. This implies that there is a portion of the curve where the CSR-firm value relationship is positive and another portion, where this relationship becomes negative (Grassmann, 2021). A clear example of this is the relationship between CSR-environmental initiatives and firm value, which has been shown, to have a U-shaped relationship, this indicates that a minimum CSR must be exceeded so that firm value can increase (Trumpp & Guenther, 2017).

One of the main dimensions of CSR includes ESG aspects (Z. Zheng et al., 2023). The concept emerged from the UN Global Compact Report in 2004 and has been widely adopted by companies and governments worldwide (Ramírez-Orellana et al., 2023). It has also contributed to improving the performance of organizations in 5 aspects (Li et al., 2018): delivery of non-financial information reported by companies, promoting the relationship with stakeholders and the adoption of management practices, decrease in information asymmetry, greater transparency, and visibility of companies and their environmental, social and governance practices, and finally, better decision making and better investments.

The elements that integrate the ESG are shown in Figure 2. From these elements, the ones that have been shown to have the greatest effect on the value of companies are E and S (Ramírez-Orellana et al., 2023).

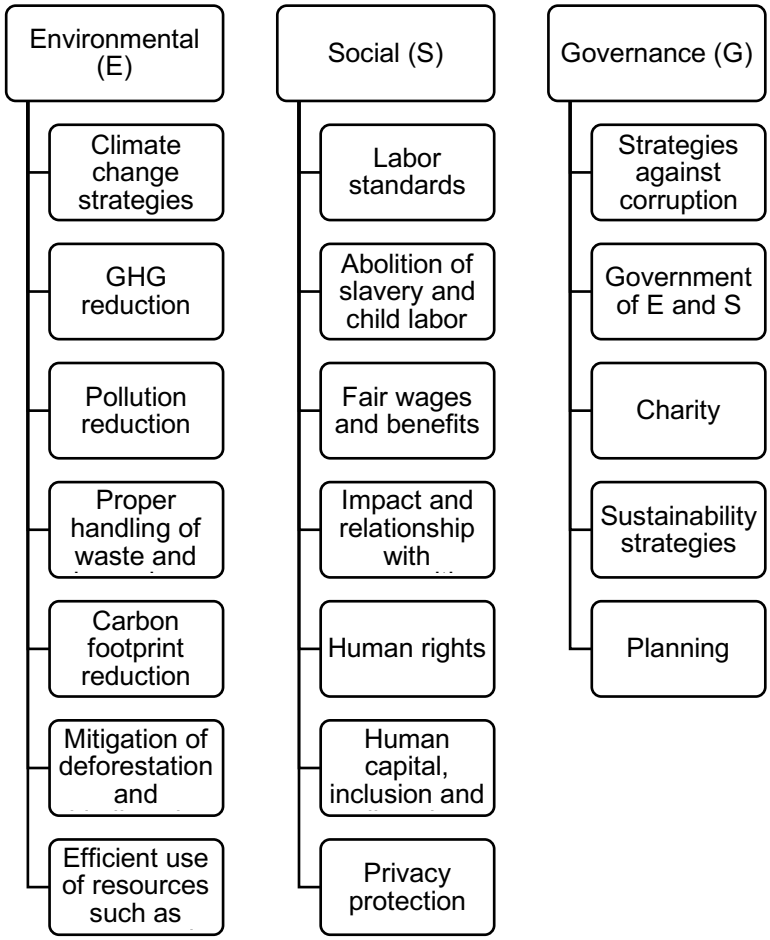

Figure 2. ESG components, adopted from (Dmuchowski et al., 2023).

Some independent organizations such as ISO (International Organization for Standardization), Initiative for Integrated Reporting (IIR), and GRI (Global Reporting Initiative), have generated regulations that allow companies to report their environmental practices and initiatives. As well as demonstrating their commitment to the protection and care of the environment and the management of environmental risks generated by their operations (GRI Standards, n.d.; ISO, 2015). The information issued by companies on this issue may or may not be voluntary, depending on the regulations of the country where the organization is located (Grassmann, 2021).

Environmental disclosure allows companies to reduce asymmetry and generate better relations with investors and the market, as well as improve the decision-making process. It has even been shown that they have access to more credit, more confidence from banks, and an increase in the value of the firm (J. Zhang & Yang, 2023). Finally, it can also contribute to improving the financial performance of organizations through three aspects: operational and ethical transparency, improvement of the firm's reputation and stakeholders' perception of it,

assistance in decision-making, and risk reduction (Z. Zhang et al., 2022).

Companies can provide information on emission reductions and environmental governance outcomes in their production processes and operations, and these are considered the main types of disclosure (Su et al., 2022). However, the disclosure of this information may come to be considered “greenwashing” in companies that tend to do a lot of soft or selective charter disclosure (Z. Zhang et al., 2022). Regarding hard and soft disclosure, (Clarkson et al., 2008) and (Perez-Calderon et al., 2011) defined them and showed indicators for each. In the hard disclosure at the environmental level, there is more objective information and more accurate and verifiable data and therefore it is considered more credible than the soft disclosure (Figure 3).

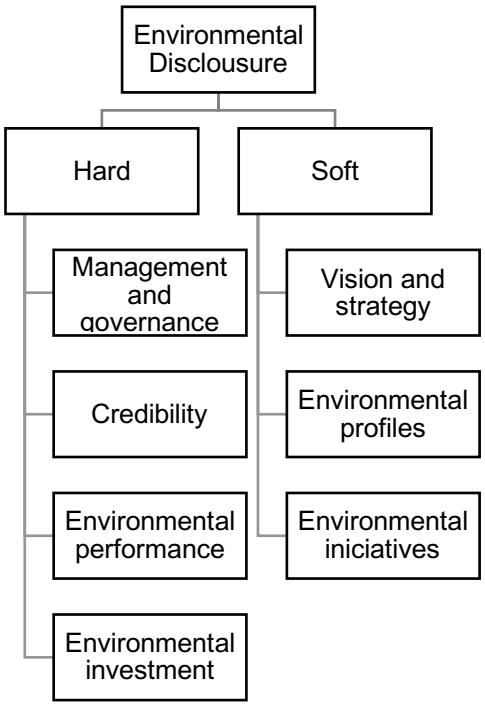

Figure 3. Hard and soft disclosure types at the environmental level. Adopted from (Clarkson et al., 2008).

3. Methodology

This research followed a literature review methodology that synthesizes existing research in a structured manner to provide a comprehensive overview and identify limitations, gaps, and opportunities to advance knowledge on a topic. The goal is to systematically gather and analyze relevant literature, then add value by discussing key issues, emerging themes, and promising future research directions (de Oliveira et al., 2023).

A four-stage process adapted from (Tseng et al., 2019) was implemented as follows:

Identification – This first step involved searching a literature database using predetermined search terms and parameters to identify an initial set of articles. From the SCOPUS database, relevant articles or review articles were identified using a search equation that filtered papers with the desired keywords, this resulted in a total of 590 documents. Then, filters were applied to only include articles or review articles that were published between 2017 and March 2023, 6 papers that were not published in English were excluded as well. After applying all the proper filters, 454 documents were identified, the resulting search equation was:

TITLE-ABS-KEY(ESG OR CSR OR “environmental performance” OR “environmental disclosure” AND “firm value”) AND PUBYEAR > 2016 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE,”ar”) OR LIMIT- TO (DOCTYPE,”re”)) AND (LIMIT-TO (LANGUAGE,”English”)).

Figure 4 shows the number of articles published by year in the selected timeframe. The upward trend shows that this is a relevant research topic.

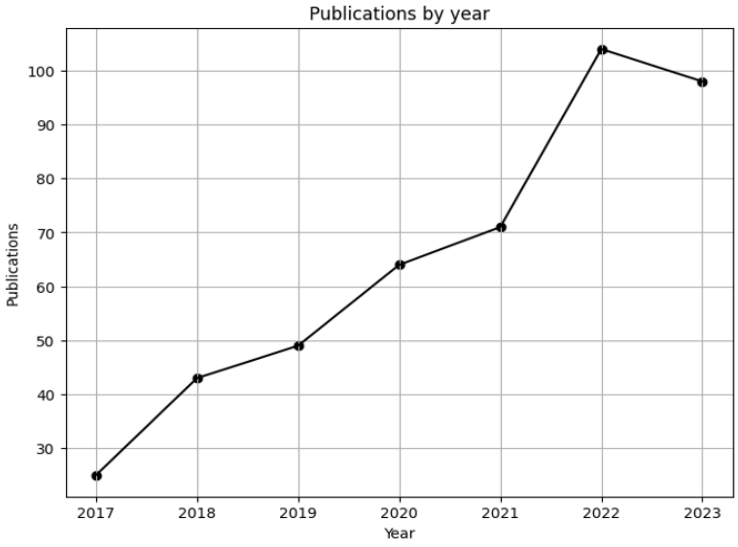

Figure 4. Publications by year between 2017 and 2023.

Screening - The identified articles were screened by examining titles and abstracts against the scope and objectives of the review to remove articles deemed irrelevant. This screening process resulted in a collection of 80 documents that underwent full-text review later.

Eligibility - This step involves assessing whether each article meets the predefined inclusion criteria to be considered for the review. The remaining articles underwent full-text examination to determine if they fit within the scope and objectives outlined for this review and met certain eligibility criteria like relevant samples, outcomes of interest, pertinent analysis, etc. 55 documents were deemed fit and considered for the inclusion step.

Inclusion - The articles that passed the eligibility assessment were then included in the final sample for full analysis and synthesis. This final set of included studies contributed evidence to address the review purpose. A total of 42 eligible articles were included for analysis, citation, and discussion.

The structured methodology, summarized in Figure 5, enabled a trans- parent and replicable gathering of the existing knowledge base to elucidate the state of research on this topic. The findings from the final sample of included articles are presented in the following sections.

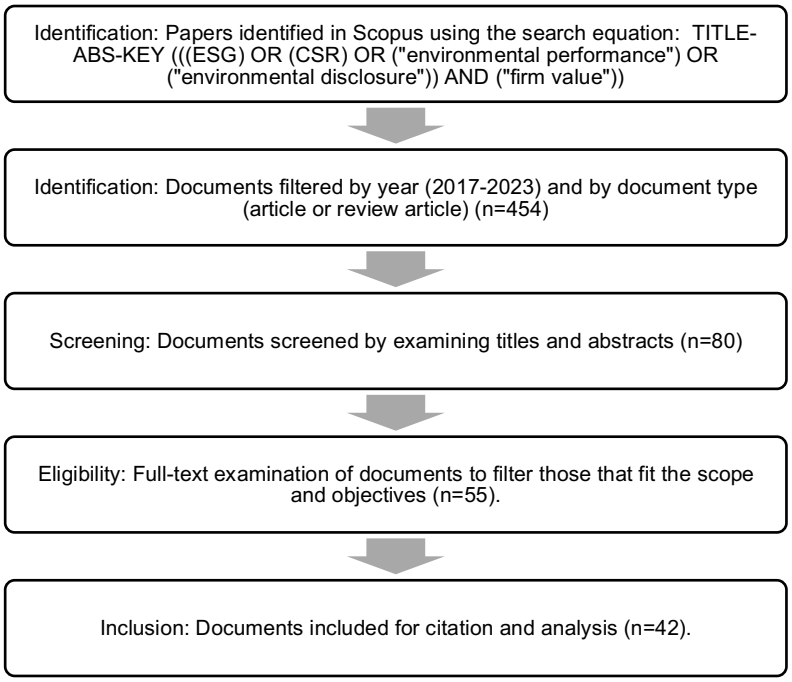

Figure 5. Process of the bibliographical search for the review.

4. Results and Discussion

4.1 CSR effect on firm value

In terms of publications related to CSR and the value of the firm in the last years, a growing trend is evident, with the countries with the highest number of publications on this subject being: the USA, China, Indonesia, South Korea, Canada, Australia, United Kingdom, India, France, and Hong Kong. These are developed countries, with large corporations and, for the most part, strict regulations on corporate social responsibility; however, the effects of CSR in each country differ depending on cultural and social characteristics.

Yi et al. (Yi et al., 2022) studied the effect of CSR performance on the value of firms in China during the COVID-19 pandemic using a linear regression model in which the dependent variable was stock market performance. They found a significant negative effect between CSR and the stock market performance of firms during this period. This behavior is explained by the fact that the Chinese population, in general, has little awareness of CSR and investors consider this type of investment costly, even more so in times of crisis, such as the COVID-19 pandemic. The opposite is the case in the work done by (Salam et al., 2022) for Saudi Arabian companies that have business relationships with companies in the Middle East and Africa. This study shows the positive and significant relationship between CSR and firm performance and explains it by the increase in consumer satisfaction and loyalty with firms that adopt a CSR orientation. Similarly, (Rjiba et al., 2020) show that CSR has a positive effect on a firm financial performance in times of economic uncertainty, which is more evident in developed countries. On the other hand, studies in emerging economies such as India have found a positive and significant relationship between firm value and CSR practices focused on sustainability and environmental care (Bardos et al., 2020; Bhattacharyya & Rahman, 2019; Sardana et al., 2020).

These results are like those reported by (Bardos et al., 2020), where a positive and significant relationship between CSR and firm value is evidenced, mainly mediated by the market effect and with a predominant effect on the eco-friendly practices implemented by companies. As the work of (Sheikh, 2018)shows, firm value is related to CSR, especially, in the environmental dimension, however, the effect is only significant in environments with high competitiveness and product fluidity.

It becomes clear that CSR influences firm value, mediated in part by social, cultural, and market aspects surrounding firms. Even religious aspects can become influential. Zolotoy et al. (Zolotoy et al., 2019) studied the effect of CSR on the value of firms located in areas with strict religious norms and others in areas that are laxer in this respect. The results show that strict religious norms attenuate the positive effect of CSR on firm value, and even this effect varies according to the composition of religious groups. Pham and Tran(Pham & Tran, 2020) even show how high CEO integrity generates a mediating effect that positively enhances the relationship between firm value and CSR.

Grassmann (Grassmann, 2021) evaluated the relationship between firm value and CSR specifically in the environmental aspect. Using Ohlson's accounting valuation model, he was

able to identify that environmental investments follow a U- shape with the value of the firm. This implies that organizations become more viable and improve their valuation when they make no or very few environmental investments, or on the contrary, make very great efforts in this regard. This result could be attributed, on the one hand, to the legitimization vis-à-vis stakeholders' expectations through the publication of an integrated report in the case of companies with a low level of environmental expenditure. On the other hand, companies with a high level of environmental expenditure could benefit from the explanations provided in their integrated reports on the contribution to the value creation of their environmental strategies.

There have also been several studies showing how the implementation of CSR practices can help mitigate the negative effects caused by product recalls in companies in the food sector (Kong et al., 2019). However, other studies evidence that, if companies have high levels of GHG emissions, the implementation of very strict CSR practices produces a negative effect on their value (Cooper et al., 2018). Likewise, (Azimli, 2023) shows how CSR increases the value of companies and even mitigates the negative effects of uncertainty in climate policies, this is due to the protective effect that CSR offers to shareholders in periods of uncertainty and changes in climate policies globally and locally. Finally,(Tarjo et al., 2022) showed that proxies such as GRI and environmental voluntary disclosure of CSR positively affected the value of mining companies in Malaysia and Indonesia; however, these effects were reduced when companies committed financial fraud, even decreasing the value of the company.

4.2 ESG effect on firm value

In relation to ESG indicators and the value of companies, the trend in publications has been increasing over the years. From the documents published on this topic in SCOPUS, it was found that the top 10 countries in terms of the number of publications are similar, for the most part, to those described in the previous section for CSR. These countries are South Korea, the USA, Malaysia, China, the UK, India, Indonesia, Spain, Turkey, and Australia. It was also found that there is a relationship between the country’s income, its development, and the regulations that oblige companies to report some type of ESG information with respect to the number of publications. It is also noted that, in Latin America, only one publication on this topic was identified in Brazil, highlighting that, in addition, no country in the region has policies or laws that require companies to report ESG information. In this regard, (Gregory, 2022a) analyzed firms in 70 countries, in order to identify the effect of ESG indicators on free cash flow and free cash flow to the capital of companies through a regression model. The author found that ESG indicators were only positive and significant for the cash flow of firms in developed countries.

However, ESG had no significant impact or correlation with free cash flow and even presented a negative and non-significant value for free cash flow to equity in developing countries.

Shin et al. (Shin et al., 2023) studied the relationship between firm performance, ESG indicators, and the social and cultural characteristics of different countries, finding that ESG practices in companies have a greater positive effect on financial performance in developed countries such as the USA and the UK, where the population is more individualistic.

Even the effect of ESG on value has not only been studied according to the country and its culture. The effect generated by media coverage of events involving ESG non-compliance in companies has also been evidenced. For instance, (Anita et al., 2023) identified that high media coverage of an ESG controversy in a large media outlet can significantly decrease the value of companies in India.

Bofinger et al. (Bofinger et al., 2022) analyzed whether the ESG principles adopted by organizations could lead to a possible misvaluation of the company and related it to CSR. They performed a linear regression model considering variables such as ESG score, ESG profile in organizations, control variables such as profitability, CapEx, Analyst coverage, leverage, market-to-book, and asymmetric information variables such as illiquidity, forecast error, and bid- ask-spread. They highlighted that a better ESG score leads to a significant increase in the real market value of the organizations and that overvalued companies increased their value by improving their ESG profile, while undervalued companies showed a better valuation by increasing this indicator.

Wong et al. (Wong et al., 2021) conducted a regression model to identify the effects of ESG indicators on the value of organizations in Malaysia. Firm value was determined in terms of Tobin's Q and the cost of capital. In the model, they considered the following variables: ESG indicators, firm characteristics (size, asset growth, cash holdings, debt ratio, asset tangibility, and ROA), and time. The authors found that ESG had a significant negative impact on the value determined as the cost of capital in all observation windows. However, the impact was significantly positive for the value determined as Tobin's Q, increasing this indicator by 31.9%, and had no effect in the 3- and 5-year observation windows. In short, ESG adoption in companies is valued in the stock market, although only in the short term. Contrary to what (Rojo-Suárez & Alonso-Conde, 2023) highlight in their regression model focused on determining the relationship between ESG score and firm value in 4 EU countries. They found

that the effects of ESG in the short term were not significant, but in the long term, they managed to reduce the existing differences between the value of the firm in the market and the book value, especially in the banking and financial sector.

Aydoğmuş et al. (Aydoğmuş et al., 2022) determined the effect of ESG on firm value and profitability measured as Tobin's Q and ROA. A positive and significant correlation between ESG on firm value and ROA was observed. However, the purely environmental criterion did not have a significant effect on Tobin's Q, although it did have a significant positive effect on ROA.

Ramírez-Orellana et al. (Ramírez-Orellana et al., 2023) studied the relationship between ESG and the value of companies belonging to the oil & gas sector. For the specific case of ESG environmental performance, they evaluated 3 indicators: resource use score, emissions score, and environmental innovation score. They found that the strongest ESG indicators, specifically the environmental part, significantly increase the value of companies in the sector and emphasize that these types of companies generate greater investment in innovation strategies and care for the environment. This effect represents a better perception by the stock and stakeholders. However, in companies belonging to the health, finance, and tourism sectors, ESG presented different relationships with the value of the firm. In the financial sector, ESG had a positive and significant correlation with the value of the firm, while in the tourism sector, the correlation was negative and weakly explanatory, with no significant relationship in the health sector (Kuzey et al., 2021).

Fuente et al. (Fuente et al., 2022) studied the relationship between firm value determined as Tobin's Q and ESG indicators using a linear regression model. They reported an increase between 17.5-24 percentage points in firm value as ESG increases in organizations, especially for social and environmental factors.

4.3 Disclosure effect on firm value

In the reviewed literature, we identify a group of studies that evaluate the moderating effect of disclosure on the relationship between CSR and financial performance. As highlighted throughout the paper, this relationship remains a topic of debate for researchers. Voluntary disclosure of CSR activities may have moderating effects on this relationship (Grassmann, 2021) as shown in some of the identified studies.

The work of (Xu et al., 2020) analyzes data collected from reports of 2168 Chinese companies between the years 2008 and 2015. The objective was to determine the relationship between CSR disclosure in the case of the emerging Chinese market economy and the government's regulatory role in it. The study concludes that companies that do voluntary disclosure of their CSR activities are positively rewarded by the market, shown as an increase in their firm value. In general, private companies increase their firm value by making CSR disclosures, while in state-owned companies CSR disclosure only increases the firm value when they suffer negative impacts on their reputation. In contrast to this, the research by(Xue et al., 2023) concludes that either type of CSR disclosure (voluntary or mandatory) has a negative effect on the profitability of companies, with voluntary disclosure having the greatest impact on this indicator.

The effect of corporate ESG disclosure remains an open question. In the work of (Khan, 2022) a meta-analysis and bibliometric analysis is performed in order to identify the main trends and results in ESG and firm value research between the years 2012 and 2022. This work shows that one of the most relevant factors in this relationship is the effect of disclosure.

A study made by (Fatemi et al., 2018) analyzed the effect of disclosure of ESG activities on firm value expressed in terms of Tobin's Q in companies studied between 2006 and 2011. The model used employs ESG strengths and weaknesses variables as a proxy for the ESG performance of companies. It also uses a variable quantifying the level of disclosure obtained from the Bloomberg ESG disclosure score database. The results of their research suggest that firms with a weak ESG level benefit from making adequate disclosure of their ESG. However, companies with a strong level of ESG see a negative effect due to such disclosure.

A similar result is observed in the work by (Li et al., 2018), in which they analyze data from 350 companies between the years 2004 to 2013. In this study, they analyze the effect of ESG disclosure on firm value and the moderating effect of CEO authority. The applied model uses the ESG disclosure score obtained from Bloomberg and Boardex databases as the main independent variable. This study evaluates the effect of this score on firm value (Tobin's Q and ROA). The results confirm the hypothesis that higher disclosure increases firm value.

This suggests a clear positive link between ESG disclosure and firm value. However, (Chen & Xie, 2022) show how this trend is maintained, but only in those companies that manage to

attract investors interested in ESG. While the relationship is heterogeneous in companies that do not have this type of investor.

4.4 Effects of environmental performance on firm value

This section discusses a series of papers that explore the relationship between the EP of firms and their valuation or financial performance. Without giving greater relevance to other moderating factors such as those presented in previous chapters.

Some studies, such as the literature review done by(Dechezleprêtre et al., 2019) have indicated that there is a positive correlation between EP and the financial performance (FP) of firms. On the other hand, studies such as that of (Shahgholian, 2019) have determined that the relationship between the environmental profile and financial profile of companies is inconsistent due to the different methodologies of data treatment and interpretation in this type of research. As well as the ambiguity in the definition of what constitutes the environmental profile and the financial profile. In addition to the above, (L. Zheng & Iatridis, 2022) conducted a meta-analysis in which they took quantitative data from more than 160 studies and 124,000 companies. The authors demonstrated that there is a positive relationship between eco-innovation and EP, as well as in the FP, social and operational performance of companies, making an exhaustive analysis that discriminates the different types of eco-innovation that can have moderating effects on this relationship. The results show that the study of the relationship between firms' EP and FP is still an open discussion.

A study developed by (Nishitani et al., 2017) with data obtained through surveys of Indonesian companies shows that those companies that decrease their GHG emissions tend to increase their productivity and profits due to cost reduction. However, they do not do so in increased sales of their products. This increase in EP is slightly significant. These results are in line with those obtained by (Gregory, 2022b), and (Galama & Scholtens, 2021) which indicate negative relationships between GHG emission and firm value. Similarly, the work done by (Nishitani & Kokubu, 2020) with Japanese companies, shows that an increase in EP has a positive and linear effect on the productive process of the companies. This in turn has a positive impact on the increase in demand, which improves their FP.

The research done by (Benkraiem et al., 2022) starts from a different point. It analyzes the relationship between carbon efficiency understood as the reduction in GHG emissions and firm

value in an international context, taking data from the 100 most sustainable companies in the world according to the Corporate Knights ranking between the years 2013 and 2019. The results obtained show that the relationship between the reduction of GHG emissions (specifically CO2 emissions) and market value is positive.

Rather than trying to answer the question of whether “going green” is worthwhile, the work developed by (Ben Lahouel et al., 2020) attempts to determine the optimal level of “green” that a company should seek to maintain a positive EP-FP relationship. Assuming that the relationship is not linear but curvilinear. The approach of this paper seeks to determine the limiting values of EP that keep the EP-FP correlation positive using a PSTR regression model. As a result, the authors obtain that the EP-FP relationship is inverted U-shaped when using Tobin’s Q as a proxy for FP as the dependent variable. However, when using ROA as the dependent variable, the curve changes, taking an inverted V-shape.

In their study, the research conducted by (Castro et al., 2021) also seeks to determine the effect of EP on the stock price of companies in 16 European countries. To define the EP, they use the GHG emissions of each company, moderated by aspects of eco-innovation such as the use of renewable energies in each country and green patents, as well as other factors such as access to green technologies through international trade. In addition, the observed time window (2005-2017) allows for considering data from a period of international financial crisis. The results obtained show a positive relationship between EP and stock price. On the other hand, they denote that one-off factors such as the wide use of renewable energies or high intensity in international trade have a negative effect on the stock price, at least in the short term. Focusing on the period of the international financial crisis, it is observed that the EP has no relevance to the value of the stock price.

The work done by (Gonenc & Scholtens, 2017) sheds light on the EP-FP relationship in companies that make intensive use of fossil fuels (chemical, oil, gas, and coal industry sectors). The results obtained from a large and heterogeneous sample including companies from different countries indicate that, in general, there is a positive relationship between the EP and the FP of the companies. However, it is evident that this relationship becomes negative when only data from the fossil fuel-intensive sector are evaluated, showing that companies in this sector with better financial performance have poor environmental performance. It is valuable to take this type of study into account because its focus on this specific sector allows us to see how the EP-FP relationship varies in its behavior depending on the sector.

Conclusions

This paper shows the correlation between the different aspects, strategies, and initiatives in environmental matters and the value of the firms. Forty-seven publications were analyzed and divided into each of the topics used to determine the environmental activities carried out by organizations (ESG, CSR, EP, and disclosure). Further research could focus on the differentiated impact of the concepts of CSR, ESG, and EP on firm value. While these terms are sometimes used interchangeably in the literature, this analysis has shown they have unique implications and should be analyzed as distinct factors.

The analysis of the documents shows that there is heterogeneity in the way company value is determined, with profitability, market-to-book ratio and Tobin's Q being the most common. Heterogeneity was also found in the way the authors determine the environmental performance and activities of the organizations. This remains a matter of open debate, especially considering that there are multiple moderating effects that complicate the relationship between environmental performance and firm value. Future research should work towards creating a widely accepted definition and measurement method for environmental performance, which would facilitate easier comparison and more robust findings.

These moderating effects are generally related to cultural and social issues that surround companies and depend on the country in which they operate. However, the relationships found between different environmental initiatives and firm value tend to be positive and significant and to have mostly linear or quadratic relationships. This effect is partly since companies with good environmental performance tend to have greater protection against uncertainty in the market and generate greater confidence among stakeholders, which translates into an improved image, higher revenues, and, finally, a better valuation. In the documents analyzed, a strong relationship was found be- tween these activities and the value of the firm, and the country's income. In developed countries, the relationship is more significant, while in developing countries the relationships are variable and depend on other factors. There is a potential area to investigate the role of moderating effects in greater depth. These might involve cultural, socio-economic, or other context-specific fac- tors that may impact how environmental performance translates into firm value.

Future studies should aim to address the identified geographical limitations in the existing literature. Specifically, no studies evaluating the correlation between environmental initiatives and firm value in Latin America and the Caribbean were found. This presents a critical

opportunity to expand the understanding of these dynamics in underserved geographies. Understanding these dynamics in a broader range of contexts, particularly in emerging economies, could reveal more nuanced insights into the relationship between environmental performance and firm value.

Lastly, there is a scope for research on the optimal level of green or environmental performance a company should seek to maintain a positive EP-FP relationship. This could give firms clear guidelines on their environmental efforts, striking the right balance between economic feasibility and environ- mental responsibility.

By addressing these identified gaps and suggested research directions, future studies can contribute to a more comprehensive understanding of the relationship between environmental performance and firm value.

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CAPITULO 2. Exploring the correlation between ESG, environmental performance scores and financial variables in Pacific alliance companies

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Abstract

The purpose of this research was to explore the link between Environmental, Social, and Governance (ESG) performance and corporate financial performance in the Pacific Alliance countries (Mexico, Colombia, Peru, Chile). The study used regression models to examine the correlation between ESG scores, environmental pillar scores, and financial performance metrics like return on assets (ROA) and EBITDA for 86 companies over 2016- 2022. Control variables like firm size and leverage were included. Data was obtained from Refinitiv and Bloomberg databases. The regression models showed no significant positive correlations between overall ESG or environmental pillar scores and the financial valuation measures. The inconclusive results on ESG-firm value connections underscore the need for continued research using larger samples, localized models, and exploring which ESG aspects drive financial performance Pacific Alliance.

Keywords: governance; social, environmental; firm's value; EBITDA; ROA

1. Introduction

In recent decades, there has been a growing interest in and recognition of the importance of sustainable and responsible business practices from an environmental perspective. As awareness of global environmental issues and the need for collective action has intensified, investors, regulators, and society at large have begun to increasingly value the environmental performance of companies. This represents a key factor in organizational decision-making and the way they project themselves to stakeholders (Khamisu et al., 2024).

In this context, a comprehensive approach known as ESG (Environmental, Social, and Governance) has been developed to evaluate business practices in environmental, social, and governance terms. The ESG score is a quantitative measure that evaluates a company's performance in these three domains, providing a score that reflects its level of commitment to

and management of relevant environmental issues (Tsang et al., 2022). Numerous research studies have been conducted to explore the effects of implementing environmental initiatives on the value of companies, quantify this type of action, maximize benefits, and ensure sustainability and competitiveness in the marketplace (Khanifah et al., 2020). For more than 20 years, models establishing correlations between firm value and the quality of environmental initiatives have been developed and have shown diverse results (Clarkson et al., 2008; Dechezleprêtre et al., 2019; Plumlee et al., 2015).

Existing research on the link between ESG and firm value has largely focused on developed markets and multinational companies. However, the dynamics between ESG and financial value may differ significantly in emerging economies like those in Latin America. Specific structural challenges in Latin American markets pose limitations when applying global ESG-value models, including lower ESG transparency and disclosure, weaker regulation and enforcement, higher currency volatility, and differences in stakeholder pressures (Aysen, 2013; Garzon and Zorio, 2021; Mesquita et al., 2007; Zicari, 2017).

This research aims to explore the link between ESG performance and corporate financial performance in the Pacific Alliance countries (Mexico, Colombia, Peru, Chile). Specifically, it investigates whether the positive correlations between ESG factors and financial outcomes observed globally are also evident in these countries.

The study focuses on:

- Assessing the direct effects of ESG and the Environmental Pillar (EP) score on financial metrics like return on assets (ROA) and EBITDA in the corporate sectors of Chile, Mexico, Colombia, and Peru. This study also checks if the positive correlations seen in other research between ESG, its pillars, and financial variables hold for representative firms from the Pacific Alliance countries.
- Examining the variability of these relationships across different countries and industries within the Pacific Alliance.
- Emphasizing the importance of developing ESG evaluation models that are specifically adapted to the Latin American and Pacific Alliance contexts, recognizing the unique economic and regulatory landscapes of these countries.

To verify the correlation of ESG, EP, and financial variables in the context of companies in Pacific Alliance countries, the Aydoğmuş et al. model was used, as it aligns with those found in other studies and incorporates data from some Latin American companies (Aydoğmuş et al., 2022). These authors employed fixed effects models within a panel data framework to

analyze the relationship between ESG performance and two key financial variables: Firm value and profitability. The dependent variables in the study were Tobin's Q, as an indicator of firm value, and ROA, as a measure of profitability. The independent variables included the ESG score and the individual scores for each of the ESG pillars, while the control variables included the size of the company and its leverage.

ESG performance, EP, and firm value are hypothesized to be positively related based on instrumental stakeholder theory. This suggests that ethical management of stakeholders benefits the firm through things like lower risks and costs, improved productivity, customer loyalty, license to operate, and access to resources. Thus, firms with higher ESG ratings are expected to also have higher valuations, profits, and shareholder returns. The study will empirically examine this relationship.

First, the methodologies used to measure environmental performance and firm valuation are defined, then the composition of the data sample used for the analysis is shown, the models used to explore the correlations between the variables of interest are explained, and finally, the results obtained are discussed and concluded.

1.1 Theoretical framework

1.1.1. Variables

To explore the potential environmental performance impact of companies on their value, it is necessary to be able to quantify these two aspects. Research by Nishitani and Kokubu (2020) used a rating of the environmental performance of companies in Indonesia based on CO2 emissions and resource use efficiency and relates this rating to financial indicators such as ROA and Tobin's Q. Li et al. (2018) used an ESG disclosure quality rating of Chinese firms to assess their impact on the market value of firms measured with market cap. On the other hand, Yoon et al. (2018) employ ESG scores from Bloomberg and Inrate to relate them to Korean firm valuations based on P/E and PBR. This background demonstrates the various methods that can be used to quantify the environmental performance and value of companies, how this paper approaches the topic is explained below.

Measurement of environmental performance

To quantify the environmental performance of companies, this paper uses two proxy variables: the ESG score and the EP score.

ESG refers to the three central factors in measuring the sustainability and ethical impact of an investment in a company. ESG metrics are used to evaluate a company's operations in terms of environmental stewardship, social responsibility, and governance practices. These factors can influence investor decisions, consumer perceptions, and regulatory outcomes (Tsang et al., 2022).

The data needed to estimate the ESG score is obtained from various sources, such as sustainability reports, financial reports, corporate governance information, and other public and private sources, Table 2 shows the categories that are considered to estimate the value of each pillar (Refinitiv, 2022). It should be noted that obtaining this data depends on the willingness and quality of disclosure of necessary information by companies. Considering that most countries in the Latin American region are not required to make mandatory disclosure of this information, this may influence the ability to accurately determine the ESG score (Fatemi et al., 2018). It is also important to remember that these scores' accuracy may be biased by the providers, who use different methods for their calculation (Erhart, 2022).

Due to the wide range of categories considered by the ESG score, a second variable is used as a proxy to quantify the environmental performance of companies, the EP score. This variable is a score from 0 to 100 given to the Environmental Pillar of the ESG score, so it can be understood as a score that focuses exclusively on the environmental aspects of companies (Agliardi et al., 2023).

An advantage of using EP for environmental performance is that it collects a greater amount of hard disclosure data. This allows for a more objective assessment of a company's relationship with the environment. Some of the most important aspects considered to rate the EP score is:

- Greenhouse gas emissions (GHG): The company's GHG emissions are evaluated, including carbon dioxide, methane, and nitrous oxide, among others.
- Energy consumption: Total energy consumption is considered, as well as the company's energy efficiency and the amount of energy used from renewable sources.
- Waste management: Aspects such as the production of tons of waste, waste reduction, recycling, adequate waste treatment, and responsible management of chemical products are evaluated.
- Water use: Monitoring and reduction of water consumption, efficient management of water resources, and prevention of water pollution are evaluated. It should be noted that the magnitudes of the aspects listed are considered both in total and concerning

company revenues so that the scores are not biased toward larger companies (Refinitiv, 2022).

Table 2. Description of the categories and weighting of each pillar within the Refinitiv ESG Score calculation.

Pilar	Category	Category weight	Pilar weight
Environmental	Emissions	15%	43%
	Innovation	15%	
	Resources	13%	
Social	Community	9%	31%
	Human rights	5%	
	Product responsability	4%	
	Workforce	13%	
Governance	Corporate Social Responsibility Strategy	5%	25%
	Management	3%	
	Shareholders	17%	

Measurement of firm value

The firm's value refers to the estimated monetary value of the company. This value can be represented by different indicators. In this work, this value was quantified by using two different proxy variables: Return on Assets (ROA) and earnings before interest, taxes, depreciation, and amortization (EBITDA).

ROA is a financial indicator used to measure the efficiency of a company's use of its assets to generate profits. ROA is important for evaluating a company's profitability concerning its assets. It is an important measure of operational efficiency, showing how capable a company is at converting the money it invests in assets into profits. ROA is calculated as net income over total assets (Singh et al., 2024). Net income is taken from the income statement, and total assets (TASST) are taken from the balance sheet. Husna and Satria (2019) analyzed the effect of ROA on the stock returns of companies listed on the Indonesia Stock Exchange. They found a significant positive relationship between ROA and stock returns, so they conclude that ROA is a good indicator of firm value.

EBITDA is a financial indicator that represents a company's operating profit before considering expenses, taxes, depreciation, and amortization of assets. It is used as a first measure of a

company's profitability and cash-generating capacity. EBITDA is used in measuring the value of a firm because it eliminates factors unrelated to the operation of the business, such as the impact of capital structure and accounting decisions related to depreciation and amortization (Bouwens et al., 2019). In doing so, it provides a clearer and more comparable view of the firm's profit-generating capacity. EBITDA has proven to be an adequate indicator of firm value. Alcalde et al. (2013) examined the determinants of EBITDA margin in Brazilian firms and identified that it depends on the sector and other characteristics of the firms.

ROA and EBITDA were selected as accounting-based measures of firm financial performance and value in this study due to the limitations of market-based indicators for Pacific Alliance companies. Metrics like price/earnings ratios and Tobin's Q have significant drawbacks in these markets, including: Low liquidity (Thin trading can cause market prices to not accurately reflect fundamental value), weak informational efficiency (Limited analyst coverage and transparency hampers price discovery) (Borlea and Achim, 2017; Moeen, 2023).

While ROA and EBITDA have their limitations as well, they mitigate some of these issues by relying on audited financial statement data rather than potentially distorted market pricing (Bouwens et al., 2019; Singh et al., 2024). ROA provides a helpful baseline profitability measure by relating net income to assets—a useful proxy for how efficiently a firm generates earnings from invested capital (Schabek, 2020). Though affected by accounting policies, EBITDA helps isolate operating profit trends (Moraes, 2005; Schmalensee, 1985).

Control variables

The study used two control variables: Size and Leverage, as other similar studies have done (Atan et al., 2018; Naeem et al., 2021). Size is measured as the logarithm of the total assets of the company. Taking the logarithm of total assets helps normalize data for analytical purposes, making trends easier to identify and interpret, especially in companies of different sizes (Dang et al., 2018).

On the other hand, leverage is measured as TDTA: net debt to total assets. This ratio measures the extent of a company's reliance on debt to fund its operations. Leverage is an important indicator of financial health, showing how much a company depends on debt to continue its operations. High leverage can indicate high risk but also high potential for returns on equity (Ibhagui and Olokoyo, 2018).

Table 3 provides a description of each variable considered in the study, including their calculation methods and the databases from which they were sourced.

Table 3. Description of the variables used in the models

Variable	Description	Data source
ESG	The accumulated score of the company's 3 ESG pillars	Refinitiv
EP	Company's environmental pillar score	Refinitiv
TASST	Total assets for each company	Bloomberg
Net Debt	Net debt for each company	Bloomberg
Net Income	Net income for each company	Bloomberg
TDTA	Leverage of the company. The ratio of net debt to total assets of the company.	$TDTA = \frac{Net\ Debt}{TASST} * 100$
ROA	The ratio of the company's net income to its total assets	$ROA = \frac{Net\ Income}{TASST} * 100$
EBITDA	Company's earnings before interest on debt, taxes, depreciation, and amortization.	Bloomberg

1.1.2. Stakeholder theory

This study is grounded in stakeholder theory, which posits that businesses have responsibilities to a broad range of stakeholders beyond just shareholders (Darnall et al., 2010; Mahajan et al., 2023). Managing relationships with stakeholders—such as employees, suppliers, customers, communities—can confer strategic benefits to the firm.

Specifically, we draw on instrumental stakeholder theory (Beck, 2024; Mahajan et al., 2023) which suggests engaging with stakeholders can directly improve the bottom line through several mechanisms:

- Reducing risks and costs (e.g., through eco-efficiency, employee retention)
- Enhancing revenue and market share (e.g., via customer loyalty and good reputation)
- Gaining intangible strategic assets (e.g., brand value, social license to operate)
- Building invaluable knowledge and innovation networks

Therefore, instrumental stakeholder theory predicts that sustainability, EP and ESG Scores, as an indicator of effective stakeholder management, will be positively associated with financial performance (Darnall et al., 2010).

This has been empirically supported by several studies, typically using ESG score or Environmental Pillar Score (EP) as a proxy for stakeholder management, and various accounting or market measures as indicators of financial performance (Alonso et al., 2018; Banerjee et al., 2022; Sachs and Rühli, 2011).

Instrumental stakeholder theory uses ESG scores to measure stakeholder management and relates them to financial metrics, thus allowing us to have a guide to conduct the study. This research use ESG and Environmental Pillar scores from Refinitiv database, based on this theory's premise that higher ESG performance indicates more effective stakeholder engagement. Our dependent variables of ROA, and EBITDA represent financial performance metrics that we hypothesize will be positively impacted by stakeholder management. Control variables like firm size and leverage are included to account for other potential factors influencing financial performance, isolating the ESG effect. This is in order to verify the models proposed by other authors that support the stakeholder theory and that indicate positive correlations between ESG, PE and financial indicators. The model proposed by Aydoğmuş et al. (2022) will be tested in the representative companies of the Pacific Alliance.

In this sense, two hypotheses were proposed for this study:

H1: Higher overall ESG and EP scores will be positively associated with higher return on assets (ROA) for Pacific Alliance firms.

H2: Higher overall ESG and EP scores will be positively associated with higher EBITDA for Pacific Alliance firms.

2. Materials and methods

2.1. Sample data

Data was obtained from Refinitiv and Bloomberg databases. Bloomberg and Refinitiv databases are valuable for financial and ESG values, respectively, due to their extensive coverage and robust data quality. Bloomberg's database provides a comprehensive platform for financial data analysis, making it ideal for evaluating the association between corporate ESG performance disclosure and profitability (Gholami et al., 2022). On the other hand, Refinitiv's database offers detailed ESG scores at both company and national levels, enabling researchers to assess the impact of ESG factors on various financial outcomes, such as currency returns (Duygun et al., 2024; Filippou and Taylor, 2021). By utilizing Bloomberg for financial data and Refinitiv for ESG values, we can conduct in-depth analyses that provide insights into the relationship between ESG performance and financial metrics.

In these databases, information was collected on as many companies as possible from the Pacific Alliance (Chile, Colombia, Mexico, and Peru) between the years 2016 to 2022. This time window was chosen considering that data on ESG indicators have been reported more consistently since 2016 for many of the companies in the sample.

The sample of companies was selected from the main stock market indexes of each Pacific Alliance country. The stock market indexes are a weighted average of the share prices of a selected portfolio of shares, representative of a specific market. These indices are calculated using a weighted average based on the market capitalization of the component companies. They function as an indicator of overall market performance and act as the primary benchmark for comparing the performance of various financial instruments. Depending on each country, the index was selected to be the primary benchmark for those markets.

Colombia: MSCI COLCAP. The index is the main reference for the Colombian market and is composed of 20 issuers and the 25 most liquid stocks in the market, weighting the stocks by adjusted market capitalization with no participation limit (Msci Colcap, 2024).

Chile: S&P IPSA, this stock market indicator measures the performance of the largest and most liquid stocks traded on the Santiago Stock Exchange (S&P Dow Jones Indices, 2024a).

Peru: S&P/BVL, this was designed to be the broad benchmark of the Lima Stock Exchange, it is a free-float adjusted market capitalization weighted index. It also considers liquidity requirements and trading frequency of its components. The index portfolio usually consists of no less than 29 and no more than 41 stocks (S&P Dow Jones Indices, 2024b).

Mexico: S&P/BMV IPC, this index seeks to measure the performance of the largest and most liquid stocks listed exclusively on the Mexican Stock Exchange (BMV). The components are weighted by market capitalization adjusted for free float. This index generally includes between 30 and 35 shares of Mexican companies (Grupo BMV, 2024).

From the index constituents, companies were screened based on the following criteria:

- Available ESG disclosure data on Refinitiv database from 2016–2022. Companies lacking sufficient ESG data across the period were excluded.
- Availability of financial data on Bloomberg database over the timeframe for the financial variables required in the analysis.

- Companies that underwent major merger/acquisition deals or corporate restructuring during 2016–2022 were excluded due to data continuity issues.

The screening process resulted in a final sample of 86 companies across the 4 countries. Table 4 shows the distribution of those companies by country and sector.

Table 4. Distribution of sample companies by country and sector.

Country	Sector	Number of companies	Total
Chile	Commerce	7	22
	Utilities	8	
	Financial	2	
	Food and Beverage	3	
	Telecommunications	1	
	Forestry	1	
Colombia	Commerce	1	13
	Oil and Gas	4	
	Utilities	3	
	Construction	2	
	Financial	1	
	Food and Beverage	1	
	Telecommunications	1	
México	Commerce	3	28
	Oil and Gas	2	
	Construction	4	
	Financial	2	
	Food and Beverage	6	
	Telecommunications	4	
	Transport	4	
	Forestry	1	
	Mining	2	
Perú	Commerce	1	23
	Utilities	3	
	Construction	3	
	Financial	1	
	Food and Beverage	2	
	Metal production	2	
	Mining	10	
	Agriculture	1	

2.3. Regression models

It aimed to recreate the methodology proposed by Aydoğmuş et al. (2022) to determine the correlation between environmental performance and firm value. To do so, 4 different linear regression models were run using Python. The panel dataset in this study had observations over multiple time periods (years) for each company. This longitudinal structure allowed the use of fixed effects models. Dummy variables were created for categorical variables such as Company, Year, and Sector to capture fixed effects. These dummies allowed us to control unobserved heterogeneity across companies, years, and sectors.

The differences between these models are that they use different dependent and independent variables as shown below. The models were structured to capture the effect of environmental performance on firm value while controlling for firm-specific, year-specific, and sector-specific fixed effects. To explore the heterogeneity of different countries, interaction terms between country dummies and key independent variables were included. This allows to see if the relationship between environmental performance and firm value varies across countries

$ROA_{it} = \beta_0 + \beta_1 EP_{it} + \beta_2 \log(TASST)_{it} + \beta_3 Leverage\_TDTA_{it} + \sum_{j=1}^{N-1} \gamma_j Company_j + \sum_{k=1}^{T-1} \delta_k Year_k + \sum_{l=1}^{S-1} \zeta_l Sector_l + \sum_{m=1}^{C} \phi_m (Country_m \times EP_{it}) + \varepsilon_{it}$	Model 1
$ROA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 \log(TASST)_{it} + \beta_3 Leverage\_TDTA_{it} + \sum_{j=1}^{N-1} \gamma_j Company_j + \sum_{k=1}^{T-1} \delta_k Year_k + \sum_{l=1}^{S-1} \zeta_l Sector_l + \sum_{m=1}^{C} \phi_m (Country_m \times ESG_{it}) + \varepsilon_{it}$	Model 2
$EBITDA_{it} = \beta_0 + \beta_1 EP_{it} + \beta_2 \log(TASST)_{it} + \beta_3 Leverage\_TDTA_{it} + \sum_{j=1}^{N-1} \gamma_j Company_j + \sum_{k=1}^{T-1} \delta_k Year_k + \sum_{l=1}^{S-1} \zeta_l Sector_l + \sum_{m=1}^{C} \phi_m (Country_m \times EP_{it}) + \varepsilon_{it}$	Model 3

$$EBITDA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 \log(TASST)_{it} + \beta_3 Leverage\_TDTA_{it} + \sum_{j=1}^{N-1} \gamma_j Company_j + \sum_{k=1}^{T-1} \delta_k Year_k + \sum_{l=1}^{S-1} \zeta_l Sector_l + \sum_{m=1}^{C} \phi_m (Country_m \times EP_{it}) + \varepsilon_{it}$$	Model 4

where:

- ROA_{it} and $EBITDA_{it}$ were the dependent variables normalized for company i at time t.
- EP_{it}, ESG_{it}, $TASST_{it}$, and Leverage_$TDTA_{it}$, were the independent variables for company i at time t.
- $Company_j$, $Year_k$, and $Sector_l$ were dummy variables for the fixed effects of each company j, year k, and sector l.
- $Country_m \times EP_{it}$ were the interaction terms between country dummies and the environmental score.
- $Country_m \times ESG_{it}$ were the interaction terms between country dummies and the *ESG* score.
- β_0, β_1, β_2, β_3, γ_j, δ_k, ζ_l, and ϕ_m were the coefficients to be estimated.
- ε_{it} was the error term.

The study employs fixed effects models within a panel data framework to explore the relationship between ESG performance and corporate financial performance in Pacific Alliance companies. This modeling approach offers several distinct advantages:

Control for unobserved heterogeneity

Fixed effects models are particularly effective in controlling for time-invariant unobserved heterogeneity (Nygård and Thoresen, 2023). By including company-specific fixed effects, it is possible to account for characteristics that remain constant over time but vary between companies, such as corporate culture, management practices, and operational strategies. This enables a more accurate isolation of the impact of ESG performance on financial outcomes.

Mitigation of omitted variable bias

Including fixed effects for years and sectors allows the model to account for time-specific and industry-specific factors that could influence financial performance. This helps mitigate omitted

variable bias, which occurs when relevant variables correlated with both the independent and dependent variables are left out of the model.

Examination of country-specific effects

By incorporating interaction terms between country dummies and key independent variables, the study examines whether the relationship between ESG performance and financial outcomes varies across different countries. This is crucial given the unique economic and regulatory environments in the Pacific Alliance countries.

Alignment with previous research

While building on the methodology used by (Aydoğmuş et al., 2022), this study extends the application to a different geographical context. This alignment with established research enhances the robustness of the results and allows for meaningful comparisons.

Addressing specific research questions

The research aims to understand the impact of ESG performance on financial variables like ROA and EBITDA, considering the unique environment of the Pacific Alliance. The fixed effects model is well-suited to addressing these specific research questions by controlling for various confounding factors.

By employing this robust modeling approach, the study not only adheres to established methodologies but also adapts them to the unique context of the Pacific Alliance, thereby providing valuable insights into the ESG-financial performance relationship in these emerging markets.

2.4. Statistical analysis

For each model was determined: the mean squared error (MSE), the coefficient of determination (R^2), the correlation between variables by Pearson correlation, normality tests of residuals (Omnibus), kurtosis coefficient of the residuals, and the *p*-values with a statistical significance of 95 and 99% (Paul and Zhang, 2010).

To correct the problems of heteroscedasticity and serial correlation in the linear regression model, a white robust correction (vcovHC) was performed (Zeileis, 2004)

3. Results

This section presents the findings of the statistical analysis conducted to explore the relationship between environmental performance and the value of Pacific Alliance companies. Descriptive results of the variables used, the correlation analysis between them, and the results of applying linear regression models. The main coefficients and relationships identified are discussed and compared with previous studies. The results found provide mixed evidence on the existence of a correlation between environmental sustainability and financial value for the companies analyzed.

3.1. Sample data

The sectoral distribution aimed to broadly align with the sector composition of the overall indexes, ensuring representation from all major industries. However, the final sample is constrained by data availability, particularly concerning ESG disclosures, and the small sample size is a significant limitation of this study. The sample represents the accessible population that meets the ESG and financial data requirements. This sample is considerably smaller than that used in other studies focusing on different regions (Jiang et al., 2023), although it surpasses the 54 Latin American companies considered in Aydoğmuş et al. (2022) work. The number of companies included by country and their classification by sector are shown in **Table 4**.

When comparing the sectors of the companies with the sectors that contribute the most to Gross Domestic Product (GDP) in each of the Pacific Alliance countries, similarities in composition can be seen. This shows the representativeness of the sample of companies in the economies of the countries.

In the case of Chile, approximately 54% of GDP is contributed by companies in the commerce, financial, utilities and telecommunications sectors (ODEPA, Oficina de Estudios y Políticas Agrarias, 2024). These represent 82% of the total number of Chilean companies in the sample.

Historically, 60% of Colombia's GDP has been made up of the service sector (Dane, 2024), which is equivalent to approximately 46% of the companies in the sample, and the primary sector, with an approximate participation of 14%–18% of GDP, which is equivalent to approximately 31% of the companies in the sample.

On the other hand, Peru's GDP is distributed in the services sector with an approximate weight of 50%, the manufacturing sector with 12.4% and the mining and hydrocarbons sector with 11.3%. Ninety-five percent of the companies in the sample used in this study for Peru belong to these sectors, which lead the country's GDP (Banco central de Reserva del Perú, 2024).

In the case of Mexico, its GDP is comprised of approximately 62.3% of the service sector (commerce, transportation, mass media information, corporate, financial and all services) , which is equivalent to 46% of the companies in the sample. The secondary sector (manufacturing, construction, electricity, water, gas), represents about one third of the GDP and corresponds to 36% of the sample (México Como Vamos, 2024).

3.2. Regression model

Table 5 presents the summary statistics of the data used in the models. It is evident that the average ESG Score was 51 and the EP Score was 45.9 on average. The average ESG and EP values were higher in the Pacific Alliance companies compared to the UK companies analyzed by Li et al. (2018). In **Figure 6**, it is evident that the sectors with the highest average ESG and EP scores are forestry, construction, and oil and gas. These behaviors are similar to those reported by D'Amato et al. (2022) in STOXX Europe 600 Index companies. Evidencing that sector with a historical track record of high environmental impacts have in turn the highest ESG and EP scores (Yoon et al., 2018).

On the other hand, EBITDA and ROA values averaged 1036.29 and 4.68, respectively. Both variables had a wide range of variation.

Table 5. Statistical summary for variables in the company dataset from 2016 to 2022

	ESG Score	EP Score	Log (TASST)	TDTA	EBITDA	ROA
N	516	516	516	516	516	516
Mean	51.01	45.99	3.56	0.30	1036.29	4.68
SD	22.27	26.99	0.62	1.14	1984.52	6.20
Min	0.00	0.00	1.75	−0.41	−51.36	−21.96
25%	37.75	26.11	3.23	0.09	195.47	1.59
50%	55.89	48.14	3.53	0.21	409.78	3.91
75%	67.76	67.20	4.05	0.33	1115.28	6.97
Max	94.35	98.25	4.92	15.90	16306.94	53.28

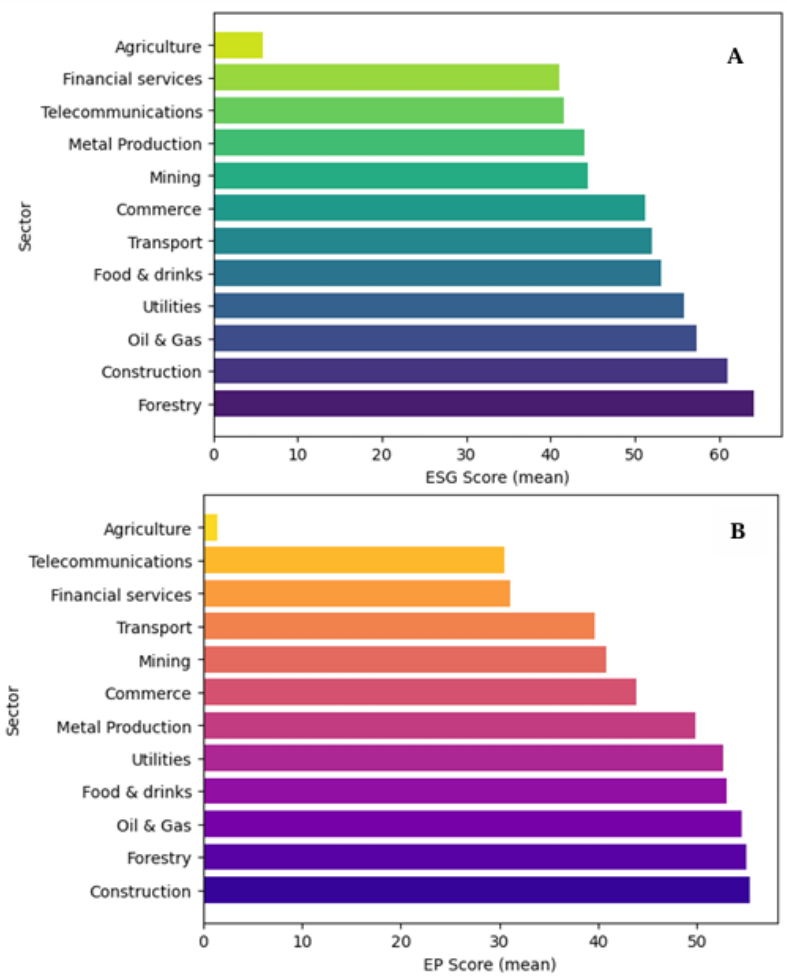

Figure 6. Average ESG score (A) and EP score (B) for each industrial sector.

Figure 7 shows the correlations between the different variables through a correlogram (the intensity of the color is proportional to the correlation coefficient between the variables). It also indicates the existence of linear dependence between the variables. In this sense, there is a slight positive correlation between EBITDA and the logarithm of total assets. This behavior can be explained by various factors such as economies of scale, greater debt capacity, and market diversification as companies become larger (Bouwens et al., 2019; Brealey et al., 2018; Damodaran, 2012). On the other hand, a positive correlation between ESG Score and EP Score was evidenced. This behavior was expected because the EP Score is one of the pillars that make up the ESG Score (Agliardi et al., 2023).

	Year	ESG Score	EP Score	Log_TASST	Leverage_TDTA	ROA	EBITDA
Year	1.000000	0.253898	0.233703	0.062081	0.019682	-0.017637	0.046177
ESG Score	0.253898	1.000000	0.900137	0.367377	0.153054	-0.092378	0.233483
EP Score	0.233703	0.900137	1.000000	0.363962	0.146954	-0.074705	0.228762
Log_TASST	0.062081	0.367377	0.363962	1.000000	-0.132630	-0.102066	0.555154
Leverage_TDTA	0.019682	0.153054	0.146954	-0.132630	1.000000	-0.082607	0.038929
ROA	-0.017637	-0.092378	-0.074705	-0.102066	-0.082607	1.000000	0.052378
EBITDA	0.046177	0.233483	0.228762	0.555154	0.038929	0.052378	1.000000

Figure 7. Correlation for each variable in the model.

Table 6 shows the results from the linear regression analyses, summarizing the effects of ESG and EP scores, company-specific factors, and economic conditions on normalized EBITDA and ROA across Pacific Alliance companies.

Table 6. Results of the linear regression model between the dependent variables, control variables, and independent variables.

Model	**1**	**2**	**3**	**4**
EP Score	−0.012 (0.007)		0.385 (1.067)	
ESG Score		−0.012 (0.032)		0.694 (0.763)
Log_TASST	1.4155** (0.168)	1.439** (0.503)	1822.634** (115.994)	1819.332** (110.974)
Leverage_TDTA	−0.2485* (0.085)	−0.249** (0.278)	198.012** (21.889)	197.037** (23.010)
Company	1.4768 ± 1.0275	0.1524 ± 0.0229 ± 0.0266 ± 0.8541 0.8840 0.8680		
Year	−0.0683 ± −0.0294 ± 0.0854 ± 0.0909 ± 0.2106 0.2087 0.0800 0.0799			
Sector	0.0858 ± 0.6052	0.1806 ± −0.0093 ± −0.0119 ± 0.5677 0.3715 0.4024		
EP or ESG X Country	0.0124 ± 0.0155	0.0089 ± 0.0017 ± −0.0002 ± 0.0063 ** 0.0008 ** 0.0040**		
Observations	516	516	516	516
R^2	0.613	0.609	0.960	0.960

For ROA (Models 1 and 2), the models showed a moderate explanatory power with an R-squared value of 0.613. ESG and EP scores on ROA were not statistically significant.

Models 3 and 4 demonstrated a strong fit with a high R-squared value of 0.960, indicating that 96% of the variability in normalized EBITDA across companies can be explained by the

predictors included in the model. The significant predictors encompassed various company-specific factors, suggesting that company performance significantly impacts EBITDA outcomes, overshadowing the impact of ESG and EP scores which did not reach statistical significance.

Each value represents the coefficient for the model. * and ** indicates significant differences (p-value < 0.05 and p-value < 0.01 respectively). Data in parenthesis indicates the F-statistic. For company, year and country values indicates the mean value and standard deviation for all coefficients in each category.

4. Discussion

4.1. Regression models

The ROA values obtained were higher on average than those reported by Anita et al. (2023) in Indian companies. Likewise, the Leverage_TDTA was lower than that reported by the researchers. In general, a higher ROA indicates greater effectiveness in generating profits with its assets in an accounting period. A value higher than 5% in this indicator is considered desirable (Aydoğmuş et al., 2022). ROA values had variations between −21.96 to 53.28, however, the mean of this indicator was below 5% indicating that Pacific Alliance companies are not as efficient with their assets for the accounting periods analyzed. Regarding EBITDA, values ranged from −51.36 to 16306.96, indicating a wide range of variation among Pacific Alliance companies. Negative values of this indicator represent fundamental problems in companies' earnings before interest, taxes, depreciation, and amortization; however, positive values do not necessarily indicate revenue generation (Bianconi and Tan, 2019). The variation in ROA and EBITDA data can be partly explained by the anomalous data evidenced in 2020 due to issues related to the COVID-19 pandemic (Lanchimba et al., 2020). This fact generally resulted in better returns for sectors such as retail and food and beverages and lower returns for sectors such as financials, construction, and mining.

It is important to mention that the model was run excluding the years 2020–2021, to verify if the COVID-19 pandemic significantly affected the statistical model and its correlations. Finally, it was concluded that, excluding these two time periods, both models continued to yield the same correlations and there were no significant differences in the overall results of both. It was therefore decided to consider both years (**Table 6**).

The ESG coefficient is non-significant in all models, providing no evidence for a correlation between overall ESG score and firm value for these Pacific Alliance firms. The EP coefficient is also non-significant in all models, suggesting no linkage between focused environmental performance and financial returns.

The results found differ from those reported by Aydoğmuş et al. (2022) and Li et al. (2018). These authors evidenced that ESG and EP correlated positively and significantly with ROA. In addition to this, the researchers reported a negative and significant correlation between firm size (Log_TASST) and firm value determined by ROA. This behavior is contrary to that found in this study, where the relationship between both variables is positive and significant.

However, it is important to note that the authors' sample was of companies with a market cap greater than USD 2.85 billion or companies from the United Kingdom. For the Pacific Alliance, despite in general the ESG and EP scores were higher on average than those of the companies taken by Aydoğmuş et al. (2022) and Li et al. (2018) none of the companies presented these market cap values.

The regression models demonstrate significant heterogeneity among companies from different countries, as evidenced by the variability in the coefficients associated with the dummy variables for each company and country. This variability indicates that EBITDA and ROA are affected differently depending on the company and the national context in which it operates (**Table 6**).

Some companies that show this are America Movil from Mexico and Ecopetrol from Colombia. These companies had a very high (7.0490) and significant coefficient, suggesting a strong positive impact on EBITDA and ROA. On the other hand, several companies have small or insignificant coefficients, indicating they do not have a significant impact on EBITDA within their respective countries.

Regarding the ESG and EP scores, the country-specific variables for these variables also show small and non-significant coefficients, suggesting that differences in ESG and EP scores at the country level do not significantly impact EBITDA or ROA.

The lack of significant ESG-value relationships in this analysis raises questions about the applicability of instrumental stakeholder theory in the Latin American and Pacific Alliance context. The theory suggests higher ESG engagement with stakeholders should improve financial performance, but this expected linkage was not evidenced here.

One potential explanation is that the unique economic and cultural conditions in countries in the Pacific Alliance alter how ESG/EP engagement impacts stakeholders like employees, suppliers, and customers, weakening the theoretical mechanisms that are supposed to translate into financial gains (Maso et al., 2017; Reyes et al., 2018). Even in the Pacific Alliance countries, the disclosure and adoption of environmental initiatives is not mandatory. More research into stakeholder dynamics in Pacific Alliance firms could provide insights into why instrumental stakeholder theory may not directly translate.

The findings also highlight the difficulty of accurately measuring firm financial value in Pacific Alliance firms using metrics like ROA and EBITDA. As noted earlier, these accounting measures have advantages over market valuation metrics in the region but are still impacted by factors like currency fluctuations (Franz, 2021; Starr, 2021). ROA and EBITDA may limit the ability to accurately capture the financial performance effects of ESG/EP engagement.

Comparing to other Latin American studies, our findings align more with Duque and Aguilera (2021) who also found non-positive ESG-financial performance relationships. This contrasts with Correa and Vásquez (2020) who evidenced positive correlations. More research is needed to understand the different dynamics across countries and industries within Pacific Alliance firms.

5.Contributions

5.1. Practical contributions

This study provides several practical contributions:

The findings offer valuable insights for corporate managers and policymakers in the Pacific Alliance countries. Understanding that ESG and EP scores may not have a significant immediate impact on financial performance highlights the need for companies to balance sustainability initiatives with other strategic business investments.

For investors, the results underscore the importance of considering multiple factors beyond ESG scores when evaluating potential investments. This could lead to more informed and balanced investment strategies that consider both financial and non-financial metrics.

The study's findings can inform policymakers about the current state of ESG practices and their impact on financial performance in the Pacific Alliance. This can help in designing better regulatory frameworks and incentives to promote sustainable business practices.

5.2. Theoretical contributions

This research also makes significant theoretical contributions:

By applying stakeholder theory to the context of the Pacific Alliance, the study extends the theoretical framework to emerging markets. It challenges the assumption that the positive relationships observed in developed markets automatically apply to emerging markets, highlighting the need for localized models.

The study provides empirical evidence on the relationship between ESG performance and financial outcomes in the unique economic and cultural conditions of the Pacific Alliance countries. This contributes to the broader literature by offering context-specific insights that enrich the global understanding of ESG impacts.

The use of fixed effects models and the detailed consideration of control variables such as firm size and leverage provide a robust methodological approach. This can serve as a reference for future studies aiming to explore similar relationships in different contexts.

5.3. Limitations and future directions

Despite its contributions, this study has several limitations that suggest avenues for future research:

The sample size of 86 companies, although representative, is relatively small. Future research could expand the sample size and include more companies from different sectors to enhance the generalizability of the findings.

The study covers a time frame from 2016 to 2022. Including a longer period could provide more comprehensive insights into the long-term effects of ESG practices on financial performance.

Future research should consider including additional firm characteristics such as ownership structure, years of establishment, and export values to provide a more nuanced understanding

of how these factors influence the relationship between ESG performance and financial outcomes.

6. Conclusion

This work contributes to the literature by addressing empirical studies in the applicability of global ESG-financial performance models on a sample of Pacific Alliance firms, determining they do not directly translate to this context. Providing initial evidence that ESG dynamics and firm valuations may follow distinct patterns in Pacific Alliance countries vs other regions. Demonstrating the challenges of ESG data availability and identifying appropriate financial valuation metrics for Pacific Alliance companies. Highlighting Pacific Alliance firms as an important context requiring further research to understand ESG-financial linkages in emerging markets.

Some key points highlighted within the research work include that regression models showed no significant correlation between overall ESG or EP scores and accounting-based firm value measures of ROA and EBITDA. This contrasts with some previous studies in other regions that found positive ESG-financial performance links.

The inconclusive results on ESG-firm value connections underscore the need for continued research using larger samples, localized models, and exploring which ESG aspects drive financial performance Pacific Alliance.

Studying faces certain inherent challenges. While the sample size of 86 companies may appear small, it is crucial to recognize the deliberate selection of a representative subset of the most influential and active firms in terms of capitalization and stock market transactions within the Pacific Alliance countries. These firms were chosen for their size and significant economic impact in the region. However, it’s important to note that the availability of information was a key factor in defining this select group. This constraint, while presenting challenges, underscores the need to develop more localized and specific valuation proxies. Such development would support future research with larger and more comprehensive samples over time, providing stronger evidence.

Based on the findings in this study and the limitations, some aspects can be addressed for future research. Expanding the sample size, incorporating more companies from the Pacific Alliance countries. Incorporating longer periods to better understand ESG-financial trends over full business cycles. Testing additional financial valuation metrics tailored to emerging

markets, like return on invested capital. Surveying Pacific Alliance countries' stakeholders like employees and customers to understand cultural perceptions of ESG. Developing theoretical frameworks adapted to the Pacific Alliance countries' context to better inform empirical models.

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CAPITULO 3. Influencia de los Indicadores ESG en los Indicadores Financieros: Un Estudio de Empresas Listadas en la Alianza del Pacífico

Abstract

En el contexto actual de los mercados globales cobra cada vez más importancia integrar criterios Ambientales, Sociales y de Gobernanza (ESG) en las estrategias corporativas para evaluar el rendimiento y valor de las empresas. Este documento se centra en analizar la sensibilidad de determinados indicadores financieros frente a las variaciones en las puntuaciones ESG y sus pilares individuales: Ambiental (E), Social (S) y Gobernanza (G). El objetivo es explicar las razones de esta sensibilidad y sus mecanismos subyacentes.

La investigación aborda el estudio de empresas listadas en los países de la Alianza del Pacífico—Chile, Colombia, México y Perú—durante el período 2016 a 2022. Se utilizan regresiones lineales con efectos fijos para explorar las correlaciones entre las puntuaciones ESG (ESG Score total, EP Score, SP Score, GP Score) y varios indicadores financieros, incluyendo la capitalización del mercado, patrimonio total, margen bruto y margen de utilidad neta, entre otros. Como variables de control, se incluyen el tamaño de la empresa, expresado como el logaritmo de los activos totales, y el apalancamiento, definido como la relación de deuda sobre activos.

Los resultados destacan que las mejoras en las puntuaciones de ESG están significativamente asociadas con incrementos en el patrimonio total de las empresas, con variaciones notables entre los distintos pilares de ESG. Por ejemplo, el pilar ambiental muestra una relación positiva y estadísticamente significativa con el patrimonio total, mientras que el pilar de gobernanza no presenta una correlación significativa. Estos hallazgos subrayan la importancia del tamaño empresarial y la estructura de capital como moderadores en la relación entre sostenibilidad y rendimiento financiero, evidenciando que empresas más grandes y menos apalancadas tienden a mostrar mejores resultados financieros asociados a prácticas sostenibles.

Este estudio no solo proporciona evidencia empírica sobre la dinámica específica de los indicadores ESG en los mercados emergentes, sino que también ofrece importantes implicaciones para inversores, reguladores y formuladores de políticas en la promoción de

prácticas sostenibles. Las limitaciones del estudio incluyen la necesidad de explorar otras variables potencialmente influyentes y la aplicación de modelos estadísticos alternativos para probar la robustez de los resultados. En futuras investigaciones, sería beneficioso expandir el análisis a otros mercados emergentes y explorar en mayor profundidad los mecanismos subyacentes que explican las diferencias en la sensibilidad de los indicadores financieros a las puntuaciones ESG.

Esta investigación amplía la comprensión del impacto económico de la sostenibilidad en los mercados de capitales de la Alianza del Pacífico y contribuye significativamente a la literatura sobre finanzas sostenibles, ofreciendo perspectivas que pueden ayudar a mejorar las decisiones de inversión y la formulación de políticas de sostenibilidad.

1. **Introducción**

En las últimas décadas, la sostenibilidad corporativa ha emergido como un factor crucial en la evaluación del rendimiento y valor de las empresas en los mercados globales (Alam & Tariq, 2023). Investigaciones recientes sugieren que la integración de criterios Ambientales, Sociales y de Gobernanza (ESG) en las estrategias corporativas está vinculada con la creación de valor a largo plazo para los inversores y otros grupos de interés (Agliardi et al., 2023). Este estudio se centra en analizar cómo las iniciativas de desempeño ESG y sus componentes —ambiental (EP), social (SP) y de gobernanza (GP)— influencian varios indicadores financieros en empresas listadas en los principales índices bursátiles de los países de la Alianza del Pacífico: Chile, Colombia, México y Perú.

A pesar de la creciente adopción de prácticas de sostenibilidad por parte de las empresas a nivel mundial, existe una considerable variabilidad en cómo estas prácticas afectan la percepción y el valor de mercado de las empresas en diferentes contextos económicos (Aydoğan & Kara, 2023). La Alianza del Pacífico, como un bloque económico emergente en América Latina, proporciona un campo de estudio único para explorar estas dinámicas debido a sus mercados de capitales en desarrollo y su compromiso político con la sostenibilidad ambiental (Arruti, 2023). Sin embargo, la relación entre las puntuaciones de sostenibilidad y el valor corporativo en este contexto específico han sido relativamente poco estudiadas, lo que plantea preguntas sobre la efectividad y el impacto económico de las políticas de ESG en los mercados emergentes.

Esta investigación se basa en la teoría de la información asimétrica y la hipótesis del mercado eficiente. Según la primera, las puntuaciones ESG podrían mitigar el problema de información

asimétrica al proporcionar a los inversores datos esenciales sobre las prácticas de gestión de riesgos y sostenibilidad de una empresa (Bilyay-Erdogan et al., 2024; Ji et al., 2023). La hipótesis del mercado eficiente, por otro lado, sugiere que toda la información disponible sobre una empresa, incluidas sus prácticas de sostenibilidad, ya está reflejada en su precio de mercado (Bofinger et al., 2022; Cao et al., 2020; Mondal et al., 2022).

El objetivo principal de este estudio fue determinar cuáles indicadores financieros relacionados con el valor y rentabilidad de la empresa presentan correlaciones estadísticamente significativas con los indicadores ESG y sus pilares constitutivos; y cómo las variables de control como el tamaño de la empresa y su nivel de apalancamiento modulan esta correlación, pues algunos estudios sugieren que empresas más grandes y con mayor capacidad de apalancamiento cuentan con mayores recursos para mejorar su puntuación ESG (Chong & Loh, 2023). En este sentido, se plantearon las siguientes hipótesis:

H1: Existe una correlación estadísticamente significativa entre las puntuaciones ESG y los indicadores financieros de valor de empresa y rentabilidad de las empresas listadas en los principales índices bursátiles de los países de la Alianza del Pacífico.

H2: Existe una correlación estadísticamente significativa entre cada una de las puntuaciones de EP, SP y GP y los indicadores financieros de valor de empresa y rentabilidad de las empresas listadas en los principales índices bursátiles de los países de la Alianza del Pacífico.

H3: Los efectos de las puntuaciones ESG, EP, SP y GP sobre los indicadores financieros de valor de empresa y rentabilidad son modulados por el tamaño de la empresa y su nivel de apalancamiento.

Para testear las hipótesis, este estudio emplea modelos de regresión lineal con efectos fijos para analizar los datos de la muestra, centrando la atención en las variaciones de las constantes de los modelos y la significancia estadística de las variables involucradas. La muestra está compuesta por 91 empresas listadas en los principales índices bursátiles de los países de la Alianza del Pacífico, de las que se obtuvieron datos de ESG, EP, SP y GP, y de los indicadores financieros clave que cubren el periodo de 2016 a 2022.

El entender cuáles variables relacionadas con el comportamiento financiero son sensibles al cambio de los puntajes de ESG y sus pilares constitutivos (ambiental, social y de gobernanza) es imperativo para los inversionistas, legisladores y académicos. Para los inversionistas, la clarificación de esta relación puede guiar la toma de decisiones de inversión y mejorar la

gestión de riesgos (Al-Shaer et al., 2023). Para los legisladores, los resultados del estudio pueden proporcionar evidencia para diseñar políticas que promuevan un desarrollo económico más sostenible (Lu & Wang, 2021). En el ámbito académico, este estudio contribuye a la literatura existente al explorar estas dinámicas en un contexto de mercados emergentes, lo cual es relevante dado el crecimiento económico y la integración financiera de la Alianza del Pacífico. Esta investigación contribuye al cuerpo de conocimiento sobre finanzas sostenibles y proporciona *insights* valiosos para inversionistas, reguladores y formuladores de políticas interesados en el impacto de las prácticas de sostenibilidad en el valor corporativo.

2. **Metodología**

Este estudio emplea un diseño cuantitativo para examinar la relación entre las puntuaciones de sostenibilidad y los indicadores financieros de las empresas de la muestra. Se utilizó un modelo de regresión lineal múltiple para determinar que correlaciones existen entre las variables consideradas. Los puntajes de sostenibilidad actúan como variables independientes en el modelo, mientras que los indicadores financieros de valor de empresa y rentabilidad actúan como variables dependientes, además se incluyen el tamaño de empresa y el apalancamiento como variables de control.

Obtención de Datos de la muestra

Se utilizó un conjunto de datos que comprende múltiples compañías y años, estructurado en formato de panel. Estos datos se obtuvieron de bases de datos financieras internacionales: Bloomberg y Refinitiv. De Refinitiv se obtuvieron las variables que cuantifican la sostenibilidad de la empresa. De Bloomberg se obtuvieron las variables que describen diferentes aspectos del desempeño financiero, así como las variables de control usadas.

Los datos de las empresas obtenidas en las bases de datos mencionadas se seleccionaron con una ventana de tiempo de 2016-2022. Se eligió esta ventana temporal teniendo en cuenta que los datos sobre indicadores ESG se han reportado de forma más consistente desde 2016 para muchas de las empresas de los países de la Alianza del Pacífico.

La muestra de empresas se seleccionó a partir de los principales índices bursátiles de cada país de la Alianza del Pacífico: Chile - Índice IPSA, México - Índice BMV IPC, Colombia - Índice COLCAP, Perú - Índice General S&P/BVL Perú. A partir de los componentes del índice, las empresas se seleccionaron en función de los siguientes criterios:

- Disponibilidad de datos de ESG en la base de datos Refinitiv de 2016 a 2022: Se

excluyeron las empresas que carecían de datos ESG suficientes en este periodo.

- Disponibilidad de datos financieros en la base de datos Bloomberg de 2016 a 2022: Se excluyeron las empresas que carecían de suficientes datos de las variables financieras en este periodo.
- Se excluyeron las empresas que experimentaron grandes fusiones/adquisiciones o reestructuraciones corporativas durante 2016-2022 debido a problemas de continuidad de los datos.

El proceso de selección dio como resultado una muestra final de 91 empresas de los 4 países, con 637 observaciones. La distribución por sectores se realizó teniendo en cuenta los índices generales, manteniendo la representación de todas las industrias principales. Sobre esta muestra se recolectaron todos los datos disponibles, sin embargo, debido a la variabilidad en disponibilidad de datos reportados, no todas las observaciones empresa-año cuentan con la totalidad de los datos requeridos, resultando en un conteo de datos diferente para cada variable. La estadística descriptiva de la muestra puede verse en la tabla 7.

Variables del Estudio

1. Variables Independientes:
    - Puntuación total de ESG (ESG Score): Representa la evaluación de las prácticas de sostenibilidad ambiental, social y de gobernanza.
    - Puntuación del pilar ambiental (EP Score): Refleja el desempeño de la empresa en métricas medioambientales.
    - Puntuación del pilar social (SP Score): Refleja el desempeño de la empresa en cuanto a su impacto social.
    - Puntuación del pilar de gobernanza (GP Score): Refleja el desempeño de la empresa en cuanto a su modelo de gobernanza.

El cálculo de cada una de estas puntuaciones hace uso de una serie de métricas cuyo desglose puede verse en la tabla 9 de la sección de anexos.

2. Variables dependientes:
    - *Patrimonio total (Total equity):* Medición directa del patrimonio total de la empresa.
    - *Ingresos netos:* Medida de la totalidad de ingresos de la empresa.
    - *Capitalización de mercado (Market Cap):* costo del total de las acciones en circulación de la empresa.

- *Retorno en capital empleado (ROCE):* mide la rentabilidad de una empresa en relación con el capital que utiliza.
- *Retorno en capital invertido (ROIC):* mide la eficiencia de una empresa en cuanto a cómo asigna el capital bajo su control para generar rendimientos rentables.
- *Margen de utilidad neta:* mide la proporción de ingresos netos obtenidos de los ingresos totales de una empresa.
- *Retorno en activos (ROA):* mide la eficiencia con la que una empresa utiliza sus activos para generar beneficios netos.
- *Q de Tobin (Tobin's Q):* compara el valor de mercado de una empresa con el costo de reposición de sus activos totales. Se calcula dividiendo el valor de mercado de la empresa (incluyendo deuda y patrimonio) por el valor de reposición de sus activos.

Al considerar estas variables se incluyen medidas de valor contable como el patrimonio total, indicadores de rentabilidad como los ingresos netos, ROCE, y ROIC, y métricas de eficiencia operativa como el ROA y el margen de utilidad neta. Además, se considera la capitalización de mercado para evaluar la percepción del mercado y la Q de Tobin para comparar el valor de mercado con el costo de reposición de los activos. Esta variedad de variables dependientes permite examinar desde la eficacia con la que una empresa utiliza sus activos hasta cómo el mercado valora estas prácticas, ofreciendo *insights* valiosos sobre la influencia real de las iniciativas ESG en la estructura financiera y el potencial de crecimiento de las empresas.

3. Variables de control:

Las variables de control seleccionadas fueron el tamaño de la empresa (SIZE), y el Apalancamiento (LEV). Estas variables han sido usadas en otros artículos similares (Atan et al., 2018; Giannopoulos et al., 2022; Naeem et al., 2021).

- Tamaño de la empresa (SIZE): Medida del tamaño de la empresa entendido como el logaritmo de los activos totales.
- Nivel de apalancamiento (LEV): Indicador de la estructura de capital medido como la relación de la deuda total sobre los activos totales.

Análisis Estadístico

La fórmula del modelo de regresión empleado para explorar las correlaciones entre las variables fue:

$$VD_i = \beta_0 + \beta_1 VI_i + \beta_2 SIZE_i + \beta_3 LEV_i + \varepsilon_i$$

Donde:

VD_i es cada una de las variables dependientes consideradas en el estudio, VI_i es cada una de las variables independientes consideradas, $SIZE_i$ es el tamaño de la empresa representado como el logaritmo de los activos totales y LEV_i es el nivel de apalancamiento representado por la deuda total dividida por los activos totales. Además, βi son cada uno de los coeficientes de las variables y ε_i es el error. Al construir todos los modelos posibles, considerando para cada uno las diferentes combinaciones de variables, se obtienen 32 modelos.

Se utilizaron dos enfoques principales de modelado de paneles: efectos fijos y efectos aleatorios. Los modelos se especificaron de la siguiente manera:

- Modelo de Efectos Fijos: Se implementó utilizando la biblioteca **linearmodels.panel** de Python. Este modelo consideró las diferencias intrínsecas entre las entidades (compañías) que no cambian a lo largo del tiempo.
- Modelo de Efectos Aleatorios: Se utilizó la biblioteca **linearmodels.panel**, este modelo permite que los efectos no observados varíen aleatoriamente entre las entidades a diferencia de los efectos fijos.

Para determinar el modelo más apropiado entre efectos fijos y aleatorios, se realizó una prueba de Haussmann. Esta prueba comparó las diferencias en los coeficientes entre ambos modelos. El valor p asociado determinó si los efectos fijos proporcionaban una mejor especificación del modelo en comparación con los efectos aleatorios, basándose en la significancia de las diferencias en coeficientes estimados.

Además, se exploró la regularización Ridge para abordar cualquier problema de multicolinealidad y mejorar la generalización del modelo. Se compararon los errores cuadráticos medios (MSE) de los modelos con y sin regularización Ridge, utilizando predicciones de validación cruzada para evaluar el rendimiento del modelo.

El modelo de regresión lineal se seleccionó debido a su capacidad para identificar relaciones lineales entre múltiples variables independientes y dependientes. Este método permite evaluar

el efecto directo de las puntuaciones de ESG y sus componentes sobre los indicadores financieros controlando por tamaño y apalancamiento de la empresa. La elección de un enfoque de panel con efectos fijos y aleatorios nos permite controlar variables inobservables que podrían afectar los resultados, donde la prueba de Haussmann determinará la especificidad del modelo más adecuado considerando si los efectos inobservables son correlacionados con los regresores.

Para cada modelo de regresión, se reportaron los coeficientes estimados con sus respectivos valores p y los intervalos de confianza al 95%. Un valor p menor a 0.05 se consideró estadísticamente significativo. El ajuste del modelo se evaluó usando el R-cuadrado ajustado. Además, se realizaron análisis de sensibilidad para examinar la robustez de los resultados frente a diferentes especificaciones de modelo. Las pruebas de diagnóstico para multicolinealidad, homocedasticidad, y normalidad de los residuos aseguraron la validez de los modelos de regresión.

3. **Resultados y discusiones**

Análisis descriptivos

Tabla 7. Estadística descriptiva de las variables consideradas.

Estadístico	**Conteo**	**Media**	**Desviación**	**Mínimo**	**Máximo**	**Mediana**
ESG Score	607	51.8	22.1	1.5	94.4	56.5
EP Score	592	48.5	25.7	0.0	98.3	49.9
SP Score	558	54.4	25.7	0.5	96.7	60.8
GP Score	558	53.6	22.3	2.7	96.9	55.5
Total equity	637	3291.8	4120.9	21.8	24560.8	1430.6
Ingresos netos	630	4776.3	7843.7	0.0	54170.1	1634.1
Market Cap	637	5733.3	9791.0	6.5	68566.0	2375.3
Margen de utilidad neta	620	0.1	0.2	-2.3	1.4	0.1
Tobin’s Q	630	1.8	1.6	0.0	11.7	1.3
ROCE	630	0.1	0.1	-0.4	1.0	0.1
ROIC	511	5.4	6.1	-19.7	35.7	4.6
ROA	502	9.3	21.3	-31.4	420.5	7.3

La tabla 7 presenta el análisis descriptivo de las variables. Se evidencia que la muestra presenta una considerable variabilidad en las puntuaciones de ESG y sus componentes individuales (ambiental, social y gobernanza) entre las empresas de la Alianza del Pacífico. Las puntuaciones ESG tienen un promedio de 51.8 con un rango muy amplio de 1.5 a 94.4, reflejando diversidad en cómo las empresas incorporan y reportan prácticas de sostenibilidad. Los indicadores financieros como el patrimonio total, ingresos netos, y la capitalización de mercado muestran una alta variabilidad, lo que indica diferentes niveles de rendimiento financiero y tamaño empresarial en la muestra. En particular, el amplio rango en la capitalización de mercado y el patrimonio total, junto con desviaciones estándar significativas, sugiere variaciones sustanciales en la valoración y los recursos financieros de las empresas dentro del bloque económico.

Además, métricas de rendimiento financiero como el margen de utilidad neta, ROCE, ROIC, y ROA revelan disparidades en la eficiencia operativa y la generación de valor de las empresas de la muestra. A pesar de que la mediana y el promedio de la Q de Tobin están cerca de 1, indicando una evaluación de mercado cercana al costo de reposición de activos, la variabilidad observada sugiere que algunas empresas pueden estar sub o sobrevaloradas. Estos hallazgos destacan la necesidad de investigar más profundamente las relaciones entre las prácticas de sostenibilidad y los resultados financieros, explorando cómo las variaciones en las puntuaciones de ESG podrían influir en la percepción del mercado y el rendimiento económico en un contexto de mercados emergentes, donde la adopción de prácticas sostenibles está ganando importancia.

Resultados de la Regresión

Las regresiones se realizaron para cada combinación de variables dependientes e independientes, generando un total de 32 modelos. Los coeficientes resultantes, junto con sus niveles de significancia y los valores de R^2 para cada modelo, ofrecen una visión detallada de la influencia de las prácticas de sostenibilidad sobre el desempeño financiero de las empresas. Los modelos que incluyeron el pilar ambiental (EP Score) mostraron generalmente mayores niveles de explicación, especialmente en su relación con el patrimonio total y la capitalización de mercado. En las Figuras 1 a la 9 del anexo 2 se muestran los gráficos de dispersión de las diferentes variables relacionadas que mostraron significancia estadística.

La tabla 8 muestra un resumen de los resultados de las regresiones, los R^2 y los coeficientes de cada variable independiente y de control.

En cuanto al Total equity vs EP Score, el modelo presentó un R^2 de 0.624, lo que indica que aproximadamente el 62.4% de la variabilidad en el patrimonio total puede ser explicada por este. El coeficiente de EP Score fue positivamente significativo (coef = 0.0041, $p < 0.05$), sugiriendo un aumento en el patrimonio en respuesta a mejores puntuaciones ambientales.

De manera similar, el modelo que mide la relación del SP Score con el Total Equity obtuvo un valor R^2 de 0.618, indicando que un 61.8% de la variabilidad del patrimonio total puede ser explicada por este modelo. El coeficiente fue positivo y estadísticamente significativo (coef = 0.0028, $p < 0.05$), lo cual sugiere que una mejor puntuación en el aspecto social de la empresa produce un aumento en el patrimonio total.

El indicador de Market Cap también mostró una correlación significativa con el EP Score, con un R^2 de 0.33 y un coeficiente de 0.0043, destacando el impacto positivo de las iniciativas ambientales en la valoración de mercado de las empresas. Esto es consistente con la literatura global que sugiere que inversiones y prácticas sostenibles pueden reducir los riesgos y atraer a inversores conscientes de la sostenibilidad, lo que potencialmente incrementa el valor de mercado (Alam & Tariq, 2023; Aydoğan & Kara, 2023; Cortez et al., 2022).

En cuanto al modelo de Ingresos Netos vs. ESG Score**,** este mostró un R^2 de 0.422, lo que indica que aproximadamente el 42.2% de la variabilidad en los ingresos netos puede ser explicada por las variables incluidas en el modelo. El coeficiente del ESG Score fue de 0.0040 y estadísticamente significativo ($p = 0.012$). Esto sugiere que un incremento de una unidad en el ESG Score se asocia, en promedio, con un aumento de 0.0040 unidades en los ingresos netos, manteniendo constantes las demás variables.

La relación del EP Score con los ingresos netos también fue significativa, con un R^2 de 0.432. El coeficiente para EP Score fue de 0.0053 ($p < 0.05$), indicando que un aumento en la puntuación ambiental está asociado con un incremento en los ingresos netos.

La variable de puntuación social (SP Score) mostró una relación significativa con los ingresos netos, con un R^2 de 0.425, indicando que aproximadamente el 42.5% de la variabilidad en los ingresos netos puede ser explicada por este modelo. El coeficiente para SP Score fue de 0.0041 ($p < 0.05$), sugiriendo que mejoras en la responsabilidad social corporativa están asociadas con un incremento en los ingresos netos, reflejando posiblemente una mejor aceptación y apoyo por parte de los consumidores y otras partes interesadas.

El EP Score mostró una relación negativa con la Q de Tobin, aunque con un R^2 de apenas

0.037. El coeficiente para EP Score fue de -0.0041 ($p < 0.05$), esto sugiere una repuesta negativa del mercado ante mejoras en el desempeño ambiental de las empresas y contradice otros resultados como el obtenido con la variable de Market Cap. Sin embargo, el índice de correlación es tan bajo que no se puede concluir sobre el poder explicativo de este modelo.

La relación entre el ESG Score y el margen de utilidad neta presentó un R^2 muy bajo de 0.026, esto es indicativo del bajo poder explicativo de este modelo. Este indicó que las puntuaciones ESG integrales tienen un impacto positivo y significativo en el margen de utilidad neta, con un coeficiente de 0.0054 ($p < 0.05$). Esto puede interpretarse como que prácticas sostenibles bien integradas están asociadas con una mayor eficiencia operativa y control de costos, lo que resulta en una mejor rentabilidad.

El coeficiente para SP Score fue de 0.0019 ($p < 0.05$), sugiriendo una asociación positiva y significativa entre la responsabilidad social corporativa y la rentabilidad operativa (Margen de Utilidad Neta). Sin embargo, la relación del SP Score con el margen de utilidad neta mostró un R^2 de 0.026, un índice de correlación demasiado bajo que no refleja confiabilidad en el poder predictivo del modelo.

La prueba de Hausman resultó en un estadístico de 0.00002513 y un valor p de 0.9999999664836063, lo que sugiere que no hay diferencia significativa entre los coeficientes estimados por los modelos de efectos fijos y efectos aleatorios.

Al comparar los coeficientes de las variables independientes, se observa que las siguientes variables tienen el mayor impacto en cada uno de los indicadores financieros:

Para el Patrimonio Total el EP Score y el SP Score tienen los coeficientes más altos y significativos, indicando que las prácticas ambientales y sociales tienen un impacto positivo y considerable en esta variable.

En cuanto al Market Cap el EP Score es la variable independiente más influyente, destacando la importancia de las prácticas ambientales en la valoración de mercado de las empresas. En el modelo de la Q de Tobin el EP Score muestra una relación significativa pero negativa, lo que va en contravía del resultado anterior, aunque este modelo tuvo una correlación entre las variables de apenas 3,7%.

Tanto el EP Score como el SP Score son altamente significativos para los Ingresos Netos, mostrando que las prácticas ambientales y sociales contribuyen significativamente al

incremento en este indicador.

Tabla 8. Resultados de los modelos de regresión.

Variable Dependiente	Variable Independiente	Coef.	Error Estándar	Valor p	SIZE Coef.	SIZE Valor P	LEV Coef.	LEV Valor p	R^2
Total equity	ESG Score	0,0017	0,001	0,197	1,374	0,000	-0,118	0,000	0,615
	EP Score	0,0041	0,001	0,002	1,353	0,000	-0,122	0,000	0,624
	SP Score	0,0028	0,001	0,014	1,364	0,000	-0,122	0,000	0,618
	GP Score	-0,0005	0,001	0,675	1,393	0,000	-0,111	0,000	0,614
Ingresos Netos	ESG Score	0,0040	0,002	0,012	1,099	0,000	-0,098	0,000	0,422
	EP Score	0,0053	0,001	0,000	1,091	0,000	-0,096	0,000	0,432
	SP Score	0,0041	0,001	0,003	1,099	0,000	-0,099	0,000	0,425
	GP Score	0,0017	0,002	0,271	1,132	0,000	-0,089	0,000	0,418
Market Cap	ESG Score	0,0028	0,002	0,106	0,981	0,000	-0,096	0,000	0,324
	EP Score	0,0043	0,001	0,002	0,969	0,000	-0,096	0,000	0,331
	SP Score	0,0029	0,002	0,055	0,981	0,000	-0,097	0,000	0,325
	GP Score	0,0006	0,002	0,702	1,006	0,000	-0,088	0,000	0,321
ROCE	ESG Score	0,0004	0,002	0,832	0,056	0,456	-0,075	0,004	0,014
	EP Score	-0,0005	0,002	0,772	0,065	0,380	-0,072	0,004	0,014
	SP Score	0,0011	0,002	0,555	0,050	0,499	-0,077	0,003	0,015
	GP Score	-0,0002	0,002	0,926	0,061	0,401	-0,072	0,005	0,014
ROIC	ESG Score	0,0007	0,002	0,729	0,136	0,065	-0,151	0,000	0,057
	EP Score	0,0004	0,002	0,814	0,139	0,054	-0,149	0,000	0,057
	SP Score	0,0017	0,002	0,334	0,126	0,082	-0,154	0,000	0,058
	GP Score	0,0023	0,002	0,242	0,133	0,061	-0,155	0,000	0,059
Margen de Utilidad Neta	ESG Score	0,0054	0,002	0,009	0,018	0,810	-0,095	0,000	0,026
	EP Score	0,0021	0,002	0,214	0,053	0,475	-0,082	0,001	0,018
	SP Score	0,0047	0,002	0,009	0,027	0,717	-0,094	0,000	0,026
	GP Score	0,0032	0,002	0,107	0,059	0,420	-0,087	0,001	0,019
ROA	ESG Score	0,0021	0,002	0,308	0,008	0,908	-0,151	0,000	0,064
	EP Score	0,0004	0,002	0,788	0,025	0,729	-0,145	0,000	0,063
	SP Score	0,0021	0,002	0,227	0,009	0,905	-0,152	0,000	0,065
	GP Score	0,0020	0,002	0,299	0,021	0,770	-0,151	0,000	0,064
Tobin's Q	ESG Score	-0,0340	0,002	0,096	-0,167	0,025	0,114	0,000	0,032
	EP Score	-0,0041	0,002	0,014	-0,164	0,025	0,112	0,000	0,037
	SP Score	-0,0032	0,002	0,075	-0,170	0,021	0,114	0,000	0,033
	GP Score	0,0011	0,002	0,593	-0,205	0,005	0,099	0,000	0,029

Para el Margen de Utilidad Neta tanto el ESG Score Completo como el SP Score tienen coeficientes significativos, lo que indica que las prácticas sostenibles integradas y las prácticas sociales están asociadas con una mayor rentabilidad operativa, aunque los modelos que

consideraron estas variables mostraron un índice de correlación de apenas 0.026.

En cuanto a otros indicadores financieros como la Q de Tobin, el ROCE y ROIC, los resultados fueron más variados, con menor R^2, lo que sugiere una influencia menos directa o más condicionada de las puntuaciones ESG en estas métricas. Específicamente, las métricas de rentabilidad como ROCE y ROIC no mostraron correlaciones fuertes, indicando posibles diferencias en cómo las estrategias de sostenibilidad impactan las operaciones financieras a corto y largo plazo.

Estos hallazgos señalan la complejidad de las relaciones entre las prácticas de sostenibilidad y los diferentes indicadores de rendimiento financiero, sugiriendo la necesidad de un enfoque más matizado al evaluar el impacto de las políticas ESG en el desempeño corporativo.

Los resultados de la regresión mostraron que el tamaño de la empresa, medido como el logaritmo de los activos totales, juega un papel moderador en varias de las relaciones exploradas. Por ejemplo, en los modelos que vinculan las puntuaciones ESG y el ROIC, el tamaño de la empresa resultó ser un predictor significativo con un coeficiente positivo (coef = 0.058, $p < 0.05$). Esto sugiere que las empresas más grandes tienden a mostrar una mayor capacidad para convertir prácticas de sostenibilidad en rentabilidad operativa. Esta relación puede explicarse por la mayor disponibilidad de recursos en empresas más grandes, lo que permite una implementación más efectiva de prácticas sostenibles. Además, las grandes empresas a menudo están más expuestas a la presión pública y reguladora, incentivándolas a mejorar sus puntuaciones ESG, lo cual puede traducirse en un mejor rendimiento financiero visible. Estos resultados son congruentes con los obtenidos en otras investigaciones (Dzeraviaha, 2023; Rosdiana & Mulyani, 2023).

El nivel de apalancamiento mostró un impacto significativo en la relación entre las puntuaciones de ESG y el margen de utilidad neta. El modelo reveló que un mayor apalancamiento está asociado con una menor influencia de las puntuaciones ESG en el margen de utilidad neta (coef = -0.032, $p < 0.01$). Esto podría deberse a que las empresas con alto nivel de deuda pueden enfrentar restricciones financieras que limitan su capacidad de invertir en iniciativas de ESG, que a menudo requieren inversiones significativas a largo plazo para ser rentables. Además, el servicio de la deuda puede absorber recursos que de otro modo podrían utilizarse para mejorar la sostenibilidad y la eficiencia operativa (Chong & Loh, 2023).

En todos estos casos, el tamaño de la empresa generalmente potenció la relación entre las

puntuaciones de sostenibilidad y los indicadores financieros, sugiriendo que empresas más grandes tienen mejores recursos y capacidades para implementar prácticas de sostenibilidad que impacten positivamente en su rendimiento financiero. Por otro lado, un mayor nivel de apalancamiento a menudo disminuyó la capacidad de las prácticas de sostenibilidad para afectar positivamente los indicadores financieros, lo que podría reflejar restricciones financieras que limitan la implementación de dichas prácticas.

Estos resultados sugieren la importancia de considerar la estructura de capital y el tamaño de la empresa al evaluar el impacto de las puntuaciones de sostenibilidad en el rendimiento financiero. También indican que mientras que las prácticas de sostenibilidad pueden mejorar ciertos indicadores financieros, su efectividad puede ser contingente a factores financieros y operativos internos de la empresa.

Los resultados de las regresiones proporcionan evidencia significativa para verificar o rechazar las hipótesis planteadas. En el caso de la H1, se encontró una correlación positiva y estadísticamente significativa entre el ESG Score y varios indicadores financieros claves. Por ejemplo, el coeficiente del ESG Score en relación con el patrimonio total fue de 0.0017 ($p = 0.197$), mientras que para los ingresos netos fue de 0.0040 ($p = 0.012$), lo que indica que las empresas con mejores puntuaciones en sostenibilidad tienden a tener mayores valores de patrimonio e ingresos netos. Además, el ESG Score también mostró una correlación positiva con el Market Cap, con un coeficiente de 0.0028 ($p = 0.106$), aunque este resultado no fue estadísticamente significativo al nivel del 5%. Estos resultados verifican parcialmente la H1, ya que muestran que, en general, las puntuaciones ESG están asociadas positivamente con la creación de valor y la rentabilidad de las empresas, pero no en todos los indicadores.

En cuanto a la H2, se verificó claramente mediante los resultados de las regresiones que analizaron los pilares individuales de ESG. El EP Score (pilar ambiental) presentó un coeficiente positivo de 0.0041 ($p = 0.002$) en relación con el patrimonio total, lo que sugiere que las prácticas ambientales mejoradas tienen un impacto positivo en el valor patrimonial de las empresas. Asimismo, el SP Score (pilar social) mostró una relación significativa con los ingresos netos, con un coeficiente de 0.0041 ($p = 0.003$), indicando que una mejor responsabilidad social empresarial también incrementa los ingresos. Además, el SP Score mostró una correlación significativa con el Market Cap (coef = 0.0029, $p = 0.055$), lo que refuerza la idea de que tanto el pilar ambiental como el social tienen un impacto positivo en la valoración de mercado y el rendimiento financiero. Estos resultados verifican claramente la H2, al mostrar que los pilares individuales del ESG influyen de manera significativa en los indicadores financieros analizados.

Por último, la H3 fue confirmada al observar el papel moderador del tamaño de la empresa (SIZE) y el nivel de apalancamiento (LEV) en la relación entre los indicadores ESG y el rendimiento financiero. El tamaño de la empresa mostró un impacto significativo en las regresiones, como se evidenció en la relación con el patrimonio total (coef = 1.374, $p < 0.001$) y los ingresos netos (coef = 1.099, $p < 0.001$). Además, el tamaño también influyó positivamente en la capitalización de mercado (coef = 0.981, $p < 0.001$). Estos resultados indican que las empresas más grandes tienden a beneficiarse más de las mejores puntuaciones ESG. Por otro lado, el nivel de apalancamiento mostró un impacto negativo en la relación entre las puntuaciones ESG y el margen de utilidad neta (coef = -0.082, $p = 0.001$), lo que sugiere que empresas con mayor deuda tienen menos capacidad para convertir las prácticas sostenibles en mejores resultados financieros. Estos resultados verifican la H3, ya que demuestran que tanto el tamaño como la estructura de capital influyen en la relación ESG-finanzas.

La Q de Tobin y la capitalización de mercado (Market Cap) son dos indicadores financieros utilizados para evaluar el valor de una empresa, su diferencia radica en el enfoque que cada uno utiliza. La Q de Tobin compara el valor de mercado de una empresa con el costo de reemplazo de sus activos. Este indicador se utiliza para identificar si el mercado valora a una empresa por encima o por debajo del costo de reemplazar sus activos físicos (Boguth et al., 2022). Por otro lado, el Market Cap es el valor total de mercado de las acciones en circulación de una empresa y se calcula multiplicando el precio de las acciones por el número total de acciones en circulación, generalmente se emplea para clasificar el tamaño de una empresa y comprender la percepción del mercado sobre su valor (Belo et al., 2012; Fahlenbrach et al., 2021).

En cuanto a los indicadores de ROA, ROCE y ROIC, son indicadores de rentabilidad y eficiencia, el ROA se centra en la eficiencia de los activos, el ROIC evalúa la rentabilidad del capital invertido por accionistas y acreedores y el ROCE mide la rentabilidad sobre el capital total empleado antes de los efectos del costo de la deuda e impuestos. Estos indicadores se orientan principalmente en medir la rentabilidad operativa y la eficiencia del uso de activos y capital en el corto plazo. Como señalan Velte, (2017) y Chen et al., (2023), estos indicadores pueden no capturan los beneficios de las iniciativas ambientales de la misma manera, ya que estos beneficios suelen materializarse en una perspectiva de largo plazo y pueden requerir inversiones iniciales significativas que afectan temporalmente la rentabilidad operativa.

De otro lado, indicadores como el Total Equity, ingresos netos, y Market Cap que capturan el

rendimiento financiero a largo plazo y evidencian el crecimiento de valor; las inversiones en iniciativas ambientales suelen reflejarse en estos, debido a su impacto positivo y acumulativo en la eficiencia operativa, reducción de costos a largo plazo, y mejoras en la reputación corporativa. Según Eccles et al., (2014) y Khan et al., (2016), las empresas con mayores puntajes en ESG muestran un mejor rendimiento en términos de crecimiento del equity y del valor de mercado debido a una reducción de riesgos y mayores beneficios a largo plazo.

Mientras que el Total Equity, los ingresos netos, y el Market Cap pueden reflejar el crecimiento y la creación de valor derivados de inversiones ambientales, los indicadores de rentabilidad como el ROA, ROCE y ROIC no capturan completamente estos efectos debido a su enfoque en la eficiencia del uso de activos y capital a corto plazo. Esto es consistente con los hallazgos de Fatemi et al., (2018) , quienes concluyeron que las métricas basadas en el valor a largo plazo son más sensibles a los beneficios de la sostenibilidad en comparación con las métricas de rentabilidad a corto plazo.

4. **Conclusiones**

Este estudio investigó la influencia de las puntuaciones ESG (Ambientales, Sociales y de Gobernanza) sobre diversos indicadores de rendimiento financiero en empresas de la Alianza del Pacífico (Chile, Colombia, México y Perú) durante el período de 2016 a 2022. Utilizando modelos de regresión lineal con efectos fijos y aleatorios, los hallazgos ofrecen implicaciones prácticas significativas para inversores, directivos corporativos y reguladores.

Los resultados indican que la integración de criterios ESG, especialmente en el ámbito ambiental, está asociada con mejoras significativas en el rendimiento financiero. Específicamente, se encontró que el pilar ambiental tiene una relación positiva y significativa con el patrimonio total y la capitalización de mercado. Estos hallazgos sugieren que los inversionistas pueden considerar las puntuaciones ESG como una herramienta para identificar oportunidades de inversión sostenible y reducción de riesgos, dado que las empresas con mayores puntuaciones ESG tienden a ser más resilientes y sostenibles a largo plazo.

Para los directivos corporativos, estos resultados pueden justificar la adopción y mejora de prácticas ESG, destacando los beneficios financieros tangibles, como el aumento del patrimonio total y la capitalización de mercado. Las empresas con altos puntajes ESG pueden experimentar una mejor percepción del mercado y de los consumidores, lo que puede traducirse en una mayor lealtad del cliente y una ventaja competitiva. Además, los hallazgos subrayan la importancia del tamaño empresarial y la estructura de capital como moderadores

en la relación entre sostenibilidad y rendimiento financiero, evidenciando que empresas más grandes y menos apalancadas tienden a mostrar mejores resultados financieros asociados a prácticas sostenibles.

Para los reguladores y formuladores de políticas, los resultados pueden orientar la creación de políticas que incentiven la adopción de prácticas ESG, dado que estas no solo mejoran el rendimiento financiero, sino que también contribuyen al desarrollo sostenible de la economía. La evidencia empírica puede ser utilizada para desarrollar y ajustar marcos regulatorios que promuevan la transparencia y consistencia en la divulgación de prácticas ESG.

Este estudio aporta varios elementos de valor a la literatura existente. Al centrarse en la Alianza del Pacífico, ofrece una perspectiva valiosa sobre cómo las prácticas de sostenibilidad afectan a empresas en mercados emergentes, un área menos explorada en la literatura actual. Al desglosar las puntuaciones ESG en sus componentes individuales (ambiental, social y de gobernanza), proporciona una comprensión más detallada de cómo cada pilar influye en diferentes indicadores financieros. La utilización de modelos de regresión con efectos fijos y aleatorios, junto con pruebas de robustez como la prueba de Hausman y la regularización Ridge, asegura la validez y confiabilidad de los resultados obtenidos.

En cuanto a futuras investigaciones, se sugiere la exploración de variables adicionales que puedan influir en la relación entre puntuaciones ESG y rendimiento financiero, como la inversión en I+D, políticas de diversidad, o el impacto de regulaciones gubernamentales específicas. Además, profundizar en cómo las diferencias culturales y económicas entre los países de la Alianza del Pacífico afectan la implementación y el impacto de las prácticas ESG podría proporcionar una visión más completa y contextualizada. Extender el análisis a otros mercados emergentes ayudaría a validar y generalizar los hallazgos de este estudio, identificando patrones comunes y diferencias significativas. Investigaciones que evalúen el impacto a largo plazo de las prácticas ESG sobre el rendimiento financiero podrían proporcionar una visión más holística de cómo estas prácticas contribuyen al crecimiento sostenible.

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ANEXO 1

Tabla 9. Perfil de puntuaciones ESG

ESG Scoring Profile		
Pillar	**Category**	**Metric**
Environmental (42,1%)	Resource Use (15,1%)	Policy Water Efficiency
		Policy Energy Efficiency
		Policy Sustainable Packaging
		Policy Environmental Supply Chain
		Targets Water Efficiency
		Targets Energy Efficiency
		Environment Management Team
		Environmental Materials Sourcing
		Total Energy Use to Revenues USD in million
		Renewable Energy Use Ratio
		Total Renewable Energy to Energy Use in million
		Cement Energy Use
		Green Buildings
		Water Use to Revenues USD in million
		Water Recycled
		Environmental Supply Chain Management
		Environmental Supply Chain Monitoring
		Env Supply Chain Partnership Termination
		Land Environmental Impact Reduction
	Emissions (15,1%)	Policy Emissions
		Targets Emissions
		Biodiversity Impact Reduction
		Total CO2 Equivalent Emissions to Revenues USD in million
		CO2 Equivalent Emissions Indirect, Scope 3 To Revenues USD in million
		Emissions Trading
		Cement CO2 Equivalents Emission

		Climate Change Commercial Risks Opportunities
		Ozone-Depleting Substances to Revenues USD in million
		NOx and SOx Emissions Reduction
		NOx Emissions to Revenues USD in million
		SOx Emissions to Revenues USD in million
		VOC or Particulate Matter Emissions Reduction
		VOC Emissions to Revenues USD in million
		Total Waste to Revenues USD in million
		Waste Recycled to Total Waste
		Total Hazardous Waste to Revenues USD in million
		EMS Certified Percent
		Environmental Restoration Initiatives
		Staff Transportation Impact Reduction
		Environmental Expenditures Investments
		Self-Reported Environmental Fines to Revenues in million
		Environmental Partnerships
	Environmental Innovation (11,9%)	Environmental Products
		Env R&D Expenditures to Revenues in million
		Water Technologies
		Sustainable Building Products
Social (34%)	Workforce (10,7%)	Health & Safety Policy
		Training and Development Policy
		Policy Diversity and Opportunity
		Targets Diversity and Opportunity
		Employees Health & Safety Team
		Employees Health & Safety OHSAS 18001
		Employee Satisfaction
		Salary Gap
		Net Employment Creation
		Trade Union Representation
		Turnover of Employees
		Announced Layoffs to Total Employees
		Gender Pay Gap Percentage
		Women Employees
		Women Managers
		Flexible Working Hours
		Day Care Services
		Employees With Disabilities
		Employee Health & Safety Training Hours
		Injuries To Million Hours
		Occupational Diseases

		Lost Days to Total Days
		HIV-AIDS Program
		Average Training Hours
		Training Costs Per Employee
		Internal Promotion
		Supplier ESG training
	Human Rights (11,1%)	Policy Freedom of Association
		Policy Child Labor
		Policy Forced Labor
		Policy Human Rights
		Fundamental Human Rights ILO UN
		Human Rights Contractor
		Human Rights Breaches Contractor
	Community (7,9%)	Policy Fair Competition
		Policy Bribery and Corruption
		Policy Business Ethics
		Policy Community Involvement
		Improvement Tools Business Ethics
		Whistleblower Protection
		Total Donations to Revenues in million
		Corporate Responsibility Awards
		Critical Country 1
	Product Responsibility (4,2%)	Policy Customer Health & Safety
		Policy Data Privacy
		Quality Mgt Systems
		QMS Certified Percent
		Customer Satisfaction
		Product Access Low Price
Governance (23,8%)	CSR Strategy (3,2%)	CSR Sustainability Committee
		Integrated Strategy in MD&A
		Global Compact Signatory
		Stakeholder Engagement
		CSR Sustainability Reporting
		GRI Report Guidelines
		CSR Sustainability Report Global Activities
		CSR Sustainability External Audit
		UNPRI Signatory
	Shareholders (4,8%)	Shareholder Rights Policy
		Equal Shareholder Rights
		Voting Cap Percentage
		Director Election Majority Requirement
		Shareholders Vote on Executive Pay
		Public Availability Corporate Statutes

		Veto Power or Golden share
		State Owned Enterprise SOE
		Anti-Takeover Devices Above Two
		Litigation Expenses to Revenues in million
		Non-audit to Audit Fees Ratio
		Auditor Tenure
	Management (5,9%)	Board Functions Policy
		Board Structure Policy
		Compensation Improvement Tools
		Internal Audit Department Reporting
		Succession Plan
		External Consultants
		Audit Committee Independence
		Audit Committee Mgt Independence
		Compensation Committee Independence
		Compensation Committee Mgt Independence
		Nomination Committee Independence
		Nomination Committee Involvement
		Board Attendance
		Board Meeting Attendance Average
		Board Size More Ten Less Eight
		Board Background and Skills
		Board Gender Diversity, Percent
		Board Specific Skills, Percent
		Average Board Tenure
		Non-Executive Board Members
		Independent Board Members
		CEO Chairman Duality
		Board Member Affiliations
		Board Individual Re-election
		Executive Compensation Policy
		Executive Individual Compensation
		Total Senior Executives Compensation to Revenues in million
		Highest Remuneration Package
		CEO Compensation Link to TSR
		Executive Compensation LT Objectives
		Sustainability Compensation Incentives
		Shareholders' Approval Stock Compensation Plan
		Board Cultural Diversity, Percent
		Executive Members Gender Diversity, Percent
		Executives Cultural Diversity

ANEXO 2

Gráficas de dispersión de la relación entre las variables dependientes e independientes con significancia estadística

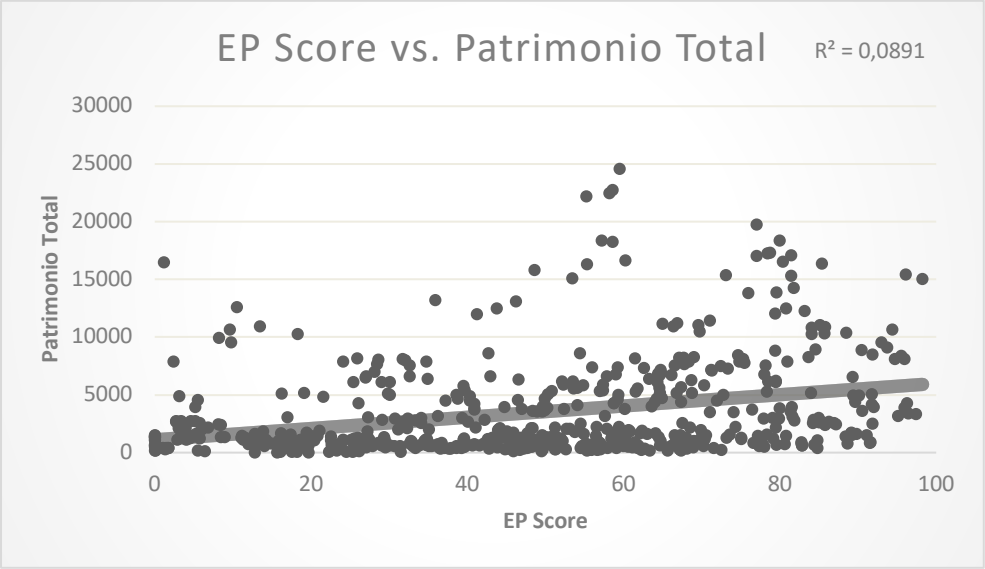

Figure 8. Gráfico de dispersión de EP Score vs. Patrimonio Total.

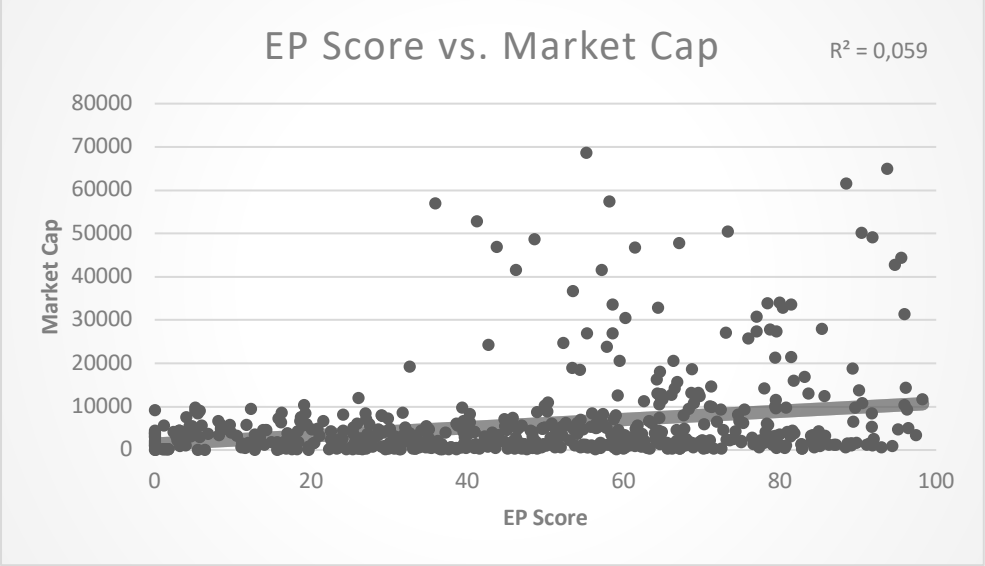

Figure 9. Gráfico de dispersión de EP Score vs. Market Cap.

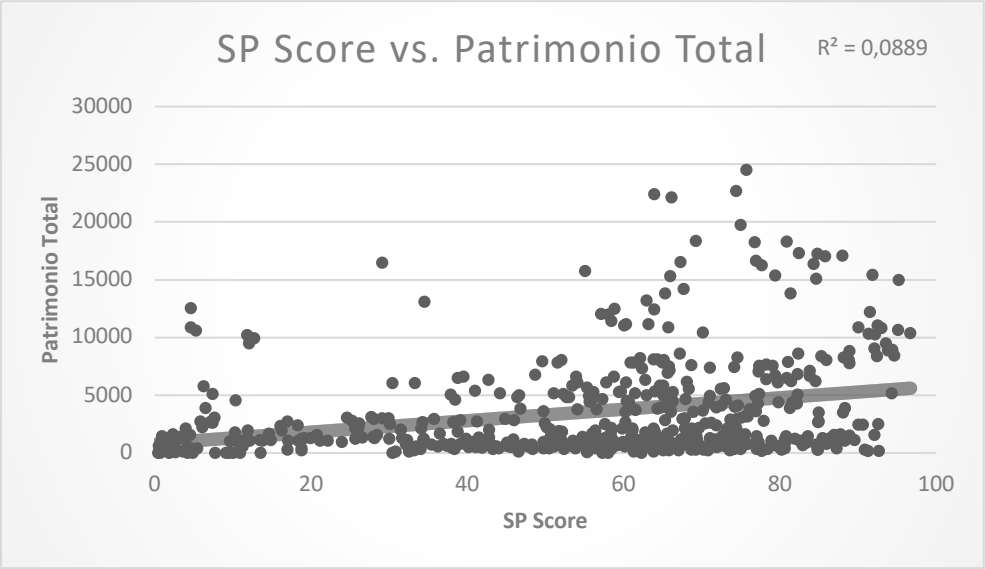

Figure 10. Gráfico de dispersión de SP Score vs. Patrimonio Total.

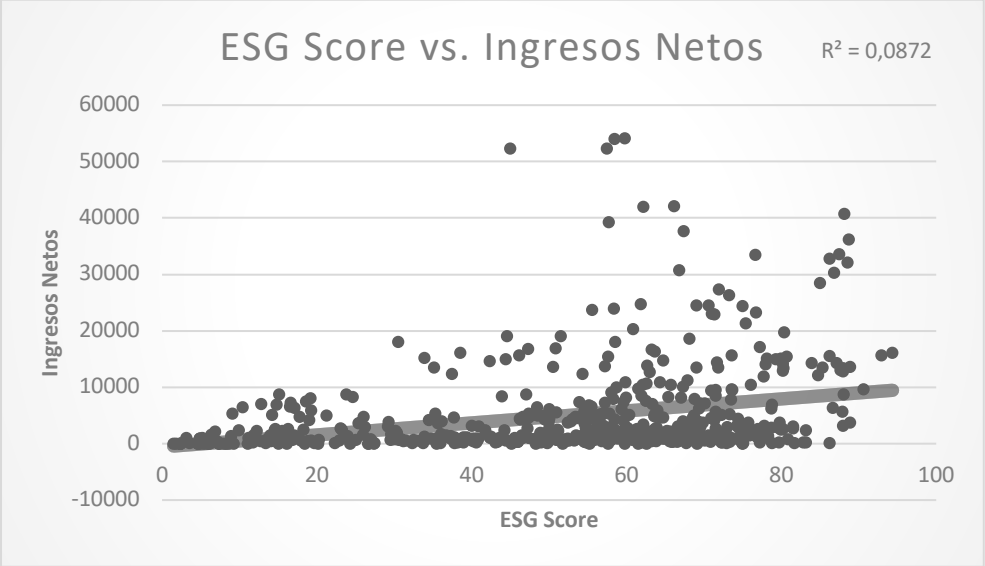

Figure 11. Gráfico de dispersión de ESG Score vs. Ingresos Netos.

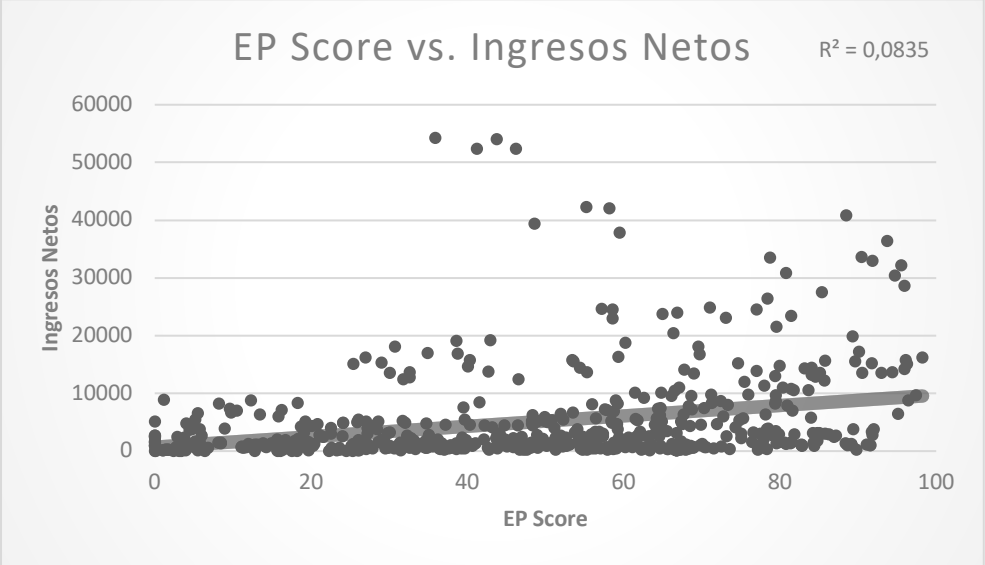

Figure 12. Gráfico de dispersión de EP Score vs. Ingresos Netos.

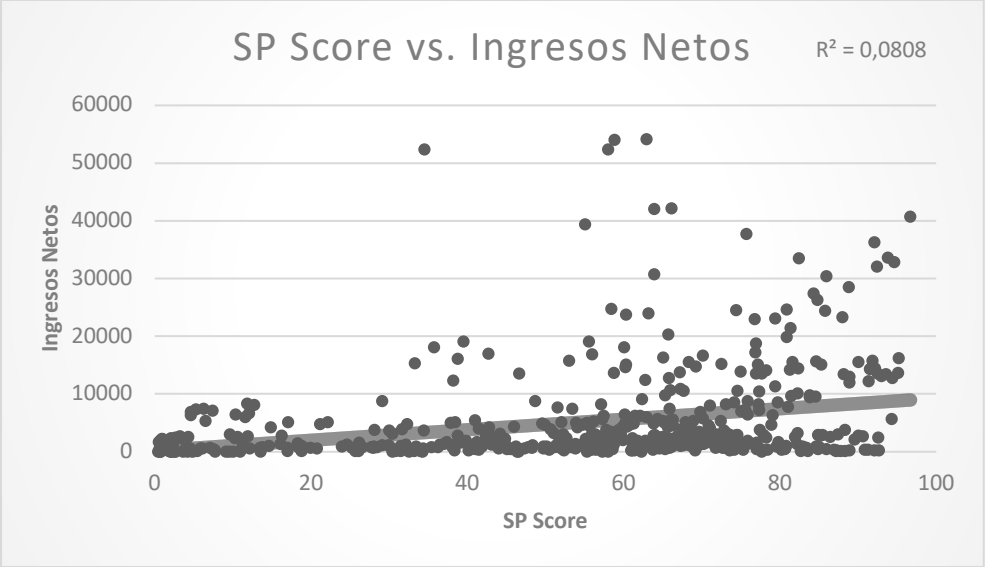

Figure 13. Gráfico de dispersión de SP Score vs. Ingresos Netos.

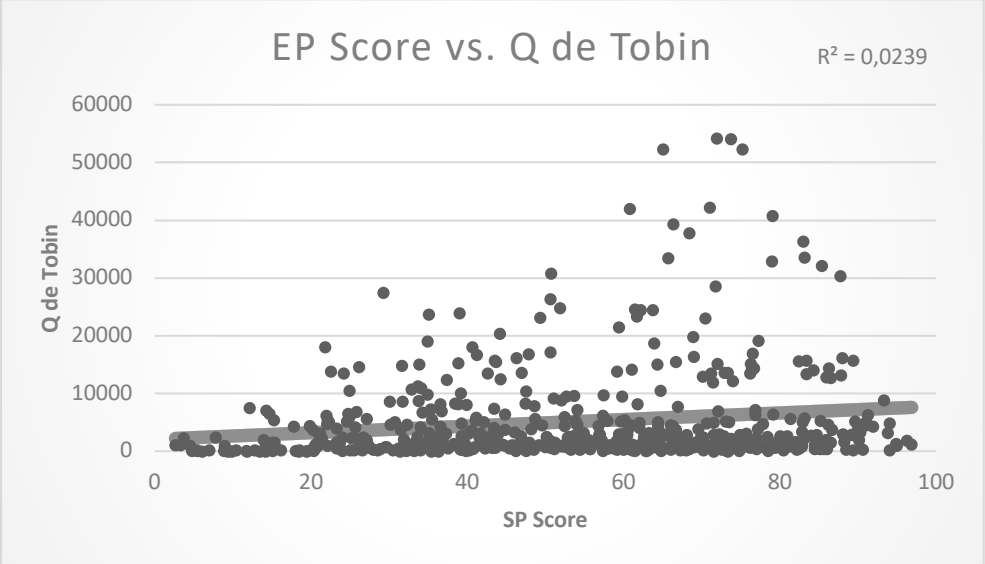

Figure 14. Gráfico de dispersión de EP Score vs. Q de Tobin.

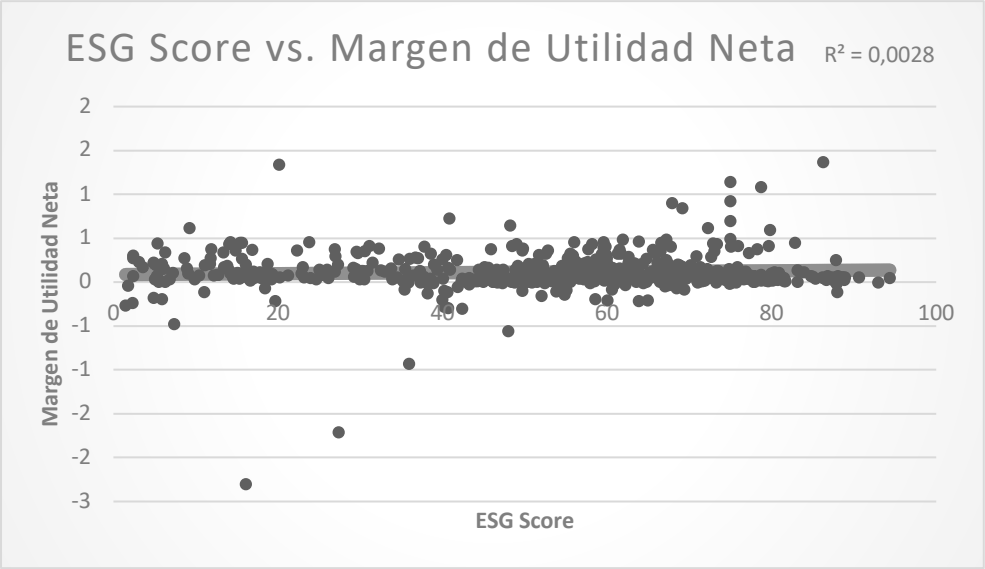

Figure 15. Gráfico de dispersión de ESG Score vs. Margen de Utilidad Neta.

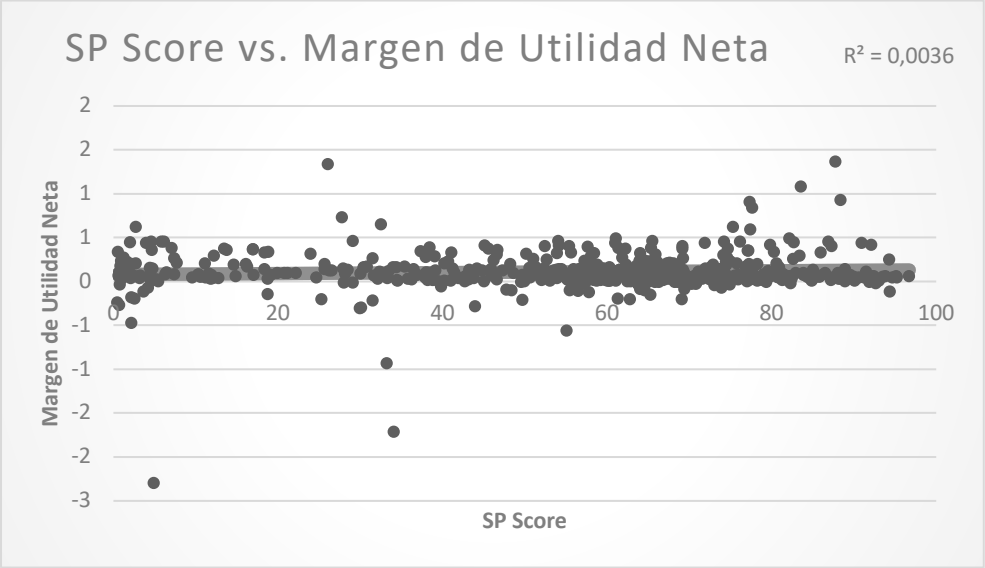

Figure 16. Gráfico de dispersión de SP Score vs. Margen de Utilidad Neta.

CAPITULO 4. Resultados y consideraciones finales

Esta tesis aportó tanto al ámbito académico como al práctico, proporcionando evidencia empírica sobre la relación entre las iniciativas de sostenibilidad y el desempeño financiero en el contexto específico de los países de la AP y sugiriendo la necesidad de enfoques adaptados para maximizar el valor compartido en los mercados emergentes.

La investigación permitió extender el marco teórico existente sobre la correlación entre la sostenibilidad, los criterios ESG, el EP y el valor de las empresas de países como Colombia, Chile, Perú y México. Lo anterior pudo ayudar a generar una comprensión más profunda de cómo las prácticas de sostenibilidad impactan en el valor empresarial en estos contextos de mercados emergentes, evidenciando que hubo diferencias con respecto a las relaciones que se han estudiado para economías desarrolladas.

Como resultado inicial de esta tesis en la revisión de bibliográfica, se evidenció la correlación entre diferentes aspectos, estrategias e iniciativas medioambientales y el valor de las empresas. El análisis de los documentos reflejó que existe heterogeneidad en la manera de medir el valor de las organizaciones, siendo las medidas de rentabilidad, la relación entre mercado y valor contable y la Q de Tobin las más recurrentes. También, se identificó diversidad en las metodologías empleadas por los autores para evaluar los resultados y actividades medioambientales de las organizaciones. Esta variedad sigue siendo un tema de debate, especialmente considerando que existen múltiples efectos moderadores que complejizan la relación entre el desempeño medioambiental y el valor de la empresa.

La revisión bibliográfica reveló que los efectos moderadores están relacionados con factores culturales y sociales que rodean a las empresas y varían según el país en el que estas operan. No obstante, las relaciones identificadas entre las diferentes iniciativas medioambientales y el valor de la empresa tendieron a ser positivas y significativas, presentando en su mayoría relaciones lineales o cuadráticas. En países desarrollados, la relación fue más significativa, mientras que en países en desarrollo las relaciones fueron más variables y dependientes de otros factores. Por último, esta revisión bibliográfica permitió concluir que es necesario investigar más a fondo el papel de los efectos moderadores, que podrían ser factores culturales, socioeconómicos u otros específicos del contexto que puedan afectar cómo los resultados medioambientales se traducen en valor empresarial.

Otro de los resultados obtenidos de este trabajo de investigación incluye que al utilizar el modelo de Aydoğmuş et al. (2022) que inicialmente encontró correlaciones positivas y significativas entre variables ambientales y financieras en empresas de países desarrollados; no se tuvieron los mismos resultados en los países de la AP; lo que indica que no existen pruebas de una correlación entre la puntuación ESG global y el valor de las empresas para Chile, Colombia, Perú y México. De manera similar, el coeficiente del EP Score tampoco resultó significativo en todos los modelos, sugiriendo que no hay una clara relación entre los resultados medioambientales y la rentabilidad financiera.

De igual manera, en los resultados obtenidos, relacionados con el análisis de las empresas de los cuatro países de la AP, se evidenció que, al comparar los sectores empresariales con aquellos que más contribuyen al PIB en cada país, existen similitudes en su composición. Esto permitió demostrar la representatividad de la muestra de empresas dentro de las economías de estos países. Los resultados de la investigación mostraron que el EP Score de las puntuaciones ESG presentó una relación positiva y significativa con el patrimonio total y la capitalización de mercado, lo que sugiere que las empresas que adoptan mejores prácticas medioambientales tienden a ser percibidas de manera más favorable en el mercado.

Considerando los resultados anteriores, se decidió desarrollar un nuevo modelo de regresión lineal con efectos fijos y aleatorios, incorporando esta vez nuevas variables financieras como patrimonio total, ingresos netos, capitalización de mercado, ROA, ROCE, ROIC, margen de utilidad neta y Q de Tobin, estas variables buscaban reflejar mejor el comportamiento de las empresas de los países de la AP.

En estos nuevos modelos, el SP Score mostró una correlación significativa con los ingresos netos, subrayando la importancia de la responsabilidad social corporativa para incrementar la rentabilidad. Sin embargo, los indicadores de rentabilidad como el ROA y el ROCE no evidenciaron una correlación tan fuerte con las puntuaciones ESG, lo que sugiere que los beneficios de las iniciativas sostenibles tienden a materializarse en el largo plazo.

El análisis de las variables moderadoras evidenció que el tamaño de la empresa tiene un efecto positivo en la capacidad de adoptar prácticas sostenibles, mientras que un mayor apalancamiento impacta negativamente en la rentabilidad operativa. Las empresas más grandes y con menores niveles de deuda tienden a beneficiarse más de la implementación de prácticas sostenibles

Finalmente, esta tesis generó una contribución a la literatura abordando estudios empíricos en la aplicabilidad de modelos globales de rendimiento ESG-financiero en una muestra de

empresas de la AP, determinando que no se traducen directamente a este contexto. Los resultados evidenciaron que las iniciativas de sostenibilidad tuvieron correlaciones con algunos indicadores financieros. Esto implica que los gestores deben ser estratégicos en cómo diseñan e implementan prácticas de sostenibilidad para alinearlos mejor con los objetivos financieros y de sostenibilidad de la empresa, así mismo la investigación destaca la necesidad de desarrollar modelos de valoración que estén adaptados al contexto de los mercados emergentes, reconociendo las diferencias estructurales y los desafíos específicos que enfrentan estas economías en términos de sostenibilidad y desempeño financiero.

Los hallazgos pueden ayudar a los inversionistas a identificar cómo las prácticas de sostenibilidad impactan en el valor de las empresas en los mercados emergentes, permitiéndoles tomar decisiones de inversión más informadas que consideren tanto el desempeño financiero como el impacto ambiental y social.

Asimismo, se identificó que futuras investigaciones deberían abordar las limitaciones geográficas mencionadas en la bibliografía existente. Específicamente, no se encontraron estudios que evalúen la correlación entre las iniciativas ambientales y el valor de las empresas en América Latina y el Caribe, lo que presenta una oportunidad para ampliar la comprensión de estas dinámicas en regiones geográficas desatendidas. Comprender estas dinámicas en una variedad más amplia de contextos, particularmente en economías emergentes, podría ofrecer perspectivas más detalladas sobre la relación entre iniciativas ambientales y el valor de las empresas.

1. Limitaciones de la investigación

La tesis doctoral reconoce varias limitaciones en su investigación sobre la correlación entre las iniciativas y desempeño ambiental y el valor global de las empresas en los países de la Alianza del Pacífico. Estas limitaciones proporcionan contexto fundamental para interpretar los resultados y pueden servir como punto de partida para futuras investigaciones.

Una de las principales limitaciones fue el tamaño y composición de la muestra. La muestra limitada de empresas pudo no capturar completamente la diversidad y complejidad del universo empresarial en los países de la Alianza del Pacífico. Además, la representatividad sectorial y la distribución geográfica de las empresas en la muestra podrían afectar la generalización de los resultados a todas las empresas en estos países. Por otro lado, la investigación depende de los datos de ESG disponibles públicamente, que pueden estar sujetos a variaciones de cobertura y reporte entre las empresas y los países, ya que no es

obligatorio para las empresas de la región hacer un reporte de estos aspectos.

Aunque los modelos utilizados proporcionan una base sólida para analizar las relaciones entre variables, pueden existir limitaciones inherentes a estos enfoques, como la capacidad para capturar todas las complejidades y dinámicas de las relaciones entre las prácticas de sostenibilidad y el valor empresarial, en especial en países de América Latina con condiciones sociales y económicas complejas que indirectamente pueden afectar los resultados y reportes ESG. En este sentido, el uso principal de métodos cuantitativos puede no capturar completamente los matices y factores cualitativos que influyen en la relación entre la sostenibilidad y el valor empresarial, como las percepciones de los stakeholders, las diferencias culturales y el contexto político y económico.

Estas limitaciones subrayan que es necesario continuar estos procesos investigativos, teniendo en cuenta múltiples enfoques y variables. Además, resaltan la importancia de desarrollar enfoques metodológicos más robustos, diversificados y adaptados al contexto específico de los mercados emergentes para explorar la relación entre sostenibilidad y valor empresarial.

2. Futuras líneas de investigación

Las futuras líneas de investigación sugeridas a partir de la tesis se centran en ampliar y profundizar el entendimiento de la correlación entre las prácticas de sostenibilidad y el valor empresarial en contextos específicos, con un énfasis particular en los mercados emergentes de la Alianza del Pacífico. Estas líneas de investigación pueden proporcionar *insights* valiosos para académicos, gestores empresariales y formuladores de políticas, ayudando a diseñar estrategias más efectivas para integrar la sostenibilidad en el núcleo de las prácticas empresariales y políticas públicas en los países de la Alianza del Pacífico y más allá.

Algunas investigaciones futuras que se pueden generar a partir de los resultados, conclusiones y limitaciones de la presente tesis y que permiten dar continuidad a este proyecto con el fin de seguir explorando aspectos de sostenibilidad y su correlación con indicadores financieros en empresas de economías emergentes, son:

1. Desarrollo de estudios comparativos entre las empresas de los países de la Alianza del Pacífico y empresas de otras regiones o bloques económicos para explorar si existen diferencias significativas en cómo las prácticas de sostenibilidad impactan en el valor empresarial.
2. Estudiar en profundidad cómo la percepción de los stakeholders sobre las prácticas

de sostenibilidad de las empresas afecta el valor de la empresa.

3. Desarrollo de modelos de valoración que estén especialmente diseñados para aplicar en mercados emergentes, considerando sus características únicas y desafíos en términos de sostenibilidad y prácticas empresariales.
4. Realización de investigaciones enfocadas en sectores específicos o análisis de la cadena de suministro para determinar cómo las prácticas de sostenibilidad en diferentes etapas de la cadena afectan el valor global de las empresas.
5. Explorar el impacto a largo plazo de las prácticas ESG sobre el valor de la empresa

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