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Responsabilidad social corporativa. El gobierno corporativo como inductor de la creación de valor sostenible en las organizaciones

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Responsabilidad social corporativa. El gobierno corporativo como inductor de la creación de valor sostenible en las organizaciones

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...Adiós, mi España preciosa
la tierra donde nací... (Molina, 1954)

...Ziehst im Nebelflor daher, Such'ich dich im Wolkenmeer,
Dich, du Unergründlicher, Ewiger!...(Schweizer Landeshymne - Schweizerpsalm)

...Do teu verdor cinguido e de benignos astros,
confín dos verdes castros e valeroso chan… (Himno de Galicia)

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Aclaración importante: El uso del lenguaje empleado a lo largo de esta tesis doctoral no pretende ser excluyente ni discriminatorio. Cuando se hacen análisis relativos a 'hombres' o a 'mujeres', se aclara suficientemente este hecho con el objetivo de destacar, reflejar y visibilizar las diferencias existentes entre ambos grupos. Precisamente, la temática a investigar exige utilizar expresiones diferenciadas por género ('mujeres consejeras', 'hombres consejeros',…) para visibilizar las particularidades, diferencias o similitudes entre ambos grupos y hacer avanzar el conocimiento en el campo objeto de estudio. Por ello, el uso del masculino cuando no se hace especial referencia a alguno de los dos géneros señalados responde, no a una negación de género, sino solo al deseo de facilitar y hacer más fluida la lectura del texto y enfocar más y mejor al lector en el análisis e implicaciones de las variables objeto de estudio.

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RESUMEN

La gestión empresarial tradicional está en un proceso de profunda transformación. La sostenibilidad ya no es una opción, sino una necesidad estratégica fundamental para la generación de valor a largo plazo (Alsayegh et al., 2020; OECD, 2024). Este cambio responde a las demandas crecientes de legisladores, inversores, empleados y la sociedad en general, quienes exigen a las empresas que, además de crecimiento financiero, aseguren el desarrollo social y reduzcan los impactos medioambientales (Lee & Suh, 2022; Lopez-Cabarcos et al., 2019). En este contexto, los desafíos en materia de sostenibilidad deben dejar de ser percibidos como obstáculos para pasar a ser considerados como oportunidades estratégicas con los que obtener ventajas competitivas duraderas (Malik et al., 2021) y generar beneficios para la sociedad y el planeta (Bubicz et al., 2019). De esta forma, el compromiso con la sostenibilidad permite a las empresas mejorar los resultados económicos, satisfacer las necesidades sociales y reducir los impactos medioambientales (Jadhav & Sarangi, 2024). En este contexto de acción, la innovación se presenta como un catalizador esencial para que dicho compromiso se pueda materializar en soluciones concretas y sostenibles (Griffin et al., 2021) que permitan a las empresas reducir sus impactos negativos y generar valor a largo plazo (Muhammad et al., 2022).

El cambio hacia modelos de negocio sostenibles requiere una transformación de las estructuras de gobierno corporativo (Garcia Martin & Herrero, 2020; Shaukat et al., 2016). En este sentido, los consejos de administración, como principal mecanismo de gobierno corporativo (Chen et al., 2016; Rodrigues et al., 2020), desempeñan un papel central para facilitar la integración de la sostenibilidad en las estrategias empresariales (Cantele et al., 2024; Ilyas & Osiyevskyy, 2022). Esto implica abandonar la visión cortoplacista tradicional y asumir un papel activo, responsable y comprometido que priorice la creación de valor sostenible para todos los grupos de interés (Guerrero-Villegas et al., 2018; Nadeem et al., 2020b). Para que esta transformación sea posible y redunde en resultados positivos, es necesario que emerjan nuevos modelos de gobernanza, donde la composición de los consejos de administración se convierte en un aspecto fundamental (Baker et al., 2020; Behlau et al., 2023) para fomentar el desempeño sostenible (Al-Jaifi et al., 2023; Chopra et al., 2024), incrementar el valor empresarial (Bhaskaran et al., 2020; Khan, 2022) y potenciar la resiliencia organizacional (Huang et al., 2022a; Pham et al., 2023).

Esta tesis doctoral pretende conformar una guía efectiva sobre los factores a considerar a la hora de configurar consejos de administración capaces de diseñar estrategias de sostenibilidad válidas, así como ofrecer pautas de actuación para que las empresas impulsen el desarrollo sostenible. Para ello, se consideran diferentes atributos de los consejeros (género, edad o nacionalidad), así como diversas características del propio consejo (tamaño, independencia, antigüedad en el consejo o presencia de consejeros que también participan en otros consejos), con especial atención a la presencia de mujeres en los consejos de administración.

Llevando a cabo análisis cuantitativos (estimación de mínimos cuadrados en tres etapas -3SLS-, método de mínimos cuadrados ordinarios -OLS-, y mínimos cuadrados generalizados -GLS-) sobre un conjunto de empresas incluidas en rankings destacados (*Fortune Global 500 o EU Industrial R&D Investment Scoreboard)* y en índices bursátiles de relevancia (NASDAQ-100) se aborda, en las tres investigaciones que integran esta tesis, el desafío de la

diversidad de género en los consejos de administración, se investiga cómo la composición del consejo influye en las puntuaciones ESG y se analiza cómo las características de los consejos de administración y de sus miembros pueden apoyar la capacidad de la empresas para impulsar la innovación y el valor empresarial como herramientas clave para construir nuevos modelos de negocios sostenibles y económicamente viables.

De esta forma, esta tesis doctoral contribuye al avance del conocimiento en su campo de estudio; en concreto, ahonda en el esencial papel jugado por los consejos de administración para facilitar a las empresas, los legisladores y otros agentes decisores el diseño de estrategias sostenibles y generadoras de valor. Los resultados de esta investigación contribuyen a reavivar el debate sobre las razones que pueden llevar a las empresas a incorporar mujeres a sus consejos de administración, proporcionando una mejor comprensión de los principales determinantes de las brechas de género observadas en este contexto de actuación. Al tratarse de una investigación transnacional y multisectorial, sus resultados pueden ser de gran utilidad para que los responsables políticos determinen qué regiones y sectores deben considerarse para reforzar las políticas de diversidad de género y conseguir consejos de administración equitativos que contribuyan a la mejora del desempeño empresarial. Además, esta investigación permite identificar los principales atributos de los consejos de administración que contribuyen al desempeño sostenible de las empresas. Al centrarse en las empresas más innovadoras, reconocidas por su papel fundamental en el progreso económico mundial y, por tanto, consideradas como referentes internacionales, esta investigación proporciona las claves para conseguir alinear las prácticas de gobernanza con las estrategias ESG y promover gobiernos corporativos sostenibles y responsables. Por último, esta investigación aporta una comprensión profunda del papel estratégico de los consejos de administración para transformar el compromiso de la empresa con la innovación en valor empresarial. Los resultados concluyen las características esenciales de los consejos de administración y de los consejeros que los integran para lograr la deseada alineación entre innovación y valor económico, elementos esenciales en la consecución del desarrollo sostenible. Al incluir las empresas más innovadoras, cotizadas y no cotizadas, esta investigación enriquece la literatura existente y amplía su alcance y profundidad al ofrecer una perspectiva más completa y representativa.

En definitiva, esta investigación pretende enfatizar el papel crucial de los consejos de administración como principal mecanismo de gobierno corporativo, para identificar los factores clave de su composición e impulsar modelos de negocio centrados en la creación de valor sostenible.

Palabras clave: gobierno corporativo; consejo de administración; diversidad de género; ESG; innovación; valor sostenible.

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1 INTRODUCCIÓN

LA SOSTENIBILIDAD EMPRESARIAL

En un mundo globalizado y cada vez más complejo y competitivo, las empresas se enfrentan al desafío de garantizar no solo su supervivencia, sino también su capacidad para crear valor a largo plazo. En este contexto, la sostenibilidad, entendida como el desarrollo que permite a las personas satisfacer las necesidades actuales sin limitar las de las generaciones futuras, se ha convertido en un componente esencial de las estrategias empresariales, al integrar la protección del medio ambiente y la promoción del bienestar social con el objetivo tradicional de maximización del beneficio económico (Alsayegh et al., 2020).

La integración de estrategias sostenibles puede proporcionar a las empresas ventajas competitivas significativas, ya que las impulsa a adaptarse continuamente y a desarrollar nuevas capacidades organizativas (Malik et al., 2021). Asimismo, la creciente preferencia de los consumidores por productos y servicios procedentes de empresas comprometidas con la sostenibilidad contribuye al aumento de las ventas y a la mejora de los beneficios empresariales (Pulino et al., 2022). En la misma línea, las iniciativas orientadas a un uso más eficiente de los recursos contribuyen a una gestión más eficaz de los costes operativos, impulsando la rentabilidad a largo plazo (Ali & Jadoon, 2022). Más allá de los resultados económicos, la sostenibilidad también beneficia a las personas y al planeta (Bubicz et al., 2019). La adopción de prácticas sostenibles promueve entornos laborales seguros, promoviendo el bienestar de los empleados y el respeto por los derechos humanos (Jamil et al., 2023). Asimismo, las empresas socialmente responsables tienden a asumir un mayor número de compromisos filantrópicos (Wang et al., 2022b) y a trascender el enfoque tradicional centrado en el cliente, para adoptar una perspectiva más amplia que contemple las necesidades de toda la sociedad (Mesquita & Missimer, 2021). Estas prácticas también favorecen procesos de producción más eficientes y responsables con el uso de los recursos naturales, al mismo tiempo que contribuyen a reducir los impactos ambientales negativos derivados de los procesos productivos (Cheng et al., 2023; Lomborg, 2020).

Si bien existe una relación cada vez más reconocida entre el compromiso con la sostenibilidad y los resultados financieros (Jadhav & Sarangi, 2024), en ocasiones estos últimos podrían entrar en conflicto con los objetivos sociales y medioambientales. Las iniciativas sostenibles requieren, en general, unos elevados costes de inversión que podrían lastrar los beneficios inmediatos y reducir la rentabilidad de las empresas a corto plazo (Rahi et al., 2023). En este sentido, Aydogmus et al. (2022) señalan que los efectos positivos de la sostenibilidad sobre el valor empresarial solo se manifiestan cuando se priorizan las iniciativas sociales y de gobernanza, debido a que sus costes de implementación suelen ser menores y los resultados más inmediatos. Además, algunos estudios advierten que un foco excesivo en la sostenibilidad podría desviar la atención de las empresas de sus estrategias principales, comprometiendo su competitividad (Cerciello et al., 2023).

Se evidencia, por tanto, la existencia de dos enfoques contrapuestos en torno al rendimiento de la sostenibilidad empresarial (Ilyas & Osiyevskyy, 2022). Por un lado, una perspectiva que sostiene que las iniciativas sostenibles pueden generar valor al mejorar el desempeño económico mientras satisfacen las necesidades sociales y mitigan los impactos medioambientales; y otra perspectiva más crítica que advierte que estas iniciativas suelen implicar inversiones significativas que pueden comprometer la rentabilidad y, en última

instancia, destruir el valor empresarial. Así pues, resulta fundamental que las empresas encuentren un equilibrio adecuado entre la sostenibilidad y el desempeño económico. En este proceso, el gobierno corporativo desempeña un papel clave (Almor et al., 2022).

EL GOBIERNO CORPORATIVO

En el marco de una gestión empresarial responsable, el gobierno corporativo se posiciona como un elemento fundamental para impulsar la eficiencia económica; fomentar el crecimiento; garantizar la transparencia y veracidad de la actuación de las empresas; promover la confianza entre inversores, el equipo directivo y los *stakeholders*, y minimizar el riesgo de que crisis y escándalos corporativos del pasado vuelvan a repetirse (OECD, 2004). El informe *The financial aspects of corporate governance* (Cadbury, 1993; p.14), considerado como el primer código de buenas prácticas, define el gobierno corporativo como "el sistema por el cual las empresas son dirigidas y controladas", al establecer los principios, normas y procedimientos que regulan cómo se administra una empresa, se adoptan sus estrategias y se supervisa su desempeño. Desde una perspectiva económica, Shleifer & Vishny (1997; p.1) lo definieron como "los mecanismos por los cuales los proveedores de financiación de las empresas se aseguran de obtener un rendimiento de su inversión". Esto implica que, dado que los accionistas dependen del equipo directivo para generar beneficios, es necesaria la presencia de mecanismos de gobierno corporativo para regular esta relación y alinear sus intereses. Con el tiempo, el alcance del gobierno corporativo se ha ampliado para abarcar las relaciones entre el equipo directivo, el consejo de administración, los accionistas y los *stakeholders* (OECD, 2024). Aunque no exista una definición ni un modelo único, un buen gobierno corporativo debe proporcionar los incentivos adecuados al consejo de administración y al equipo directivo para alinear los intereses de los accionistas con los de la sociedad en general (OECD, 2004).

Los legisladores y otros agentes decisores han desempeñado un papel clave en ello, introduciendo medidas en el ámbito normativo encaminadas a mejorar y fortalecer las prácticas de gobierno corporativo. A estas iniciativas se suman las demandas crecientes de inversores y de la sociedad en general, quienes exigen que las empresas no solo persigan objetivos financieros, sino que también promuevan comportamientos empresariales éticos y responsables. Esta presión obliga a las empresas a implementar buenas prácticas de gobierno corporativo, que no solo garanticen su competitividad, sino que también contribuyan a la sostenibilidad (OECD, 2024). En este sentido, las políticas y prácticas de gobierno corporativo han demostrado ser determinantes para el desempeño empresarial y la creación de valor sostenible (Aydogmus et al., 2022; Shaukat et al., 2016). Así, mecanismos de gobierno corporativo como el consejo de administración, la estructura de la propiedad o la protección legal de los accionistas desempeñan un papel esencial en este proceso.

LOS CONSEJOS DE ADMINISTRACIÓN

El consejo de administración constituye el principal mecanismo interno de gobierno corporativo (Chen et al., 2016; Garcia Martin & Herrero, 2020; Rodrigues et al., 2020). Investigaciones previas han identificado las funciones clave que desempeñan, entre las que destacan la función de supervisión, la de provisión de recursos, el asesoramiento y la orientación estratégica (Adams et al., 2010). Estas responsabilidades se sustentan en diferentes teorías de gobierno corporativo que proporcionan el marco conceptual para entender su papel. Desde la perspectiva de la teoría de la agencia (Fama & Jensen, 1983), el consejo de administración es el responsable de alinear los distintos intereses entre los agentes (el equipo directivo) y los principales (los accionistas), actuando como un órgano de

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supervisión y control de la actuación del equipo directivo para garantizar que sus decisiones favorezcan los intereses de los accionistas. Por su parte, la teoría de la dependencia de los recursos (Pfeffer & Salancik, 1978) destaca el papel del consejo de administración como vínculo entre la empresa y su entorno. Según esta teoría, las empresas operan en sistemas abiertos y dependen de recursos externos para su funcionamiento y crecimiento. En este contexto, el consejo de administración es fundamental para facilitar el acceso a recursos valiosos y establecer relaciones estratégicas con el entorno. Integrando ambas teorías, Hillman & Dalziel (2003) introdujeron el concepto de *board capital* como la combinación del capital humano (experiencia y conocimientos) y del capital social (redes de contacto) de los consejeros. Gracias a ambas competencias, el consejo de administración puede asesorar, orientar y guiar al equipo directivo en aspectos clave como la toma de decisiones estratégicas, la asignación de los recursos y la evaluación de las inversiones (Adams & Ferreira, 2007; Kim et al., 2009).

Los consejos de administración se convierten así en los responsables de establecer e implementar los principios de gobierno corporativo, asegurando una gobernanza eficaz capaz de promover la creación de valor sostenible (Miroshnychenko & De Massis, 2020; Muhammad et al., 2022). El papel que desempeñan y la efectividad de sus decisiones están estrechamente relacionados con su composición (AlHares, 2020; Sierra-Moran et al., 2023). Por tanto, resulta necesario analizar la influencia de su estructura en el desempeño de las empresas (Baker et al., 2020; Cooper & Uzun, 2022; Makkonen, 2022). A lo largo de esta tesis se analizarán diferentes características claves de su composición, así como diversos atributos personales de sus miembros, para determinar su papel en la creación de valor sostenible de las empresas.

LA DIVERSIDAD DE GÉNERO EN LOS CONSEJOS DE ADMINISTRACIÓN

Dada la importancia de los consejos de administración, el análisis de su composición, en particular en términos de diversidad de género, resulta crucial (Baker et al., 2020). Los valores personales, conocimientos y experiencia (que varían entre mujeres y hombres) pueden definir su desempeño como miembros de los consejos de administración (Kirsch, 2018). Numerosas investigaciones han señalado la contribución de las mujeres consejeras en la gobernanza, los resultados financieros y el comportamiento responsable de las empresas.

Investigaciones previas han destacado la influencia de las mujeres consejeras en la gobernanza de las empresas. No solo suelen asistir a más reuniones de los consejos, sino que también mejoran la asistencia de sus homólogos masculinos (Adams & Ferreira, 2009). Además, su mayor sensibilidad y habilidades interpersonales permiten reducir los conflictos en los consejos (Nielsen & Huse, 2010a), y su experiencia profesional y competencias logran mejorar la calidad de las reuniones, aportar nuevas perspectivas y mejorar el proceso de toma de decisiones (Nielsen & Huse, 2010b). Su presencia también fortalece la función de supervisión (Adams & Ferreira, 2009), lo que se refleja en una reducción de la manipulación de los resultados financieros por parte del equipo directivo (Gull et al., 2018; Wahid, 2019) y del fraude fiscal (Cumming et al., 2015), contribuyendo, además, a conseguir mayor transparencia en la divulgación de la información financiera y generar mayor confianza y credibilidad entre los inversores (Mather et al., 2021). De esta forma, las mujeres consejeras contribuyen de manera significativa a la efectividad del gobierno corporativo (Naveed et al., 2021; Terjesen et al., 2009) y consiguen mejorar la imagen de la empresa (Hillman et al., 2007).

La contribución de la presencia de mujeres en los consejos de administración influye en el desempeño financiero de las empresas. En este ámbito, las investigaciones previas han

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presentado resultados dispares. Algunos estudios indican que su presencia influye positivamente en los resultados financieros al ampliar las redes de contactos y facilitar el acceso a una mayor variedad de conocimientos y experiencias (Carter et al., 2010; Liu et al., 2014), además de enriquecer los procesos de toma de decisiones (Erhardt et al., 2003). Estos resultados enfatizan el valor del capital humano por encima de su género (Bennouri et al., 2018). Sin embargo, estas positivas contribuciones podrían tener el efecto contrario si, a causa de su mayor asistencia a las reuniones del consejo, se percibe una supervisión excesiva sobre el equipo directivo, restringiendo la capacidad de éste para tomar decisiones (Adams & Ferreira, 2009). Además, las dificultades que enfrentan las mujeres consejeras para demostrar su valía (Marinova et al., 2016) y su presencia minoritaria en los consejos de administración pueden impulsarlas a modificar su conducta para ajustarse al grupo mayoritario y prevenir así su aislamiento, lo que puede provocar que su contribución positiva en los resultados financieros se desvanezca (Rose, 2007). De igual manera, si su nombramiento solo se vincula con el propósito de cumplir con las regulaciones relativas a las cuotas de género o a presiones externas, su presencia podría no influir (Provasi & Harasheh, 2020) o incluso reducir (Yang et al., 2019) el desempeño financiero. Investigación previa sostiene que es imprescindible la presencia de una masa crítica de al menos tres mujeres en los consejos de administración para contribuir positivamente a los resultados financieros (Brahma et al., 2020).

La presencia de mujeres en los consejos de administración también tiene implicaciones significativas en las estrategias relacionadas con la RSC, aunque de nuevo las investigaciones previas presentan resultados poco homogéneos (Amorelli & García-Sánchez, 2021). En principio, su participación en los consejos proporciona una amplia variedad de perspectivas fundamentales para que las empresas puedan responder eficazmente a las demandas de RSC de sus *stakeholders* (García Martin & Herrero, 2020; Provasi & Harasheh, 2020). Su orientación hacia valores sociales y comunitarios, junto con su mayor sensibilidad y preocupación por las necesidades de los demás, las impulsa a prestar más atención a las exigencias de todos los *stakeholders*, integrándolas en la gestión empresarial y favoreciendo el desempeño social y medioambiental de las empresas (Ardito et al., 2020; Shoham et al., 2017). Su presencia reduce las prácticas de irresponsabilidad social de las empresas (Boukattaya & Omri, 2021), promueve el establecimiento de códigos éticos (Garcia-Sanchez et al., 2015), la búsqueda de interacciones constructivas con los empleados y la protección de los derechos humanos (Beji et al., 2020; De Masi et al., 2021). Además, la presencia de las mujeres en los consejos de administración también potencia la innovación medioambiental en los procesos industriales (He & Jiang, 2019; Nadeem et al., 2020a) y la inversión sostenible (Atif et al., 2020) que lleva a reducir el uso de combustibles fósiles (Lin & Xie, 2023) y las emisiones de gases de efecto invernadero (Konadu et al., 2022; Nuber & Velte, 2021). Investigaciones previas también subrayan que su contribución transciende la incorporación de la RSC en las decisiones estratégicas, llegando también a la divulgación del compromiso socialmente responsable de las empresas (Nicolo et al., 2022). En este contexto, la presencia de mujeres consejeras puede incrementar la información de las empresas acerca de las prácticas sociales y medioambientales realizadas (Lagasio & Cucari, 2019; Valls Martinez et al., 2019). Sin embargo, las conclusiones relativas al efecto de su presencia en los consejos son diferentes cuando se consideran las diferentes dimensiones de la RSC. Así, mientras su influencia en la dimensión social y ética es positiva, su influencia en la dimensión medioambiental es negativa. Estos resultados evidencian los sesgos y estereotipos de género que vinculan a las mujeres con un mayor compromiso social y a los hombres con mayores competencias técnicas, lo que conduce a que las mujeres consejeras tengan más oportunidades

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de intervenir en las decisiones sociales y éticas del consejo de administración y menos en las medioambientales (Ardito et al., 2020; Hussain et al., 2018).

Basándose en las investigaciones previas, sería razonable esperar que las empresas aumentaran la presencia de mujeres en los consejos de administración. Sin embargo, el número de mujeres consejeras sigue siendo relativamente bajo. Solo el 31,6% de los puestos de los consejos de administración estaban ocupados por mujeres en las 100 mayores empresas de Estados Unidos (según *Fortune 100*) en 2022, y este porcentaje desciende al 30,4% en las empresas que se integran en *Fortune 500* (Catalyst, 2023). Una situación similar ocurre en Europa, donde en 2024 las mujeres consejeras solo representaban el 33,8% de los miembros de los consejos de administración de las mayores empresas cotizadas (European Commission, 2024) y todo ello a pesar de que los países europeos han adoptado a lo largo de los últimos años diversas políticas sobre imposición de cuotas de género para impulsar la presencia de las mujeres en los consejos de administración. Estos datos parecen indicar que todavía persiste cierto escepticismo respecto a la aportación de las mujeres consejeras en el desempeño empresarial, incluso si las mujeres consejeras cuentan con un capital humano comparable al de sus homólogos masculinos y están igualmente capacitadas para formar parte de los consejos (Mensi-Klarbach et al., 2021). En este sentido, ciertos factores organizativos pueden favorecer u obstaculizar el acceso de las mujeres a los consejos de administración. Así, las empresas de mayor tamaño suelen contar con una mayor representación de mujeres consejeras, debido a su mayor visibilidad en medios y a la presión social para conseguir consejos más igualitarios (Hillman et al., 2007). Igualmente, las empresas con más inversores y, por ende, más visibles en los mercados financieros, también tienen más probabilidades de contar con mujeres como consejeras (Terjesen et al., 2016). Tomando como base estos resultados, surge la necesidad de analizar los factores que pueden afectar la selección de las mujeres como miembros de los consejos de administración y a continuar investigando sobre su contribución en la creación de valor sostenible de las empresas.

ESTRUCTURA E INTEGRACIÓN DE LA TESIS DOCTORAL

A partir de este contexto, el principal objetivo de esta tesis doctoral es examinar la influencia del gobierno corporativo en la creación de valor sostenible. Desde su rol estratégico y de toma de decisiones, el consejo de administración, como instrumento principal del gobierno corporativo (Chen et al., 2016; Garcia Martin & Herrero, 2020; Rodrigues et al., 2020), activa e inicia el movimiento del 'engranaje' responsable de las empresas. Sus directrices se concretan en la implementación de prácticas sociales y ambientales que transmiten el impulso hacia la creación de valor tanto para las empresas como para la sociedad en general. De esta forma, se configura un sistema dinámico y coherente, trabajando de forma entrelazada a modo de engranaje, en el que, si una de las 'ruedas dentadas' se detiene o falla, el resto del sistema queda inoperativo. Pero cuando todas ellas se acoplan y transmiten el movimiento entre sí de una forma sincronizada, se crea un ciclo virtuoso en el que se refuerza la sostenibilidad y el valor empresarial.

El 'engranaje' de creación de valor sostenible no logra activarse de forma autónoma, sino que se pone en marcha gracias al impulso inicial del consejo de administración; por ello, esta tesis doctoral trata de identificar y estudiar la influencia e impacto de una amplia variedad de factores relacionados con su composición en los resultados empresariales; evaluar su desempeño en la creación de valor, el crecimiento empresarial y el desarrollo sostenible; examinar cómo los consejos de administración deben adaptar sus estructuras de toma de decisiones y sus políticas de gobernanza para hacer frente a los desafíos actuales y ejercer su doble misión de creación de valor económico y social; además de identificar los retos actuales

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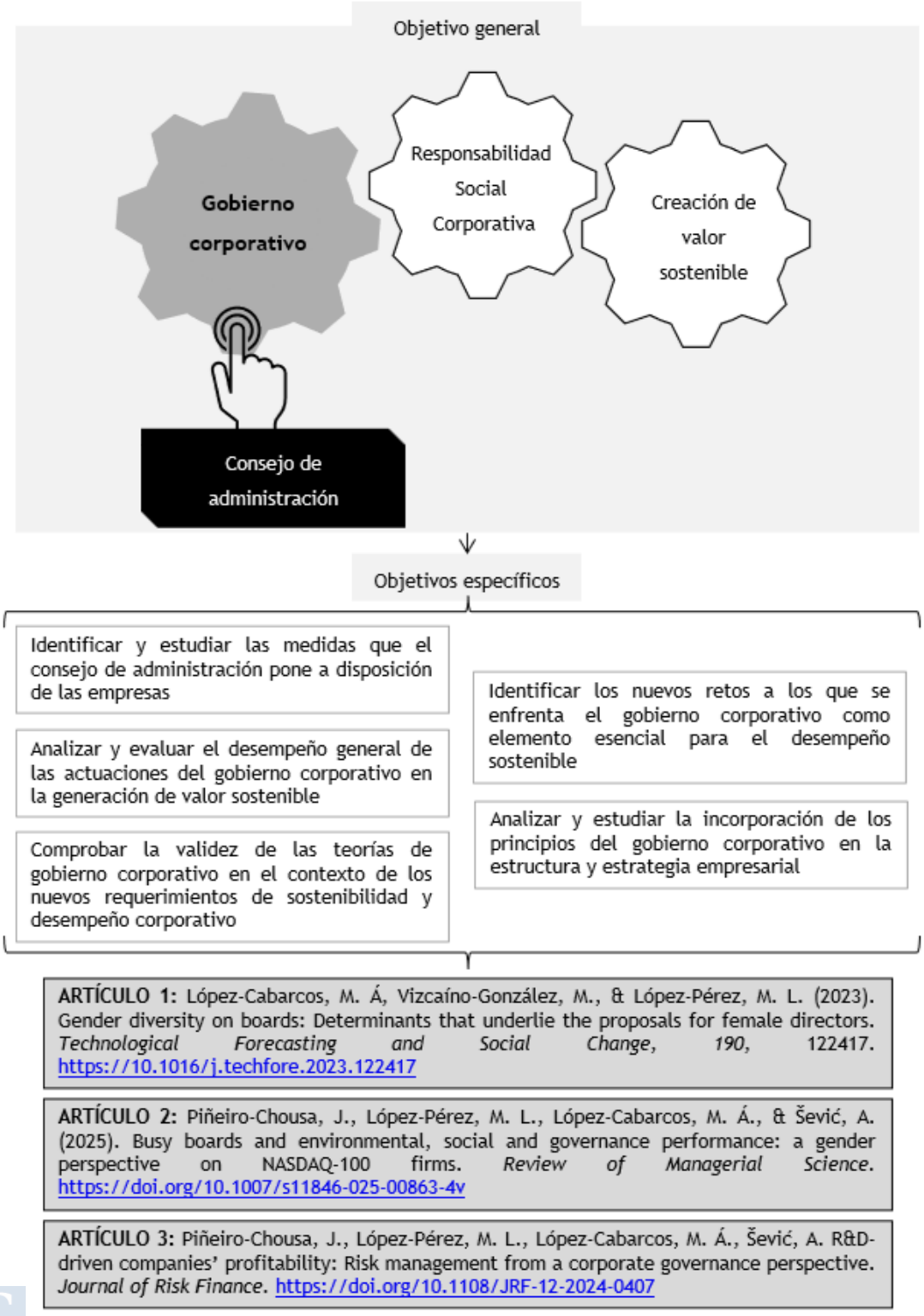
y futuros a los que se enfrenta el consejo de administración para asegurar un desempeño sostenible. Todos estos objetivos son abordados en los tres estudios que integran esta tesis doctoral y que de una forma gráfica se representan en la Figura 1.

Figura 1. Estructura e integración de la tesis doctoral



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Para ello, esta tesis doctoral comienza focalizándose en un aspecto clave de la composición del consejo de administración: la diversidad de género. Estudios previos han evidenciado la contribución de las mujeres consejeras en la gobernanza, los resultados financieros y el comportamiento responsable de las empresas. En base a los resultados obtenidos, cabría esperar que las empresas aumentasen la presencia de mujeres en los consejos de administración. Sin embargo, su representación sigue siendo limitada. Por ello, resulta absolutamente necesario investigar los factores que promueven y/o obstaculizan su integración en la gobernanza corporativa, objetivo que se investiga en el artículo 1. Una vez identificados los factores que influyen en la elección de los consejeros, resulta imprescindible ir más allá, evaluando los efectos de la composición del consejo de administración en el desempeño responsable de las empresas, objetivo abordado en el artículo 2. Los resultados de esta investigación establecen una hoja de ruta que permite a las empresas configurar sus consejos de administración para lograr una mejora en el desempeño sostenible. Sin embargo, lograr esa transición hacia modelos de negocio más responsables no resulta sencillo. En este contexto, la innovación emerge como una herramienta clave para crear soluciones social y medioambientalmente responsables, convirtiéndola en un elemento estratégico esencial para el crecimiento sostenible. Dada su relevancia, el artículo 3 trata de investigar cómo la composición del consejo puede influir en la capacidad de las empresas para traducir sus inversiones en innovación en valor empresarial. La investigación realizada comparte una línea argumental en torno al motor que inicia el movimiento del sistema de 'engranajes', utilizando diferentes métodos de investigación, técnicas de análisis, bases de datos y variables, tal y como recoge la Figura 2.

Figura 2. Diseño de la investigación

ARTÍCULO 1: Identificar los factores que influyen en la (re)elección de mujeres (y hombres) como miembros del consejo de administración	
• 83 de las 100 mayores empresas del mundo incluidas en el ranking *Fortune Global 500* • Entre 2004 y 2019	• Propuestas de mujeres y hombres para ser miembros del consejo de administración • Atributos individuales de los consejeros; características de la empresa y del consejo; características del entorno • Estimación de mínimos cuadrados en tres etapas (3SLS)

ARTÍCULO 2: Analizar la influencia del consejo de administración en los resultados empresariales en materia ESG	
• 91 de las 101 empresas cotizadas en el índice NASDAQ-100 en el año 2022 • Entre 2018 y 2022	• Puntuación ESG (*ESG S&P Global Scores y ESG Bloomberg*) • Nivel de ocupación; permanencia continuada; características del consejo • Método de mínimos cuadrados ordinarios (OLS)

ARTÍCULO 3: Investigar cómo la composición del consejo influye en la capacidad de las empresas para convertir su compromiso con la innovación en valor empresarial	
• 172 de las 250 empresas europeas más innovadoras incluidas en el ranking *EU Industrial R&D Investment Scoreboard* • Entre 2012 y 2022	• Ratio beneficios de explotación entre inversión en I+D • Atributos personales de los consejeros; características del consejo • Método de mínimos cuadrados generalizados (GLS)

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ARTÍCULO 1

El primer artículo de esta tesis aborda la diversidad de género en los consejos de administración, un tema central de debate en el ámbito político, social, académico y empresarial. Gobiernos, empresas y la sociedad en general han intensificado sus esfuerzos para promover la igualdad de género en las estructuras de toma de decisiones corporativas (Baker et al., 2020; Griffin et al., 2021). La incorporación de mujeres en los consejos de administración no solo enriquece las perspectivas y aporta nuevos enfoques, sino que también responde a las crecientes demandas sociales y regulatorias de un gobierno corporativo más igualitario y representativo. Este artículo se centra en identificar los factores que influyen en la (re)elección de mujeres como miembros del consejo de administración. Este enfoque contrasta con investigaciones previas, que tienden a analizar los efectos de la diversidad de género una vez que las mujeres ya forman parte del consejo. Comprender los determinantes detrás de la selección de consejeros resulta esencial para garantizar la igualdad de oportunidades en el acceso a posiciones clave de la gobernanza empresarial, teniendo en consideración la responsabilidad social que deben desempeñar las empresas. Abordar la diversidad de género desde esta perspectiva constituye en sí misma una medida de RSC, al fomentar un modelo de gobernanza equitativo que, además, actúa como catalizador del progreso social y de la creación de valor sostenible para las empresas y una sociedad cada vez más comprometida con la igualdad.

A pesar de que, tal y como se ha mencionado, investigaciones han analizado el papel de las mujeres consejeras en la gobernanza de las empresas y su influencia en el desempeño empresarial (Kirsch, 2018), pocos estudios se han centrado en los factores que facilitan o impiden su presencia en los consejos de administración (Baker et al., 2020; Geiger & Marlin, 2012; Hillman et al., 2007; Saeed et al., 2016). Precisamente, ese ha sido el objetivo del primer artículo de esta tesis: investigar los factores por los que las mujeres pueden ser (o no) propuestas para ocupar puestos en los consejos de administración. Este enfoque se diferencia claramente de las investigaciones previas más centradas en analizar el número o el porcentaje de mujeres consejeras presentes en los consejos de administración. Sin lugar a duda, antes de ocupar esos puestos en los consejos, las propuestas de nombramiento de consejeros deben ser consideradas y ratificadas en las juntas de accionistas. Por lo tanto, si las mujeres ya no son propuestas como miembros de los consejos de administración, no podrán llegar a ocupar un puesto en el mismo y, por tanto, no podrán influir en la gobernanza ni en el desempeño de las empresas. Por ello, resulta indispensable analizar los factores que determinan el número de propuestas de mujeres consejeras.

Investigaciones previas sugieren que la selección de los miembros del consejo de administración no es neutral en cuanto al género y que depende en gran medida de su composición actual. Así, las empresas que ya cuentan con varias mujeres consejeras tienden a disminuir las propuestas para incorporar más mujeres, ya que la presión externa para fomentar su inclusión se traslada hacia aquellas empresas con menor o nula representación (Knippen et al., 2019). Además, la probabilidad de que una mujer sea incorporada al consejo de administración aumenta cuando el consejero saliente también es otra mujer (Birkner, 2020), o cuando se amplía el tamaño del consejo con la creación de nuevos puestos destinados a ser ocupados por mujeres para cumplir con los requerimientos de diversidad exigidos por ley (Bennouri et al., 2018). Estas prácticas solo tratan de incorporar mujeres en los consejos, sin pretender sustituir a sus homólogos masculinos ni buscar una verdadera igualdad de género (Tinsley et al., 2017). De hecho, podrían llegar a obstaculizar ese avance, ya que la priorización del género por encima de las competencias puede generar la percepción entre los

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hombres consejeros de que los nombramientos de mujeres consejeras responden más a políticas de género que a su valía profesional (Knippen et al., 2019).

Por su parte, en el proceso de (re)elección de consejeros, la presencia en otros consejos de administración puede ser considerada tanto como un recurso valioso que aporta diversidad de conocimientos, experiencia y redes de contacto (Hillman & Dalziel, 2003), como una característica perjudicial dado que la elevada carga de trabajo que conlleva ser parte de múltiples consejos de administración y la disminución del tiempo dedicado a cada consejo se podría traducir en una reducción de la efectividad de la capacidad de supervisión y asesoramiento (Hillman et al., 2011). En este sentido, las empresas con una elevada representación de consejeros que también forman parte de otros consejos de administración suelen aumentar la presencia femenina en sus propios consejos, ya que al estar expuestos a prácticas diversas, estos consejeros suelen actuar como agentes proactivos en la difusión de prácticas de diversidad de género (Geiger & Marlin, 2012; Hillman et al., 2007). Sin embargo, en algunos casos, al ser considerados socialmente como parte de una élite de profesionales de prestigio, algunos consejeros masculinos podrían no apoyar el nombramiento de mujeres consejeras en un intento de preservar su estatus distintivo (Huang et al., 2020). Además, es necesario tener en consideración que la presencia de mujeres consejeras en múltiples consejos de administración puede generar una imagen distorsionada de diversidad de género, pudiendo tratarse únicamente de un grupo reducido de mujeres (conocido como *golden skirts*) que ocupan cargos en múltiples consejos (Rigolini & Huse, 2019). Las empresas pueden recurrir a este grupo de mujeres consejeras para responder de manera rápida a las presiones externas para impulsar su presencia en los consejos, sin que ello implique un avance en materia de igualdad (Nili, 2019).

Así mismo, la permanencia continuada de mujeres en el consejo de administración de una misma empresa podría ser interpretada como un indicador de la igualdad entre hombres y mujeres, ya que una auténtica diversidad no solo conlleva la incorporación de mujeres como consejeras, sino su permanencia en el consejo por largos periodos tras su elección (Nili, 2019). De acuerdo con la 'hipótesis de la experiencia' (Vafeas, 2003), cuantos más años permanezca un consejero en el consejo de administración, mayor será su experiencia, conocimiento y nivel de compromiso. No obstante, el trabajo compartido entre los consejeros y el equipo directivo a lo largo del tiempo podría fomentar una relación estrecha entre ellos, dando lugar a lo que se conoce como 'consejos amigos' (Vafeas, 2003), en los que la menor independencia y objetividad de los consejeros podría comprometer la función de supervisión del consejo de administración (Hillman et al., 2011).

El área geográfica en la que operan las empresas podría también influir en la presencia de mujeres en los consejos de administración (Halliday et al., 2020; Terjesen & Singh, 2008). Su presencia en instituciones sociales, políticas, culturales, jurídicas y económicas de los países puede actuar como impulsora de la igualdad de oportunidades entre mujeres y hombres, influyendo en las actitudes sobre los roles de género y ayudando a romper los estereotipos de género (Terjesen et al., 2009). Ello puede reflejarse en un aumento del número de mujeres consejeras en los consejos de administración (Humbert et al., 2019). Así mismo, las empresas más prestigiosas y punteras, que están en el foco de los reguladores, los medios de comunicación, los inversores y, en general, de toda la sociedad, ven incrementada la presión para incluir un mayor número de mujeres en sus consejos de administración (Carter et al., 2003; Hillman et al., 2007). El sector en el que opera una empresa también puede ser un obstáculo o un facilitador de la presencia de mujeres en los consejos de administración. En este sentido, De Jonge (2014) demostró que el sector financiero y de servicios (sanidad, consumo y telecomunicaciones) facilitan la representación femenina en los consejos, en tanto

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que las empresas de los sectores industrial o energético muestran una presencia significativamente menor de mujeres consejeras. Otras investigaciones también han observado diferencias entre sectores, aunque con resultados contrapuestos entre ellas, lo cual podría deberse a que cada investigación incorpora diferentes tipos de industrias (Adams & Ferreira, 2009; Geiger & Marlin, 2012; Hillman et al., 2007).

Una vez identificados en esta investigación los factores que influyen en la (re)elección de mujeres (y hombres) como miembros de los consejos de administración, y considerando los resultados no concluyentes de investigaciones previas sobre el efecto de la composición del consejo de administración en el desempeño de las empresas (Ardito et al., 2020; Boulouta, 2013; Cucari et al., 2018; Ma et al., 2022), resulta imprescindible no limitarse a analizar cómo se configuran los consejos de administración, sino a continuar explorando los efectos e implicaciones de su estructura. En este contexto, y dada la necesidad que tienen las empresas de transformar su tradicional forma de actuar para integrar y alinear su actividad con las demandas y necesidades de los *stakeholders*, se ha investigado cómo la composición del consejo de administración influye en el comportamiento responsable de las empresas.

ARTÍCULO 2

El segundo artículo de esta tesis examina la relación entre la gobernanza y las estrategias de sostenibilidad corporativa. En los últimos años, el objetivo tradicional de maximización de los resultados financieros se ha ido difuminando para incorporar cuestiones sociales, éticas y medioambientales que responden a las demandas de todos los grupos de interés (Garcia Martin & Herrero, 2020; Lopez-Cabarcos et al., 2019). De esta forma, en el entorno empresarial actual, la sostenibilidad ha dejado de ser un mero requisito normativo para convertirse en un motor estratégico para la generación de valor (Khan, 2022). La relevancia de estas cuestiones requiere de la implicación activa, la capacidad estratégica, la proactividad y el compromiso del consejo de administración, quien debe reconocer, gestionar e integrar las iniciativas de sostenibilidad en el diseño de las estrategias empresariales (Aydogmus et al., 2022; Cooper & Uzun, 2022). Ante esto, las empresas se enfrentan a la tarea crítica de configurar sus consejos de administración de forma que reúnan las características necesarias para ello. Para ayudar a las empresas a abordar este complejo desafío, este segundo artículo considera el capital humano (experiencia y conocimientos) y el capital social (redes de contacto) de los miembros del consejo, así como las funciones que desempeñan en el mismo. Todo ello sin olvidar el papel de las mujeres, quienes, como se ha evidenciado en la primera investigación, todavía enfrentan barreras significativas para su inclusión en los consejos de administración. El objetivo de este artículo es analizar la influencia en los resultados empresariales en materia ESG (*environmental, social and governance*) de estas variables relacionadas con la composición de los consejos de administración. A diferencia de investigaciones previas que se han centrado principalmente en el análisis individual de estas características de los consejos y de los atributos personales de los consejeros, esta investigación aborda, desde una perspectiva integral y amplia, cómo los consejos de administración pueden impulsar un nuevo modelo de gobierno corporativo esencial para asegurar el éxito a largo plazo de las empresas y el desarrollo de una economía global más sostenible y socialmente responsable.

ESG es un acrónimo que se refiere a las dimensiones medioambiental, social y de gobernanza del desempeño empresarial. El factor medioambiental abarca prácticas para proteger el medio ambiente, el social se enfoca en la relación de la empresa con sus grupos de interés, y la gobernanza se refiere al ámbito de la gestión y dirección de la empresa. Investigaciones previas han demostrado que integrar iniciativas ESG en las estrategias

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empresariales mejora el rendimiento financiero al promover inversiones centradas en el uso eficiente de los recursos (Ali & Jadoon, 2022), además de facilitar el acceso a nuevos mercados y atraer a nuevos clientes con mayor conciencia social y medioambiental (Ilyas & Osiyevskyy, 2022). Más allá del valor económico, las iniciativas sostenibles también benefician a las personas, promoviendo entornos de trabajo seguros, garantizando su bienestar y asegurando el respeto de los derechos humanos (Jamil et al., 2023). A su vez, las empresas que adoptan estas prácticas sostenibles atraen y retienen talento (Alsayegh et al., 2020) y desarrollan una cultura organizativa basada en principios de sostenibilidad (Cantele et al., 2024). Las empresas con conciencia social también tienden a adoptar una visión más amplia que va más allá de satisfacer las necesidades de los clientes para abordar las demandas de toda la sociedad (Mesquita & Missimer, 2021). Las iniciativas sostenibles también impulsan procesos de producción que reducen los impactos ambientales negativos (Lomborg, 2020) y optimizan el consumo de recursos naturales (Cheng et al., 2023). De esta forma, integrar iniciativas ESG en la estrategia empresarial puede influir positivamente en los resultados económicos, la sociedad y el medio ambiente (Bubicz et al., 2019).

El objetivo del segundo artículo de esta tesis es investigar la influencia del capital humano (experiencia y conocimientos) y el capital social (redes de contacto) de los miembros del consejo, derivados de su participación en múltiples consejos y de su permanencia continuada en el mismo consejo, en el desempeño ESG de las empresas. Se consideran también las funciones que dichos miembros desempeñan en el consejo, así como el papel que juegan las mujeres consejeras. A diferencia de investigaciones previas, este artículo considera los conocimientos, la experiencia o las redes de contacto de los miembros del consejo desde una doble perspectiva: por un lado, la adquisición externa de los mismos por pertenecer a varios consejos de administración; y, por otro lado, su adquisición interna por pertenecer al mismo consejo de administración durante años. De esta forma, esta investigación combina dos atributos vinculados al capital humano y social de la empresa con uno de los principales atributos demográficos -el género-, lo que permite adoptar una perspectiva más amplia y una evaluación más detallada de la dinámica interna de funcionamiento de los consejos de administración (Behlau et al., 2023).

Investigaciones previas consideran que la importancia de la participación simultánea en varios consejos de administración se produce cuando se está presente en, al menos, tres consejos. Este número determina que un 'consejero sea ocupado' (Ferris et al., 2003; Fich & Shivdasani, 2006), y que un 'consejo sea ocupado' (*busy board*) cuando al menos la mitad de sus miembros son ocupados (Fich & Shivdasani, 2006). Este hecho puede afectar a la gobernanza y al desempeño empresarial y, en este sentido, las investigaciones previas han dado lugar a dos perspectivas teóricas contrapuestas. Por un lado, la 'hipótesis de la reputación' argumenta que la participación en múltiples consejos proporciona a los consejeros mayor experiencia, conocimiento y una red de contactos más amplia, lo que los convierte en un recurso valioso para mejorar la calidad de los procesos decisionales (Ferris et al., 2018; Liu & Paul, 2015). Respaldada por la teoría de la dependencia de los recursos (Pfeffer & Salancik, 1978), esta hipótesis resalta la mejora en la función de asesoramiento derivada de la participación en múltiples consejos. En cambio, la 'hipótesis de la ocupación' sostiene que los consejeros que participan en varios consejos deben dividir su tiempo y esfuerzo entre todos ellos, lo que reduce su dedicación a cada consejo, llegando a estar tan sobrecargados que su capacidad de supervisión puede verse comprometida (Ferris et al., 2003; Liu et al., 2023). Esta hipótesis se apoya en la teoría de la agencia (Fama & Jensen, 1983) y advierte de los perjuicios en la función de control derivados de la participación en varios consejos al mismo tiempo.

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Bajo las premisas de la 'hipótesis de la reputación' y considerando la complejidad de algunas iniciativas ESG, el asesoramiento de los consejeros que participan en múltiples consejos puede ser un recurso especialmente valioso (Cooper & Uzun, 2022; Kim, 2022; Latif et al., 2024). Las amplias redes de contacto de estos consejeros les permiten estar mejor informados sobre las demandas de los *stakeholders*, lo que mejora la calidad y eficacia de sus decisiones en materia ESG (Harjoto & Wang, 2020; Nandy et al., 2020). Además, su participación en múltiples consejos les proporciona acceso a información valiosa sobre prácticas e iniciativas ESG de otras empresas y sectores, lo que amplía y actualiza su conocimiento y experiencia en la materia (de Villiers et al., 2011). Sin embargo, la 'hipótesis de la ocupación' advierte que su sobrecarga de responsabilidades podría afectar negativamente al desempeño ESG de la empresa, dado que estas iniciativas requieren de un alto nivel de control y supervisión (Bravo-Urquiza & Reguera-Alvarado, 2024; Harjoto & Wang, 2020), además de un fuerte compromiso y dedicación (Garcia Martin & Herrero, 2020; Haque, 2017) que los consejeros (demasiado) ocupados en varios consejos podrían no ser capaces de proporcionar.

La permanencia continuada en el consejo de administración de una misma empresa también puede ser un factor clave para la implementación de iniciativas ESG. De acuerdo con la 'hipótesis de la experiencia' (Vafeas, 2003), al permanecer en el consejo durante varios años, los consejeros pueden adquirir un conocimiento amplio de las necesidades y capacidades de la empresa y así ser capaces de ofrecer un mejor asesoramiento y control de las iniciativas ESG (Bonini et al., 2022). Su prolongada permanencia también refuerza su compromiso con la empresa, permitiéndoles adoptar la visión a más largo plazo que requieren las iniciativas ESG (Paolone et al., 2023; Patro et al., 2018). Por el contrario, el estrecho contacto entre los consejeros que participan en el consejo durante años y el equipo directivo podría derivar en la conformación de 'consejos amigos' (Vafeas, 2003) que pueden limitar la necesaria perspectiva largoplacista para desarrollar iniciativas ESG, a la vez que podrían promover el enfoque directivo de maximización de resultados financieros a corto plazo (Al-Jaifi et al., 2023; Hafsi & Turgut, 2013).

El papel que los consejeros desempeñan dentro del consejo de administración también podría afectar el desempeño ESG de las empresas. Los consejeros independientes (externos o no ejecutivos) que no tienen vinculación laboral con la empresa gozan de mayor independencia y objetividad, lo que les permite alejarse de las presiones de los accionistas y el equipo directivo, y dar prioridad a los intereses y demandas de sostenibilidad de los *stakeholders*, y ejercer un control más eficaz de las estrategias ESG (Bigelli et al., 2023; Pinheiro et al., 2024). No obstante, su presencia puede no resultar tan beneficiosa si desplazan a los consejeros ejecutivos, quienes se ocupan de la operativa diaria de la empresa y, por tanto, poseen los conocimientos y experiencia necesarios para identificar e implementar las estrategias ESG más adecuadas para la empresa (Birindelli et al., 2018; Cambrea et al., 2023).

Por su parte, investigaciones previas también han señalado que la presencia de mujeres en el consejo de administración influye positivamente en el desempeño ESG de las empresas (Nicolo et al., 2022; Provasi & Harasheh, 2020; Romano et al., 2020). Las mujeres consejeras tienden a impulsar inversiones sostenibles que reducen el uso de recursos naturales y el impacto ambiental (Atif et al., 2020; Nadeem et al., 2020a), además de mostrar mayor sensibilidad y preocupación hacia las necesidades de los demás y promover la responsabilidad social de las empresas (De Masi et al., 2021; Hussain et al., 2024). Su presencia también aporta diversidad de conocimientos, habilidades y perspectivas, lo que favorece una toma de decisiones más inclusiva y responsable (Garcia Martin & Herrero, 2020; Kassinis et al., 2016). Por el contrario, algunos estudios sugieren que la presencia de mujeres u hombres en el

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consejo puede afectar las decisiones ESG; en tanto la presencia de mujeres consejeras implica decisiones con más compromiso social y medioambiental y la presencia de hombres consejeros lleva justo a lo contrario (Ardito et al., 2020; Hussain et al., 2018).

Este segundo artículo resalta la importancia de que los consejos de administración cuenten con una composición adecuada para asumir, además de sus responsabilidades tradicionales, un papel activo en la promoción de una gobernanza responsable y sostenible (Guerrero-Villegas et al., 2018; Nadeem et al., 2020). La integración de las cuestiones ESG como parte de las decisiones estratégicas genera valor para todos los *stakeholders*, transcendiendo los resultados financieros y fomentando una gestión empresarial capaz de promover el bienestar social y el cuidado del medio ambiente (Nadeem et al., 2020a). Un modelo de negocio verdaderamente sostenible exige la integración simultánea de los tres pilares sin priorizar ni menoscabar ninguno para lograr resultados sostenibles efectivos (Alsayegh et al., 2020; Bubicz et al., 2019) y, al mismo tiempo, contribuir al logro de los objetivos de desarrollo sostenible (SDG). En un escenario de retos estratégicos significativos para las empresas, es crucial determinar cuáles de las posibles estrategias ESG pueden generar valor a largo plazo y favorecer el desarrollo y el bienestar global. En esta línea, el consejo de administración juega un papel crucial (tal y como lo demuestran los resultados del segundo artículo de esta tesis) al ser responsable de integrar estas estrategias en la toma de decisiones corporativas. Por tanto, una gobernanza ética es clave para conseguir situar la sostenibilidad en el centro de todas las decisiones empresariales y asegurar que el logro de los SDG se integra en la cultura organizativa. Dicho planteamiento deja claro y patente que las empresas desempeñan un papel incuestionable e ineludible en la consecución del desarrollo sostenible (Suarez & Sanchez, 2023).

La transición hacia estos modelos de negocio más responsables, eficientes y sostenibles ya está en marcha, pero afrontar los nuevos retos globales no es sencillo e implica un cambio profundo en las prácticas empresariales. En este contexto, la innovación se presenta como una herramienta clave para crear soluciones social y medioambientalmente responsables, permitiendo construir nuevos modelos de negocios sostenibles y económicamente viables. Sin embargo, esta transformación estratégica no está exenta de desafíos y sin duda requiere de la implicación del consejo de administración para integrar la sostenibilidad, la innovación y la rentabilidad como ejes directrices alrededor de los cuales se deben tomar a partir de ahora las decisiones estratégicas. Por ello, el tercer artículo de esta tesis analiza cómo la composición de los consejos de administración puede ser clave para transformar la necesidad estratégica de innovación en valor empresarial.

ARTÍCULO 3

El tercer artículo de esta tesis examina la relación entre la innovación, como estrategia empresarial clave, y el valor empresarial. A través de la innovación, se pueden desarrollar soluciones más eficientes y sostenibles, reducir el impacto ambiental, mejorar el bienestar social y obtener ventajas competitivas que impulsen el valor empresarial. Por tanto, la innovación se posiciona como una herramienta estratégica esencial para el crecimiento sostenible (Griffin et al., 2021; Hojnik et al., 2022). Ahora bien, innovar también exige esfuerzos significativos, debiendo las empresas equilibrar la necesidad de innovación para avanzar en sostenibilidad con los resultados financieros. En este contexto, los consejos de administración desempeñan un papel crucial (Muhammad et al., 2022; Rodrigues et al., 2020). Este artículo analiza cómo los atributos personales de los consejeros y las características del consejo de administración pueden influir en la capacidad de las empresas para traducir las inversiones en I+D en beneficios operativos. En tanto que la mayoría de la literatura previa se

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ha centrado en investigar los factores externos que pueden influir en la innovación, este tercer artículo analiza cómo la composición del consejo de administración puede influir en el desempeño empresarial a través de su compromiso con las inversiones en I+D. Comprender cómo los consejos de administración pueden garantizar que la innovación sea un motor clave para generar valor sostenible no solo para las empresas, sino también para la sociedad y el medio ambiente, es esencial para convertir las estrategias de innovación en herramientas efectivas de desarrollo sostenible y progreso financiero.

Las inversiones en I+D impulsan la innovación y son esenciales para que las empresas afronten los retos de un entorno cada vez más competitivo y cambiante (Muhammad et al., 2022). Estas inversiones permiten generar avances tecnológicos y desarrollar nuevos productos y servicios (Sanad & Musleh, 2023), facilitando la expansión a nuevos mercados y el aumento de ventas (Honore et al., 2015). Además, fomentan la productividad (Rodrigues et al., 2020) y el rendimiento sostenible (Ilyas & Osiyevskyy, 2022), generando ventajas competitivas significativas (Hojnik et al., 2022) capaces de aumentar el valor de la empresa (Sierra-Moran et al., 2023). Estas inversiones también pueden garantizar la supervivencia de las empresas (Asad et al*.,* 2023). Así, las empresas que más invierten en I+D suelen estar más preparadas para mantener sus beneficios, especialmente en periodos de crisis (Pham et al., 2023). Sin embargo, conseguir todos estos beneficios exige esfuerzos considerables. Además de una gran cantidad de recursos de todo tipo, los proyectos de I+D necesitan estabilidad financiera (Huang et al., 2022b), ya que su gran complejidad, riesgo e incertidumbre pueden retrasar o impedir la consecución de los resultados (también económicos) deseados (Chen et al., 2016). De esta forma, la necesaria visión estratégica a largo plazo que requieren las inversiones en I+D puede entrar en colisión con los intereses a corto plazo de los accionistas (Ahmad et al., 2023), quienes tienden a visualizar solamente sus elevados costes y la reducción de los beneficios a corto plazo (Honore et al., 2015). Por tanto, encontrar un equilibrio entre innovación y resultados financieros resulta crucial (Almor et al., 2022). En este sentido, los consejos de administración desempeñan un papel clave (Chen et al., 2021; Muhammad et al., 2022; Sierra-Moran et al., 2024a), aportando múltiples habilidades, experiencias y conocimientos capaces de generar nuevas ideas y soluciones para abordar las complejidades de los proyectos de I+D (AlHares, 2020) y mejorar el control de los recursos necesarios para desarrollarlos (Asad et al., 2023). Sin embargo, es cierto que la esperada efectividad de los consejos de administración puede verse limitada si su estructura dificulta la comunicación y la coordinación entre los consejeros (An et al., 2021) o prioriza la visión cortoplacista de los accionistas sobre la largoplacista característica de los proyectos de I+D (Khan et al., 2021).

El objetivo del tercer artículo de la tesis es analizar cómo la composición del consejo de administración influye en la capacidad de las empresas para convertir su compromiso con la innovación en valor empresarial. A diferencia de investigaciones previas que han centrado su atención en factores externos a la empresa que pueden condicionar las inversiones de I+D (Wang et al., 2019), esta investigación se enfoca en factores internos, en concreto en el papel del consejo de administración, un aspecto apenas explorado en relación con la innovación empresarial (Chen et al., 2021; Makkonen, 2022). Se consideran tanto los atributos personales de los consejeros (la presencia de mujeres consejeras, la evidencia de una masa crítica de mujeres en los consejos, el efecto de las cuotas de género, el papel de las mujeres como directoras financieras -CFO- y la edad de los miembros del consejo), como las características de los consejos (su tamaño, la presencia de consejeros ejecutivos y los años de permanencia en el consejo). Esta investigación trata de identificar cómo estos factores pueden ser un elemento clave para conseguir alinear las estrategias de innovación con el desempeño

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financiero en empresas cotizadas y no cotizadas de diferentes países europeos. Con ello se pretende cubrir otro vacío de la literatura existente, que se ha centrado principalmente en las empresas cotizadas de un mismo país (Asad et al., 2023). Este enfoque integral, tanto en relación con la muestra empleada como con la diversidad de aspectos del consejo y sus miembros considerados, puede aportar una comprensión más amplia de la influencia estratégica de los consejos de administración en la innovación empresarial y los resultados financieros, dando además un paso crucial en la literatura existente. En lugar de limitarse a explorar la influencia del gobierno corporativo en la innovación, esta investigación va más allá al explorar cómo los consejos de administración pueden crear valor económico a través de la innovación.

En relación con el atributo de género, investigaciones previas han señalado que la mayor asistencia de las mujeres consejeras a las reuniones del consejo (Adams & Ferreira, 2009) les permite acceder a información interna clave para identificar proyectos innovadores en los que invertir (Chen et al., 2021), mejorar su supervisión para garantizar que el equipo directivo no los evite (Chen et al., 2018; Griffin et al., 2021) y controlar los recursos asignados a los mismos (Azzam, 2022). Su presencia también favorece la comunicación, la participación y el flujo de información (Sanad & Musleh, 2023; Sierra-Moran et al., 2024a); aporta diversidad de conocimientos y experiencia (Gonzales-Bustos et al., 2020) e introduce nuevas perspectivas que son claves para las iniciativas de I+D (Belkacemi et al., 2021). Su mayor sensibilidad hacia las necesidades de los *stakeholders* permite ir más allá de una visión meramente financiera y orientar las decisiones del consejo hacia inversiones en I+D capaces de generar beneficios sociales y medioambientales (Attah-Boakye et al., 2020). Además, dado que tienden a ser más cautelosas que sus homólogos masculinos, contribuyen a una mejor gestión del elevado riesgo de este tipo de proyectos (Chen et al., 2016; Nadeem et al., 2019). En contraste, también existe investigación previa que señala que la mayor aversión al riesgo de las mujeres puede limitar la ejecución de proyectos de I+D (Asad et al., 2023; Guldiken & Darendeli, 2016) y que su presencia podría crear dos grupos en el consejo -hombres y mujeres- lo que dificultaría alcanzar los consensos necesarios para abordar estas iniciativas (Heubeck & Meckl, 2023). Además, su escasa representación en los consejos, junto con el constante escrutinio al que son sometidas, puede llevar a las mujeres consejeras a tomar decisiones excesivamente cautelosas y aprobar únicamente proyectos innovadores con resultados garantizados (Almor et al., 2022). En este sentido, alcanzar una masa crítica de tres o más mujeres en los consejos (Erkut et al., 2008; Konrad et al., 2008) puede ser clave para impulsar la innovación empresarial (Torchia et al., 2011), ya que pueden estar más dispuestas a compartir sus sugerencias creativas e innovadoras (Saggese et al., 2021). En este sentido, todavía resulta complicado alcanzar conclusiones definitivas sobre este aspecto, puesto que los consejos de administración con tres o más mujeres siguen siendo escasos (Griffin et al., 2021).

Precisamente, los países europeos han implementado diversas políticas para promover la presencia de las mujeres en los consejos de administración; desde cuotas que fijan un porcentaje obligatorio de mujeres consejeras con sanciones por su incumplimiento, hasta cuotas voluntarias que recomiendan unos umbrales de referencia sin penalizaciones. Muy pocos países han evitado promulgar legislaciones al respecto. Aunque la investigación sobre la relación entre las cuotas de género y las inversiones en I+D es limitada, los resultados sugieren que este tipo de políticas promueven la innovación (Attah-Boakye et al., 2020), pero depende de cómo sean implementadas. Así, las cuotas voluntarias, que permiten a las empresas estar menos presionadas en la elección de las mujeres consejeras, valorando, por tanto, mejor sus conocimientos y méritos, pueden favorecer la inversión I+D. Por el contrario,

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las cuotas obligatorias pueden llevar a la elección de mujeres consejeras solo para cumplir con los requerimientos normativos sin considerar, por tanto, sus cualificaciones o experiencia, lo que tendría un impacto negativo sobre el compromiso de la empresa con la I+D (Foss et al., 2022).

Además de su presencia en los consejos de administración, el papel de las mujeres en puestos directivos, especialmente en el ámbito financiero, es crucial, ya que se convierten en responsables de asignar los recursos financieros a los proyectos de I+D (Bedard et al., 2014). Debido a su mayor sensibilidad hacia las demandas en materia de sostenibilidad, las mujeres en posiciones de liderazgo financiero tienden a aumentar las inversiones en I+D para lograr ventajas competitivas que aseguren el crecimiento sostenible de la empresa (Wang, 2022a). Por tanto, la suposición de que las mujeres en altos cargos pueden estar menos dispuestas a asumir riesgos y, por tanto, pueden obstaculizar las inversiones en I+D, parece perder fuerza (Doan & Iskandar-Datta, 2020).

Esta investigación también ha considerado como variable relevante la edad de los consejeros. Los consejeros de más edad, con conocimientos, pericia y experiencia, pueden aportar valiosas perspectivas y soluciones prácticas que aumenten el éxito de las iniciativas de I+D (Midavaine et al., 2016). Sin embargo, también es posible que sean más reacios al riesgo (Attia et al., 2021; Bravo & Reguera-Alvarado, 2017) y a cambiar su enfoque habitual de supervisión (Chindasombatcharoen et al., 2023), lo que dificultaría la adopción de estrategias innovadoras, más arriesgadas y complejas. Por su parte, los consejeros más jóvenes podrían estar más dispuestos a aceptar nuevos retos y ser más proactivos, aportando nuevas perspectivas y anticipándose a las tendencias emergentes y, por tanto, promoviendo nuevas inversiones en I+D (Khan et al., 2021).

Por su parte, el mayor tamaño del consejo de administración aumenta la diversidad de experiencias, conocimientos, habilidades (Griffin et al., 2021), y las redes de contactos con las que establecer alianzas y compartir conocimientos para promover las iniciativas de I+D (Wu et al., 2024). Sin embargo, el proceso de toma de decisiones podría verse dificultado por la complejidad para organizar reuniones con la frecuencia necesaria (Cheng, 2008), o por los problemas de comunicación, coordinación e interacción entre todos los miembros (Driver & Guedes, 2012) que podrían retrasar los procesos decisionales sobre proyectos de I+D (Galia & Zenou, 2012; Makkonen, 2022). Además, al distribuirse el poder de decisión entre un número elevado de consejeros, se pierde el control e influencia de cada uno sobre las decisiones, lo que podría disuadirles de iniciar proyectos de I+D arriesgados y complejos (AlHares et al., 2020).

La presencia de consejeros independientes (no ejecutivos) también puede ser clave para aportar perspectivas, información externa y redes de contactos que faciliten la selección y el desarrollo de proyectos de I+D (Ahmad et al., 2023; Muhammad et al., 2022). Su independencia también favorece un control más eficaz, ya que incentiva al equipo directivo a ser creativo y fomentar la inversión en I+D (Chou & Johennesse, 2021). Sin embargo, a diferencia de los consejeros ejecutivos, su falta de participación en la gestión diaria de la empresa puede limitar su capacidad para identificar las necesidades reales de innovación de la empresa y tomar decisiones informadas (Gonzales-Bustos et al., 2020; Shaikh et al., 2018). Además, el mayor 'sentido de pertenencia' de los consejeros ejecutivos tiende a reforzar su compromiso con la empresa (Sierra-Moran et al., 2024b) y la adopción de una visión largoplacista (Driver & Guedes, 2012; Rodrigues et al., 2020) que los impulsa a apoyar estrategias de I+D en lugar de centrarse únicamente en la obtención de resultados financieros a corto plazo.

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De manera similar, los consejeros con mayor permanencia en el consejo también disponen de un mayor conocimiento de la empresa (Chou & Johennesse, 2021) y una visión estratégica a largo plazo que favorece la adopción de proyectos de I+D (Asad et al., 2023). Además, su larga permanencia les permite ejercer un control más efectivo sobre la asignación de recursos y detectar retrasos del equipo directivo en el desarrollo de proyectos de I+D (Guldiken & Darendeli, 2016). No obstante, la permanencia continuada de los consejeros también puede generar vínculos más estrechos con el equipo directivo, lo que podría limitar su capacidad de supervisión (Azzam & Alhababsah, 2023; Guldiken & Darendeli, 2016), o provocar que se centren demasiado en la empresa y pierdan información y redes de contacto externas vitales para abordar proyectos de I+D (Azzam & Alhababsah, 2022). Así mismo, después de varios años en el consejo, podrían preferir la estabilidad sobre la asunción de los riesgos y retos que implica emprender proyectos innovadores que pudiesen comprometer su reputación (Heubeck & Meckl, 2023; Midavaine et al., 2016).

Además de las variables analizadas en este tercer artículo y, con el ánimo de hacer un estudio más completo a la hora de presentar esta tesis doctoral, se han considerado también otros atributos personales de los miembros del consejo, tales como la nacionalidad o la presencia de mujeres en otros puestos de responsabilidad (como presidentas del consejo y directoras generales -CEO-), así como otras características de los consejos de administración, tales como la duración del mandato del CEO y su participación en el consejo.

La diversidad de nacionalidades en los consejos puede favorecer la inversión en I+D al proporcionar diferentes perspectivas culturales y nuevas formas de pensar y resolver problemas (Luo et al., 2021; Makkonen et al., 2018). Los consejeros extranjeros pueden identificar y comunicar nuevas oportunidades de I+D detectadas en sus países de origen (Boone et al., 2019), así como detectar las demandas y necesidades de un mayor número de *stakeholders*, impulsando la innovación para intentar satisfacerlas (Attia et al., 2021; Usman et al., 2020). Sin embargo, su menor asistencia a las reuniones de los consejos puede dificultar el seguimiento y supervisión de los proyectos de I+D (Masulis et al., 2012), y reducir la necesaria creatividad para llevar a cabo estos proyectos (Khan et al., 2021). Además, la diversidad de nacionalidades puede crear problemas de coordinación y comunicación, reduciendo la efectividad del consejo y obstaculizando las inversiones en I+D (Belkacemi et al., 2021). Otras investigaciones sugieren que la clave para la innovación no es tanto la diversidad de nacionalidades, sino la variedad de experiencias educativas y profesionales de los consejeros (Makkonen, 2022).

Por su parte, el papel de las mujeres como presidentas del consejo de administración también puede resultar clave para promover el compromiso de las empresas con la I+D. Su presencia puede promover debates más participativos, incentivar al equipo directivo a proponer proyectos innovadores (Jiang et al., 2020) y crear un entorno en el que las mujeres consejeras se sientan más cómodas para compartir sus opiniones, sugerencias e ideas innovadoras (Wang et al., 2022b). Sin embargo, su escasa presencia en este puesto de responsabilidad limita las conclusiones sobre su influencia en la innovación empresarial (Liao et al., 2019; Shukla & Teraiya, 2022). Del mismo modo, su posición como CEO puede ser determinante al ser responsables de implementar las estrategias empresariales (incluidas las inversiones en I+D) (Agnihotri & Bhattacharya, 2024; Koo, 2019). De nuevo, su escasa representación en estos puestos dificulta el análisis en materia de innovación (Almor et al., 2022). En todo caso, investigaciones previas han señalado que el mayor esfuerzo, determinación y tenacidad que las mujeres tienen que invertir para llegar a ser CEOs les proporcionan habilidades clave para afrontar los desafíos y riesgos inherentes a la actividad innovadora (Yin et al., 2019). Además, su estilo de liderazgo colaborativo y orientado al

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trabajo en equipo puede servir para fomentar la creatividad y la resolución de problemas, aspectos clave para garantizar el éxito de las iniciativas de I+D (Javaid et al., 2023; Khushk et al., 2023).

Con independencia de su género, los CEOs que ocupan este cargo durante varios años acumulan mayor conocimiento, experiencia y compromiso con la empresa, lo que les permite identificar nuevas y mejores oportunidades de I+D (Barker & Mueller, 2002). Así, tras años en la misma empresa, disminuye su preocupación por perder el puesto o por sentirse observados por el consejo, lo que les permite centrarse más en sus responsabilidades y dedicar más tiempo y esfuerzo a las inversiones en I+D (Zona, 2016). No obstante, también es posible que, una vez ya han ganado la confianza y el respeto del consejo, prioricen estrategias más estables o intereses personales (Azzam, 2022; Loukil & Yousfi, 2022) sobre la posibilidad de explorar nuevas ideas, procesos o tecnologías (Hsu et al., 2020).

Por su parte, cuando los CEOs también forman parte del consejo, su doble papel puede facilitar un proceso decisional más ágil, lo que resulta crucial en los proyectos innovadores (Sun et al., 2023). Su conocimiento de las perspectivas estratégicas discutidas en el consejo, junto con su mayor conocimiento de los procesos internos, les lleva a tomar decisiones más informadas sobre iniciativas de I+D (Driver & Guedes, 2012; Sierra-Moran et al., 2024a). Sin embargo, su mayor proximidad a los accionistas por su presencia en el consejo puede también llevarlos a priorizar estrategias que busquen la maximización de beneficios a corto plazo en lugar de invertir en iniciativas de I+D con orientación en el largo plazo (Asad et al., 2023).

Los tres artículos que integran la tesis ponen de relieve el papel crucial que desempeñan los consejos de administración en la gobernanza de las empresas y en el desempeño empresarial. Una amplia variedad de atributos relacionados con su composición ha sido investigada para analizar su influencia sobre diferentes medidas del desempeño sostenible de las empresas. De esta forma, queda patente que el gobierno corporativo, a través de uno de sus principales mecanismos de actuación (el consejo de administración), se convierte en un inductor clave de la creación de valor empresarial, resultando su composición crucial para integrar los principios en los que se sustenta la responsabilidad social corporativa en el diseño de las estrategias empresariales con el objetivo de promover el bienestar social, la protección del medio ambiente, el desarrollo económico y, con ello, lograr la consecución de los objetivos de sostenibilidad.

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2 OBJETIVOS E HIPÓTESIS

En el contexto actual, las empresas no solo tienen que maximizar el valor para los accionistas, sino que también deben crear valor para todos los grupos de interés (Guerrero-Villegas et al., 2018; Nadeem et al., 2020a). Por esta razón, la medición del desempeño empresarial ya no puede centrarse únicamente en aspectos financieros, sino que resulta imprescindible considerar aspectos como la creación de valor compartido (Garcia Martin & Herrero, 2020; Shaukat et al., 2016). En este contexto, la sostenibilidad se ha convertido en un componente esencial de las estrategias de las empresas al combinar la protección del medio ambiente y la búsqueda del bienestar social con el objetivo tradicional de maximizar los resultados financieros para los accionistas (Alsayegh et al., 2020). Por tanto, las prácticas de gobierno corporativo deben encaminar a las empresas hacia un modelo de negocio sostenible que incorpore la responsabilidad social corporativa como un elemento estratégico de creación de valor (Jadhav & Sarangi, 2024).

El principal objetivo de esta tesis doctoral es analizar la influencia de los mecanismos de gobierno corporativo en la creación de valor sostenible. En concreto, pretende investigar el papel que desempeña el consejo de administración, como instrumento principal del gobierno corporativo (Chen et al., 2016; Garcia Martin & Herrero, 2020; Rodrigues et al., 2020), en la orientación de las empresas hacia la creación de valor, el crecimiento empresarial y el desarrollo sostenible.

El primer artículo que integra esta tesis tiene como objetivo identificar los factores que determinan la composición del consejo de administración desde la perspectiva de la diversidad de género, teniendo en cuenta la limitada presencia de mujeres en los consejos de administración y los esfuerzos normativos que todavía se están realizando (como, por ejemplo, la Directiva (UE) 2022/2381).

El segundo artículo tiene como objetivo explorar el importante papel que desempeña el consejo de administración en la mejora del desempeño ESG de las empresas. En concreto, analiza cómo la composición del consejo puede generar valor sostenible a través del diseño de estrategias empresariales responsables capaces de promover el desarrollo de modelos de negocio con impacto positivo en la sociedad y en el medio ambiente.

Por último, el objetivo del tercer artículo es analizar el papel de la innovación como variable inductora del inexcusable cambio de los modelos de negocio tradicionales hacia aquellos que permitan a las empresas alcanzar objetivos sostenibles que a la postre se traduzcan en valor económico.

Este objetivo general se concreta en objetivos más específicos que se detallan a continuación.

- *Identificar y estudiar las medidas que el consejo de administración, como principal mecanismo de gobierno corporativo, pone a disposición de las empresas.*

Este objetivo se aborda en los tres artículos de la tesis. Todos ellos analizan una amplia variedad de factores relacionados con la composición de los consejos de administración, como los atributos personales de sus miembros (género, edad o nacionalidad), los roles o funciones que desempeñan (supervisores, ejecutivos o presidentes del consejo) o las características propias del consejo (tamaño, tiempo de permanencia de los miembros en el consejo o participación de los miembros del consejo en otros consejos). En el apartado de metodología

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se pueden consultar, en detalle, todas las variables consideradas en estos artículos relacionadas con la composición del consejo de administración.

- *Analizar y evaluar el desempeño general de las actuaciones del gobierno corporativo en la generación de valor sostenible para las empresas, los accionistas, los grupos de interés y la sociedad en general, llevando a cabo análisis cuantitativos y cualitativos de las medidas de gobierno corporativo.*

En los tres artículos de la tesis, se aborda desde una perspectiva aplicada. El primer artículo aborda la necesidad de promover la diversidad de género en los consejos de administración; el segundo artículo se centra en la contribución de los consejos de administración al desempeño ESG, y el tercer artículo se centra en la promoción de la innovación desde los consejos de administración para lograr crear valor sostenible.

- *Analizar y estudiar la incorporación de los principios del gobierno corporativo en la estructura y estrategia empresarial.*

Este objetivo se aborda en el segundo artículo, al analizar cómo el consejo de administración influye en el desempeño sostenible de las empresas, y en el tercer artículo, al poner de relieve el papel de los consejos para alinear las estrategias de innovación con el desempeño financiero y sostenible.

- *Comprobar la validez de las teorías de gobierno corporativo en el contexto de los nuevos requerimientos de sostenibilidad y desempeño corporativo, según los cuales la gestión de las empresas debe estar orientada no solamente a la generación de valor económico, sino también a la creación de valor social.*

Diferentes aproximaciones teóricas sustentan las principales funciones (de supervisión, de provisión de recursos, de asesoramiento y de orientación estratégica) de los consejos de administración. Los resultados del primer artículo revelan que dichas funciones influyen en la selección de los miembros del consejo, poniendo de relieve que su inclusión no puede ser neutral en cuanto al género. Los resultados del segundo artículo destacan el papel clave del consejo de administración para el desempeño ESG, subrayando la importancia de algunas de sus funciones para conseguirlo. Los resultados del tercer artículo también evidencian cómo ciertas funciones del consejo de administración son clave en el compromiso empresarial con la innovación.

- *Identificar los nuevos retos a los que se enfrenta el gobierno corporativo como elemento esencial para el desempeño sostenible, teniendo en cuenta las necesidades actuales y los requerimientos futuros a los que deben enfrentarse las empresas.*

Este objetivo se aborda a lo largo de los tres artículos que conforman esta tesis doctoral. En concreto, la diversidad de género (primer artículo), la integración de principios ESG en la estrategia empresarial (segundo artículo) y el compromiso con la innovación empresarial (tercer artículo) son algunos de los desafíos más significativos a los que se enfrentan las empresas en la actualidad. Los resultados de los tres artículos que integran esta tesis confirman que la gobernanza empresarial resulta crucial para abordarlos con éxito.

A partir del objetivo general y de los objetivos específicos comentados, se han planteado diversas preguntas de investigación e hipótesis de estudio distribuidas a lo largo de los tres artículos que conforman la tesis doctoral.

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Para investigar los factores por los que las mujeres pueden ser (o no) propuestas para ocupar puestos en los consejos de administración, el primer artículo propone las hipótesis incluidas en la Tabla 1.

Tabla 1. Hipótesis planteadas en el primer artículo

Hipótesis 1: Las propuestas de mujeres para ser miembro del consejo están significativamente influidas por las propuestas de los hombres consejeros.
Hipótesis 2: Las propuestas de mujeres para ser miembro del consejo están significativamente influidas por la presencia simultánea de las mujeres en los consejos de otras empresas.
Hipótesis 3: Las propuestas de mujeres para ser miembro del consejo están significativamente influidas por la permanencia de los hombres consejeros y las mujeres consejeras en el consejo de la empresa.
Hipótesis 4: Las propuestas de mujeres para ser miembro del consejo están significativamente influidas por el área geográfica a la que pertenece la empresa.
Hipótesis 5: Las propuestas de mujeres para ser miembro del consejo están significativamente influidas por la relevancia de la empresa valorada por su inclusión en el ranking *Fortune Global 500*.
Hipótesis 6: Las propuestas de mujeres para ser miembro del consejo están significativamente influidas por el sector al que pertenece la empresa.

Para investigar la influencia del capital humano (experiencia y conocimientos) y el capital social (redes de contacto) de los miembros del consejo derivados de su participación en múltiples consejos o su permanencia continuada en el mismo consejo (teniendo también en cuenta la función que desempeñan en el consejo y el papel de las mujeres consejeras) en el desempeño ESG de las empresas, el segundo artículo propone las hipótesis incluidas en la Tabla 2.

Tabla 2. Hipótesis planteadas en el segundo artículo

Hipótesis 1: Los 'consejos de administración ocupados' tienen un efecto negativo en las puntuaciones ESG.
Hipótesis 2: El número de años en la empresa, en el consejo o en el cargo actual de los miembros tiene un efecto positivo en las puntuaciones ESG.
Hipótesis 3: Cuando se analiza el porcentaje de mujeres en el consejo, el número de años en la empresa, en el consejo o en el cargo actual tiene un efecto positivo en las puntuaciones ESG.

Para analizar cómo la composición del consejo de administración influye en la capacidad de las empresas para traducir su compromiso con la innovación en valor empresarial, el tercer artículo propone las hipótesis incluidas en la Tabla 3.

Tabla 3. Hipótesis planteadas en el tercer artículo

Hipótesis 1. La presencia de mujeres consejeras influye positivamente en la capacidad de las empresas para traducir las inversiones en I+D en valor económico.
Hipótesis 2. La presencia de tres o más mujeres consejeras influye positivamente en la capacidad de las empresas para traducir las inversiones en I+D en valor económico.
Hipótesis 3. Las cuotas de género en Europa no influyen en la capacidad de las empresas para traducir las inversiones en I+D en valor económico.
Hipótesis 4. La presencia de mujeres CFO influye positivamente en la capacidad de las empresas para traducir las inversiones en I+D en valor económico.
Hipótesis 5. La edad de los consejeros influye positivamente en la capacidad de las empresas para traducir las inversiones en I+D en valor económico.
Hipótesis 6. El mayor tamaño del consejo de administración no influye en la capacidad de las empresas para traducir las inversiones en I+D en valor económico.
Hipótesis 7. La presencia de consejeros ejecutivos influye positivamente en la capacidad de las empresas para traducir las inversiones en I+D en valor económico.
Hipótesis 8. La antigüedad en el consejo de administración influye negativamente en la capacidad de las empresas para traducir las inversiones en I+D en valor económico.

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3 METODOLOGÍA

3.1 BASES DE DATOS

Cada uno de los tres artículos que conforman la tesis ha utilizado una base de datos diferente, tal y como se explica a continuación.

En el primer artículo se ha utilizado una base de datos de 2004 a 2019 compuesta por las propuestas de (re)elección de los consejeros de 83 de las 100 mayores empresas del mundo incluidas en *Fortune Global 500* en 2019. Se ha utilizado este ranking porque investigaciones previas han demostrado que las grandes empresas tienen más posibilidades de contar con representación femenina en sus consejos de administración (Bennouri et al., 2018; Carter et al., 2003; De Jonge, 2014; Farrell & Hersch, 2005; Hillman et al., 2007). Además, su utilización posibilita un análisis empresarial global, en contraposición con investigaciones previas que se han centrado principalmente en Estados Unidos o en algún otro país concreto (Baker et al., 2020; Terjesen & Singh, 2008). De estas empresas, se consideraron las propuestas de (re)elección de los miembros de los consejos de administración recopiladas a partir de i) los formularios N-PX de divulgación de las políticas de voto por delegación de la SEC (*US Securities and Exchange Commission*); ii) los informes anuales del historial de votos por delegación (*proxy voting*) de los fondos de inversión y las sociedades de gestión de inversiones, y iii) las convocatorias de las juntas de accionistas de las empresas. Precisamente, el primer año de estudio (2004) se justifica porque la SEC exigió la divulgación de los formularios N-PX a partir del 1 de julio de 2003. Con ello, la base de datos de este primer artículo ha incluido 9.842 propuestas de (re)elección de consejeros, diferenciando por el género del consejero propuesto para cada junta de accionistas.

En el segundo artículo se ha utilizado una base de datos entre 2018 y 2022 formada por las empresas que figuraban en el índice NASDAQ-100 en el año 2022. La elección de este índice se justifica porque incluye las empresas no financieras más grandes e innovadoras del mundo. A pesar de que lo integran empresas de diferentes sectores y países, todas ellas comparten la característica de ser empresas punteras que lideran e impulsan la innovación hacia una economía más sostenible. Además, investigaciones previas han señalado que la presencia de consejeros que forman parte de múltiples consejos de administración es más común en las grandes empresas (Ferris et al., 2003; Ferris et al., 2020). La falta de disponibilidad de puntuaciones ESG para todas las empresas objeto de estudio provocó el descarte de 10 de las 101 empresas incluidas en el índice NASDAQ-100. La composición de los consejos de administración de las empresas del NASDAQ-100 a noviembre de 2022 se obtuvo de *BoardEx*, una base de datos ampliamente utilizada (Amin et al., 2020; Ferris et al., 2018; Ferris et al., 2020; Homroy & Slechten, 2019; Kim, 2022; Nandy et al., 2020) y que contiene los perfiles detallados de los integrantes de los consejos de administración de empresas de todo el mundo. *Boardex* también ha proporcionado la información biográfica de los consejeros, el cargo que desempeñan en el consejo de administración y el número de años que han permanecido en la empresa NASDAQ-100, en el consejo de administración y desempeñando su cargo actual. Además, también se ha empleado *BoardEx* para obtener el historial profesional completo de cada miembro del consejo, lo que ha permitido identificar otros consejos de administración en los que han participado los consejeros de las empresas del NASDAQ-100. En esta investigación, para evaluar el rendimiento ESG se emplearon dos métricas. La primera fue el *ESG S&P Global Scores* con valores que oscilan entre 0 (peor

rendimiento) y 100 (mejor rendimiento) para medir el potencial impacto en los resultados financieros de los factores ESG ponderados por su relevancia en el sector. La segunda medida, *ESG Bloomberg*, utiliza una escala de 0 (peor) a 10 (mejor).

El tercer artículo utiliza una base de datos compuesta por las 250 empresas europeas que más invierten en I+D incluidas en el *EU Industrial R&D Investment Scoreboard*. Esta investigación incluye datos desde 2012, cuando la Comisión Europea presenta por primera vez una propuesta para promover la igualdad de género en los consejos de administración y lograr unificar las diferentes políticas llevadas a cabo por los Estados miembros, hasta 2022, cuando finalmente se aprueba la Directiva Europea. Algunas empresas tuvieron que ser excluidas de la muestra debido a acontecimientos corporativos ocurridos durante el periodo de estudio, como escisiones, fusiones o liquidaciones, al igual que las empresas del Reino Unido debido al Brexit. En consecuencia, la muestra final incluye 172 empresas cotizadas y no cotizadas. De la base de datos *BoardEx* se obtuvo información sobre la composición de los consejos de administración, los atributos personales de los consejeros y las características de los consejos de administración objeto de estudio. La base de datos final ha incluido un total de 29.674 consejeros.

3.2 VARIABLES

Basándose en una clasificación previa realizada por Terjesen et al. (2009), en el primer artículo de la tesis se consideran los atributos individuales de los consejeros (factores de micronivel), las características de la empresa y del consejo de administración (factores de mesonivel) y las características del entorno (factores de macronivel) para explicar por qué las mujeres (y hombres) son propuestos para ser miembros del consejo de administración. En la Tabla 4 se resumen las variables utilizadas.

Tabla 4. Variables de estudio - primer artículo

Variable	Descripción
Variables dependientes	
D_W *Modelo mujeres*	Número total de propuestas de mujeres para ser miembro del consejo por empresa y año.
D_M *Modelo hombres*	Número total de propuestas de hombres para ser miembro del consejo por empresa y año.
Variables independientes: factores de micronivel	
D_W *Modelo hombres*	Número total de propuestas de mujeres para ser miembro del consejo por empresa y año.
D_M *Modelo mujeres*	Número total de propuestas de hombres para ser miembro del consejo por empresa y año.
T_W	Promedio de propuestas acumuladas por una mujer para ser miembro del consejo de administración de la misma empresa a lo largo del período de estudio.
T_M	Promedio de propuestas acumuladas por un hombre para ser miembro del consejo de administración de la misma empresa a lo largo del período de estudio.
Variables independientes: factores de mesonivel	
B_W	Promedio de propuestas simultáneas para que una mujer ocupe puestos en los consejos de otras empresas de la muestra.
B_M	Promedio de propuestas simultáneas para que un hombre ocupe puestos en los consejos de otras empresas de la muestra.
R	Relevancia de la empresa, determinada por el número de años que la empresa ha estado incluida en los 100 primeros puestos del ranking *Fortune Global 500*.
I	Sector al que pertenece la empresa (servicios, energía, financiero y telecomunicaciones).
Variables independientes: factores de macronivel	
A	Área geográfica en la que se ubica la empresa (América, Europa y Asia).
Variable instrumental	
A	Serie temporal por cada año del periodo de estudio (2004-2019).

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En el segundo artículo de esta tesis, se tiene en consideración el nivel de ocupación de los miembros del consejo, la permanencia continuada en el mismo consejo y las características del consejo de administración con el objetivo de analizar su influencia en el desempeño ESG de las empresas cotizadas en el índice NASDAQ-100. En la Tabla 5 se resumen las variables utilizadas.

Tabla 5. Variables de estudio - segundo artículo

Variable	Descripción
Variable dependiente	
ESG	Puntuaciones ESG (*ESG S&P Global Scores* y *ESG Bloomberg*)
Variables independientes: nivel de ocupación	
independentdirector	'Consejeros ocupados', medido por el promedio de consejos de administración en los que participan los consejeros independientes.
busyboard	'Consejo ocupado', que toma el valor 1 si al menos el 50% de los consejeros forman parte simultáneamente de tres o más consejos de administración, y 0 en caso contrario.
Variables independientes: permanencia continuada	
yearscurrentrole	Años en el cargo actual, medido por el promedio de años que los consejeros han ocupado su cargo actual dentro del consejo.
yearsonboard	Años en el consejo, medido por el promedio de años que los consejeros han permanecido en el consejo de administración de la misma empresa.
yearsorganisation	Años en la empresa, medido por el promedio de años que un consejero ha estado en la empresa.
Variables independientes: características del consejo	
duality	Dualidad, que toma valor 1 si el CEO y el presidente del consejo son la misma persona, y 0 en caso contrario.
insidersonboard	Consejeros ejecutivos, medido por el promedio de consejeros ejecutivos del consejo de administración.
boardsize	Tamaño del consejo, medido por el logaritmo neperiano del número total de consejeros.
womenonboard	Presencia de mujeres en el consejo, medido por el promedio de mujeres consejeras que forman parte del consejo de administración.

Diversas variables de gobierno corporativo relacionadas con los atributos personales de los miembros de los consejos de administración y con las características de los propios consejos de administración de las empresas han sido consideradas en el tercer artículo con el objetivo de analizar su influencia en la capacidad de las empresas para traducir su compromiso con la innovación en valor económico. Para capturar dicha interacción entre la inversión en innovación y el desempeño financiero, se ha considerado la relación entre los beneficios de explotación y la inversión en I+D. Esta novedosa métrica resulta muy útil al expresar el objetivo empresarial de innovar y mantener al mismo tiempo el crecimiento financiero. Esto es, esta relación subraya la idea de que invertir en I+D no es un mero coste, sino una decisión estratégica clave para promover el crecimiento sostenible de las empresas. La Tabla 6 resume las variables utilizadas en este artículo.

Tabla 6. Variables de estudio - tercer artículo

Variable	Descripción
Variable dependiente	
opprofrd	Ratio beneficios de explotación entre inversión en I+D.
Variables independientes: atributos personales de los miembros del consejo de administración	
fem_directors/ male_directors	Número de mujeres en los consejos de administración de las empresas. Número de hombres en los consejos de administración de las empresas.
critmass_fdirector	Indica si hay tres o más mujeres en el consejo de administración de las empresas; toma el valor 1 si las hay y 0 en caso contrario.
hard_quota	Indica si el país en el que tiene su sede la empresa ha adoptado cuotas obligatorias de género en los consejos de administración; toma el valor 1 si las ha adoptado y 0 en caso contrario.

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Variable	Descripción
soft_quota	Indica si el país en el que tiene su sede la empresa ha adoptado recomendaciones de género para los consejos de administración; toma el valor 1 si las ha adoptado y 0 en caso contrario.
no_quota	Indica si el país en el que tiene su sede la empresa no ha adoptado ninguna regulación sobre género en los consejos de administración; toma el valor 1 si no las ha adoptado y 0 en caso contrario.
female_cfo/male_cfo	Indica si el director financiero es una mujer; toma el valor 1 si lo es y 0 en caso contrario.
age_directors/ age_fdirectors/ age_mdirectors	Edad media de los consejeros de las empresas. Edad media de las mujeres consejeras de las empresas. Edad media de los hombres consejeros de las empresas.
Variables independientes: características del consejo de administración	
board size	Número total de consejeros en el consejo de administración de las empresas.
total_execdirectors/ female_execdirectors/ male_execdirectors	Número total de consejeros ejecutivos en los consejos de administración de las empresas. Número total de consejeras ejecutivas (mujeres) en los consejos de administración de las empresas. Número total de consejeros ejecutivos (hombres) en los consejos de administración de las empresas.
tenure_directors/ tenure_fdirectors/ tenure_mdirectors	Número promedio de años que los consejeros han permanecido en el consejo de administración. Número promedio de años que las consejeras (mujeres) han permanecido en el consejo de administración. Número promedio de años que los consejeros (hombres) han permanecido en el consejo de administración.
Variables control	
lnop_profits	Logaritmo neperiano de los beneficios de explotación de las empresas.
lnemployees	Logaritmo neperiano del número total de empleados en las empresas.

3.3 MODELOS Y MÉTODOS ESTADÍSTICOS

Para analizar las hipótesis planteadas en el primer artículo de la tesis, se consideró que las propuestas de mujeres consejeras podrían influir en las propuestas de hombres consejeros, y viceversa. Con el fin de evitar el problema de la causalidad inversa en el análisis de los factores que pueden explicar por qué las mujeres han sido propuestas para ser miembros del consejo de administración, se optó por la estimación de mínimos cuadrados en tres etapas (3SLS) en lugar de la estimación 2SLS. De esta forma, se lograron resultados más eficientes al estimar el sistema de ecuaciones simultáneas, mostrado a continuación, con las que se analizaron de forma conjunta los factores que determinan tanto el número de propuestas de mujeres como de hombres para formar parte de los consejos de administración:

$$D_{Wit} = \alpha_2 + \beta_2 D_{Mit} + \theta_2 z_{2it} + \gamma_2 x_{it} + d_{it} + \epsilon_{2it} \quad \text{(ecuación 1)}$$
$$D_{Mit} = \alpha_1 + \beta_1 D_{Wit} + \theta_1 z_{1it} + \gamma_1 x_{it} + d_{it} + \epsilon_{1it} \quad \text{(ecuación 2)}$$

Donde, en la ecuación 1,

la variable endógena (dependiente) es D_W para la empresa (i) y el año (t). La variable explicativa es D_M. La variable instrumental z_{2it} es B_W. El conjunto de variables exógenas (x_{it}) incluye T_W, T_M y R. Finalmente, el conjunto de variables ficticias (d_{it}) incluye S, A e Y.

En la ecuación 2,

la variable endógena (dependiente) es D_M para la empresa (i) y el año (t). La variable explicativa es D_W. La variable instrumental z_{2it} es B_M. El conjunto de variables exógenas (x_{it}) incluye T_W, T_M y R. Finalmente, el conjunto de variables ficticias (d_{it}) incluye S, A e Y.

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Para analizar las hipótesis del segundo artículo de la tesis, se ha utilizado el modelo mostrado a continuación, en el que se aplica el método de mínimos cuadrados ordinarios (OLS) con el objetivo de identificar qué variables independientes y sus combinaciones tienen un impacto significativo en el desempeño ESG de las empresas. Dado que algunas variables presentan una variabilidad limitada a lo largo del periodo de estudio, se ha utilizado la prueba del multiplicador de *Lagrange de Breusch-Pagan* para evaluar si los efectos aleatorios eran significativos en el modelo de datos panel. Los resultados de la prueba han indicado la idoneidad de utilizar el método OLS.

$$ESG_{i,t} = \alpha + \beta \sum_{j=1,}^{2} busyvariables + \gamma \sum_{k=1}^{3} boardvariables + \delta \sum_{l=1}^{3} agevariables + \theta \sum_{m=1}^{3} womenonboard * agevariables + \vartheta(womenperboard * indepdirectors) + \varepsilon_{i,t}$$

Donde,

$ESG_{i,t}$ toma los valores de *ESG S&P Global Scores* y *ESG Bloomberg* para la empresa (i) y el año (t). *Busyvariables* hace referencia a las variables *independentdirector* y *busyboard*. *Boardvariables* hace referencia a las variables duality, *insidersonboard* y *womenonboard*. *Agevariables* hace referencia a las variables *yearscurrentrole*, *yearsonboard* y *yearsorganisation*. El último término de la ecuación considera si la representación de las mujeres en los consejos (*womenonboard)* influye en las variables a*gevariables* y *independentdirector*.

Para examinar las hipótesis propuestas en el tercer artículo de la tesis, se han aplicado tres modelos sobre dos muestras diferenciadas: una de ellas considerando todas las empresas objeto de estudio incluidas en el *EU Industrial R&D Investment Scoreboard* (cotizadas y no cotizadas) y la otra considerando únicamente las cotizadas.

El Modelo 1 ha considerado a todos los miembros del consejo de administración, incluyendo los hombres consejeros y las mujeres consejeras. La ecuación se especifica de la siguiente manera:

$$opprofrd = \alpha + \beta \sum_{j=1,}^{8} boardvariables + \gamma \sum_{k=1}^{4} regulationvariables + \delta \sum_{l=1}^{2} controlvariables + \varepsilon_{i,t}$$

Donde,

boardvariables hace referencia a las variables *age_directors*, *board_size*, *total execdirectors* y *tenure_directors*. *Regulationvariables* hace referencia a las variables *hard_quota*, *soft_quota* y *no_quota*. *Controlvariables* hace referencia a las variables *lnop_profits* y *lnemployees*.

El Modelo 2 se centra únicamente en las mujeres consejeras. La ecuación se especifica de la siguiente manera:

$$opprofrd_{i,t} = \alpha + \beta \sum_{j=1,}^{13} boardvariables + \gamma \sum_{k=1}^{4} regulationvariables + \delta \sum_{l=1}^{2} controlvariables + \varepsilon_{i,t}$$

Donde,

boardvariables hace referencia a las variables fem*_directors, critmass_fdirector, female_cfo, age_fdirectors, board_size, female execdirectors y tenure_fdirectors*.

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Regulationvariables hace referencia a las variables hard_*quota*, *soft_quota* y *no_quota*. *Controlvariables* hace referencia a las variables lnop_*profits* y *lnemployees*.

Por último, el Modelo 3 se centra específicamente en los hombres consejeros. La ecuación se concreta de la siguiente manera:

$$opprofrd_{i,t} = \alpha + \beta \sum_{j=1,}^{12} boardvariables + \gamma \sum_{k=1}^{4} regulationvariables + \delta \sum_{l=1}^{2} controlvariables + \varepsilon_{i,t}$$

Donde,

boardvariables hace referencia a las variables *male_directors, male_cfo, age_mdirectors, board_size, male execdirectors y tenure_mdirectors*. *Regulationvariables* hace referencia a las variables hard_*quota*, *soft_quota* y *no_quota*. *Controlvariables* hace referencia a las variables lnop_*profits* y *lnemployees*.

Los modelos se evaluaron comparando efectos fijos con efectos aleatorios. Se llevó a cabo la prueba del multiplicador de *Lagrange de Breusch-Pagan*, que indicó la idoneidad de un modelo de efectos aleatorios, siendo validada por la prueba de *Hausman*. Basándose en estos resultados, se realizaron pruebas de diagnóstico adicionales para comprobar la existencia de heteroscedasticidad y autocorrelación. La prueba de *Wald* confirmó la heteroscedasticidad en los tres modelos mientras que la prueba de *Wooldridge* señaló la presencia de autocorrelación de primer orden. Teniendo en cuenta estos resultados y para garantizar la precisión de los resultados, se ha empleado un modelo de regresión *Generalized Least Squares* o mínimos cuadrados generalizados (GLS).

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4 DISCUSIÓN

4.1 DISCUSIÓN DE OTRAS PUBLICACIONES

Los resultados de estudios previos muestran que la presencia de mujeres en los consejos de administración contribuye a la mejor gobernanza de las empresas, siendo sus valores, experiencia y capacidades más significativos que su mera presencia. Todo ello influye en el rendimiento financiero y el desempeño ético, social y medioambiental de las empresas, ya que las mujeres consejeras suelen tener más en consideración los intereses y las demandas de los *stakeholders*.

Los resultados señalan que su participación en los consejos de administración proporciona una mayor variedad de perspectivas y puntos de vista que promueven y potencian la creatividad en la toma de decisiones. Ahora bien, también subrayan que la verdadera contribución no se encuentra en la configuración de consejos diversos, sino en las diferentes habilidades, competencias, saber y experiencia que aportan sus consejeras. Así pues, los resultados parecen sugerir que los atributos y rasgos individuales que distinguen a las mujeres de los hombres son relevantes para el desempeño de los consejos de administración (Nielsen & Huse, 2010a; Nielsen & Huse, 2010b). No obstante, algunas investigaciones previas han puntualizado que en ocasiones dichas contribuciones solo son factibles cuando las mujeres logran mostrar su valía en el proceso de toma de decisiones, lo que ocurre cuando su presencia en el consejo alcanza un número mínimo de tres consejeras (Erkut et al., 2008; Konrad et al., 2008). Más allá de la cantidad, los resultados destacan que lo verdaderamente esencial es que las mujeres consejeras sean reconocidas y valoradas como valiosos miembros del consejo por parte de sus homólogos masculinos (Nielsen & Huse, 2010b). Así, cuando los consejos de administración valoran a las mujeres consejeras por valía y no por su género, se robustece la gobernanza empresarial y se mejoran los desempeños del consejo.

Considerando el papel clave que desempeñan las mujeres consejeras en la gobernanza empresarial, es lógico esperar que su presencia también optimice los resultados financieros. Sin embargo, las investigaciones previas han encontrado resultados contradictorios. Si bien algunas de ellas han demostrado una influencia positiva (Carter et al., 2010; Erhardt et al., 2003), otros estudios señalan que la diversidad de género puede llevar a obstaculizar el logro de resultados financieros positivos (Provasi & Harasheh, 2020; Rose, 2007). Otras investigaciones van incluso más allá y sostienen que los inversores y los mercados financieros no consideran la diversidad de género en los consejos como un factor que pueda influir en los resultados financieros (Bennouri et al., 2018).

Más allá del rendimiento financiero, los *stakeholders* también esperan que las empresas puedan asegurar un desempeño adecuado en el ámbito social, ético y medioambiental. En este contexto, los resultados destacan que las mujeres consejeras poseen valores, habilidades y capacidades que las convierten en recursos valiosos para el desempeño relacionado con la RSC (Amorelli & García-Sánchez, 2021; García Martin & Herrero, 2020). Así, su enfoque en los valores sociales y su disposición a considerar las necesidades de los demás explican su positiva contribución a las diferentes dimensiones de la RSC (Ardito et al., 2020; Shoham et al., 2017). Además, las investigaciones previas parecen coincidir en que la presencia de mujeres consejeras potencia la calidad de los reportes no financieros divulgados, lo que contribuye a aumentar la confianza de los *stakeholders* en la empresa (Nicolo et al., 2022). Lo más significativo del análisis realizado es que, aunque la mayoría de las investigaciones

concluyen que las mujeres consejeras ejercen una influencia positiva en el desempeño social y ético (Beji et al., 2020; Garcia-Sanchez et al., 2015), su contribución en el desempeño medioambiental parece menos evidente. Este hecho parece sugerir que las decisiones medioambientales se perciben como estrategias que requieren de conocimientos especializados que las mujeres (por erróneos estereotipos de género) no poseen (Ardito et al., 2020; Hussain et al., 2018).

A pesar de que la literatura previa sobre diversidad de género en la composición de los consejos de administración no consiga resultados completamente concluyentes, sería razonable esperar que las contribuciones positivas evidenciadas en muchos estudios animasen a un incremento significativo del número de mujeres en los órganos de gobierno de las empresas. Sin embargo, los informes más recientes continúan mostrando que el porcentaje de mujeres en los consejos de administración continúa siendo bajo, pese a los avances normativos y a los esfuerzos institucionales por promover consejos de administración más igualitarios y equitativos. Esta persistente brecha hace absolutamente imprescindible investigar los factores que promueven y obstaculizan la plena integración de las mujeres en los órganos de gobernanza corporativa. Por ello, el primer artículo de esta tesis se ha centrado en la identificación de los factores que pueden determinar que las mujeres sean propuestas (o no) para formar parte de los consejos de administración.

4.2 DISCUSIÓN DEL COMPENDIO DE LAS PUBLICACIONES DE LA TESIS

ARTÍCULO 1

Los resultados del primer artículo de la tesis muestran que, a pesar de que algunos de los factores evaluados parecen facilitar el nombramiento de mujeres como consejeras, aún persisten diferencias significativas entre la elección de hombres y mujeres para formar parte de los consejos de administración. Los resultados señalan que el número de propuestas de mujeres consejeras está influido positivamente por el número de candidaturas masculinas; esto es, un mayor (menor) número de propuestas masculinas conduce a un mayor (menor) número de candidaturas femeninas, confirmando la hipótesis 1. Estos resultados sugieren que el número de mujeres consejeras propuestas está más relacionado con el aumento del número de puestos en los consejos de administración y las nominaciones de hombres consejeros que con el hecho de ser nombradas para sustituir a sus homólogos masculinos (Bennouri et al., 2018; Knippen et al., 2019). Sin embargo, dicha circunstancia no ocurre en el caso contrario, es decir, el número de propuestas de hombres no se ve afectado por el número de candidaturas femeninas.

Los resultados también muestran que cuando las mujeres son propuestas para ocupar puestos en otros consejos de administración, su número de nominaciones se reduce, confirmando la hipótesis 2. De esta forma, en la selección de consejeros parece que se busca prevenir los efectos negativos en la función de supervisión y control que podrían producirse por la sobrecarga de trabajo de aquellos consejeros que ocupan cargos en múltiples consejos de administración (Hillman et al., 2011). Sin embargo, es importante destacar que esta consideración no parece aplicarse en el caso de las propuestas de hombres consejeros, en las que precisamente ocurre todo lo contrario: sus nominaciones para otros consejos aumentan la posibilidad de recibir nuevas propuestas. Así pues, las redes de contactos y la acumulación de experiencia, pericia y conocimientos adquiridos por participar en otros consejos parecen ser recursos valiosos (Hillman & Dalziel, 2003), aunque, de acuerdo con los resultados de esta investigación, solo para el caso de los hombres.

Se han obtenido también resultados interesantes al considerar las propuestas acumuladas a lo largo de los años para ser consejero en la misma empresa. Las propuestas de hombres

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aumentan a medida que se incrementa la permanencia de mujeres y hombres en el consejo, mientras que las propuestas de mujeres no, rechazando la hipótesis 3. En el caso de las mujeres consejeras, estos resultados parecen sugerir que su permanencia continuada en el consejo puede comprometer su función de supervisión (Hillman et al., 2011) y dar lugar a 'consejos amigos' (Vafeas, 2003). Del mismo modo y dado que las nominaciones de mujeres y hombres para una misma empresa solo incrementan el número de propuestas de hombres, los resultados evidencian (una vez más) que la experiencia y los conocimientos (en este caso internos) no son considerados en la elección de mujeres consejeras, estableciéndose una diferencia de género en la 'hipótesis de la experiencia' (Vafeas, 2003).

Respecto al área geográfica en la que se ubica la empresa, sólo las empresas asiáticas tienden a mostrar un mayor apoyo a la propuesta de hombres consejeros. Por tanto, la ubicación de las empresas parece no ser un factor relevante en la (re)elección de mujeres consejeras, rechazando la hipótesis 4, lo que contrasta con investigaciones previas que sugerían que la ubicación es un factor determinante (Halliday et al., 2020; Terjesen & Singh, 2008).

Además, cuantos más años esté una empresa incluida en el ranking *Fortune Global 500*, mayor es el número de propuestas de mujeres consejeras, aceptando la hipótesis 5. Este resultado, que no se produce en el caso de las propuestas masculinas, parece apoyar la idea de que la mayor visibilidad y relevancia de las empresas las impulsa a promover la diversidad de género y una imagen pública de igualdad en relación con la composición de sus consejos de administración (Carter et al., 2003; Hillman et al., 2007).

Finalmente, las empresas que pertenecen al sector financiero, de servicios y telecomunicaciones tienden a ofrecer un mayor respaldo a las propuestas de mujeres consejeras, aceptando la hipótesis 6. Estos resultados están en consonancia con la mayoría de las investigaciones previas, excepto en relación al sector servicios, lo que podría justificarse por el tipo de empresas consideradas en cada estudio (Adams & Ferreira, 2009; De Jonge, 2014; Geiger & Marlin, 2012; Hillman et al., 2007).

En resumen, el número de propuestas de hombres, así como la relevancia y el sector al que pertenece la empresa, ejercen una influencia positiva en el número de propuestas de mujeres para ser miembros de los consejos de administración. Por el contrario, su nominación simultánea en otros consejos se convierte en un obstáculo y, a diferencia de los hombres, reduce sus opciones de ser propuestas como consejeras. Del mismo modo, mientras las propuestas continuadas en el tiempo para ser consejero de una misma empresa favorecen la (re)elección de hombres consejeros, no son relevantes en el caso de las mujeres. Tampoco la zona geográfica en la que se ubica la empresa es significativa para la propuesta de mujeres consejeras. Por tanto, aunque la presencia de mujeres en los consejos de administración haya aumentado en los últimos años, la realidad sigue mostrando notables diferencias entre hombres y mujeres a la hora de ser propuestos para formar parte de los consejos de administración. Dadas las diferencias entre géneros y que los resultados indican que el conocimiento, la experiencia y las redes de contacto adquiridas por participar en otros consejos o por permanecer durante años en el mismo consejo no son factores clave para seleccionar a mujeres consejeras, el segundo artículo investiga si ese capital humano (experiencia y conocimientos) y capital social (redes de contacto), así como la presencia de mujeres en el consejo, podrían resultar clave para que éstos demuestren la implicación, capacidad estratégica, proactividad o compromiso que requieren las prácticas e iniciativas sostenibles.

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ARTÍCULO 2

Los resultados del segundo artículo dejan patente que la consideración de variables relacionadas con la composición de los consejos de administración contribuye al desempeño ESG de las empresas, en particular al de las más innovadoras llamadas a liderar la transición hacia una economía más sostenible. Los resultados demuestran que la participación de los consejeros independientes en múltiples consejos de administración y contar con un 'consejo ocupado' tienen un efecto positivo en las puntuaciones ESG de las empresas, rechazando la hipótesis 1. Este resultado, que no concuerda con investigaciones previas (Bravo-Urquiza & Reguera-Alvarado, 2024; Garcia Martin & Herrero, 2020), parece indicar que los consejeros que ocupan cargos en otros consejos son capaces de gestionar adecuadamente su tiempo y esfuerzos, y promover redes de contacto e información valiosa para alcanzar desempeños sostenibles (de Villiers et al., 2011; Harjoto & Wang, 2020; Nandy et al., 2020). Al enfatizar el valor del capital humano (experiencia y conocimientos) y del capital social (redes de contacto) adquiridos de forma externa en la mejora del desempeño sostenible de las empresas (Cooper & Uzun, 2022; Kim, 2022; Latif et al., 2024), los resultados respaldan los beneficios en la función de asesoramiento destacados por la 'hipótesis de la reputación' (Ferris et al., 2018; Liu & Paul, 2015).

Resultados similares se han obtenido al analizar la permanencia continuada en el consejo de administración de la misma empresa, lo que confirma la hipótesis 2. No ocurre lo mismo en relación con los años de antigüedad en la empresa o en el cargo actual del consejo, donde se observa una influencia negativa. Estos resultados sugieren que la experiencia y los conocimientos adquiridos internamente a través de la participación en la gobernanza de la empresa son más relevantes que el historial laboral en la empresa o el tiempo que se lleve desempeñando el cargo actual en el consejo. Estos resultados son coherentes con la 'hipótesis de la experiencia' (Vafeas, 2003), que sostiene que cuantos más años permanecen los consejeros en el consejo de administración, mayor es su conocimiento de la empresa y su compromiso con las estrategias ESG (Bonini et al., 2022; Paolone et al., 2023).

La presencia de consejeros ejecutivos, que compaginan su labor diaria en el equipo directivo con su puesto en el consejo, está asociada con puntuaciones ESG menores. Estos resultados contrastan con investigaciones previas que destacan la contribución de consejeros ejecutivos en la identificación e implementación de las estrategias ESG más adecuadas para la empresa (Birindelli et al., 2018; Cambrea et al., 2023). Así pues, los resultados parecen apuntar más bien a que el excesivo enfoque de los consejeros ejecutivos en los procesos internos les impide establecer redes de contacto externas o adquirir conocimientos y experiencias cruciales para promover las iniciativas ESG (Bigelli et al., 2023; Pinheiro et al., 2024). Por su parte, la presencia de mujeres en los consejos de administración contribuye a alcanzar mayores puntuaciones en las métricas ESG. Estos resultados coinciden con investigaciones previas que destacan su influencia positiva en el desempeño sostenible (Nicolo et al., 2022; Provasi & Harasheh, 2020; Romano et al., 2020), atribuida tanto a su mayor sensibilidad y compromiso con las necesidades de los demás (De Masi et al., 2021; Hussain et al., 2024), como a la diversidad de conocimientos y perspectivas que aportan en la toma de decisiones (Garcia Martin & Herrero, 2020; Kassinis et al., 2016). Ahora bien, cuando se analiza la presencia de las mujeres consejeras junto con la participación en otros consejos o la permanencia continuada en un mismo consejo sobre el desempeño ESG, los resultados son negativos, rechazando la hipótesis 3. Estos resultados parecen sugerir que la incorporación de mujeres en los consejos introduce cambios en las dinámicas de gobernanza tradicionales que exigen un proceso de adaptación importante que hay que superar y que, por

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ahora, anula los efectos positivos en el desempeño ESG derivados de participar en múltiples consejos o de permanecer largo tiempo en el mismo consejo.

En resumen, en las empresas más innovadoras que están llamadas a liderar el cambio hacia una economía más sostenible y a convertirse en referentes en el desarrollo y la expansión de estrategias de sostenibilidad, la presencia de consejeros ejecutivos podría actuar como un factor limitante. Por el contrario, el capital humano (experiencia y conocimientos) y el capital social (redes de contacto) adquiridos externamente, a través de la participación en otros consejos, e internamente, a través de la permanencia continuada en el consejo, resultan esenciales para la mejora del desempeño ESG. Los resultados también subrayan la valiosa contribución de las mujeres en los consejos de administración para promover la sostenibilidad, aunque persisten desafíos para su plena integración en los procesos decisionales.

Los resultados de este segundo artículo establecen una hoja de ruta que permite a las empresas configurar sus consejos de administración para lograr una mejora en el desempeño sostenible. Ahora bien, integrar e implementar esas estrategias ESG no es una tarea sencilla y requiere de nuevos modelos y de una profunda transformación empresarial. Precisamente, el compromiso con la innovación se vuelve una herramienta clave para lograrlo, pero su implementación y desarrollo requieren de esfuerzos considerables, la asunción de elevados riesgos y el desarrollo de estrategias altamente complejas con resultados no garantizados e inciertos que podrían dañar el valor de la empresa. Los resultados del tercer artículo evidencian cómo la composición del consejo de administración puede resultar clave para lograr la alineación deseada entre innovación y valor empresarial.

ARTÍCULO 3

Los resultados del tercer artículo evidencian que los atributos personales de los consejeros y las características del consejo contribuyen en la capacidad de las empresas para convertir su compromiso con la innovación en valor empresarial. Considerando todas las empresas de la muestra (cotizadas y no cotizadas), los resultados demuestran que la presencia de mujeres consejeras tiene un claro efecto positivo, confirmando la hipótesis 1. Este resultado concuerda con investigaciones previas que señalan que la mayor asistencia de las mujeres consejeras a las reuniones del consejo (Adams & Ferreira, 2009) les permite ejercer un control más efectivo, para evitar que el equipo directivo priorice estrategias a corto plazo sobre inversiones a largo plazo (Chen et al., 2018; Griffin et al., 2021), además de lograr una asignación más eficiente de recursos a proyectos de I+D (Azzam, 2022). De igual manera, este resultado reafirma el papel crucial de las mujeres consejeras en la función asesora de los consejos sobre proyectos de I+D, al optimizar el flujo de información (Sanad & Musleh, 2023; Sierra-Moran et al., 2024b) y aportar diversidad de conocimientos, experiencia y nuevas perspectivas (Belkacemi et al., 2021; Gonzales-Bustos et al., 2020). Por último, estos resultados también refuerzan el papel de las mujeres consejeras en la mejora de la gestión de riesgos (Chen et al., 2016; Nadeem et al., 2019), desafiando los estudios previos que sugieren que son más adversas al riesgo y que su presencia puede limitar las (inicialmente más arriesgadas) iniciativas de I+D (Asad et al., 2023; Guldiken & Darendeli, 2016).

Profundizando más, este tercer artículo destaca la importancia de contar con tres o más mujeres en los consejos de administración en el proceso de crear valor empresarial, confirmando la hipótesis 2. Este resultado coincide con investigaciones previas que destacan la importancia de alcanzar una masa crítica de mujeres en los consejos, que permita aumentar su confianza para compartir ideas innovadoras (Saggese et al., 2021; Torchia et al., 2011) y

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disminuir la presión y el escrutinio constante que podría conducirlas a tomar decisiones más cautelosas (Almor et al., 2022).

Los resultados de este artículo sugieren también que la búsqueda de ese ansiado equilibrio de género en los consejos de administración debería ir más allá de los procedimientos regulatorios sobre cuotas de género, confirmando la hipótesis 3. Este resultado coincide con investigaciones previas que sugieren que, para tener un impacto verdaderamente positivo en las estrategias de innovación, las mujeres consejeras deben ser seleccionadas en función de sus méritos, experiencia y conocimientos, y no simplemente para cumplir con unos requerimientos normativos (Foss et al., 2022). A pesar de la importancia del papel jugado por las mujeres en los consejos de administración, la presencia de mujeres CFO no parece influir en la capacidad de las empresas para convertir su compromiso con la innovación en valor empresarial, rechazando la hipótesis 4. Ello puede ser debido, entre otras razones, a la limitada representación de mujeres en estos puestos de toma de decisiones (Almor et al., 2022).

Los resultados ponen de relieve el papel de los consejeros de más edad, con experiencia y conocimientos acumulados, para contribuir a alinear las estrategias de innovación y el desempeño financiero, aceptando la hipótesis 5. Aunque investigaciones previas han sugerido que estos consejeros pueden ser más reacios al riesgo o a enfrentar nuevos desafíos (Attia et al., 2021; Bravo & Reguera-Alvarado, 2017), y más resistentes a modificar su enfoque habitual de supervisión para gestionar proyectos complejos de I+D (Chindasombatcharoen et al., 2023), esta investigación destaca que la experiencia asociada a la edad es crucial para gestionar proyectos de I+D complejos y de alto riesgo. En este sentido, los resultados de esta investigación reconocen la capacidad de los consejeros de más edad para guiar eficazmente las iniciativas de I+D (Midavaine et al., 2016).

La permanencia continuada en el mismo consejo de administración también aparece como un factor significativo, aunque con una influencia negativa en la capacidad de las empresas para traducir las inversiones en I+D en valor económico, aceptando la hipótesis 8. Esto sugiere que las habilidades y capacidades de los consejeros pueden ser más importantes que el número de años que permanecen en el consejo. Este resultado está respaldado por investigaciones previas que señalan que los consejeros con mayor antigüedad en el consejo tienden a evitar proyectos innovadores y arriesgados (Midavaine et al., 2016) porque sus vínculos más estrechos con el equipo directivo pueden reducir su capacidad de supervisión (Azzam & Alhababsah, 2023; Guldiken & Darendeli, 2016), o porque su excesiva concentración en la empresa les limita en el acceso a información y redes de contacto externas esenciales para abordar proyectos de I+D (Azzam & Alhababsah, 2022). Sin embargo, este resultado contrasta con estudios previos que sostienen que una mayor permanencia en el consejo puede mejorar la toma de decisiones en la asignación de recursos (Chou & Johennesse, 2021), fortalecer el control (Guldiken & Darendeli, 2016) o promover la perspectiva largoplacista necesaria para los proyectos de I+D (Asad et al., 2023).

El resto de las variables analizadas tiene una influencia débil en el resultado estudiado, aunque muestran algunas diferencias reseñables en función del género de los consejeros. Mientras que en el Modelo 2 (mujeres consejeras) el tamaño del consejo no es significativo, en el Modelo 3 (hombres consejeros) un consejo más grande reduce el valor económico de las inversiones de I+D, rechazando la hipótesis 6. Este resultado coincide con investigaciones previas que han indicado que cuanto mayor es el consejo, mayores son las dificultades de comunicación (Driver & Guedes, 2012), los problemas para alcanzar un consenso en materia de innovación (Galia & Zenou, 2012; Makkonen, 2022), y la aversión a desarrollar iniciativas innovadoras y arriesgadas en las que no se tiene todo el control (AlHares et al., 2020).

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A pesar del escepticismo sobre el papel jugado por los consejeros ejecutivos debido a sus estrechos vínculos con el equipo directivo (Chou & Johennesse, 2021), los resultados de esta investigación indican que su presencia mejora la capacidad de las empresas para convertir su compromiso con la innovación en valor empresarial en el Modelo 2 (mujeres consejeras), aceptando la hipótesis 7.Este resultado coincide con investigaciones previas que señalan que los consejeros ejecutivos priorizan la competitividad a largo plazo a través de las inversiones en I+D (Driver & Guedes, 2012; Rodrigues et al., 2020), y utilizan su experiencia en la gestión diaria de la empresa para tomar decisiones más informadas en materia de innovación (Gonzales-Bustos et al., 2020; Shaikh et al., 2018). En el caso de las mujeres consejeras, este resultado refuerza la importancia de que desarrollen un 'sentido de pertenencia' a la empresa (Sierra-Moran et al., 2024b) que les permita aumentar su confianza para compartir ideas creativas e innovadoras durante las reuniones del consejo (Saggese et al., 2021), evidenciar sus capacidades para gestionar riesgos (Chen et al., 2016; Nadeem et al., 2019) y orientar las decisiones estratégicas hacia iniciativas de I+D que promuevan el desarrollo sostenible (Attah-Boakye et al., 2020).

Los resultados de las empresas cotizadas revelan similitudes y diferencias con respecto a los resultados del conjunto de empresas consideradas. Así, en las empresas cotizadas, la presencia de mujeres consejeras deja de ser relevante, cuestionándose así si su inclusión obedece más al cumplimiento normativo al que están obligadas este tipo de empresas que al reconocimiento de sus valiosas contribuciones. Sin embargo, contar con una masa crítica de tres o más mujeres en los consejos sigue siendo crucial, lo que pone de relieve la necesidad de una representación femenina sustancial para obtener los beneficios derivados de la diversidad de género. Una vez más, las cuotas de género evidencian ser ineficientes, lo que resulta particularmente sorprendente en las empresas cotizadas a quienes se dirigen especialmente dichas regulaciones. Este resultado sugiere que la imposición de cuotas de género no es suficiente para impulsar los cambios culturales necesarios en materia de gobierno corporativo. Las mujeres CFO emergen como una variable significativa entre las empresas cotizadas, lo que pone de relieve la importancia de situar a las mujeres en puestos de liderazgo. La influencia de la edad de los consejeros sólo resulta significativa en el caso de las mujeres consejeras, lo que sugiere que a las mujeres se les exigen más años de experiencia que a sus homólogos masculinos para ser capaces de conseguir crear valor económico a través de la innovación. Persiste la influencia negativa del tamaño del consejo de administración, lo que confirma que los consejos más grandes pueden obstaculizar las estrategias de innovación. Curiosamente, la influencia positiva de las consejeras ejecutivas desaparece entre las empresas cotizadas, debido probablemente a la preferencia entre estas empresas por miembros independientes dentro del consejo. Por último, la permanencia prolongada en el consejo pierde importancia, lo que sugiere que las empresas cotizadas prefieren consejeros con menor antigüedad para gestionar estrategias innovadoras.

En resumen, los atributos personales de los miembros del consejo de administración, tales como la presencia de mujeres consejeras, la existencia de una masa crítica de mujeres en los consejos y la edad, influyen positivamente en la capacidad de las empresas para crear valor económico a través de las inversiones en I+D. La presencia de consejeras ejecutivas también contribuye a este objetivo, aunque el resto de las características del consejo, tales como la permanencia continuada en el consejo o el tamaño de este, no contribuyen al objetivo. Tal y como se ha comentado, los resultados muestran interesantes diferencias cuando se considera la muestra completa de empresas o solo las cotizadas.

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Además de las variables de gobierno corporativo incluidas en el tercer artículo, se han analizado otras variables relacionadas con las características de los consejeros y del consejo (incluidas en la Tabla 7) para analizar su influencia sobre la capacidad de las empresas para traducir su compromiso innovador en valor empresarial. Este análisis constituye el objetivo de un nuevo artículo que será enviado a la revista *Economy and Technology* (Econtec).

Tabla 7. Variables de estudio - análisis adicional

Variable	Descripción
Variable dependiente	
opprofrd	Ratio beneficios de explotación entre inversión en I+D.
Variables independientes: atributos personales de los miembros del consejo de administración	
board_natdiverse/ female_natdiverse/ male_natdiverse	Número de nacionalidades diferentes entre los consejeros de las empresas. Número de nacionalidades diferentes entre las mujeres consejeras de las empresas. Número de nacionalidades diferentes entre los hombres consejeros de las empresas.
nat_directors/ nat_fdirectors/ nat_mdirectors	Número de consejeros cuya nacionalidad coincide con el país donde se ubica la empresa. Número de mujeres consejeras cuya nacionalidad coincide con el país donde se ubica la empresa. Número de hombres consejeros cuya nacionalidad coincide con el país donde se ubica la empresa.
chairwoman	Indica si la presidencia del consejo es ejercida por una mujer; toma el valor 1 si lo es y 0 en caso contrario.
female_ceo	Indica si el director general (CEO) de la empresa es una mujer; toma el valor 1 si lo es y 0 en caso contrario.
Variables independientes: características del consejo de administración	
ceo_tenure	Número promedio de años que el CEO dirige la misma empresa.
ceo_boardmember	Indica si el CEO es también miembro del consejo de administración; toma el valor 1 si lo es y 0 en caso contrario.

En este análisis adicional se han propuesto las hipótesis incluidas en la Tabla 8.

Tabla 8. Hipótesis - análisis adicional

Hipótesis 1a. La diversidad de nacionalidades en los consejos de administración influye positivamente en la capacidad de las empresas para crear valor económico a partir de su compromiso con la innovación.
Hipótesis 2a. La presencia de consejeros nacionales influye negativamente en la capacidad de las empresas para crear valor económico a partir de su compromiso con la innovación.
Hipótesis 3a. La presencia de mujeres presidentas del consejo influye positivamente en la capacidad de las empresas para crear valor económico a partir de su compromiso con la innovación.
Hipótesis 4a. La presencia de mujeres CEO influye positivamente en la capacidad de las empresas para crear valor económico a partir de su compromiso con la innovación.
Hipótesis 5a. La antigüedad en el cargo del CEO no influye en la capacidad de las empresas para crear valor económico a partir de su compromiso con la innovación.
Hipótesis 6a. La participación del CEO en el consejo de administración influye negativamente en la capacidad de las empresas para crear valor económico a partir de su compromiso con la innovación.

La Tabla 9 recoge los resultados relativos a todas las empresas de la muestra (cotizadas y no cotizadas) para el Modelo 1 (todos los miembros del consejo), el Modelo 2 (mujeres consejeras) y el Modelo 3 (hombres consejeros).

Tabla 9. Resultados - análisis adicional (todas las empresas)

Variable	Modelo 1	Modelo 2	Modelo 3
board_natdiverse	-0.18111**		
	(0.011)		
female_natdiverse		-1.581***	
		(0.000)	
male_natdiverse			-0.18112**
			(0.029)

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Variable	Modelo 1	Modelo 2	Modelo 3
nat_directors	-0.10384***		
	(0.005)		
nat_fdirectors		-0.47345**	
		(0.027)	
nat_mdirectors			-0.08042*
			(0.087)
chairwoman		0.223423	
		(0.716)	
chairman			-0.21977
			(0.346)
female_ceo		-0.01467	
		(0.974)	
male_ceo			0.665838
			(0.123)
ceo_tenure	0.004701	-0.0507	0.012538
	(0.900)	(0.513)	(0.748)
ceo_boardmember	0.232182	2.987564***	0.412338
	(0.584)	(0.000)	(0.388)

La Tabla 10 recoge los resultados relativos a las empresas cotizadas de la muestra para los tres modelos objeto de estudio.

Tabla 10. Resultados - análisis adicional (empresas cotizadas)

Variable	Modelo 1	Modelo 2	Modelo 3
board_natdiverse	-0.22105**		
	(0.015)		
female_natdiverse		-0.80036***	
		(0.009)	
male_natdiverse			-0.25293**
			(0.016)
nat_directors	-0.19852***		
	(0.000)		
nat_fdirectors		-0.28905	
		(0.282)	
nat_mdirectors			-0.13099**
			(0.027)
chairwoman		-1.73354*	
		(0.079)	
chairman			-0.31748
			(0.381)
female_ceo		0.497005	
		(0.337)	
male_ceo			0.82255
			(0.145)
ceo_tenure	-0.07162	-0.05454	-0.05183
	(0.752)	(0.539)	(0.35)
ceo_boardmember	-0.60522	1.012406	0.061916
	(0.803)	(0.887)	(0.936)

Los resultados muestran que el número de nacionalidades diferentes influye negativamente en la capacidad de las empresas para crear valor económico a través de su compromiso con las inversiones en I+D, rechazando la hipótesis 1a. Esta influencia negativa de los consejeros extranjeros concuerda con investigaciones previas que señalan su menor asistencia a las reuniones del consejo (Masulis et al., 2012) y su menor implicación en las decisiones de I+D (Khan et al., 2021) como barreras en el desarrollo de estrategias innovadoras. Esto podría llevar a las empresas a priorizar a los miembros nacionales en sus

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consejos de administración. Sin embargo, los resultados de esta investigación revelan que una presencia excesiva de miembros cuya nacionalidad coincide con el país en el que se ubica la empresa también debilita la capacidad de una empresa para crear valor económico a través de la innovación, aceptando la hipótesis 2a. De esta forma, en lugar de priorizar la presencia de un grupo sobre el otro, los resultados parecen sugerir que una composición equilibrada de nacionalidades en los consejos de administración es la clave para la creación de valor económico derivado de la inversión en innovación. Este equilibrio podría ayudar a mitigar las dificultades de comunicación en los procesos de toma de decisiones asociados con la diversidad de nacionalidades en los consejos de administración (Belkacemi et al., 2021), al tiempo que permitiría aprovechar los beneficios derivados de su diversidad cultural, de su variedad de conocimientos y de sus amplias redes de contacto globales para impulsar la innovación (Luo et al., 2021; Makkonen et al., 2018).

Además, los resultados revelan que la presencia de mujeres en puestos de responsabilidad como presidentas de los consejos de administración o CEOs no influye en el resultado analizado, rechazando las hipótesis 3a y 4a, respectivamente. Esto podría atribuirse a su, por ahora, limitada presencia en estos cargos de alto nivel (Almor et al., 2022; Shukla & Teraiya, 2022). De hecho, en esta investigación las mujeres presidentas del consejo apenas representan el 4,7% de la muestra total, ocupando este rol en solo 18 de las 172 empresas analizadas y su presencia no ha sido consistente a lo largo de todos los años analizados. La representación de mujeres actuando como CEO de las empresas es aún menor, alcanzando apenas un 3,6%, ocupando este rol en solo 20 de las 172 empresas objeto de estudio y nuevamente de forma irregular a lo largo del período de tiempo analizado. Esta infrarrepresentación puede limitar el alcance de los beneficios positivos identificados en investigaciones previas (Loukil & Yousfi, 2022). Sin embargo, dado que esta investigación tampoco halló una influencia significativa en la capacidad de las empresas para crear valor económico a través de la innovación al analizar la presencia de hombres como presidentes de los consejos de administración o CEOs, los resultados parecen sugerir que el género en estos puestos de responsabilidad podría no ser el factor determinante en la toma de decisiones relacionadas con la innovación.

La permanencia del CEO en el cargo tampoco muestra ninguna influencia sobre el resultado objeto de análisis, aceptando la hipótesis 5a. Este resultado contrasta con investigaciones previas que han identificado tanto efectos positivos (Barker & Mueller, 2002) como negativos (Loukil & Yousfi, 2022). Sin embargo, cuando los CEOs también forman parte del consejo de administración, su doble papel tiene una influencia positiva en el valor económico de la I+D, aceptando la hipótesis 6a. Estos resultados coinciden con investigaciones previas que señalan cómo la participación de los CEOs en los consejos de administración facilita el acceso a información estratégica clave, lo que, combinado con su mayor conocimiento de la empresa, impulsa la inversión en I+D y el potencial valor económico generado de la misma (Driver & Guedes, 2012; Sierra-Moran et al., 2024). Cabe resaltar que esta influencia solo se observa cuando se considera a las mujeres consejeras, lo que respalda investigaciones previas que destacan su contribución a la hora de enriquecer el proceso de toma de decisiones relacionado con la inversión en I+D (Attah-Boakye et al., 2020; Belkacemi et al., 2021; Griffin et al., 2021). De esta forma, los resultados dejan patente el papel crucial que desempeñan las mujeres en los consejos de administración para mejorar el rendimiento de los CEO que también forman parte de ellos, garantizando la presencia de mujeres consejeras una alineación entre la innovación y el valor económico.

Entre las empresas cotizadas, los resultados siguen mostrando la influencia negativa de la nacionalidad de los consejeros, reflejando los desafíos a los que se enfrentan las empresas a la hora de alinear las perspectivas culturales y las estratégicas en las iniciativas de innovación.

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También se mantiene la irrelevancia de la presencia de mujeres CEO. Sin embargo, la presencia de mujeres presidentas del consejo muestra una ligera influencia, aunque negativa, en la creación de valor económico derivada de su compromiso con la I+D. Nuevamente, la limitada representación de mujeres en puestos de liderazgo podría explicar este resultado (Loukil & Yousfi, 2022). Curiosamente, la influencia positiva de los CEOs que también actúan como miembros del consejo de administración desaparece entre las empresas cotizadas, probablemente debido a los requerimientos normativos que, en particular para estas empresas, imponen la independencia de los consejos de administración. Finalmente, la permanencia continuada en el tiempo como CEO sigue siendo irrelevante sobre el valor económico de la I+D.

Los resultados de los tres artículos que integran esta tesis dejan patente la influencia de la composición del consejo de administración sobre los resultados empresariales. Al profundizar en el análisis de su estructura y composición, esta tesis contribuye a proporcionar una perspectiva más precisa de su crucial papel para promover el buen gobierno y prácticas empresariales orientadas a la sostenibilidad. Esta investigación no solo avanza en el conocimiento de los factores que mejoran el comportamiento empresarial responsable, sino que también aclara cómo la composición de los consejos de administración desempeña un papel crucial en la creación de valor sostenible para la empresa, la sociedad y el medioambiente. Al analizar en profundidad la diversidad de características de los consejos de administración y sus miembros, se contribuye a comprender mejor su funcionamiento para enfrentar desafíos globales, armonizando los objetivos empresariales con el bienestar general.

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5 CONCLUSIONES

IMPLICACIONES PARA LA GESTIÓN

La investigación desarrollada en esta tesis ofrece una guía a considerar para la configuración de los consejos de administración de las empresas. Un entorno competitivo y regulatorio cada vez más complejo, con una creciente concienciación social y medioambiental, exige una acción más proactiva por parte de las empresas. Los resultados obtenidos en los tres artículos que integran esta tesis proporcionan a empresas, legisladores y otros agentes decisores, accionistas, futuros inversionistas y a la sociedad en general herramientas para diseñar (o demandar) una composición de los consejos de administración capaz de responder a las demandas actuales y futuras, e impulsar la creación de valor sostenible y compartido.

Al examinar y sintetizar cómo la diversidad de género en los consejos de administración influye en la gobernanza y en los resultados empresariales, los resultados de esta tesis contribuyen a justificar y promover la presencia de las mujeres en los mismos, basándose en la premisa de que su presencia puede incrementar el valor de la empresa para los accionistas y demás *stakeholders*. Los resultados de esta investigación respaldan la importancia de aplicar buenas prácticas de gobierno corporativo encaminadas a alcanzar la igualdad de género en los consejos de administración. Por tanto, las empresas deberían tener en consideración estos resultados para fomentar la participación de las mujeres en los consejos y reconocer el valor a sus aportaciones en los procesos decisionales sobre aspectos financieros, sociales, éticos o medioambientales. Asimismo, la existencia de importantes sesgos de género que debilitan las competencias de las mujeres consejeras debe llevar a las empresas a esforzarse en mitigarlos y prevenir que sean consideradas como un grupo minoritario en los consejos. Por su parte, los accionistas y demás *stakeholders* con capacidad de influencia en la composición de los consejos deben tener en cuenta los resultados de esta investigación para promover la diversidad de género en dichos órganos. La presencia de mujeres consejeras no solo fomenta la equidad, sino que también contribuye de manera significativa al aumento del valor empresarial y al desarrollo sostenible. Por último, los responsables políticos deben considerar también los resultados para establecer normativas y regulaciones que disminuyan las desigualdades de género en los consejos de administración, como forma de aprovechar el potencial de las mujeres consejeras en el rendimiento empresarial y el desarrollo sostenible.

Al señalar los factores que influyen en la (re)elección de las mujeres como consejeras, los resultados del primer artículo deberían ser considerados por los responsables políticos, legisladores y otros agentes decisores para establecer recomendaciones y normativas que impulsen la diversidad de género en los consejos de administración. Asimismo, estos resultados también son relevantes para las empresas, ya que pueden guiarlas en la composición de consejos más igualitarios, responsables y eficaces. Las empresas pueden aplicar los resultados obtenidos en este artículo para garantizar una gobernanza efectiva y evitar que los nombramientos de mujeres consejeras respondan a presiones externas o a la necesidad de crear una imagen pública basada en la diversidad de género. También los accionistas e inversores deberían tener en consideración estos resultados, ya que su participación en las juntas de accionistas puede determinar la posibilidad de conformar consejos de administración más igualitarios al poder decidir sobre la (re)elección de sus miembros.

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Al destacar los factores del consejo de administración que influyen en el desempeño ESG de las empresas, los resultados del segundo artículo proporcionan evidencias relevantes para legisladores, inversores y otros agentes decisores. En particular, cuestionan la creencia de que la participación de los consejeros en múltiples consejos puede perjudicar la gobernanza y el desempeño empresarial. Muy al contrario, los resultados de este artículo justifican evitar imponer restricciones de participación en múltiples consejos que puedan excluir experiencias y conocimientos valiosos para el desempeño sostenible de las empresas. A su vez, las empresas deberían reconocer el potencial de los consejeros con participación en otros consejos o con trayectorias prolongadas en el propio consejo, ya que aportan conocimientos, experiencias y redes de contactos fundamentales para promover estrategias sostenibles. Asimismo, debería ser considerada la contribución de las mujeres consejeras, instando a las empresas a promover su presencia y participación activa, y a los legisladores a diseñar políticas que consoliden la diversidad de género como un pilar fundamental para mejorar el desempeño sostenible. No obstante, los resultados de este artículo también advierten sobre los grandes desafíos que supone la inclusión de las mujeres en los consejos de administración. En cualquier caso, las empresas y legisladores deben ir más allá del cumplimiento numérico y enfocarse en los procesos de integración efectiva que garanticen la positiva contribución de las mujeres en el desarrollo de estrategias empresariales sostenibles.

Al determinar los atributos personales de los consejeros y las características de los consejos de administración que pueden influir en la capacidad de las empresas para crear valor económico a partir de su compromiso con la innovación, los resultados del tercer artículo ofrecen una valiosa orientación práctica para agentes decisores y empresas. Así, los responsables políticos deben saber que la desigualdad de género no se corrige solo con la imposición de cuotas en los consejos de administración. En su lugar, la pericia, la experiencia o los conocimientos asociados a las personas pueden concluir resultados más positivos que las cuotas numéricas. Además, las empresas deberían considerar la importancia de contar con al menos tres mujeres en los consejos de administración e impulsar la presencia de mujeres como directoras financieras para mejorar los procesos decisionales, la gestión de riesgos y la rentabilidad de las estrategias de I+D. Así mismo, las empresas deberían impulsar especialmente la presencia de mujeres consejeras cuando los CEOs también forman parte de los consejos. Las empresas también deben dar prioridad a los conocimientos, la sabiduría y la prudencia de los miembros del consejo con más edad para gestionar los complejos y arriesgados proyectos de I+D. Así mismo, las empresas deberían tener en consideración los resultados de esta investigación para estructurar cuidadosamente sus consejos de administración en términos de diversidad de nacionalidades. Una composición equilibrada les permite maximizar los beneficios de la diversidad de perspectivas y de las redes de contacto globales, manteniendo al mismo tiempo una comunicación y una toma de decisiones eficaces. Además, las empresas deberían reconocer que la eficacia en la toma de decisiones estratégicas no puede determinarse únicamente por la permanencia continuada en el cargo del CEO.

En definitiva, esta tesis pretende aportar conclusiones clave sobre la composición de los consejos de administración con el objetivo de que dejen de ser simples estructuras orientadas a la toma de decisiones para convertirse en impulsores de la gestión responsable y centrada en la creación de valor sostenible a largo plazo de las empresas.

PRINCIPALES CONTRIBUCIONES

Esta tesis doctoral se ha centrado en investigar el papel que desempeña el consejo de administración en la creación de valor sostenible de las empresas. Más allá de mejoras en las puntuaciones ESG o en los ratings SDG, esta investigación subraya la necesidad de que las

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estructuras de gobierno corporativo se adapten a los retos actuales, proporcionando un marco para integrar perspectivas diversas en los procesos estratégicos de toma de decisiones. Los resultados ponen de relieve el papel crucial que juegan los consejos de administración al proporcionar una comprensión más profunda de cómo su composición puede contribuir a la creación de valor sostenible para las empresas y la sociedad.

En este sentido, se destaca claramente la contribución de las mujeres consejeras tanto en la gobernanza como en el desempeño empresarial. Sin embargo, aunque su presencia haya ido aumentando en los últimos años, todavía sigue siendo muy escasa. Los resultados siguen mostrando notables diferencias entre el número de hombres y mujeres que llegan a ocupar un puesto en los consejos. A diferencia de los hombres, la experiencia, la pericia, las redes de contacto y los conocimientos acumulados por las mujeres consejeras no parecen tenerse en cuenta cuando se las propone como miembros de los consejos. Además, a pesar de todos los avances en materia de diversidad, los resultados de esta investigación parecen concluir que las empresas incorporan mujeres a sus consejos más por la necesidad de crear o mantener una imagen pública positiva basada en la igualdad que por su valía y la consideración de su potencial en la gobernanza de las empresas. Y todo ello a pesar de que los resultados parecen concluir que precisamente sus valores y capacidades son un recurso esencial para el desarrollo de las estrategias ESG y para la transformación de las políticas sobre innovación en valor empresarial. Los resultados también apuntan a la necesidad de alcanzar una masa crítica de al menos tres mujeres en los consejos de administración y de que ejerzan un papel relevante como consejeras ejecutivas para garantizar resultados empresariales positivos. Ahora bien, queda patente la inefectividad de las cuotas de género impuestas, frente a la posibilidad de incluir en los consejos de administración a mujeres que aporten conocimientos diversos, experiencia, contactos y nuevas perspectivas empresariales. En este sentido, los estereotipos de género pueden actuar como un obstáculo insalvable para promover la participación de las mujeres en los consejos de administración y contribuir así a la generación de valor empresarial.

Los resultados ponen también de manifiesto el papel estratégico que puede desempeñar el consejo de administración y su composición en el logro de desempeños sostenibles por parte de las empresas. Por ejemplo, la participación de los consejeros en múltiples consejos y su antigüedad como miembros de los consejos de administración se confirman como dos variables fundamentales para alcanzar dicho objetivo. En este sentido, se ha concluido que el capital humano (experiencia y conocimientos) y el capital social (redes de contacto) de los miembros del consejo son factores de gobernanza esenciales para promover estrategias ESG en las empresas más innovadoras llamadas a liderar la transición hacia una economía más sostenible y libre. Precisamente, ese cambio hacia comportamientos de gobernanza más holísticos, igualitarios y éticos que enfaticen el valor de integrar factores relacionados con las estrategias ESG en las estrategias corporativas podría ser la clave para la consecución de los ansiados objetivos de desarrollo sostenible.

Dichos objetivos encuentran en el compromiso de la empresa con la innovación una herramienta clave para lograrlo. De hecho, resulta fundamental tomar decisiones estratégicas orientadas a alinear las prácticas de gobierno corporativo con las necesidades de innovación empresarial y de creación de valor. En concreto, los consejos de administración y sus miembros pueden actuar como catalizadores del crecimiento empresarial, la competitividad, la innovación y la gestión efectiva del riesgo empresarial; en concreto, la presencia de mujeres y la presencia de consejeros con edad más elevada en el consejo parecen ser dos variables determinantes para transformar el compromiso de la empresa con la innovación en valor

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económico. Otras variables a las que prestar atención son el tamaño del consejo, la nacionalidad de los consejeros o su antigüedad en el consejo.

En definitiva, la capacidad de una empresa de generar valor sostenible dependerá, en gran medida, de la composición de su consejo de administración. De esta forma, la gobernanza empresarial se posiciona como un factor decisivo para que las iniciativas de sostenibilidad dejen de ser acciones aisladas y se integren en las estructuras de liderazgo y en las estrategias empresariales, de tal forma que garanticen no solo la resiliencia y el éxito empresarial, sino que también contribuyan activamente al desarrollo global.

Futuras líneas de investigación

Un aspecto fundamental a tener en cuenta en futuras investigaciones es el relacionado con el nombramiento de mujeres consejeras. Está claro que el primer paso para ser miembro de un consejo de administración es ser propuesto y que esa propuesta sea finalmente aprobada. Por ello, futuros estudios deben analizar la relación entre el número de propuestas de mujeres para formar parte de los consejos de administración y las resoluciones que finalmente conducen a que éstas ocupen un puesto en los mismos, considerando los votos a favor, los votos en contra, las abstenciones y, sobre todo, las razones que justifican cualquiera de las decisiones adoptadas.

Además, futuras investigaciones deberían analizar cómo la presencia de las mujeres en los consejos de administración influye en otras variables orientadas a promover estrategias y desempeños ESG de las empresas. Por ejemplo, otras variables ESG (gestión del agua, resiliencia del modelo de negocio, comportamiento competitivo, etc.), otros criterios de clasificación de las variables ESG (fines sostenibles, tecnología utilizada, etc.) y otras variables relacionadas con la sostenibilidad (innovación verde, crecimiento sostenible, etc.) deberían ser consideradas en futuras líneas de investigación. En este sentido, las empresas deben elegir entre una amplia y diversa gama de iniciativas ESG. Por ello, investigar, por ejemplo, qué estrategias ESG son las más efectivas y con mayor impacto en los SDG puede ser vital para guiar las actuaciones empresariales hacia un verdadero desarrollo global e integral. En este proceso, resulta indispensable considerar las diferencias socioeconómicas, culturales y sociales entre los diferentes contextos empresariales objeto de análisis, así como los cambios que las estrategias ESG pueden provocar tanto en la gestión interna como externa de las empresas.

Habiendo detectado el papel fundamental de la innovación en el desempeño sostenible de las empresas, éstas deben orientar sus prácticas de gobierno corporativo a promover comportamientos enfocados en fortalecer su compromiso con la I+D y con el desarrollo tecnológico, en el convencimiento de que este tipo de estrategias puede incrementar su valor económico. Por ello, sería especialmente valioso investigar cómo la experiencia y el conocimiento sobre innovación, tecnología y transformación digital de los miembros del consejo de administración pueden influir en los resultados ESG, en la resolución de los desafíos relacionados con la innovación y en la consecución de los objetivos de desarrollo sostenible. En concreto, futuras investigaciones podrían analizar las implicaciones de la conectividad entre los miembros de diferentes consejos de administración en la promoción de redes de contacto orientadas a favorecer la transferencia de conocimiento, la innovación y el diseño de estrategias enfocadas en la sostenibilidad. En este sentido, sería valioso analizar cómo los consejeros con experiencia en otras industrias o sectores pueden fomentar la adopción de tecnologías verdes, el uso de energías renovables, el desarrollo de modelos de economía circular, la promoción del bienestar y la conciliación laboral, así como la implementación de modelos decisionales transparentes y éticos. También convendría analizar

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cómo la composición de los consejos de administración puede influir en los procesos de digitalización y en la adopción de tecnologías avanzadas como la AI para impulsar la competitividad de las empresas.

Además, nuevas investigaciones deberían considerar diferentes tipos de empresas, como pequeñas y medianas empresas, empresas de nueva creación o empresas virtuales. Sería interesante también considerar diferentes sectores, áreas geográficas o empresas no incluidas en los primeros puestos de los rankings o índices ya analizados con el objetivo de resaltar su idiosincrasia y comparar/confirmar los resultados obtenidos. Considerando que las normativas sobre gobierno corporativo difieren significativamente entre distintas regiones o áreas geográficas, es fundamental analizar cómo pueden influir en el resultado empresarial, lo que puede ser muy interesante si además se tienen en cuenta las condiciones económicas, políticas, sociales o culturales en cada caso.

En términos generales, todas las investigaciones propuestas se orientan a analizar cómo la composición de los consejos de administración puede influir en el diseño de estrategias empresariales innovadoras enfocadas en la creación de valor sostenible.

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7 TRABAJOS PUBLICADOS

A continuación, se incluye la relación de publicaciones que justifican la presentación de la tesis doctoral titulada 'RESPONSABILIDAD SOCIAL CORPORATIVA. EL GOBIERNO CORPORATIVO COMO INDUCTOR DE LA CREACIÓN DE VALOR SOSTENIBLE EN LAS ORGANIZACIONES', de acuerdo con el Plan de Investigación de la doctoranda Mª Luisa López Pérez aprobado por la EDIUS de la Universidad de Santiago de Compostela con fecha 13/07/2020.

7.1 Artículo 1. Gender diversity on boards: Determinants that underlie the proposals for female directors

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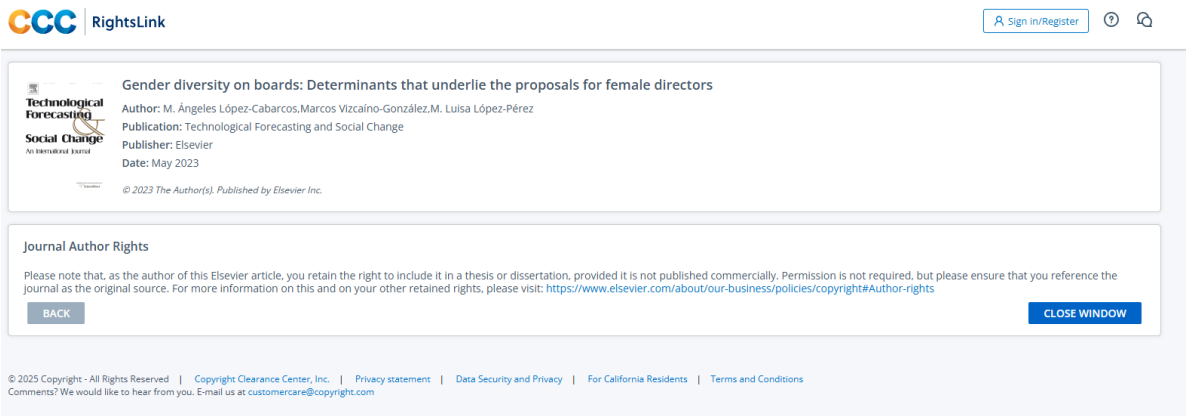
Contribución de la doctoranda: La doctoranda ha contribuido en las siguientes actividades: revisión de investigación previa relacionada con el tópico objeto de estudio; preparación de la muestra de estudio y recogida de datos; diseño del modelo de estudio; análisis e interpretación de los resultados; redacción del borrador del artículo; revisión de la versión final del artículo.



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Gender diversity on boards: Determinants that underlie the proposals for female directors

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ABSTRACT

Although the gender composition of corporate boards and the contribution of female directors to corporate governance have been previously analysed, few studies have investigated the factors that may help contribute to increasing the still scarce presence of women on boards. Therefore, using three-stage least squares (3SLS) estimation on a data panel comprising the 100 largest companies in the world according to the 2019 Fortune Global 500 ranking, including data on (re)election proposals for corporate board members, this research aims to analyse the influence of the number of men's nominations, board interlocks, director tenure, geographical area, the sector to which the firms belong, and the relevance of firms on women's nominations for boards of directors. The results show the factors that facilitate the presence of women on boards. In addition, the different influences that remain in the election of female and male directors when considering factors related to the experience, expertise, and networks of directors or the visibility of firms can also be observed. This study contributes to the knowledge of gender diversity on boards, shedding light on the factors that might lead to gender-balanced boards. It could also help companies and policymakers design strategies to build more egalitarian boards.

1. Introduction

Boards of directors are considered to be the principal mechanism for implementing and maintaining good corporate governance. The configuration of corporate boards has been an important research topic in corporate governance during the last decades, although arguments about the need to review the composition of a board still remain strong, especially with regard to gender diversity (Baker et al., 2020).

Corporate boards act not only to maximise the returns of shareholders' investments but also to achieve responsible and sustainable corporate performance, as demanded by multiple stakeholders and shareholders (Hafsi and Turgut, 2013). Given these demands, firms and boards of directors have begun to implement corporate social responsibility (CSR) strategies, and precisely the presence of women on boards impacts different aspects of these strategies (Byron and Post, 2016; Glass et al., 2016). Some authors have also suggested that the inclusion of women on boards contributes positively to the governance of companies (Adams and Ferreira, 2009) through their ability to reduce interpersonal problems (Nielsen and Huse, 2010a), as well as their participation in the decision-making processes and their ability to monitor effectively (Nielsen and Huse, 2010b; Terjesen et al., 2009); further, their inclusion also influences firm performance (Hoobler et al., 2018; Terjesen et al., 2016). Therefore, women on boards can improve corporate reputation and promote companies' public image through socially responsible actions (Bear et al., 2010).

Although previous studies have analysed the role of women on board teams from different perspectives as well as their influence on different issues of corporate performance (Kirsch, 2018), more analysis related to the appointment of women on corporate boards is still needed (Baker et al., 2020). Specifically, few studies have analysed the factors that facilitate or prevent the presence of women on boards (Geiger and Marlin, 2012; Hillman et al., 2007; Saeed et al., 2016). Unlike other studies in the area that have analysed the number or proportion of female directors on boards, this study considers the number of women's nominations for boards of directors to analyse the factors that determine their appointment and consequently help understand the reasons that motivate or limit gender equality on boards. Evidently, prior to holding seats on boards, proposals for the appointment of directors on corporate

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boards must be considered and ratified in shareholders' meetings. Therefore, if women are not proposed as members of boards of directors, they cannot occupy a board seat and cannot influence board governance and firm performance. Moreover, in contrast to most previous research that has mainly focused on a particular country (Baker et al., 2020; Terjesen and Singh, 2008), this research analyses gender diversity on boards worldwide.

Therefore, using a database from 2004 to 2019 composed by the proposals of (re)election of board directors for 83 out of the 100 largest companies in the world ranked in the 2019 Fortune Global 500 list, and a three-stage squares estimation for a system of simultaneous equations, the aim of this paper is to investigate the effect of individual attributes of directors, firm and board characteristics, and environmental features to explain why women are proposed as members of boards of directors. Among these factors, the number of nominations for male directors, the number of simultaneous proposals for boards of different companies, the cumulative number of nominations for the same company, and the number of accumulated years that a company has been included in a top ranking can be considered as drivers of the proposals for female directors. In addition, the geographical area and the sector to which the company belongs can also act as explanatory factors for women's nominations on boards.

Based on different theoretical frameworks related to the factors analysed, the results of the study show that the presence of women on boards continues to be reduced, although in recent years, this situation has started to change. The results indicate that while some of the factors considered seem to facilitate women's nominations, other factors highlight the differences that still exist between the election of male and female directors in top firms. These conclusions contribute to sharpening the debate on the reasons that lead companies to incorporate women on their boards, providing a better understanding of the lead determinants of gender-based gaps observed in board teams.

The rest of this paper is structured as follows: Section 2 provides the theoretical framework of the study and formulates the hypotheses; Section 3 describes the study method, including the data sample, variables, and model; Section 4 presents the main results of the empirical examination; Section 5 discusses the results; obtained, and Section 6 presents the overall study conclusions and opportunities for future research.

2. Literature review

Boards of directors, as the principal mechanism of corporate governance in decision making, are responsible for the implementation of organisational strategies. Different decisions can be adopted depending on the board composition, in particular, gender diversity (Nielsen and Huse, 2010b). Previous research has concluded that the presence of women on boards influences financial performance with mixed results. Some authors have established a positive relationship (Erhardt et al., 2003; Hoobler et al., 2018; Terjesen et al., 2016), others have found a negative or non-existent relationship (Adams and Ferreira, 2009; Marinova et al., 2016; Rose, 2007), while others have even contradictory results when considering different financial performance measures (Bennouri et al., 2018; Carter et al., 2010; Farrell and Hersch, 2005; Post and Byron, 2015). In addition to financial results, investors also consider sustainable and socially responsible companies in their investment strategies (Lopez-Cabarcos et al., 2019). Thus, stakeholders' demands also determine the commitment of firms to their CSR performance (Galbreath, 2011; Lee and Suh, 2022). In this context, the responsibility of carrying out a moral, ethical, and sustainable business is added to the functions of boards (Guerrero-Villegas et al., 2018; Nadeem et al., 2020). Previous research has analysed the influence of the presence of women on boards on different aspects of CSR strategies, but the results have not been homogeneous. While some studies have concluded that female directors positively impact corporate social performance (Byron and Post, 2016; Hafsi and Turgut, 2013; Harjoto et al., 2015; McGuinness et al., 2017), promote corporate environmental strategies (Glass et al., 2016; Kassinis et al., 2016; Konadu et al., 2022), or tend to implement more charitable contributions (Wang and Coffey, 1992; Williams, 2003), other studies have concluded a negative or non-significant relationship (Boulouta, 2013; Cucari et al., 2018).

The presence of women on boards can also determine board performance. Female representation contributes to the board decision-making process and influences strategic decisions and operational performance (Bennouri et al., 2018; Nielsen and Huse, 2010b), reduces the conflict on boards owing to their sensitivity and interpersonal abilities (Nielsen and Huse, 2010a), provides a major quality of discussions and reporting effectiveness (Gul et al., 2011), and improves board attendance, and, consequently, board governance (Adams and Ferreira, 2009). In sum, female directors significantly contribute to the efficiency of corporate governance (Naveed et al., 2021; Terjesen et al., 2009) and increase corporate reputation (Bear et al., 2010), helping to build an image of commitment to diversity and legitimacy that can enhance the support of stakeholders, especially customers, suppliers, and investors (Hillman et al., 2007).

The influence of the presence of women on boards on those organisational outcomes has been widely analysed through agency theory (Terjesen et al., 2009). Based on this theory (Fama and Jensen, 1983), boards of directors are responsible for the alignment of the different interests among agents and principals, monitoring and controlling managers' functions on behalf of shareholders. Another theory widely used in this field of research is the resource dependence theory (Pfeffer and Salancik, 1978), according to which organisations operate in an open system and their behaviour depends on external resources. Boards of directors can enable firms to minimise dependence on resources and reduce environmental fluctuations by providing advice, legitimacy, and access to resources and communication channels. Beyond both theories, the impact of gender diversity on boards has been analysed from other multiple theoretical perspectives (López-Pérez, 2022). Consequently, in addition to the two aforementioned theories, this research considers several theoretical frameworks related to each factor considered to explain women's nominations on boards.

Despite the positive impacts of the presence of women on boards, their presence is still very low. Women only hold 26.5 % of board seats of Fortune 500 companies (Catalyst, 2020). In addition, scientific research analysing the factors that might explain why women have been appointed members on corporate boards continues to be scarce (Baker et al., 2020; Kirsch, 2018). Terjesen et al. (2009) classified these factors into individual director characteristics (micro-level), board and firm characteristics (meso-level), and environmental features (macro-level). Based on previously used theoretical approaches and other theories more related to each predictor, this study considers the number of nominated female–male directors and tenure (micro-level factors), board interlocks, relevant firms and sector (meso-level factors), and geographical area (macro-level factor) as drivers that could explain why women can be proposed to participate on boards of directors.

2.1. Board gender diversity – number of nominated women-men directors

The selection of directors has been shown to not be gender-neutral but is influenced by the gender composition of the board (Birkner, 2020). The probability of adding a woman to a board increases when a female director has previously left the board or when there are few or even no female directors on boards. In this way, the existence of gender bias affects the appointment of a new board member (Farrell and Hersch, 2005; Gregory-Smith et al., 2014). According to Tinsley et al. (2017), if the relationship between the gender of directors who leave the board and new directors who join the board is maintained, the number of female directors would not likely increase. According to institutional theory, firms under strong internal or external pressures tend to increase the presence of women on boards; however, this pressure does not reduce the gender bias on boards if female directors are added to

increase the number of seats on boards of directors rather than to replace male directors (Bennouri et al., 2018; Knippen et al., 2019). Therefore, the appointment of female directors can only be a consequence of the tokenism effect in creating a symbolic gender diversity image of corporate boards (Gregory-Smith et al., 2014). Further research is needed on male and female representation on boards. Therefore, the following hypothesis is proposed:

Hypothesis 1. Proposals regarding female representation on boards are significantly influenced by the proposals of male directors.

2.2. Board gender diversity - board interlocks

Boards of directors perform control and monitoring functions based on agency theory and a resource provision function based on resource dependence theory. Based on both theories, Hillman and Dalziel (2003) developed the concept of 'board capital' as the combination of experience and expertise (human capital) and director's network (social capital) that establish the competencies that board members provide to both functions. Directors serving on different corporate boards, as providers of knowledge, experience, and network connections with other firms, facilitate the exchange of information, knowledge, and business practices, which in turn could attract investors' attention if relevant firms are considered (Connelly and Van Slyke, 2012; Franco and Esteves, 2020). Based on institutional theory, interlocked directors also promote the transmission of gender diversity practices, pressuring companies to assume the legitimacy of gender diversity on boards. Thus, firms with directors serving in other egalitarian firms tend to include more female representation on their own boards (Geiger and Marlin, 2012; Hillman et al., 2007). However, Huang et al. (2020) demonstrated an inverse relationship on boards with male interlocked directors, considering that directors serving on multiple boards can be socially considered as members of an elitist group and, in an attempt to preserve this prestige, male directors do not support the appointment of female directors.

Female directors serving on multiple corporate boards can also show a distortional image of gender diversity, also creating an elitist group of women ('golden skirts') holding positions on multiple boards (Huse, 2013; Rigolini and Huse, 2019). Organisations, in response to the pressures of gender diversity, may select their female directors only among this elitist group, which does not provide a real increase in the presence of women on boards (Nili, 2019).

Previous research has also demonstrated that 'busy directors' or directors on boards of different firms (men or women) reduce their time of dedication to each board, negatively affecting the effectiveness of their monitoring function (Hillman et al., 2011) and, in turn, reducing firm performance (Bennouri et al., 2018). The findings regarding this issue are inconclusive and require more research; therefore, the following hypothesis is proposed:

Hypothesis 2. Proposals regarding female representation on boards are significantly influenced by the simultaneous presence of female directors on other board teams.

2.3. Board gender diversity - tenure

Tenure, or the number of years a director serves on the current board, can be used as a measure of equality between men and women. Gender diversity on boards implies not only the inclusion of women on boards but also the retention of female directors for longer tenures after being appointed, enhancing egalitarian participation in board decision processes (Nili, 2019). Based on the expertise hypothesis (Vafeas, 2003), long tenures are associated with greater experience, commitment, and knowledge about the firm and its environment; and based on the human capital theory (Becker, 1964) and upper echelon theory (Hambrick and Mason, 1984), the previous professional experience, knowledge, values, and perceptions can provide directors a set of abilities to improve cognitive and productive capabilities that positively contribute to both individuals and organisations (Chaithanapat et al., 2022; Halilem et al., 2022). However, when directors have served on the same boards for several years, the benefits derived from tenure can be transformed on 'friendly boards' (Vafeas, 2003); that is, when directors and managers have a close friendship, the independence and objectivity of the directors can be reduced, thereby compromising the monitoring function (Hillman et al., 2011) and affecting negatively firm performance (Bennouri et al., 2018). (Main and Gregory-Smith, 2018) demonstrated that this loss of independence is not gender neutral. Female directors show shorter tenures than male directors, suggesting that they could be appointed only for their symbolism of independence and the pressure to display gender diversity on boards. More research is needed on the influence of tenure on board composition, especially if female representation is considered. Therefore, the following hypothesis is proposed:

Hypothesis 3. Proposals regarding female representation on boards are significantly influenced by the tenure of male and female directors on the corporate board.

2.4. Board gender diversity - geographical area

The national context in which firms operate can also explain the presence of women on boards (Gabaldon et al., 2016; Halliday et al., 2020; Terjesen and Singh, 2008). Institutional theory analysing the role of social, political, legal, and economic institutions is the principal approach to explain the different female participation on boards from a macro-environmental perspective (Terjesen et al., 2009).

Differences across countries in relation to their institutional environment can influence board composition and the participation of women on boards (Saeed et al., 2016). Countries with stronger shareholders' legal protection against the decisions adopted by directors (who assume major legal responsibilities) are more prone to increase the presence of women on boards based on the expertise and knowledge that can provide for decision-making processes (Post and Byron, 2015). Similarly, countries with equality in wages tend to have a higher representation of women on boards; however, this fact does not necessarily imply an increase in the number of women on boards (Tyrowicz et al., 2020).

The differences in the number of women on boards across countries can also be explained by the level of female representation in other key social or political institutions. These institutions can act as drivers of equal opportunities between women and men, influencing gender role attitudes and helping break down gender stereotypes (Ahl, 2006; Chizema et al., 2015). An egalitarian supportive climate leads women to reach more work experiences and education (Hiltz and Turoff, 2005; Hoobler et al., 2018; Post and Byron, 2015), reinforcing their potential and entrepreneurial intentions (Armuna et al., 2020; Kuehn, 2008; Wilson et al., 2007) and contributing to successful decision-making processes and strategic involvement on boards (Nielsen and Huse, 2010b). In addition, in gender-egalitarian countries, all types of stakeholders require firms to align their behaviour to the social context, being more likely to have a major female presence on boards (Fernandez-Feijoo et al., 2014; Halliday et al., 2020). The economic environment and economic shocks (2008 global crisis, COVID-19 pandemic, etc.) may also affect the number and nature of votes in corporate meetings, being likely to change drivers of voting decisions, including proposals for the election of directors (Pineiro-Chousa et al., 2016; Vizcaino-Gonzalez et al., 2017). Similarly, cultural dimensions (Attah-Boakye et al., 2020; Carrasco et al., 2015) and the role of the national institutional system (Grosvold and Brammer, 2011) can facilitate or hinder women's access to corporate boards. More research is needed on this issue; therefore, the following hypothesis is proposed:

Hypothesis 4. Proposals regarding female representation on boards are significantly influenced by the geographical area to which the firm belongs.

2.5. Board gender diversity – firms' characteristics

Top-ranked firms are more noticeable, observable, and known by regulators, media, stakeholders, and, in general, the entire society. Based on legitimacy theory and institutional theory, higher transparency and visibility of firms increase the pressure on them to satisfy the demands of institutional actors, such as reducing discrimination related, for example, to gender bias on boards (Gabaldon et al., 2016). According to this approach, prestigious and top firms tend to respond to pressure and include more women on their boards (Carter et al., 2003; Hillman et al., 2007); however, not all previous studies have confirmed this postulation (Geiger and Marlin, 2012). These mixed results encourage further research in this area. Therefore, the following hypothesis is proposed:

Hypothesis 5. Proposals regarding female representation on boards are significantly influenced by the relevance of firms.

The sector in which a firm operates can be both a barrier and a facilitator of the presence of women on boards. De Jonge (2014) demonstrated that the service sector (healthcare, consumer discretionary, and telecommunications) and, specifically, financial services facilitate female representation on boards. Conversely, firms in the industrial or energy sectors show a significantly lower presence of women on their boards. Other studies have also observed differences related to the sector considered (Adams and Ferreira, 2009; Geiger and Marlin, 2012; Hillman et al., 2007). Further research is needed to analyse the relationship between board composition and the business sector to which the firm belongs. Therefore, the following hypothesis is proposed:

Hypothesis 6. Proposals regarding female representation on boards are significantly influenced by the sector to which the firm belongs.

3. Method

3.1. Data and sample

An international sample comprising the 100 largest companies in the world, according to the 2019 Fortune Global 500 list, was used in this study. This annual ranking comprises the top 500 companies worldwide, measured by total revenues, and includes the industry and location of each company. This database was selected because previous research has demonstrated that large firms are more likely to have female representation on their boards (Bennouri et al., 2018; Carter et al., 2003; De Jonge, 2014; Farrell and Hersch, 2005; Hillman et al., 2007). In addition, Fortune rankings are commonly used by institutions such as Catalyst, a global non-profit organisation that publishes a census of women on boards, as well as by other empirical research (Carter et al., 2003; Farrell and Hersch, 2005; Hillman et al., 2011). Unlike most previous research on gender diversity on corporate boards that selected organisations included in Fortune rankings belonging only to the United States or other single countries (Kirsch, 2018; Terjesen et al., 2009), this study employs organisations belonging to the Fortune Global list including firms worldwide. The list of companies was added to the proposals for (re)election of members of the boards of directors collected from i) SEC Form N-PX filings; ii) annual reports of the proxy voting record of registered management investment companies, and iii) the notices from shareholders' meetings published on the companies' website.

Information about the nominated directors of each firm was collected for the period 2004–2019. The study period is justified because the disclosure of proxy voting policies through Form N-PX filings was required by the U.S. Securities and Exchange Commission (SEC) for annual periods beginning 1 July 2003, and loss of information during the first months of the year led to 2004 being considered as the initial year of the study period. Although most of the companies were in existence for all years throughout the study period, some were founded or emerged during the examined period due to mergers, spin-offs, or initial public offerings. Moreover, some companies, both state-owned and private, had to be removed from the initial sample due to lack of public information about directors' nominations in their shareholders' meetings. As a result, the study sample considers 83 of the 100 largest companies included in the 2019 Fortune Global 500 ranking, resulting in a final unbalanced panel composed of 9842 proposals of (re)election of directors, distinguishing between the gender of the director who was proposed for each shareholder meeting. The gender of directors was determined by observing references such as Mr. and Ms. and she or he, on the personal information of the candidates on the notices of shareholders' meetings, annual reports, and other announcements published by firms (Saeed et al., 2016).

Although the number of proposals for female directors has been on the rise in recent years, the difference between women and men proposed holding positions on boards of directors remains significantly high. The data reveal that the number of proposals regarding women is lower than that of proposals concerning men throughout the analysed period (Table 1).

Table 2 presents descriptive statistics about the number of nominations of women and men according to the geographical area to which the company belongs. Most of the nominations refer to American companies, and the number of nominated men far exceeds the number of nominated women across all regions. The lowest number of nominations of women to hold a position on boards are in the Asia region.

Table 3 lists the number of nominations by gender and sector. The leading nominations are clearly in financial services and industry. For all sectors, the number of nominated women is lower than that of nominated men. Higher female representation on boards is mainly in financial services and basics, while their presence in the energy sector is reduced.

The presence of women on corporate boards was measured as the total number of proposals for female directors for the same company in the same year. To obtain more conclusive results, an analysis of the total number of proposals of male directors for each company and year was also considered.

Other variables were introduced in the model to control for factors that may explain why women are proposed for a seat on corporate boards. The presence of a director serving on the boards of different companies in the same year was measured as the average of simultaneous nominations of women and men, which was computed as the total nominations of each female (male) director across all companies in the sample for that year. The tenure variable for the same company until a given year was obtained as the average of the accumulated nominations of female and male directors, which were computed as the total number of nominations for each female (male) director until that year. In

Table 1
Nominations broken down by gender and year.

Year	Women	Men
2004	52	454
2005	50	454
2006	61	483
2007	81	552
2008	81	532
2009	79	536
2010	90	530
2011	87	479
2012	99	536
2013	113	532
2014	113	525
2015	131	522
2016	146	500
2017	161	530
2018	156	523
2019	164	490
Total	1664	8178

Table 2
Nominations broken down by gender and geographical area.

Region	Women	Men
America	1121	3980
Europe	393	1982
Asia	150	2216
Total	1664	8178

Table 3
Nominations broken down by gender and sector.

Sector	Women	Men
Basics	391	1292
Energy	227	1534
Financials	521	1968
Industry	258	2064
IT	267	1320
Total	1664	8178

addition, the relevance of firms was determined by the number of years a company had been in the first 100 positions of the Fortune Global 500 ranking until a given year.

Finally, three dummy variables were introduced to analyse the presence of women on boards within sectors and regions over the years. The sector to which the firm belongs was included in five sector dummies, classified into basics (including basic products, healthcare, and retail companies), energy, financials, industry, and IT (comprising technology and telecommunications). The location of the firms was determined using three geographical area dummies: America, Europe, and Asia. The time series was considered by a year dummy for each of the years included in the sample, from 2004 to 2019.

Thus, the variables included in the study were as follows:

- D_W: number of nominated directors (women), computed by aggregating all proposals referring to women, for the same company, and the same year.
- D_M: number of nominated directors (men), computed by aggregating all proposals referring to men, for the same company, and the same year.
- B_W: average of simultaneous nominations (women), computed as the average number of boards in the sample for which a woman was nominated in the same year.
- B_M: average of simultaneous nominations (men), computed as the average number of boards in the sample for which a man was nominated in the same year.
- T_W: average of accumulated nominations (women), computed as the average number of nominations a woman has accumulated for the same company until a given year.
- T_M: average of accumulated nominations (men), computed as the average number of nominations a man had accumulated for the same company until a given year.
- R: number of years that a company has been ranked until a given year.
- Y: year dummies.
- I: sector dummies.
- A: geographical area.

3.2. Model

According to previous theories, the proposals of female directors can influence the number of proposals of men to be elected as members on corporate boards, and the proposals of female directors can influence the proposals regarding female representation on boards. To avoid the problem of reverse causality in the analysis of the factors that might explain why women have been proposed for a seat on boards of directors and to obtain more efficient results for cross-equation correlation, the following system of simultaneous equations was estimated using three-stage least squares (3SLS) estimation instead of 2SLS estimation:

$$D_{Wit} = \alpha_2 + \beta_2 D_{Mit} + \theta_2 z_{2it} + \gamma_2 x_{it} + d_{it} + \epsilon_{2it} \quad (1)$$

$$D_{Mit} = \alpha_1 + \beta_1 D_{Wit} + \theta_1 z_{1it} + \gamma_1 x_{it} + d_{it} + \epsilon_{1it} \quad (2)$$

In Eq. (1), the endogenous variable is D_W for company (i) and year (t). The explanatory variables are D_M, an instrumental variable for the first endogenous variable (z_2), which is B_W; a set of exogenous variables (x) that includes T_W, T_M, and R; and a set of dummies (d) that includes S, A, and Y.

In Eq. (2), the endogenous variable is D_M. The explanatory variables are D_W, an instrumental variable for the second endogenous variable (z_1), which is B_M; a set of exogenous variables (x) that includes T_W, T_M, and R; and a set of dummies (d) that includes S, A, and Y.

4. Results

Table 4 reports the outcome from the 3SLS estimation. The results show that the number of nominated men is significant for the explanation of the number of nominated women, with a positive associated coefficient. However, the results indicate that the influential relationship does not hold the other way. Thus, the number of nominated women is not significant for the explanation of the number of nominated men.

The results also show that the average number of simultaneous nominations for a woman is significant for explaining the number of nominated women, and it exerts an inverse relationship; thus, the more boards women are nominated for, the less nominated women are found on boards. Interestingly, the average number of simultaneous nominations for a man is significant in explaining the number of nominated men but exerts a direct relationship; thus, the more boards men are nominated for, the more nominated men are found on boards.

The accumulated nominations for men and women are not significant for explaining the number of nominated women, but they are significant for explaining the number of nominated men, exerting a direct influence. Moreover, the number of years the company has accumulated in the ranking is significant for the number of nominated women exerting direct influence, but it is not significant for the number of nominated men.

Regarding year dummies, while 2013 to 2019 are significant for the number of nominated women, exerting a positive relationship, 2004 to 2015 are significant for the number of nominated men. Concerning area dummies, only Asia seems to be significant for the number of nominated men, exerting a positive influence. Finally, the sector dummies indicate that basics and IT exert a positive influence on the number of nominated women, and they both exert a negative influence on the number of nominated men. In addition, financials and industry exert a positive influence on the number of nominated women while not having any significant influence on the number of nominated men.

5. Discussion

The results of this study show that the number of proposals for female directors is positively influenced by the number of male nominations. Thus, a higher (lower) number of male proposals leads to a higher (lower) number of women's nominations. This finding confirms Hypothesis 1, suggesting that the number of female directors is directly related to a higher number of seats on boards and that a higher number of male directors' proposals is necessary to increase the number of women on boards. According to institutional theory, the results are consistent with previous research demonstrating that women are added to corporate boards to increase the board size rather than to substitute male directors (Bennouri et al., 2018; Knippen et al., 2019). Such new seats for female directors are created in many cases exclusively to

Table 4
Results from the 3SLS estimation.

	Dw							D_M						
	Coef.	Std. Err.	z	P > |z|		[95 % Conf.	Interval]	Coef.	Std. Err.	z	P > |z|		[95 % Conf.	Interval]
D_M	0.1715	0.0846	2.03	0.043	**	0.0057	0.3374								
Dw								−0.2432	1.1449	−0.21	0.832		−2.4872	2.0009
B_M								3.5900	1.1046	3.25	0.001	***	1.4251	5.7549
Bw	−0.5085	0.1843	−2.76	0.006	***	−0.8698	−0.1473							
T_M	−0.0522	0.0532	−0.98	0.326		−0.1564	0.0520	0.4781	0.0916	5.22	0.000	***	0.2987	0.6576
Tw	−0.0363	0.0400	−0.91	0.365		−0.1147	0.0422	0.4020	0.0857	4.69	0.000	***	0.2341	0.5699
R	0.0458	0.0113	4.06	0.000	***	0.0237	0.0679	0.0308	0.0670	0.46	0.645		−0.1005	0.1621
2004	0.0000	(omitted)						5.9749	1.0560	5.66	0.000	***	3.9052	8.0445
2005	−0.0607	0.2807	−0.22	0.829		−0.6109	0.4896	5.4943	1.1240	4.89	0.000	***	3.2913	7.6973
2006	0.0603	0.2743	0.22	0.826		−0.4772	0.5979	5.4942	1.0005	5.49	0.000	***	3.5332	7.4553
2007	0.4207	0.2739	1.54	0.125		−0.1161	0.9575	5.6540	0.8147	6.94	0.000	***	4.0571	7.2509
2008	0.4073	0.3137	1.30	0.194		−0.2076	1.0222	4.1056	0.8982	4.57	0.000	***	2.3453	5.8660
2009	0.4415	0.3335	1.32	0.186		−0.2121	1.0951	3.7173	0.8989	4.14	0.000	***	1.9555	5.4791
2010	0.5534	0.3593	1.54	0.124		−0.1509	1.2577	3.4378	0.8303	4.14	0.000	***	1.8105	5.0652
2011	0.6212	0.4535	1.37	0.171		−0.2677	1.5101	1.9401	0.9497	2.04	0.041	**	0.0787	3.8016
2012	0.5877	0.4216	1.39	0.163		−0.2387	1.4141	2.4031	0.8864	2.71	0.007	***	0.6658	4.1403
2013	0.8743	0.4807	1.82	0.069	*	−0.0679	1.8165	1.5250	0.7961	1.92	0.055	*	−0.0353	3.0853
2014	1.0974	0.4823	2.28	0.023	**	0.1521	2.0428	1.4729	0.7007	2.10	0.036	**	0.0995	2.8463
2015	1.1308	0.4795	2.36	0.018	**	0.1910	2.0706	1.4767	0.6571	2.25	0.025	**	0.1887	2.7647
2016	1.3575	0.5263	2.58	0.010	**	0.3261	2.3890	0.9820	0.6275	1.57	0.118		−0.2478	2.2118
2017	1.5401	0.5468	2.82	0.005	***	0.4684	2.6119	0.6947	0.6285	1.11	0.269		−0.5372	1.9266
2018	1.3156	0.5605	2.35	0.019	**	0.2171	2.4142	0.5190	0.6121	0.85	0.397		−0.6807	1.7187
2019	1.5321	0.6050	2.53	0.011	**	0.3464	2.7178	0.0000	(omitted)					
America	0.2157	0.8324	0.26	0.796		−1.4158	1.8472	0.0000	(omitted)					
Asia	−1.3595	1.1100	−1.22	0.221		−3.5350	0.8161	3.4792	1.1522	3.02	0.003	***	1.2210	5.7375
Europe	−0.1242	0.8304	−0.15	0.881		−1.7518	1.5034	0.0126	0.5075	0.02	0.980		−0.9820	1.0073
Basics	0.6923	0.2424	2.86	0.004	***	0.2173	1.1673	−2.3213	0.9633	−2.41	0.016	**	−4.2094	−0.4332
Energy	0.0000	(omitted)						−0.0467	1.2868	−0.04	0.971		−2.5688	2.4755
Financials	1.1141	0.1343	8.30	0.000	***	0.8510	1.3773	0.0000	(omitted)					
IT	0.8838	0.3018	2.93	0.003	***	0.2923	1.4752	−2.8535	0.9493	−3.01	0.003	***	−4.7140	−0.9929
Industry	0.6148	0.1717	3.58	0.000	***	0.2783	0.9513	−1.0943	0.8554	−1.28	0.201		−2.7708	0.5822
RMSE	1.0617							3.2277						
R-sq	0.2919							0.2780						
Chi-2	3675.2600			0.000	***			310.5300			0.000	***		
Chi-2 test (all variables)								612.5600			0.000	***		
Chi-2 test (instrumental variables)								16.8400			0.000	***		
Chi-2 test (exogenous variables)								113.8400			0.000	***		
Chi-2 test (all dummies)								383.9700			0.000	***		
Chi-2 test (year dummies)								113.9700			0.000	***		
Chi-2 test (area dummies)								86.8700			0.000	***		
Chi-2 test (sector dummies)								125.2500			0.000	***		

* Indicates significance at a 10 % level.
** Indicates significance at a 5 % level.
*** Indicates significance at a 1 % level.

respond to external pressures to create egalitarian boards, although the representation of female directors remains low. In addition, the results show that the number of women's nominations does not affect men's nominations, reinforcing the idea that the number of proposals for female directors depends on the number of men's nominations, but not vice versa.

The results also show that more board seats held by women in other firms reduces the number of proposals for female directors. Therefore, the simultaneous presence on other corporate boards clearly penalizes the option of women to be proposed as directors. This finding, in line with previous research, which suggests that directors holding a large number of seats on different boards reduces their ability to monitor and control (Hillman et al., 2011) becoming board interlocks a negative factor for female nominations, supports Hypothesis 2. The opposite occurs with men, whose presence on other boards seems to increase the possibility of being proposed as directors on new boards. Thus, directors' networks and the accumulation of experience, expertise, and knowledge seem to be valuable resources for men but not for women. This finding, which is consistent with the precepts of integrating agency and resource dependence theories, is consistent for male directors with the conclusions obtained by Hillman and Dalziel (2003).

Furthermore, the number of cumulative nominations for women and men affects the number of female proposals, in contrast to men's nominations, which shows a positive correlation. These findings seem to suggest that when women's tenure and men's tenure increase, a sort of reinforcement effect of male board structures arises, while egalitarian policies regarding board structures fade. In sum, the proposals of men to be elected as board members receive support for both women's tenure and men's tenure; however, the proposals of women to hold a seat on boards are supported neither for women's tenure nor for men's tenure. Therefore, Hypothesis 3 is rejected in line with previous research, which states that tenure can reduce the monitoring function (Hillman et al., 2011). In sum, contravening the precepts of human capital and upper echelon theories, the experience, knowledge, and values provided by women are not considered to justify their elections as members of the corporate board, thus establishing a gender difference in the expertise hypotheses established by Vafeas (2003).

Regarding the influence of the geographical area of the firm, only Asian companies tend to exhibit higher support for male directors. This finding rejects Hypothesis 4 since proposals of female directors are not significant for any of the geographical areas considered. This result is not in line with previous research that found that firm location was a factor in determining the presence of women on boards (Halliday et al., 2020; Terjesen and Singh, 2008).

The more years a firm has been included in the top 100 positions in the Fortune Global 500 ranking appears to lead to more proposals for

women to be elected as members of boards. However, this result does not hold for male proposals. These findings confirm Hypothesis 5 and are consistent with previous research that points out that the pressure caused by the high visibility or relevance of firms leads them to promote, among other, gender diversity on boards (Carter et al., 2003; Hillman et al., 2007). Thus, the presence of women on boards can be clearly related to the attempts of the most relevant and visible companies to create a public and egalitarian image with regard to board composition.

The difference in the influence of the sector on women's and men's nominations is remarkable. Hence, companies in basic industries (including basic products, healthcare, and retail) and IT sectors (technology and telecommunications) tend to offer higher support for female directors and lower support for male directors. The financial and industrial sectors also encourage female proposals to be elected as board members, although neither of these sectors are relevant to men's nominations. These findings confirm Hypothesis 6 and are in line with most previous studies, except for the positive relationship between the industrial sector and women's nominations which could be justified by the different types of industries considered in each study (Adams and Ferreira, 2009; De Jonge, 2014; Geiger and Marlin, 2012; Hillman et al., 2007).

Finally, it is worth mentioning the change in the tendency of gender diversity on boards in recent years. The support for women nominations has clearly arisen in the latest years of the period analysed. These findings are consistent with the actual tendency of shareholders, institutional investors, regulators, stakeholders, and the entire society of increasing women's representation on boards.

6. Practical implications

The results obtained can have several implications for board diversity research. First, policymakers can establish various political and regulatory pressures on companies to promote the presence of women on boards. The results regarding the factors that may influence the election of female directors should be considered for regulators to introduce new recommendations or requirements to promote gender diversity and break down barriers to gender equality on boards. Moreover, cross-country and sectorial research can help policymakers determine which regions and sectors should be considered to reinforce policies to increase the presence of women on boards. Second, companies must design corporate governance strategies to build more egalitarian, responsible, and effective boards to promote gender diversity. Companies should take into consideration more the experience, expertise, and networks that female directors possess rather than the need to create a public image of gender diversity.

Third, investors can be crucial to encourage and promote gender diversity in boards. Company owners participate in shareholders' meetings, and their votes can not only determine the firm strategy but also change the composition of boards, including the possibility of creating egalitarian boards. In this sense, institutional investors' proxy votes should encourage companies to reduce the differences that still remain in the election between male and female directors.

Fourth, unlike previous research that mainly demonstrated the impact of female directors on board governance, financial results, and CSR performance, this research contributes to a better understanding of the variables that may explain the proposals of female directors to be part of corporate boards as the necessary first step to analyse their potential influence on firm performance.

Overall, more practical and theoretical efforts are necessary to provide more knowledge for designing corporate strategies and adopting legislation that can enhance gender diversity on boards in an attempt to contribute to the achievement of gender-balanced boards.

7. Conclusions

The purpose of this paper has been to analyse the factors that determine the number of proposals for female directors to hold positions on boards of directors. Previous research has analysed the impact of the presence of women on boards in corporate governance with a special focus on gender diversity. However, very few studies have analysed the factors that explain why women have been appointed as members of corporate boards. Hence, this investigation contributes to the advancement of the literature on gender studies, specifically on gender diversity on corporate boards. This research specifically provides a better understanding of the individual, organisational, and environmental factors that could explain why women have been appointed as members on boards. The results confirm that the number of men's proposals, the years that a company accumulates in a top ranking, and the sector to which the firm belongs are significant for explaining the number of nominated women exerting a positive influence. On the contrary, the simultaneous nominations of women on different boards may be a barrier to their selection as members of other corporate boards. Similarly, the accumulated nominations for men and women in the same company and geographical area are not significant for explaining the number of nominated women.

As this research analyses the same factors when considering proposals of male and female directors, it can be concluded that i) the number of women's nominations decreases when they have multiple nominations for different boards, while the number of men's nominations increases; ii) the cumulative number of nominations for the same company does not influence women's nominations; however, it is a positive determinant of men's nominations; and iii) the support for women's nominations increases with the cumulative years that a company has been in the top ranking, while support for men's nominations is not affected.

Although the presence of women on boards has been increasing in recent years, reality still shows notable differences between men and women in occupying a seat on boards. In fact, the results evidently show that the presence of women on boards increases with the number of male nominations, which means that the former happens as a result of increasing the size of the boards instead of just replacing male directors. Unlike the nominations of male directors, the experience, expertise, connections, and knowledge accumulated by female directors do not seem to be considered when they are proposed as board members. Conversely, the relevance of firms seems to be a determinant factor, suggesting that the greater presence of women on boards can be more related to the reaction to the pressure that relevant firms undergo to reinforce their corporate reputation and public image of egalitarian firms than to the consideration of the human capital and networks that women directors possess. In sum, the results show that gender diversity on boards is being carried out by adding specific board seats for women and that this fact is due more to the need to create a favourable public image based on equality, rather than on the expertise, knowledge, or skills of women.

8. Future research

Future research should consider other factors that could explain the presence of women on corporate boards to obtain more information on how to increase female representation. In addition, future research should explore these factors while considering different sectors, geographical areas, or simply companies not included in top rankings to compare and confirm the different results obtained. It would also be valuable to consider Small and Medium-Sized Enterprises (SMEs), start-ups, or virtual companies to analyse the potential differences between these forms of businesses.

Future research should also analyse the results of the proposals of female directors. The first step to becoming a member of a corporate board is to be proposed, but finally, the nomination must be approved to hold a seat on the board. Therefore, the relationship between the number of women's nominations and the resolutions of these proposals considering the choice of voting for, against, or abstaining regarding

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each of the proposals for directors should be analysed. The proxy votes of institutional investors can also be analysed to determine their influence on the gender composition on boards.

CRediT authorship contribution statement

María López
Review the previous research
Sample preparation and data collection
Design the model
Analysis and interpretation of the results
Write the draft manuscript
Create the final version of the paper
Marcos Vizcaíno-González
Review the previous research
Sample preparation and data collection
Design the model
Analysis and interpretation of the results
Write the draft manuscript
Create the final version of the paper
M. Luisa López-Pérez
Review the previous research
Sample preparation and data collection
Design the model
Analysis and interpretation of the results
Write the draft manuscript
Create the final version of the paper

Data availability

The authors do not have permission to share data.

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7.2 ARTÍCULO 2. BUSY BOARDS AND ENVIRONMENTAL, SOCIAL AND GOVERNANCE PERFORMANCE: A GENDER PERSPECTIVE ON NASDAQ-100 FIRMS

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Busy boards and environmental, social and governance performance: a gender perspective on NASDAQ-100 firms

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ORIGINAL PAPER

Busy boards and environmental, social and governance performance: a gender perspective on NASDAQ-100 firms

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Abstract
The composition of corporate boards determines board governance and influences firm performance. In the current corporate environment, greater emphasis is being placed on the environmental, social and governance performance of companies. In this sense, board members serving on multiple corporate boards have emerged as relevant corporate governance mechanisms. Using the OLS model on sample data composed of companies listed on the NASDAQ-100 Index, this research aims to evaluate the effect of busy boards and the tenure of board members on ESG performance from a gender perspective. The results indicate that board networks, experience, and knowledge have a positive effect on Bloomberg's and S&P Global ESG scores, with female directors and independent directors playing an important role. In this way, the human and social capital of corporate boards is a valuable resource for corporate governance. This research contributes to identifying the principal attributes of corporate boards that influence ESG performance.

Keywords ESG performance · Busy boards · Board tenure · Female directors · Independent directors · Corporate governance

JEL Classification M14 · M10

1 Introduction

Corporate boards are responsible for implementing principal decisions about corporate strategy and ensuring effective corporate governance. The survival of companies is highly dependent on the quality of their decisions. Corporate boards are the primary instrument for corporate governance. The impact of corporate board composition on firm performance and board governance has been widely researched, with a

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particular focus on the effect of board members accumulating multiple board seats across different companies (Ferris et al. 2003; Fich and Shivdasani 2006). Boards are considered busy when at least 50% of their board members serve three or more corporate boards simultaneously (Ferris et al. 2003). Multiple directorships bring experience and knowledge to corporate boards, as well as wider networks, which have an impact on board governance and firm performance. Whether those contributions of busy directors are beneficial or harmful to corporate governance has been widely investigated by previous research, resulting in two completely opposing arguments. According to the 'reputation hypothesis', this knowledge and connections are valuable resources for a board's advisory function and decision-making, which positively impacts board performance (Ferris et al. 2018; Kim 2022; Liu and Paul 2015). However, according to the 'busyness hypothesis', the more extensive capabilities of board members holding multiple board seats can be reduced by dividing their limited time and effort among a greater number of corporate boards, negatively affecting the board monitoring function and firm performance (Ferris et al. 2003; Fich and Shivdasani 2006; Jiraporn et al. 2008).

This debate has been extended to the influence of multiple directorships on environmental, social and governance (ESG) performance (Cooper and Uzun 2022; Romano et al. 2020). The United Nations' publication of the Principles of Responsible Investment (PRI) in 2006 marked the first steps towards considering ESG criteria in investment decisions. Since then, investors, regulators, proxy advisors and numerous organisations have demanded that firms include ESG issues in their strategic decisions. ESG performance can also be influenced by board busyness (Kim 2022). On the one hand, according to the 'busyness hypothesis', multiple directorships may significantly reduce their commitment to the board monitoring function and increase other no business responsibilities, negatively affecting sustainability performance (de Villiers et al. 2011; Harjoto and Wang 2020). On the other hand, serving on other corporate boards provides board members with more networks, experience, knowledge, and expertise, which improves the board advisory function and, under the premises of the 'reputation hypothesis', may have a positive effect on ESG strategies (Harjoto and Wang 2020; Mallin and Michelon 2011; Nandy et al. 2020). However, few studies have examined the impact of busy boards on ESG scores, considering three ESG factors at the same time, and even fewer have considered the gender of board members and their experience serving the same corporate board.

As a result, the aim of this paper is to investigate the influence of busy boards and board tenure on ESG performance in companies listed on the NASDAQ-100 Index, focusing on the role of female directors. Unlike previous studies, this paper analyses knowledge, experience and networks jointly from two perspectives: outside acquisition via board members serving on multiple corporate boards and inside acquisition via board members holding a board seat in the same company for years. Therefore, the multiple cognitive skills of board members are considered to enhance the ESG performance of companies (Behlau et al. 2023). Using data from 2018 to 2022 and applying an OLS model, this research assesses the effect of corporate board composition on Bloomberg and S&P Global ESG scores. Important governance variables, including experience-related factors such as board busyness (busy board and the number of directorships held by independent directors) and tenure (years on the

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board, in the current role and within the company of directors), along with board composition (female directors and insider directors), are analysed as drivers of ESG scores in the 100 most innovative and high-growth companies recognised for their pivotal role in driving global economic progress. This paper highlights the crucial role of corporate boards by providing a deeper understanding of how board members' networks, experience and knowledge can positively influence ESG performance, particularly in companies that are leading or driving innovation in the global economy. In this context, the study extends the previous literature on the importance of board composition in influencing corporate performance by demonstrating that having busy boards and long-tenure directors can be crucial for creating sustainable value in innovative companies. Additionally, this research emphasises the significant contribution of women on corporate boards in promoting sustainability in corporate governance. Overall, this research advances the understanding of the principal governance attributes that contribute to responsible corporate performance.

2 Literature review

Previous literature research has demonstrated the influence of accumulating board seats on firm performance and corporate governance. Following prior studies, a busy board is defined as a board on which at least half its members serve on the boards of three or more companies (Benson et al. 2015; Fich and Shivdasani 2006; Field et al. 2013). This is a widespread corporate governance practice, as most corporate boards worldwide have some board members with multiple directorships (Ferris et al. 2020). Previous studies have presented two opposing perspectives regarding the influence of board busyness on firm performance: the 'busyness hypothesis' and the 'reputation hypothesis', according to which the presence of board members with multiple directorships may harm or improve firm performance, respectively.

When board members serve on multiple corporate boards, they must logically distribute their limited time and effort among more corporate boards. Although it would seem that the most reputable and talented board members are those who accumulate more board seats (Adams et al. 2010), the lack of sufficient time to serve all corporate boards can negatively affect their superior qualities (Falato et al. 2014) and their attendance at board meetings (Jiraporn et al. 2009; Latif et al. 2024). On the basis of these arguments, the 'busyness hypothesis' is established. Boards that are too busy may not fulfil their role of control, becoming less cautious and reducing the effectiveness of the board monitoring function (Ferris et al. 2003; Liu et al. 2023). This weakness in corporate governance may increase the probability of managers manipulating firm earnings (Kim 2022), diminish the quality of firm financial reporting (Ferris and Liao 2019) and reduce firm value (Cashman et al. 2012; Ferris et al. 2020; Fich and Shivdasani 2006; Jiraporn et al. 2008). Similarly, boards that are too busy may also be unable to devote sufficient effort and attention to managing complexity and long-term investment in innovation (Bolton and Zhao 2022). However, other authors have demonstrated that multiple directorships do not necessarily imply less control and commitment on the part of board members (Kiel and Nicholson 2006; Latif et al. 2024) or an increase in the cases of security fraud (Ferris et al. 2003; Field et

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al. 2013). The theoretical basis of the 'busyness hypothesis' seems to be related to agency theory, with a principal focus on the board monitoring function and controlling and supervising management performance (Fama and Jensen 1983). Regulatory authorities seem to adopt this perspective (Ferris et al. 2018; Keys and Li 2005). Their reforms and regulations have attempted to limit the number of board seats that directors may hold in an effort to preserve firm value (Perry and Peyer 2005).

Although busy boards may reduce monitoring effectiveness, some firms prefer to take advantage of the advice and networking benefits that multiple directorships may provide to business strategies (Bazrafshan and Hesarzadeh 2022; Kim 2022). The 'reputation hypothesis' premises are based on improving the quality of the board advisory function provided by busy boards. On the one hand, multiple networks with other corporate boards and firms increase the skills, experience, expertise, and knowledge of board members in terms of corporate governance, management styles, and business strategies, thus improving the advising board function and decision-making (Carpenter and Westphal 2001; Ferris et al. 2018; Liu and Paul 2015). On the other hand, holding multiple board seats increases the visibility and reputation of directors, which can encourage their commitment to board functions (Brullebaut et al. 2022; James et al. 2018). As a result, having multiple directorships improves financial performance and market value (Ferris et al. 2003; Mbanyele 2020; Perry and Peyer 2005). This human capital accumulated by corporate boards may be especially relevant in mergers and acquisitions (Benson et al. 2015; Kim 2022) and initial public offerings (Field et al. 2013; Tham 2024), which are not typical transactions in that the prior expertise and experience of board members can provide greater advising benefits. Ferris et al. (2020) have gone further with those strategic events, demonstrating the value of busy boards in young firms that are unfamiliar with the business world and where the knowledge of board members may be truly valuable. Similarly, multiple connections among the members of busy boards may be crucial for improving the quality of advice in strategic decisions on innovation (Kim 2022) and asset management (James et al. 2018). However, Andres et al. (2013) noted that connections with other firms may also imply other indirect social and informal commitments outside the board that saturate board members' agendas and reduce their time dedicated to corporate boards. The 'reputation hypothesis' seems to be supported by resource dependence theory (Pfeffer and Salancik 1978), as human capital and social networks are valuable resources that contribute to corporate governance.

In conclusion, previous research results are inconclusive regarding the two perspectives outlined above. Some authors have argued that the mixed results are simply due to the study samples chosen for research (Cashman et al. 2012). However, other authors have suggested that the inconclusive results may imply that the impact of a busy board on firm performance is dependent on the principal board function required by firms: a positive effect will result in firms where managers primarily require advice yet it is ineffective in firms with a high need for supervision and control of management activities (Kim 2022).

Beyond the role of busy boards and the traditional objective of maximising shareholders' value, strong demands from multiple stakeholders, international organisations, and society at large have resulted in ESG issues dominating boardroom discussions (Cooper and Uzun 2022). ESG refers to the environmental, social and

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governance dimensions of corporate performance. The environmental dimension refers to a firm's practices and policies to protect the environment and manage its impact on it (for example, greenhouse gas emission footprints, waste management and pollution, climate change, environmentally friendly products, etc.); social issues are related to the firm's relationship with its stakeholders (for example, considering workplace health and safety, human rights, community impacts, and supply chain management); and the governance dimension refers to how a company is led and managed (for example, board diversity and structure, executive pay, transparency and disclosure practices, and shareholder rights). These ESG issues are not a closed list that remains constant over time (Escrig-Olmedo et al. 2019), and all of them are used by investors as decisive criteria in their investment decisions (Birindelli et al. 2018; Lopez-Cabarcos et al. 2019). This increasing popularity among investors has resulted in establishing multiple ESG rating providers (Escrig-Olmedo et al. 2019) despite the lack of consensus in the methodology used, the ESG attributes measured and the weight of each ESG factor (Berg et al. 2022; Billio et al. 2021; Chatterji et al. 2016).

2.1 Busy boards and ESG performance

Board busyness has become another important feature of board governance feature that impacts ESG performance. Wider social and professional networks for accumulating board seats contribute to obtaining more information about stakeholders' demands, which improves the quality and effectiveness of ESG strategic decisions (Harjoto and Wang 2020; Nandy et al. 2020). Contributing to the diffusion and communication of ESG reporting is another role of board networks (Mishra et al. 2024; Sun et al. 2020). Additionally, board members may use their close contact with stakeholders to promote their own sustainability values and skills, which would benefit the ESG performance of the companies they serve (Birindelli et al. 2018; Shu et al. 2024). Serving on multiple corporate boards of other prestigious firms allows board members to develop a strong reputation and high credibility among stakeholders, who will be rewarded by corporate boards that act in accordance with their social needs and encourage social performance (Mallin and Michelon 2011). Additionally, multiple directorships allow board members to obtain information about innovative environmental initiatives from other firms and amplify and update their knowledge and experience with environmental practices and strategies (de Villiers et al. 2011; Tijani and Ahmadi 2022). Due to the high complexity and strategic nature of the environmental framework, the advice of a busy board may be especially relevant for promoting environmental performance (Cooper and Uzun 2022; Glass et al. 2016; Homroy and Slechten 2019; Ortiz de Mandojana and Aragon-Correa 2015), reducing greenhouse gas emissions, and increasing investments in green technologies (Homroy and Slechten 2019). In sum, interlocked directors can improve the ESG performance of those firms with higher requirements for advice from their board members (Amin et al. 2020).

The positive impact of interlocked directors on ESG performance could vanish, however, if they to accumulate an increasing number of board seats such that they are unable to provide adequate attention to their monitoring and advising functions (de Villiers et al. 2011; Harjoto and Wang 2020). The negative effect is exacerbated when

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networks of busy boards are established with other no business organisations, assuming that board members are too busy with other responsibilities away from business to devote enough attention to their board functions (Evans et al. 2022). Directorship accumulation may be especially detrimental to sustainability performance since the complexity of environmental issues requires more time and a high level of commitment that a board that is too busy may not be able to provide (Bravo-Urquiza and Reguera-Alvarado 2024; Haque 2017). Other authors have noted that not only the number of directorships but also the sector in which the company operates may have a negative effect on environmental performance. In this sense, the contributions of board busyness to sustainability performance are not possible when board members are interlocked with financial institutions or fossil fuel companies, industries that are more reluctant to assume the high financial risks of environmental investments or invest in renewable energy, respectively (Ortiz-de-Mandojana et al. 2012). Similarly, busy directors may prioritise their attention, efforts and time towards improving ESG performance, principally in the most prestigious firms in which they serve, at the expense of those firms that could provide them fewer reputational benefits (Wang et al. 2023).

The gender of busy boardmembers may also influence ESG performance. Specifically, the presence of women on boards tends to improve ESG scores (Cooper and Uzun 2022; Romano et al. 2020) and has emerged as a significant moderator when ESG-related variables are considered (Hussain et al. 2024; Pucheta-Martinez et al. 2021). The influence of each individual ESG factor has been demonstrated. Board gender diversity improves social performance (Byron and Post 2016; Hafsi and Turgut 2013; Harjoto et al. 2015), enhances corporate philanthropy (Williams 2003) and reduces firms' negative societal impacts (Boukattaya and Omri 2021; Diez-Martin et al. 2024). Female directors tend to create a climate of confidence and trust that improves the corporate image among stakeholders (Kyaw et al. 2017), particularly customers and the community (Ardito et al. 2020), which has a positive effect on social scores. Similarly, their presence promotes the establishment of ethics codes (Garcia-Sanchez et al. 2015), the pursuit of constructive employee interactions, and the protection of human rights (Mallin and Michelon 2011), all of which positively impact governance scores (Beji et al. 2020; De Masi et al. 2021). In summary, more women on corporate boards tend to improve social and ethical firm compliance (Di Miceli da Silveira, Alexandre 2022; Isidro and Sobral 2015), which raises scores for responsible firm performance (Provasi and Harasheh 2020), favours the inclusion of companies in the most prestigious ethical and social rankings and facilitates their recognition as the best government companies to work for (Landry et al. 2016; Neuberger et al. 2023). However, other research has demonstrated that their presence is not significant in companies certified for their social and environmental performance (Ardito et al. 2020).

In addition to their contribution to social performance and governance, female directors also promote environmental initiatives (Li et al. 2017; Nadeem et al. 2017) and increase corporate investment in sustainable issues (Atif et al. 2020; Garcia-Meca et al. 2024), positively impacting environmental performance (Garcia Martin and Herrero 2020; Kassinis et al. 2016). Gender-balanced boards help combat climate change in diverse sectors, such as technology (Al-Najjar and Salama 2022) or

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banking (Galletta et al. 2022), but they are particularly beneficial in those with high environmental impact (Khatri 2022; Lu and Herremans 2019). Female representation on boards tends to encourage environmental practices centred on developing environmental innovation in the production process (He and Jiang 2019; Lin and Xie 2023; Nadeem et al. 2020), aimed at reducing the use of fossil fuels (Haque 2017) and greenhouse gas emissions (Konadu et al. 2022; Nuber and Velte 2021). Similarly, other authors have demonstrated that neither their presence on boards nor their multiple networks from serving on other corporate boards have a significant effect on environmental strategies (Glass et al. 2016).

Apart from their influence on each ESG component, female directors may have beneficial effects on social performance but have no impact on environmental issues. Gender stereotypes that tend to associate women principally with social issues and high social commitment (Hussain et al. 2018) and men with technical abilities (Ardito et al. 2020) may determine whether female directors have more (or fewer) opportunities to participate in social (environmental) board decisions. Due to the association of this social role with women and their underrepresentation on corporate boards, female directors may attempt to overcome their lack of visibility by emphasising social management to distinguish themselves from male management (Boulouta 2013). However, in addition to gender-balanced boards, there may also be other governance mechanisms that affect environmental performance (Orazalin and Baydauletov 2020).

The presence of women on boards contributes not only to the consideration of ESG issues as strategic firm decisions but also to the promotion of reporting on ESG practices among stakeholders (Guerrero-Villegas et al. 2018; Lagasio and Cucari 2019; Nicolo et al. 2022; Qureshi et al. 2020), enhancing firm transparency and, thus, ensuring stakeholder confidence in corporate boards. In addition to increasing the quantity of ESG information, female directors improve the quality of ESG disclosure content (Al-Shaer and Zaman 2016; Arayssi et al. 2016). However, their influence may be limited to boards with three or more women (De Masi et al. 2021; Garcia-Meca et al. 2024) or even be non-existent, resulting in ESG disclosure being gender neutral (Cucari et al. 2018).

In addition to gender diversity, board independence can also impact ESG performance. In contrast to inside (or executive) directors, who are actual employees of the firm, outside directors (also known as independent or non-executive directors) have no employment affiliations with the company. This way, insiders will better understand the company's day-to-day operations, and independent directors will provide corporate boards with extensive knowledge and experience from outside the firm without any relationship with management. Specifically, those characteristics impact board functions differently (Cambrea et al. 2023). While the firm-specific knowledge of insiders contributes positively to a board's advisory function (Benson et al. 2022), according to agency theory, the independence of outsiders (Fama and Jensen 1983) contributes fundamentally to monitoring management on behalf of shareholders' interests (Duchin et al. 2010; Lee 2023).

A majority of independent directors is one of the board requirements for a firm to be listed on the leading stock exchanges, particularly the NYSE and Nasdaq (The National Association of Securities Dealers Automated Quotation System).

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Their stronger external connections lead them to pay more attention to stakeholder demands, which have a positive effect on social (Mallin and Michelon 2011; Webb 2004) and environmental performance (Cooper and Uzun 2022; Post et al. 2011). Similarly, their independence allows them to be more objective and away from shareholder and manager pressure in favour of all stakeholders' interests, improving ESG performance (Godos-Díez et al. 2018; Hussain et al. 2018). Additionally, due to complex environmental initiatives requiring high control and the high social impact of environmentally friendly companies, the presence of outsiders has positive effects on environmental practices (de Villiers et al. 2011; Qiu and Yu 2023), carbon emissions reduction (Haque 2017) and environmental disclosure (Liao et al. 2015). Nevertheless, inside directors with deep knowledge and experience within the firm may be the only ones with a beneficial impact on ESG performance (Cambrea et al. 2023). As a result, replacing insiders with outsiders could negatively affect ESG performance (Birindelli et al. 2018).

The effects of busy directors on firms and board governance may differ depending on whether they are independent or insiders. In this sense, the positive effect of busy directors is especially strong, with an independent board demonstrating the best effectiveness in the board monitoring function (Ferris and Liao 2019; Fich and Shivdasani 2006; James et al. 2018). Similarly, the "business hypothesis", linked to the harm caused by busy directors to the firm, could be mitigated by executive directors (Ferris et al. 2003). However, this major commitment may be due to the incentive for busy directors to dedicate more time and effort to companies with high prestige and visibility (Masulis and Mobbs 2014). Due to their independence and lack of pressure from not being a member of the management team, outsiders may also choose to serve on more boards, which may result in lower attendance at board meetings with a negative impact on corporate governance (Jiraporn et al. 2009) and firm value (Amin et al. 2023; Ferris et al. 2020). Nevertheless, Liu and Paul (2015) demonstrated the opposite, indicating that insiders with multiple board seats may be more harmful, diminishing the beneficial networks and connections that outsiders bring to boards.

According to previous mixed results related to board busyness, gender diversity and board independence, the following hypothesis is proposed:

Hypothesis H1a Busy boards have a negative effect on ESG, E, S or G scores.

2.2 Tenure and ESG performance

Tenure, as a measure of service for board members in a given company, may have a significant effect on firm performance and corporate governance (Sun and Bhuiyan 2020). Under the 'expertise hypothesis' (Vafeas 2003), the more time a director serves on a board, the more knowledge the firm has (Field et al. 2013). A greater understanding of a firm's business history becomes a valuable resource, improving board effectiveness and, thus, firm performance (Kor and Sundaramurthy 2009), especially for firms with complex operations where board monitoring and advisory functions are more relevant (Bonini et al. 2022). Additionally, long-tenured directors tend to maintain their attendance at board meetings where they can exercise those duties (Dou et al. 2015), favouring a reduction in earnings manipulation (Bonini et

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al. 2022) and increasing shareholders' confidence in corporate boards (Livnat et al. 2021). Similarly, the increased stability of long-tenured directors tends to strengthen board members' commitment, leading them to take a longer-term view and positively influencing the adoption of long-term impact initiatives (Patro et al. 2018) and corporate innovation (Bolton and Zhao 2022; Sierra-Moran et al. 2024).

The favourable effects of long tenures may be diminished when director tenure exceeds approximately ten years, at which time the value to the firm may begin to decline (Huang and Hilary 2018). After the initial years of accumulating corporate information, directors may become less active and prefer stability, which limits their predisposition for strategic changes (Golden and Zajac 2001) and innovation strategies (Jia 2017). Additionally, those directors with long tenures may not share all the information and knowledge with the most recent board members, which is detrimental to board governance (Kaczmarek et al. 2012). When this circumstance is combined with a busy board that already has scarce time and commitment, the negative consequences for financial performance become more pronounced (Kaczmarek et al. 2012). On the other hand, the longer a director serves on a board, the lesser the degree of director independence due to increased familiarity with the firm and its managers (Patro et al. 2018). In this sense, according to the 'management friendliness hypothesis' (Vafeas 2003), longer board tenure may lead to the development of friendships with managers, which could reduce monitoring effectiveness (Hillman et al. 2011) and lead to financial irregularities (Sharma and Iselin 2012).

Inconclusive results associated with board tenure have also been demonstrated in ESG performance. According to some research, director tenure tends to encourage ESG practices because of their greater understanding of and commitment to the firm (Fayyaz et al. 2023; Harjoto et al. 2015; Nguyen and Nguyen 2023). Adopting ESG initiatives has short-term costs but significant long-term benefits. Board members with long tenures and, hence, a long-term perspective may be more likely to implement them, positively influencing social (Melo 2012) and environmental performance (Cahyono et al. 2023; Paolone et al. 2023). In contrast, closer contact between managers and long-tenured board members may have a negative effect on ESG issues since managers may be more concerned with obtaining short-term financial value for only shareholders rather than considering long-term firm value for all stakeholders (Al-Jaifi et al. 2023; Hafsi and Turgut 2013). Similarly, the benefits of tenure for ESG performance tend to fade away with directors who are too busy and have to distribute their effort and attention among multiple boards (Patro et al. 2018). Additionally, the number of years a board member stays in the same firm may not be sufficient to implement ESG issues, particularly for environmental practices (de Villiers et al. 2011; Homroy and Slechten 2019).

On the basis of the previous mixed results concerning tenure and ESG performance, the following hypotheses are proposed:

Hypothesis H2a The number of years at the organisation, on a board, or in the current role have a positive effect on ESG, E, S, or G.

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Hypothesis H3a The number of years ears at the organisation, on a board, or in the current role, when the percentage of women on board is analysed, have a positive effect on ESG, E, S or G.

3 Methodology

3.1 Data and sample

A sample composed of companies listed on the NASDAQ-100 Index was used for this research. The NASDAQ-100 Index includes 100 of the largest and most innovative domestic and international nonfinancial companies listed on the Nasdaq Stock Market, based on market capitalization. This index is composed of companies from different industries, but all share the characteristic of being cutting-edge companies that are leading innovation and revolutionary changes worldwide. In November 2022, there were 102 tickers in total, but one was removed since the company Alphabet, Inc., has two shares in the index (GOOGL for A class shares and GOOG for C class shares) with the same corporate board for both. The NASDAQ-100 Index was selected because corporate boards with multiple directorships are more common in the largest firms (Ferris et al. 2003).

The information on the board composition of firms listed on the NASDAQ-100 Index was obtained from the BoardEx database. BoardEx is a database that contains detailed profiles of board members from companies worldwide and has been frequently used in prior research (Amin et al. 2020; Ferris et al. 2018, 2020; Homroy and Slechten 2019; Kim 2022; Nandy et al. 2020). BoardEx reports the directors who served on the corporate boards of NASDAQ-100 firms in November 2022. Its database contains their biographical data and complete board information about their current positions and the directors' roles on the board. BoardEx also lists the number of years that board members have spent at the NASDAQ-100 firm, on the board and in their current board role. Additionally, the BoardEx database contains a complete historical professional profile of each board member, including the start and end dates of each organisation(s) in which directors of NASDAQ-100 firms have held positions. The corporate boards of NASDAQ-100 firms were considered busy when at least 50% of their board members served on the boards of three or more public companies, including NASDAQ-100 firms, between 2018 and 2022.

To examine the hypotheses, we apply panel data analysis to the 2018–2022 period using a sample of the top 100 NASDAQ firms. In this manner, we manage to secure better coverage of ESG data, and the attrition rate may not be more than 10% across various strongly balanced panel specifications. Eight out of 100 firms were completely rejected from all tests because of the significant lack of data. An additional ten firms were occasionally included or excluded from the sample analyses depending on the availability of ESG data. All other datasets were readily available for this subsample of firms.

Finally, two scores were used to measure ESG performance. The first was the ESG S&P Global Scores, with values ranging from 0 (worst performance) to 100 (best performance). The ESG S&P Global Score measures the potential impact on

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the financial performance of sustainability factors, weighted by the relevance of each factor within the industry, across the Environmental (E), Social (S) and Governance (G) dimensions. The second metric was obtained from the Bloomberg database, with a range from 0 (worst) to 10 (best) (Table 1).

3.2 Model

To evaluate the level of busy directors, we follow Liu and Paul (2015) and Fich and Shivdasani (2006) to claim that a director with three or more directorships is labelled a busy director.[1] Following the analogy of calculating the total number of directorships and dividing by a specific group of directors (Fich and Shivdasani 2006), we create the *independentdirector* variable, which represents the number of total directorships held by independent directors divided by the number of independent directors. Additionally, the *busyboard* was assigned a value of 1 if most of the directors had three or more directorships or 0 otherwise. To evaluate the length of relevant services in the company, we include the *yearscurrentrole*, which is a ratio comprising the difference between the observed year (from 2018 to 2022) and the year the current role was assumed, divided by the difference between the observed year and the person with the longest directorship in the sample starting in 1991. The values reported are the averages for each board per year. Similarly, the years on board (*yearsonboard*) and years at organisation (*yearsorganisation)* were calculated.

We control for the general features of the board of directors and follow Jiraporn et al. (2008). *Duality* assumes a value of 1 if the CEO and chairperson are the same person or 0 otherwise. *The insidersonboard* is the ratio of insiders to the total number

[1] We have also applied the alternative formulation implying that a director with two or more directorships is a busy one, but we did not get significantly different results.

Table 1 Descriptive statistics

	Obs	Mean	St. Dev.	Min	Max
Bloomberg_esg	435	4.4241	1.2575	1.23	7.35
Bloomberg_e	425	3.7346	2.2767	0	8.26
Bloomberg_s	425	2.5708	1.6665	0	7.4
Bloomberg_g	425	6.8026	1.1464	2.02	8.59
S&P_esg	435	55.6414	28.3959	0	100
S&P_e	435	54.6437	27.8294	0	100
S&P_s	435	51.269	30.5151	0	100
S&P_g	435	59.6253	25.4538	0	100
busyboard	435	0.2791	0.4491	0	1
indepdirector	435	2.8659	3.0073	1	30
insidersonboard	435	0.1845	0.1105	0	0.58
womenperboard	435	0.3094	0.0862	0	0.55
duality	435	0.3494	0.4773	0	1
yearcurrentrole	435	0.2183	0.0984	0.04	0.60
yearsonboard	435	0.1558	0.0716	0.02	0.46
yearsinorganisation	435	0.1724	0.0780	0.04	0.44

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of board members per year. *Boardsize* is the ln value of the number of board directors, whereas *womenonboard* is the ratio of female directors to the board size calculated each year.

In Table 2, we have included the correlation matrix for all the variables. Unsurprisingly, the correlation, reported at the 5% level, is significant among all ESG variables, and a significant number of explanatory variables demonstrate a strong correlation with the dependent variables. Unsurprisingly, a correlation between independent variables does occasionally appear.

To examine the following hypotheses elaborated earlier, we apply the following models:

$$ESorG_{i,t} = \alpha + \beta \sum_{j=1,}^{2} busyvariables + \gamma \sum_{k=1}^{3} boardvariables + \delta \sum_{l=1}^{3} agevariables + \theta \sum_{m=1}^{3} womenperboard * agevariables + \vartheta \left(womenperboard * indepdirectors\right) + \varepsilon_{i,t}$$

where $ESorG_{i,t}$ takes the values of Bloomberg_esg, Bloomberg_e, Bloomberg_s, Bloomberg_g, S&P_esg, S&P_e, S&P_s, or S&P_g. Busy variables are represented by *busyboard* and *indepdirectors*; boardvariables are *duality*, *womenperboard* and *insidersonboard*, while age variables are comprised of *yearscurrentrole*, *yearsonboard* and *yearsorganisation*. The last term represents our intent to examine whether the representation of women on boards impacts age variables.

4 Results and discussion

Since we use panel data, some variables have limited variability over the period, leading to their omission during the analysis. We selected OLS as the starting point in our analysis, but the Breush–Pagan Lagrangian test for random effects indicated that OLS may be more appropriate for our analysis. Therefore, in Table 3, we report the OLS results. The ratio of directorships held by independent directors has a positive effect on all Bloomberg and S&P global indicators, except for Bloomberg Social, which does not support the negative links found by Birrindelli et al. (2018). These findings are also corroborated by Fama and Jensen (1983), who claimed that outside directors have a strong incentive to perform and do not neglect monitoring duties. As claimed by Wang et al. (2023), the dummy variable of busy boards has a positive effect on Bloomberg ESG and Bloomberg Environmental and a negative effect on Bloomberg Governance, which is the sole indicator for which busy and unfocused directors are associated with poor company management. In most cases, we do not find clear support for our Hypothesis $H_{1a,}$ and busy directors contribute to better overall ESG rankings, which could be explained by their ability to effectively apply their vast experience and knowledge acquired across multiple firms. These findings are consistent with previous studies on the 'reputation hypothesis', which is based on the positive effects of networks, experience and expertise by board members with multiple directorships (Carpenter and Westphal 2001; Ferris et al. 2018; Liu and Paul

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Table 2 Correlation Matrix

	a.	b.	c.	d.	e.	f.	g.	i.	j.	k.	l.	m	*n.*	o.	*p.*
a. bloomberg_esg	1														
b. bloomberg_e	0.8335*	1													
c. bloomberg_s	0.7318*	0.3696*	1												
d. bloomberg_g	0.4463*	0.1341*	0.1450*	1											
e. s&p_esg	0.4373*	0.5263*	0.3015*	0.1946*	1										
f. s&p_e	0.4916*	0.6092*	0.3211*	0.1754*	0.9122*	1									
g. s&p_s	0.3940*	0.4955*	0.2727*	0.1358*	0.9585*	0.8519*	1								
i. s&p_g	0.3654*	0.4049*	0.2523*	0.2269*	0.9252*	0.7801*	0.8643*	1							
j. busyboard2	0.1127*	0.2536*	0.1656*	-0.2765*	0.0958*	0.1496*	0.0798	0.0607	1						
k. independentdirector	-0.0203	0.0348	0.1086*	-0.2287*	0.0482	0.0392	0.0949*	-0.0501	0.6220*	1					
l. insiderpersons	-0.0815	0.0588	-0.1288*	-0.2795*	-0.1938*	-0.1333*	-0.1569*	-0.2402*	-0.0768	0.2084*	1				
m. womenperboard	0.2086*	0.0808	0.1593*	0.4087*	0.1381*	0.1595*	0.0776	0.1224*	-0.0549	-0.0642	-0.0597	1			
n. duality	-0.0255	0.0055	0.0637	-0.0805	0.0179	0.0222	-0.0054	0.0271	0.0822	-0.0677	-0.2172*	-0.1228*	1		
o. yearscurrentrole	-0.1386*	-0.0081	-0.0281	-0.3619*	-0.0419	-0.0156	-0.0147	-0.0738	0.0579	0.0239	0.0027	-0.2359*	0.0184	1	
p. yearsboard	-0.1860*	-0.087	-0.1505*	-0.3012*	-0.1174*	-0.0957*	-0.1111*	-0.1166*	-0.0901	-0.0535	0.0459	-0.2398*	0.0307	0.7988*	1
q. yearsinorganisation	-0.1308*	-0.0927	-0.1781*	-0.2184*	-0.1727*	-0.1488*	-0.1568*	-0.1596*	-0.1128*	-0.0923	0.093	-0.2113*	-0.0066	0.7269*	0.9337*

2015). According to prior studies, board busyness contributes positively to ESG performance (de Villiers et al. 2011; Harjoto and Wang 2020; Nandy et al. 2020). The results suggest that board members who accumulate more board seats can adequately distribute their time and efforts and help with board advising functions (Latif et al. 2024). This positive effect is reinforced by outside directors (Ferris and Liao 2019; Fich and Shivdasani 2006; James et al. 2018) with multiple external connections and independence from management on behalf of the demands of stakeholders (Cooper and Uzun 2022; Hussain et al. 2018; Mallin and Michelon 2011).

As expected, insiders on boards are associated with negative rankings, but the presence of women is marked by strongly positive coefficient estimates, indicating that more women could lead to higher rankings across all the measurements applied in our study. These findings are in line with previous research that demonstrated that the positive contribution of female directors to ESG performance (Cooper and Uzun 2022; Garcia Martin and Herrero 2020; Kassinis et al. 2016; Nicolo et al. 2022; Provasi and Harasheh 2020; Romano et al. 2020) is an important moderating variable (Pucheta-Martinez et al. 2021). However, this differs from those of Cambrea et al. (2023) and Birindelli et al. (2018), who demonstrated the positive effect of insiders owing to their greater understanding of the firm. In summary, the results suggest that multiple external connections (rather than internal knowledge) and the strong commitment of female directors to stakeholders contribute positively to ESG performance.

The length of relevant experience acquired by being on boards positively impacts rankings, thereby confirming our Hypothesis H_{2a}. In contrast, the same has not been the case for years in the organisation, because statistically significant negative coefficients prevail, but only for S&P rankings. However, for years in the current role, which is by definition the shortest of all three categories, the impact is negative for almost all Bloomberg measurements. It is possible to conclude that overall board experience is more relevant than employment history or comparatively recent role changes. These results are consistent with the 'expertise hypothesis' (Vafeas 2003) and other previous research that demonstrated that the more years directors remain on a board, the greater their knowledge and expertise (Bonini et al. 2022; Field et al. 2013) and commitment to long-term strategies (Patro et al. 2018), which positively impact ESG issues (Harjoto et al. 2015; Melo 2012; Paolone et al. 2023).

Finally, we find some interesting results when testing Hypothesis H_{3a} by examining the *womenperboard* interaction term and respective standalone coefficient estimates. For the ratio of independent directorships, including the ratio of female directors as an interaction term in the analysis renders the combined coefficient estimate smaller. For the age variables, the ratio of female directors on boards mainly reduces the *yearsonboard* coefficient estimate, and for larger ratios, it is negative, but it provides strong support for the claim that years in the organisation and years in the current role are relevant and positive for ranking when female directors are included in the analysis. We claim that women on boards positively impact rankings, which supports Hypothesis H_{3a} and is consistent with previous research that demonstrated that women on boards has a positive effect on ESG performance (Beji et al. 2020; De Masi et al. 2021; Garcia Martin and Herrero 2020; Hafsi and Turgut 2013; Kassinis et al. 2016).

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Table 3 Panel data analysis

Independent variables	Dependent Variables							
	Bloomberg ESG	Bloomberg E	Bloomberg S	Bloomberg G	S&*P* ESG	S&*P* E	S&*P* S	S&*P* G
indepdirector	0.7698*	2.6976***	-1.5365***	0.8587***	32.8050***	38.7135***	26.5131***	26.5613***
	(0.060)	(0.000)	(0.005)	(0.006)	(0.001)	(0.000)	(0.010)	(0.002)
busyboard	0.4715***	1.5963***	0.3508	−0.7524***	−0.1536	4.7374	-1.6867	−0.0053
	(0.005)	(0.000)	(0.117)	(0.000)	(0.968)	(0.208)	(0.688)	(0.999)
duality	0.1295	0.2803	0.2617	−0.1207	-1.2039	−0.6244	-2.7166	-1.1424
	(0.300)	(0.226)	(0.116)	(0.202)	(0.677)	(0.824)	(0.386)	(0.663)
insidersonboard	−0.2653	3.0795***	-1.434*	-3.0982***	-46.2008***	-24.8243**	-44.2056***	-49.9499***
	(0.636)	(0.003)	(0.056)	(0.000)	(0.000)	(0.049)	(0.002)	(0.000)
womenperboard	19.3887***	43.7741***	-2.5398	10.7386***	370.8871***	473.8955***	346.3627***	255.7304***
	(0.000)	(0.000)	(0.671)	(0.001)	(0.000)	(0.000)	(0.002)	(0.006)
Indepdirector*womenperboard	-3.0204**	-9.7993***	5.27***	-2.3625**	-90.8642***	-112.9564***	-70.1712**	-78.5338***
	(0.021)	(0.000)	(0.003)	(0.017)	(0.003)	(0.000)	(0.032)	(0.004)
yearsonboard	36.0184***	39.6861	41.1586**	-5.4112	930.3499***	809.2837***	1159.353***	456.1904
	(0.009)	(0.166)	(0.046)	(0.604)	(0.004)	(0.009)	(0.001)	(0.115)
yearsonboard*womenperboard	-157.2782***	-150.471	-131.7857*	-13.5420	-2937.599***	1602.601**	-3859.136***	-1379.89
	(0.001)	(0.112)	(0.053)	(0.696)	(0.006)	(0.031)	(0.001)	(0.152)
yearsorganisation	11.6245	23.9419	-18.4183	18.6529**	-612.772***	-574.963**	-804.6263***	-301.5404
	(0.256)	(0.214)	(0.184)	(0.016)	(0.010)	(0.013)	(0.002)	(0.161)
yearsorganisation*womenperboard	-17.4053	-83.1073	37.2948	-35.5715	1711.339**	1602.601**	2412.923***	757.2372
	(0.598)	(0.178)	(0.399)	(0.155)	(0.025)	(0.031)	(0.004)	(0.275)
yearscurrentrole	-22.1375***	-22.9706**	-5.2813	-11.3269***	-56.0243	55.1507	-8.6702	-63.8103
	(0.000)	(0.032)	(0.491)	(0.002)	(0.617)	(0.613)	(0.943)	(0.531)
yearcurrentrole*womenperboard	78.8728***	89.2406**	28.5697	30.7092**	287.6709	-72.5627	197.7834	241.6194
	(0.000)	(0.013)	(0.270)	(0.015)	(0.455)	(0.846)	(0.637)	(0.490)
No. observations	430	420	420	430	430	430	430	430
F-Stat	8.06***	5.99***	7.2***	24.88***	6.11***	6.85***	5.14***	4.67***
Adj. R2	0.1537	0.1251	0.1508	0.4005	0.1251	0.1406	0.1038	0.0931

5 Theoretical contributions and practical implications

The results obtained may have relevant theoretical contributions to the composition of corporate boards and their influence on ESG performance. This research contributes to the theoretical approaches related to the 'reputation hypothesis', which refers to the beneficial contributions of busy boards to corporate governance, and the 'expertise hypothesis', which is based on the positive effects of the accumulation of knowledge and experience derived from serving on the same board for a long period of time. Drawing on both perspectives, the innovative approach of this research contributes to a better understanding of the governance factors that can influence firm performance, particularly sustainable business practices. Researchers should consider the results obtained in this research to analyse how the knowledge, experience and expertise of board members (both external and internal) can become valuable resources when making strategic decisions on corporate innovation and how they can influence performance results.

From a practical perspective, this research suggests that directors serving on multiple corporate boards do not necessarily harm governance and firm performance. In fact, the findings show that directors with diverse experiences and networks can provide valuable insights that enhance ESG performance. Regulators and proxy advisors should carefully consider these findings, challenging the assumption that the number of busy directors on corporate boards should be limited. Instead, this research supports encouraging diverse types of expertise on boards rather than imposing restrictions that may inadvertently exclude valuable knowledge. Furthermore, companies and investors should recognise the potential of busy directors to drive long-term corporate value by promoting responsible and sustainable business practices. The involvement of experienced directors should be viewed as a key factor in addressing complex ESG challenges, improving corporate performance and contributing to a more sustainable society.

Companies and governments should also consider the effect of gender diversity on boards on ESG performance. While companies should consider how the presence of women on boards can lead to effective decisions to include sustainable practices in their core strategies, governments should use these results to design policies aimed at promoting board gender diversity and sustainable development. In general, the results of corporate governance studies involving gender differences are rarely considered robust and are not subject to further evaluation. While the inclusion of more female directors may contribute to creating a new board culture, the effectiveness may be affected by the lack of specialised knowledge or experience caused by the legally required quotas or societal expectations that must be met hastily and without sufficient time for appropriate selection processes. In this study, gender does seem to be a decisive factor that urges companies and governments to pay attention when designing corporate boards.

In summary, the findings of this research provide a better understanding of the best practices in corporate governance by establishing guidelines for board composition focused on linking innovation objectives and sustainability challenges.

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6 Conclusions and future research

The purpose of this research is to investigate the influence of busy boards and the tenure of board members on ESG performance in the most innovative companies listed on the NASDAQ-100 index, with a particular focus on female directors. The results indicate that board experience is associated with higher rankings, but this is reversed by including the female director's ratio. Years in the organisation and the current role become more relevant when female directors are included in the analysis. Curiously, the expected negative sign for busy independent directors was not confirmed, but the coefficient estimates became less positive and ultimately negative with the inclusion of female directors in the analysis. A busy board dummy variable is linked to positive effects on Bloomberg ESG and Bloomberg E but to a rather negative influence on Bloomberg G. It is rather difficult to confirm that this is a self-fulfilling prophecy where busier boards are downgraded owing to assumed poor governance, because the result for S&P G was statistically insignificant. The 100 largest and most innovative companies listed on the NASDAQ-100 Index seem to consider multiple directorships as valuable sources of experience, expertise and connections for board members without preventing them from adequately distributing their limited time and energy to board functions. Their presence seems to favour the advisory role of the corporate board while not undermining the board monitoring function. Similarly, the service of board members in a given company reinforces their beneficial contribution. In summary, the results seem to point to the importance of knowledge and networks for ESG performance for companies at the forefront of innovation. However, this positive effect does not seem gender neutral. The still scarce presence of women on corporate boards as well as widespread gender stereotypes that prevent them from reaching their potential on corporate boards limit their contributions to ESG performance.

This paper provides valuable insights for companies aiming to strengthen their governance structures to improve their ESG performance. This highlights the importance of including diverse perspectives and experienced directors to obtain high ESG scores. Beyond simply improving ranking positions, this research underscores the need for corporate governance structures to adapt to contemporary challenges, providing a framework for integrating diverse perspectives into strategic decision-making processes. By demonstrating the positive influence of busy boards and gender diversity on ESG outcomes, this research sheds light on the strategic role of board composition. The results reinforce the value of directors with diverse experiences while emphasising the transformative potential of female representation on boards. This is particularly significant, as including women may change traditional board dynamics. Additionally, by focusing on the most innovative companies, which are often considered international benchmarks, this research may have broader implications in helping other companies align their governance practices with ESG strategies and, ultimately, promote more sustainable and responsible corporate governance.

The panel study faces limitations in the lack of variation for some variables that barely changed over the period. This contributed to the a priori exclusion of fixed effects analysis, which omitted certain crucial indicators. Another limitation is the period that covers the prepandemic and pandemic periods, which could have affected our results. Future research could be supported by longer periods to provide a deeper

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understanding of whether the benefits of multiple directorships on ESG performance are sustained over time. Comparisons across countries and capital markets could also provide relevant insights. Exploring the effects of tenure and the number of corporate boards held by directors in middle and small-cap companies to analyse their influence on ESG performance would also be valuable. Potential effects on different outcomes related to innovation (R&D investments, patents, new products and services, etc.) could also be considered. Investigating how board members' experience and knowledge of technology and digital transformation could influence ESG performance and contribute to innovative and sustainable challenges would be valuable. Future studies should also explore how the effectiveness of board composition on ESG performance could contribute to achieving of sustainable goals.

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7.3 Artículo 3. R&D-driven companies' profitability: Risk management from a corporate governance perspective

Referencia completa: Piñeiro-Chousa, J., López-Pérez, M. L., López-Cabarcos, M. Á., Šević, A. R&D-driven companies' profitability: Risk management from a corporate governance perspective. *Journal of Risk Finance*. https://doi.org/10.1108/JRF-12-2024-0407

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Nombre y filiaciones de los autores: Juan Piñeiro-Chousa es profesor en la Universidade de Santiago de Compostela, España; M. Luisa López-Pérez es doctoranda y profesora en la Universidade de Santiago de Compostela, España; M. Ángeles López-Cabarcos es profesora en la Universidade de Santiago de Compostela, España y Aleksandar Šević es profesor en Trinity Business School, Irlanda y en Information Technology School, Serbia.

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R&D-driven companies' profitability: risk management from a corporate governance perspective

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Abstract

Purpose

Investments in research and development (R&D) are crucial to gain competitive advantages and create sustainable value for companies. However, R&D initiatives are complex, risky and subject to uncertain outcomes. The objective of this study is to investigate how variables related to corporate governance can help reduce such risks by aligning innovation strategies and financial performance.

Design/methodology/approach

To examine the relationship between variables related to board members' personal attributes and board characteristics and R&D-driven profitability, this research employs a generalized least squares regression model with data from 2012 to 2022, considering listed and unlisted companies included in the "EU Industrial R&D Investment Scoreboard."

Findings

The results reveal that the presence of female directors, especially when there are at least three women on the board and they hold executive roles, together with older board members, positively influences the ability of companies to translate their commitment to innovation into operating profits. In contrast, larger boards and longer tenures of directors can hinder the success of corporate innovation strategies, contributing to increased related risks. Furthermore, the effectiveness of gender quotas in promoting corporate innovation is also questioned.

Originality/value

This study provides a better understanding of how innovation can boost profitability while enhancing competitive advantage. Unlike previous research that focused on external factors, this research emphasizes board composition and directors' personal attributes as key drivers of strategic decisions and resource allocation. This research sheds light on the factors that allow R&D investments to become a sustainable profit driver, essential for companies' long-term growth.

Keywords

R&D investment | Risk management | Corporate governance | Board composition | Operating profits

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R&D-driven companies' profitability: Risk management from a corporate governance perspective

Purpose: Investments in R&D are crucial to gain competitive advantages and create sustainable value for companies. However, R&D initiatives are complex, risky and subject to uncertain outcomes. The objective of this study is to investigate how variables related to corporate governance can help reduce such risks by aligning innovation strategies and financial performance.

Design/methodology/approach: To examine the relationship between variables related to board members' personal attributes and board characteristics and R&D-driven profitability, this research employs a GLS regression model with data from 2012 to 2022, considering listed and unlisted companies included in the 'EU Industrial R&D Investment Scoreboard'.

Findings: The results reveal that the presence of female directors, especially when there are at least three women on the board and they hold executive roles, together with older board members, positively influences the ability of companies to translate their commitment to innovation into operating profits. In contrast, larger boards and longer tenure of directors can hinder the success of corporate innovation strategies, contributing to increase related risks. Furthermore, the effectiveness of gender quotas in promoting corporate innovation is also questioned.

Originality/value: This study provides a better understanding of how innovation can boost profitability while enhancing competitive advantage. Unlike previous research that focused on external factors, this research emphasizes board composition and directors' personal attributes as key drivers of strategic decisions and resource allocation. This research sheds light on the factors that allow R&D investments to become a sustainable profit driver, essential for companies' long-term growth.

Keywords: R&D investment; risk management; corporate governance; board composition; operating profits

Article classification: Applied Research Paper - Research paper

1. Introduction

Research and development (R&D) is crucial for companies to face the constant business challenges (Muhammad *et al.,* 2022). Investing in R&D enables companies to create new products and services to expand their operations (Miroshnychenko and De Massis, 2020) and implement innovative processes that reduce costs while addressing social and environmental concerns (Ilyas and Osiyevskyy, 2022). R&D plays a crucial role in enhancing corporate performance by driving changes in organizational culture and generating tangible advancements and solutions for companies (Yin *et al.,* 2023). Therefore, R&D investments are essential for gaining competitive advantages and increasing firm value (Sierra-Moran, Johana *et al.,* 2023). However, R&D demands substantial resources (Huang *et al.,* 2022) and may not generate immediate results (Chen *et al.,* 2016). Therefore, investing in R&D implies a long-term and risky bet for companies (Griffin *et al.,* 2021; Shi, 2003) but which, in turn, favors their growth and resilience and improves their competitiveness and resilience to financial risks from economic shocks (Pham *et al.,* 2023).

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In this context, it is crucial for companies to identify the drivers to develop business models that are both economically viable and capable of managing the risks associated with innovation (Asad *et al.,* 2023). In this sense, previous research has highlighted the significant influence of R&D investments on firm performance (Hojnik *et al.,* 2022; Minviel and Ben Bouheni, 2022). While there has been extensive research on external factors, more research is needed to explain how internal factors, specifically related to corporate governance, can influence R&D strategies (Wang *et al.,* 2019). Although the corporate board is the primary mechanism of corporate governance (Chen *et al.,* 2016; Rodrigues *et al.,* 2020), few studies have examined how its composition can influence the adoption of innovative initiatives (Chen *et al.,* 2021), and even fewer have considered, specifically, the personal attributes of directors and characteristics of the board (Makkonen, 2022). Considering the key role of corporate boards in strategic decision-making and resource management (Muhammad *et al.,* 2022; Miroshnychenko and De Massis, 2020), further research is needed to understand how they can facilitate (or hinder) the integration and management of innovation in the creation of corporate value (Sierra-Moran *et al.,* 2023; AlHares, 2020).

For this reason, the aim of this research is to analyze how corporate governance-related variables can reduce the risk inherent in R&D processes achieving the desirable alignment between innovation strategies and financial results. Unlike previous research exploring the influence of corporate boards on innovation, this study goes a step further by assessing the ability of companies to translate their commitment to innovation into operating profits. To achieve this, the focus of this research shifts from the external factors of previous research to the internal factors, including personal attributes of board members (presence of female directors, critical mass of women on boards, effect of gender quotas, role of women as Chief Financial Officers -CFOs- or age of board members) as well as board characteristics (board size, presence of executive directors, or tenure of board members). To examine the relationship between these factors and R&D-driven profitability, this research employs a Generalized Least Square (GLS) regression model with data from 2012 to 2022, considering listed and unlisted companies from the 'EU Industrial R&D Investment Scoreboard', which includes the most innovative European companies. This contrasts with previous research that has mainly focused only on listed companies (Miroshnychenko and De Massis, 2020) of a single country (Asad *et al.,* 2023). The results of the study reveal that translating innovative practices into economic value is not gender-neutral and requires the presence of executive female directors, as well as the experience, knowledge and prudence potentially associated with senior board members. The research also highlights the disadvantages of long-tenure directors and large boards on the companies' commitment to R&D. However, there are noteworthy, significant differences when considering listed and unlisted companies. By shedding light on how corporate boards can create economic value through innovation, this paper contributes to improving understanding of the relationship between corporate governance practices and R&D-driven profitability, highlighting the strategic role of board composition to translate innovation risks into sustainable growth.

2. Literature review

2.1. R&D investments

Innovation is crucial for the sustainable growth of companies and to achieve the Sustainable Development Goals (Dzhunushalieva and Teuber, 2024; Griffin *et al.,* 2021). R&D investments drive innovation, helping companies to adapt to competitive challenges and ongoing changes in the business landscape (Muhammad *et al.,* 2022). R&D spending enables the creation of new ideas, skills and technological advancements (Sanad and Musleh, 2023), allowing companies to

expand into new markets and increase sales through the development of new products and services (Honore *et al.,* 2015; Ortigueira-Sánchez *et al.,* 2022), which in turn can encourage firms to make new efforts in R&D (Blazenko and Yeung, 2015). These investments also promote productivity (Rodrigues *et al.,* 2020) and sustainable performance (Ilyas and Osiyevskyy, 2022; Minviel and Ben, 2022), creating competitive advantages (Hojnik *et al.,* 2022) and increasing firm value (Sierra-Moran *et al.,* 2023). Strategic R&D spending also facilitates the survival of companies (Asad *et al.,* 2023), especially during periods of crisis, since R&D-intensive companies are in a better position to maintain their profits through innovation (Pham *et al.,* 2023).

Achieving these benefits requires significant efforts, a large amount of money, and financial stability for R&D projects over time (Huang *et al.,* 2022). However, due to their complexity, high risk and uncertainty, these desired results may be delayed or even not achieved (Chen *et al.,* 2016). In fact, companies must also show a long-term strategic vision and be willing to make high expenditures, even if the results are not immediate or predictable (Griffin *et al.,* 2021). However, this long-term focus may collide with the short-term interests of shareholders (Ahmad *et al.,* 2023), who may only visualize the high costs and potential reduction of immediate benefits (Honore *et al.,* 2015). As a result, companies may prioritize short-term initiatives over R&D spending (Asad *et al.,* 2023). Therefore, it is crucial for companies to strike a balance between innovation and financial results (Almor *et al.,* 2022) with corporate governance playing a key role (Chen *et al.,* 2021).

2.2. Corporate governance and R&D investments

Corporate boards play a crucial role by making strategic decisions (Rodrigues *et al.,* 2020), including resource allocation and investment choices (Muhammad *et al.,* 2022). Therefore, their composition can influence (among others) R&D investment decisions (Sierra-Moran *et al.,* 2024). Board members can bring multiple skills and knowledge that can promote innovation and offer new ideas and solutions for dealing with R&D complexities (AlHares, 2020; Gomez-Martinez and Medrano-Garcia, 2024). Diverse perspectives can also strengthen the board's monitoring function, crucial for resource-intensive R&D projects (Asad *et al.,* 2023). However, these positive effects may be reduced or even eliminated if the board's structure complicates communication and coordination among their members (An *et al.,* 2021) or prioritizes short-term shareholders' interests over high-risk and long-term R&D projects (Khan *et al.,* 2021). Previous research about corporate governance and its influence on R&D companies' strategies has not been able to show conclusive results; so, more research is needed around this issue (Sierra-Moran *et al.,* 2023).

2.3. Personal attributes of board members and R&D investments

2.3.1. Gender of board members and R&D investments

Increased attendance by female directors at board meetings (Adams and Ferreira, 2009) led to improved access to internal information to identify innovative projects (Chen, R. *et al.,* 2021) and better monitoring of complex and high-risk R&D investments, ensuring that managers do not avoid them (Chen *et al.,* 2018; Griffin *et al.,* 2021) and improving control over the allocation of R&D resources (Azzam, 2022). Gender diversity on boards also improves communication, participation and information flow, which positively influences R&D initiatives (Sanad and Musleh, 2023; Sierra-Moran *et al.,* 2024). Female directors provide knowledge and expertise to manage R&D complexities (Gonzales-Bustos *et al.,* 2020) and introduce fresh

perspectives that can stimulate innovative discussions (Belkacemi *et al.,* 2021; Khodor *et al.,* 2024). Furthermore, female directors are often perceived as more cautious and less overconfident than their male counterparts, leading to better risk management, which is essential for the success of high-risk R&D projects (Chen *et al.,* 2016). Therefore, gender diversity on boards can help reduce firm risk and increase firm value by improving the management of risky R&D investments rather than avoiding them (Nadeem *et al.,* 2019).

However, other research has demonstrated that female directors may not necessarily have a positive influence on R&D investments. In fact, gender diversity on boards can create divisions between male and female directors, leading to conflicts, communication problems and a lack of shared information, making consensus on R&D initiatives harder to reach (Heubeck and Meckl, 2023). In addition, the stronger monitoring of women may lead the CEOs to take fewer risks, harming decisions regarding R&D projects (Guldiken and Darendeli, 2016). The higher risk aversion of female directors may also limit the undertaking of risky R&D projects (Asad *et al.,* 2023).

More research is necessary to understand the influence of board gender diversity on R&D investments. Despite the inconclusive results of previous research, this research supports the idea that female directors bring knowledge, fresh perspectives, strong control and effective risk management, which are crucial for R&D projects. Therefore, the following hypothesis is proposed:

> **Hypothesis 1. The presence of female directors has a positive influence on companies' ability to translate R&D investments into operating profits.**

Female underrepresentation on boards and the pressure to prove their value may lead female directors to make cautious decisions, approving only innovative projects capable of ensuring positive results (Almor *et al.,* 2022). Achieving a critical mass of three or more women on boards could be the necessary key for fostering trust and business innovation (Torchia *et al.,* 2011). In this way, female directors could share their creative suggestions for innovation strategies (Saggese *et al.,* 2021), enhancing the positive influence of gender diversity on R&D strategies (Cabeza-Garcia *et al.,* 2021). Other research has demonstrated that even without a critical mass, female directors can still drive innovation by breaking established norms and initiating significant cultural changes (Griffin *et al.,* 2021; Belkacemi *et al.,* 2021). This effect may be stronger on male-dominated boards, where perspectives from female directors can receive more attention (Cumming and Leung, 2021). Other previous research has pointed out that definitive conclusions on the role of female directors are difficult to reach as boards with three or more women remain very rare in reality (Griffin *et al.,* 2021).

Despite these different points of view, it is expected that a critical mass of women on corporate boards will facilitate their full integration in board decisions, mainly those related to innovative projects. Therefore, the following hypothesis is proposed:

> **Hypothesis 2. The presence of three or more female directors has a positive influence on companies' ability to translate R&D investments into operating profits.**

Governments, companies, and society are increasingly focused on promoting gender equality in corporate decision-making (Griffin *et al.,* 2021). European countries have adopted different policies; thus, while some countries have implemented mandatory (hard) quotas that set a required percentage of female directors with sanctions for non-compliance, others have

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established voluntary (soft) quotas that offer recommendations without penalties. Very few countries have avoided such legislation (de Cabo *et al*., 2019). Although limited research has analyzed the link between gender quotas and their influence on R&D investments, previous research suggests that policies to increase female board representation can promote companies' innovation (Attah-Boakye *et al.,* 2020). However, Foss *et al. (*2022) have found that the effectiveness of quotas depends on their implementation; thus, while voluntary quotas can enhance R&D since women are selected based on their knowledge and personal merits, mandatory quotas show diminishing effects since women are appointed to corporate boards regardless of their qualifications and only to avoid sanctions for non-compliance.

The persistent underrepresentation of women on corporate boards in European companies suggests that their selection prioritizes regulatory compliance over recognition of their value. Although public and private strategies could reverse this trend, the current situation justifies the following hypothesis:

Hypothesis 3. Gender quotas in Europe have no effect on companies' ability to translate R&D investments into operating profits.

CFOs, responsible for managing financial resources of companies, can play a crucial role in R&D investments (Bedard *et al.,* 2014). Despite this, little research has explored the relationship between CFOs and R&D investments. According to Wang and Fung (2022), female CFOs often increase R&D spending to gain a competitive advantage and sustain business growth. Their greater creativity, competence and distinctive skills can contribute positively to R&D investments (Ginesti *et al.,* 2021). Thus, the assumption that women have less financial competences (Munoz-Cespedes *et al.,* 2024) or are less willing to take risks than their male counterparts and may hinder R&D investments seems unfounded (Doan and Iskandar-Datta, 2020). Considering women's leadership style and financial expertise, the possibility they hold top financial positions may bring a more dynamic approach to risk-taking and innovative strategies. Therefore, the following hypothesis is proposed:

Hypothesis 4. Female CFOs have a positive influence on companies' ability to translate R&D investments into operating profits.

2.3.2. Age of board members and R&D investments

Some authors argue that older board members with accumulated knowledge, expertise and experience can offer valuable perspectives and practical solutions that can increase the success of R&D initiatives (Midavaine *et al.,* 2016). However, others suggest that senior directors tend to be more risk-averse and sensitive to negative outcomes than younger directors, leading them to avoid adopting innovative and riskier strategies (Bravo and Reguera-Alvarado, 2017; Attia *et al.,* 2021). Older directors may also be reluctant to implement R&D projects that require changes in their monitoring roles and that may not guarantee immediate positive results (Chindasombatcharoen *et al.,* 2023). In fact, younger board members are often more willing to embrace new challenges, providing fresh perspectives and anticipating emerging trends in production and consumption, which can encourage greater R&D investments (Khan *et al.,* 2021). Other research has also demonstrated that board members' age may have no impact on R&D investments (Azzam and Alhababsah, 2022).

Previous literature shows mixed results, highlighting the need for more research on the influence of the age of board members on companies' R&D initiatives. The complexity, risk and high failure rates associated with R&D projects lead to valuing the experience, wisdom and

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prudence of older board members as a critical driver of their success. Therefore, the following hypothesis is proposed:

Hypothesis 5. Older board members have a positive influence on companies' ability to translate R&D investments into operating profits.

2.4. Board characteristics and R&D investments

2.4.1. Board size and R&D investments

A large number of board members can positively influence R&D initiatives by providing valuable expertise and skills (Griffin *et al.,* 2021) and external networks with which to form alliances and share knowledge (Wu *et al.,* 2024). This helps ensure a continuous flow of information and innovative ideas, which are crucial to improve decision-making related to R&D initiatives (Heubeck and Meckl, 2023) and improve control to prevent the diversion of resources from innovation to short-term initiatives (Sanad and Musleh, 2023).

Conversely, other authors argue that large boards can hinder R&D spending. In fact, more members on boards can complicate decision-making due to the challenges in organizing board meetings (Cheng, 2008) and the difficulties in communication, coordination and interaction among directors (Driver and Guedes, 2012). These challenges can lead to problems and conflicts within the board (Galia and Zenou, 2012; Makkonen, 2022), delaying consensus on innovative projects (Cheng, 2008). A large board also distributes decision-making power among more people, which may discourage directors from undertaking risky R&D projects (AlHares *et al.,* 2020). In addition to all this, there are also other studies that suggest that board size has no effect on R&D investments (Rodrigues *et al.,* 2020).

So, previous research on the influence of board size on R&D investments has concluded mixed results, suggesting the need for further research. In line with research that claims that it is not the number of board members, but their contributions that matter for R&D projects, the following hypothesis is proposed:

Hypothesis 6. Larger boards have no effect on companies' ability to translate R&D investments into operating profits.

2.4.2 Executive board and R&D investments

Previous research has shown that non-executive (independent) directors positively influence R&D investments. They can provide valuable external information and networks for selecting and developing R&D projects (Muhammad *et al.,* 2022; Ahmad *et al.,* 2023), as well as impartiality in R&D decision-making (Heubeck and Meckl, 2023). As they do not have to interact with managers on a regular basis, their objectivity encourages managers to address R&D investments (Chou and Johennesse, 2021). Non-executive directors also help shift managers' focus from short-term results to long-term R&D objectives (Asad *et al.,* 2023).

Conversely, other research suggests that only executive (non-independent) directors have a positive influence on R&D investments. With deeper knowledge of the company, they can easily identify innovation needs (Galia and Zenou, 2012; Troilo, 2023) and make informed R&D decisions (Shaikh *et al.,* 2018; Gonzales-Bustos *et al.,* 2020). Thus, Rodrigues and colleagues (2020) found that companies invest more in R&D when executive directors are in the majority, likely due to their long-term investment focus over short-term financial results (Driver and Guedes, 2012). Also, the 'sense of belonging' to the company can lead to increase their

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R&D commitment (Sierra-Moran *et al.,* 2024). In addition, as executive directors do not typically serve on other boards, they have more time to analyze and develop R&D initiatives (AlHares, 2020).

Among all perspectives, this research assumes that executive directors are crucial to understanding daily operations and organizational procedures and have a long-term vision of the company. Therefore, the following hypothesis is proposed:

> **Hypothesis 7. The presence of executive directors has a positive influence on companies' ability to translate R&D investments into operating profits.**

2.4.3. Board tenure and R&D investments

Board members with years of service on the board can make more informed decisions due to their deep understanding of the company's needs and strengths (Chou and Johennesse, 2021). This knowledge can help identify innovative solutions and recommend appropriate R&D initiatives (Sierra-Moran *et al.,* 2024). Longer tenure of board members can also improve control over resource allocation, enabling them to detect managers' delays or avoidances related to R&D projects (Guldiken and Darendeli, 2016). In fact, directors with longer tenure on the board tend to adopt a longer-term investment orientation, prioritizing R&D projects (Asad *et al.,* 2023).

Conversely, previous research has also found that directors with more tenure may act less independently by establishing closer relationships with managers that condition their ability to control innovative projects (Azzam and Alhababsah, 2023; Guldiken and Darendeli, 2016). Thus, they could prioritize stability over the risks and challenges associated with innovation (Midavaine *et al.,* 2016), avoiding R&D projects that could damage their reputation (McNulty *et al.,* 2013; Heubeck and Meckl, 2023). Furthermore, focusing so much on internal processes could lead them to neglect obtaining the necessary information to promote new innovation opportunities (Azzam and Alhababsah, 2022). In addition to all this, there is also other research that has not found any link between board tenure and R&D intensity (Bravo and Reguera-Alvarado, 2017).

These different perspectives require much more research. This study assumes that directors with more years of service on the board may delay or hinder decisions on new R&D projects. Therefore, the following hypothesis is proposed:

> **Hypothesis 8. The longer tenure of directors has a negative influence on companies' ability to translate R&D investments into operating profits.**

2.5. Listed and unlisted companies and R&D investments

The research sample is composed of the most innovative listed and unlisted European companies. Unlisted companies have often been excluded from corporate governance debates and regulations (such as European gender quotas) and from scientific research mostly focused on listed companies. As a result, very few studies have considered listed and unlisted companies at the same time (Miroshnychenko and De Massis, 2020). To fill this gap, this research focuses on understanding how corporate governance-related practices can maximize the returns on R&D activities of listed and unlisted companies.

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3. Methodology

3.1. Data and sample

The study sample has included the top 250 innovative European companies from the 'EU Industrial R&D Investment Scoreboard'. The first year of study was 2012, when the European Commission proposed to achieve gender equality on corporate boards and unify the different policies implemented by all member states. The last year of study was 2022, when the related European directive was finally approved. Some companies were removed from the sample due to corporate events that happened during the study period such as spin-offs, mergers or liquidations; the same that companies from UK due to Brexit in 2020. As a result, the final sample consisted of 172 listed and unlisted companies. Variables related to corporate board composition of these companies were collected from BoardEx, a database containing detailed profiles of board members of companies around the world and widely used in previous research (Azzam, 2022; Griffin *et al.,* 2021; Asad *et al.,* 2023; Almor *et al.,* 2022). Information was considered on 29,674 directors belonging to the boards of directors of the companies under study. Corporate governance-related variables on personal attributes of board members and characteristics of corporate boards were also considered.

The outcome has been calculated as the ratio of operating profits to R&D investments. This novel metric is a strategic tool to assess companies' ability to turn R&D investments into positive financial returns, capturing the connection between innovation and financial success. Thus, the outcome highlights the desirable alignment between strategic innovation initiatives and financial results, demonstrating that investing in R&D is not just a cost but a key strategy for promoting long-term sustainable growth.

Table 1 shows the variables used in the study.

[Insert Table I about here]

3.2. Model

In order to test the hypotheses proposed, three models are applied on two separate samples: one of them considering all firms (listed and unlisted) and the other one considering only the listed firms.

The first one (Model 1) considers all board members, including female and male directors. The equation is specified as follows:

$$opprofrd = \alpha + \beta \sum_{j=1,}^{8} boardvariables + \gamma \sum_{k=1}^{4} regulationvariables + \delta \sum_{l=1}^{2} controlvariables + \varepsilon_{i,t}$$

where board variables are age_directors, board_size, total execdirectors and tenure_directors; regulation variables refer to hard_quota, soft_quota and no_quota; and control variables include lnop_profits and lnemployees.

The second model (Model 2) focuses only on female directors. The equation is specified as follows:

$$opprofrd_{i,t} = \alpha + \beta \sum_{j=1,}^{13} boardvariables + \gamma \sum_{k=1}^{4} regulationvariables + \delta \sum_{l=1}^{2} controlvariables + \varepsilon_{i,}$$

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where board variables are fem_directors, critmass_fdirector, female_cfo, age_fdirectors, board_size, female execdirectors and tenure_fdirectors; regulation variables refer to hard_quota, soft_quota and no_quota; and control variables include lnop_profits and lnemployees.

Finally, the third model (Model 3) is focused specifically on male directors. The equation is specified as follows:

$$opprofrd_{i,t} = \alpha + \beta \sum_{j=1,}^{12} boardvariables + \gamma \sum_{k=1}^{4} regulationvariables + \delta \sum_{l=1}^{2} controlvariables + \varepsilon_{i,}$$

where board variables are male_directors, male_cfo, age_mdirectors, board_size, male execdirectors and tenure_mdirectors; regulation variables refer to hard_quota, soft_quota and no_quota; and control variables include lnop_profits and lnemployees.

The models were evaluated by comparing the fixed effects with the random effects. The Breusch-Pagan Lagrange Multiplier test was performed, indicating the suitability of a random effects model. This was further validated by the Hausman test, which showed the prevalence of random effects over fixed effects. Based on these results, additional diagnostic tests were conducted to check for heteroscedasticity and autocorrelation. The Wald test supported the presence of heteroscedasticity in all three models, while the Wooldridge test for autocorrelation in panel data analyses rejected the null hypothesis of no first-order autocorrelation (p = 0.0424). Given this non-compliance with Ordinary Least Squares (OLS) assumptions and to ensure the accuracy of results, the GLS method has been selected to estimate the unknown coefficients of the linear regression models. This approach provides more reliable and efficient estimates in the absence of OLS requirements.

4. Results

In Table II, the estimated coefficients for all sampled firms (listed and unlisted) are followed by p-values of z-statistics.

[Insert Table II about here]

The results indicate that the gender composition of corporate boards has a significant influence on R&D-driven companies' profitability. Specifically, female directors have a stronger positive influence than male directors, particularly when there is a critical mass of three or more women on the board. This supports Hypothesis 1 and Hypothesis 2. However, the adoption of hard or soft gender quotas does not seem to have a significant impact on the outcome under study in any of the models proposed. Only the option 'no quota' shows a significant inverse influence, supporting Hypothesis 3. In the same way, the role of the board members as CFOs does not seem to have any influence in any of the three models, not supporting Hypothesis 4. However, the average age of board members shows a significant positive influence on the operating profits derived from R&D investments in all three models, particularly in the case of female directors, supporting Hypothesis 5. The size of the board does not seem to have any influence on the intended outcome in two of the three models (Model 1 -all sample- and Model 2 -female directors-), supporting Hypothesis 6. In Model 2 –male directors- a larger size of the board has a

significant negative influence on R&D-driven companies' profitability, not supporting Hypothesis 6. The Hypothesis 7, referred to the presence of executive directors, is only supported among female directors, showing a significant positive influence on the operating profits derived from R&D investments. The tenure of directors on the board shows a significant negative influence on the outcome under study in all three models, particularly among female directors, supporting Hypothesis 8.

When listed firms are considered, the sample includes 142 firms. The estimated coefficients are shown in Table III.

[Insert Table III about here]

In Model 2, focused on female directors, the most significant corporate governance-related variable to turn R&D investments into operating profits is the presence of three or more women on the board. The age of directors also contributes but to a lesser extent. The presence of a female CFO emerges also as an influencing factor, although with comparatively a weaker significance than the two previous variables. Among board characteristics, board size is the only significant factor, showing a negative influence on the outcome under study. In Model 3, the presence of male directors has a significant positive influence on the intended outcome, and board size is the only significant board characteristic (although with negative sign). The rest of the variables considered do not show any significant influence on the outcome under study.

5. Discussion

The results of this research demonstrate that some corporate governance-related variables influence R&D-driven companies' profitability.

The presence of female directors has a positive effect on R&D profitability. According to previous research, the greater attendance of women at board meetings (Adams and Ferreira, 2009) leads them to exercise greater control, aimed at avoiding prioritizing short-term initiatives over R&D investments (Chen *et al.,* 2018; Griffin *et al.,* 2021). This result also supports a more efficient R&D resource allocation of women (Azzam, 2022). This result also confirms the positive role of female directors in improving the advisory role of boards in R&D projects by improving the flow of information (Sanad and Musleh, 2023; Sierra-Moran *et al.,* 2024) and providing diverse knowledge, experience and new perspectives (Gonzales-Bustos *et al.,* 2020; Belkacemi *et al.,* 2021). Furthermore, this research supports the better risk management of female directors (Nadeem *et al.,* 2019; Chen *et al.,* 2016), challenging studies that suggest their greater risk aversion to propose new R&D initiatives (Asad *et al.,* 2023; Guldiken and Darendeli, 2016).

Going deeper, this study highlights the importance of having three or more women on boards. This result is in line with previous research on the role of a critical mass of women on boards to enhance innovation (Torchia *et al.,* 2011). In this sense, a representative number of female directors can increase their confidence to share innovative ideas (Saggese *et al.,* 2021) and relieve the pressure derived from the feeling of 'constant scrutiny' (Almor *et al.,* 2022), which, otherwise, can also lead to promoting innovative projects (Cabeza-Garcia *et al.,* 2021).

This study also suggests that promoting gender equality on board needs to go beyond established regulatory norms. This result is in line with previous research that suggests that women should be selected based on their merits, expertise and knowledge and not to comply with established regulations (Foss *et al.,* 2022). The presence of female CFOs does not seem to influence R&D profitability, probably due (among other reasons) to the limited representation of women in decision-making roles (Almor *et al.,* 2022).

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The results also highlight the significance of the age of board members. Age, understood as accumulated experience and knowledge, can be a powerful driver of corporate innovation. While some research has suggested that older directors may be more risk-averse (Bravo and Reguera-Alvarado, 2017; Attia *et al.,* 2021) and resistant to supervising complex R&D projects (Chindasombatcharoen *et al.,* 2023), this research emphasizes that age-related experience is crucial for managing risky R&D initiatives. Thus, older directors are recognized for effectively guiding R&D initiatives (Midavaine *et al.,* 2016).

Board tenure emerges as a significant and negative factor influencing companies' ability to translate R&D investments into operating profits. This suggests that directors' capabilities matter more than the number of years serving on the board (Sierra-Moran *et al.,* 2024). This result is also supported by research that has concluded that long-tenured directors may avoid new and risky innovative projects (Midavaine *et al.,* 2016), due to fear of losing control capabilities (Azzam and Alhababsah, 2023; Guldiken and Darendeli, 2016), leading them to focus on internal and well-known tasks (Azzam and Alhababsah, 2022). This finding contradicts previous studies that argue that longer tenures can improve decision-making (Chou and Johennesse, 2021), strengthen board control (Guldiken and Darendeli, 2016) and support long-term R&D strategies (Asad *et al.,* 2023).

The remaining variables have a weak influence on the outcome under study, showing some differences depending on the gender of directors. While in Model 2 (female directors) the size of the board is not significant, in Model 3 (male directors) a larger board leads to reduce R&D profitability. This result is in line with previous research that has linked large boards with communication problems (Driver and Guedes, 2012), difficulties in reaching consensus on innovation (Galia and Zenou, 2012; Makkonen, 2022) or greater aversion to developing risky innovative initiatives (AlHares *et al.,* 2020).

Despite skepticism about the role of executive directors due to their managerial ties (Chou and Johennesse, 2021), the results indicate that female executives enhance R&D profitability. This result confirms previous research that concludes that executive directors tend to prioritize long-term competitiveness through R&D investments (Driver and Guedes, 2012; Rodrigues *et al.,* 2020) and use the knowledge derived from their activity in the company to make informed R&D decisions (Shaikh *et al.,* 2018; Gonzales-Bustos *et al.,* 2020). The results for female directors reinforce the importance of developing a 'sense of belonging' (Sierra-Moran *et al.,* 2024) to increase their trust and encourage them to share their creative and innovative ideas (Saggese *et al.,* 2021), demonstrate their risk management capabilities (Nadeem *et al.,* 2019; Chen, S. *et al.,* 2016), and promote long-term growth through R&D strategies (Attah-Boakye *et al.,* 2020).

For listed companies, the presence of female directors is not relevant for influencing R&D-driven companies' profitability questioning whether their inclusion is merely to comply with norms rather than to recognize their valuable contributions. However, having a critical mass of three or more women on boards remains crucial, emphasizing the benefits derived from gender diversity. Again, gender quotas appear to be ineffective, although these kinds of norms are specifically focused on listed firms. This result suggests that imposed quotas alone do not drive cultural changes in corporate governance. Female CFOs emerge as a significant variable among listed firms, highlighting the importance of women in leadership positions. The influence of age of directors becomes significant only for female directors, which could suggest that they are required to have more experience than their male counterparts to drive innovation. The negative influence of board size persists, confirming that larger boards can hinder innovation strategies. Interestingly, the positive influence of female executive directors vanishes among listed companies, probably due to their preference for independent directors. Finally, longer tenures

of board directors lose significance on the outcome under study, suggesting that listed companies prefer short-tenured directors for managing innovative strategies.

6. Theoretical contributions and practical implications

This research significantly contributes to the existing literature on corporate governance and innovation. Rather than simply examining the drivers of corporate innovation, this research advances the understanding of the internal corporate factors that can translate R&D investments into operating profits. By analyzing the personal attributes of board members and the characteristics of corporate boards, this research provides a more comprehensive view of the role of the governance mechanisms to drive innovation and financial growth. The findings also shed light on the crucial role of female directors in improving R&D-driven companies' profitability, emphasizing the implications of board gender diversity and contributing to the literature on the contribution of female directors to business performance. Furthermore, this research presents a comprehensive analysis of the influence of experience, expertise and knowledge in managing the risks associated with innovation strategies. By including listed and unlisted companies, this research significantly enriches the literature on corporate innovation.

This research also provides practical insights for policymakers and companies. For European policymakers addressing board gender inequality, the results support the suitability of this objective but also suggest that traditional gender quotas are not effective. Instead, policymakers should take these findings into account to set new standards that prioritize expertise, experience and knowledge over numerical quotas to address R&D challenges. Companies should consider the importance of having at least three female directors on boards and appointing women to CFO positions to improve discussions, risk management and financial returns of R&D strategies. Companies should also prioritize the knowledge, wisdom and prudence of senior board members to manage high-risk R&D projects. By understanding how directors' attributes and board characteristics can influence operating profits, companies could better align R&D efforts with financial results. Expanding this research to different industries (such as healthcare, biotechnology or automation) could help to better understand how corporate governance structures can adapt to innovation challenges in each sector. Furthermore, considering diverse geographical areas could provide practical recommendations for policymakers and companies to improve and foster corporate governance and innovation practices, taking into account how cultural and socioeconomic differences may influence the management of innovation-related risk.

7. Conclusions and future lines of research

The purpose of this paper is to analyze the influence of corporate governance-related practices (personal attributes of directors and board characteristics) on R&D-driven companies' profitability. The results obtained also confirm the positive influence of gender diversity on boards, specifically the role of female executive directors and the importance of having a critical mass of at least three women on boards. This research also highlights the significant role played by senior directors, whose knowledge, accumulated experience and common sense when making risky decisions are a valuable resource for promoting corporate innovation. Conversely, factors such as longer tenures or larger boards can act as barriers to implement and develop R&D projects. Similarly, the findings suggest that formally established gender quotas do not significantly influence the willingness of European companies to invest in R&D.

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This research contributes significantly to understanding how corporate governance practices can influence corporate innovation. The results provide clear evidence that corporate boards can act as catalysts for corporate growth, competitiveness, innovation and risk management. Indeed, this work offers a strategic approach to align governance practices with the dynamic needs of corporate innovation and financial performance. Furthermore, the findings contribute to the current debate on gender diversity policies, suggesting that including well-qualified female directors on boards is more effective than implementing gender quotas. Therefore, this research provides evidence that should be applied by policymakers to develop regulations aimed at improving the presence of women on corporate boards that, instead of exclusively considering the gender of board members, should consider their merits, knowledge and capabilities. This research also opens avenues for future organizational initiatives such as establishing mentoring programs that connect senior directors with less experienced board members to foster knowledge-sharing and support innovative thinking while minimizing the negative influence of long tenures. Similarly, training programs that enhance communication and collaboration among board members can improve decision-making related to R&D investments. The results of this research show valuable strategies for companies to improve the effectiveness of their corporate boards in relation to strategic decisions, not only to drive innovation but also to improve their financial performance. In summary, this research highlights the relevance of corporate governance-related variables to foster effective innovation strategies, reducing inherent risks and promoting long-term value creation.

As all empirical studies, this one has some limitations. The data selected could condition the generalization of the findings. Indeed, regulations, corporate governance structures, regulatory frameworks and government incentives for innovation can differ significantly across different geographical regions. To strengthen the validity of the results obtained and deepen the understanding of the implications of this study, future research should explore other regional areas with diverse economic, political or cultural conditions. Furthermore, incorporating alternative rankings or indices related to the most innovative companies in different regions would further strengthen the robustness of the results of this research. Examining high-tech firms and companies in emerging markets could provide valuable insights into the role of corporate boards in promoting global innovation and economic growth. While the variables selected in this research are highly relevant, future research could also consider other variables related to corporate governance (directors' remuneration, the role of R&D committees, or the ownership structure), other specific attributes of board members (directors' technological expertise, nationality or CEO's role), as well as new outcomes directly related to sustainability, digitalization, or the use of technology such as AI. Future research should also investigate the role of corporate boards in managing innovation-related risks, such as technological obsolescence, market uncertainty and reputational challenges. By addressing these areas, future research could provide a more comprehensive understanding of the relationship between corporate boards and innovation viability.

8. References

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Table I. The list of variables

Variable	Description
opprofrd	Operating profits to R&D investment ratio
Personal characteristics of board members	
fem_directors/male_directors	Number of female and male directors on companies' board

critmass_fdirector	Dummy variable to express if there are three or more female directors on companies' board [1] or not [0]
hard_quota	Dummy variable to express if the country where the company is headquartered has adopted mandatory board gender quotas [1] or not [0]
soft_quota	Dummy variable to express if the country where the company is headquartered has adopted board gender recommendations [1] or not [0]
no_quota	Dummy variable to express if the country where the company is headquartered has not adopted any board gender regulation [1] or not [0]
female_cfo/male_cfo	Dummy variable to express if the CFO is a woman [1] or not [0]
age_directors/age_fdirectors/ age_mdirectors	Average age of directors on companies' board by gender
Board characteristics	
board size	Total number of directors on companies' board
total_execdirectors/ female_execdirectors/ male_execdirectors	Total number of executive directors on companies' board by gender
tenure_directors/tenure_fdirectors/ tenure_mdirectors	Average number of years that directors have served on the current board by gender
Control variables	
lnop_profits	Logarithm of companies' operating profits
lnemployees	Logarithm of total number of employees in companies

Table II. Results for all sampled firms

Variable	**Model 1**	**Model 2**	**Model 3**
fem_directors		0.48038**	
		(0.042)	
male_directors			0.127869*

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			(0.055)
critmass_fdirector		2.716127***	
		(0.000)	
hard_quota	-0.05403	0.29634	-0.04463
	(0.785)	(0.474)	(0.829)
soft_quota	-0.41101	-1.38229	0.544956
	(0.351)	(0.158)	(0.187)
no_quota	-4.74414***		-4.34442**
	(0.002)		(0.031)
female_cfo		0.054758	
		(0.881)	
male_cfo			0.120708
			(0.565)
age_directors	0.109936***		
	(0.001)		
age_fdirectors		0.164127***	
		(0.006)	
age_mdirectors			0.112593***
			(0.000)
board_size	0.020639	-0.04107	-0.10289**
	(0.601)	(0.211)	(0.013)
total_execdirectors	-0.06267		
	(0.149)		
female_execdirectors		0.841817**	
		(0.012)	
male_execdirectors			-0.02793
			(0.595)
tenure_directors	-0.12697**		
	(0.034)		
tenure_fdirectors		-0.32572**	
		(0.001)	
tenure_mdirectors			-0.17011***
			(0.007)
lnop_profits	36.05182***	29.95568***	31.77206***
	(0.000)	(0.000)	(0.000)
lnemployees	1.035951***	0.022039	0.977406***
	(0.000)	(0.847)	(0.000)

Table III. Results for listed firms

Variable	**Model 1**	**Model 2**	**Model 3**
fem_directors		0.35964	

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		(0.22)	
male_directors			0.19118**
			(0.031)
critmass_fdirector		1.490411***	
		(0.000)	
hard_quota	-1.76272	-0.13117	-0.01056
	(0.258)	(0.791)	(0.977)
soft_quota	-3.08675	-0.75334	0.245943
	(0.296)	(0.396)	(0.667)
no_quota	-13.7584		-5.9655**
	(0.321)		(0.011)
female_cfo		0.68723*	
		(0.051)	
male_cfo			0.366448
			(0.158)
age_directors	0.043234		
	(0.307)		
age_fdirectors		0.113883**	
		(0.041)	
age_mdirectors			0.045418
			(0.255)
board_size	0.088766*	-0.06427*	-0.12342**
	(0.056)	(0.057)	(0.03)
total_execdirectors	-0.13876**		
	(0.029)		
female_execdirectors		-0.17839	
		(0.703)	
male_execdirectors			-0.0459
			(0.564)
tenure_directors	-0.10229		
	(0.219)		
tenure_fdirectors		-0.19266	
		(0.104)	
tenure_mdirectors			-0.11769
			(0.191)
lnop_profits	47.07886***	26.92819***	30.73123***
	(0.000)	(0.000)	(0.000)
lnemployees	4.583891***	0.234405	1.305779***
	(0.000)	(0.321)	(0.000)

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7.4 OTRAS PUBLICACIONES

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Gender diversity on corporate boards: does it really make a difference?

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Abstract: Corporate boards are responsible for setting the principles of corporate governance that determine corporate performance. The role of corporate boards and their effectiveness depend on their composition. This research analyses how the presence of women on boards affects their governance and, as a result, financial and CSR performance. The results reveal that women bring unique values and skills to corporate boards, which may contribute to board functions and influence organisational outcomes on behalf of shareholders and stakeholders. However, their presence on boards is relatively low. This research investigates the conditions that may determine their proposals as board members. The findings seem to indicate that their contributions to corporate boards are not considered when they are appointed. This research expands the literature about gender diversity and provides arguments to promote the presence of women on corporate boards.

Keywords: gender diversity; corporate governance; corporate boards; board governance; financial performance; CSR performance; firm reputation; gender egalitarian boards; appointment of women directors.

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1 Introduction

Corporate governance establishes the policies and practises that determine corporate performance. Corporate boards are the principal mechanism of corporate governance for implementing them and ensuring that they are integrated into corporate performance (Garcia Martin and Herrero, 2020). Given the importance of corporate boards, the analysis of their composition, particularly in terms of gender diversity, is critical (Baker et al., 2020). Women have different, values, knowledge and experience than men, which may define their actuation as board members, providing to corporate boards

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valuable resources to carry out their functions (Kirsch, 2018). As a result, their presence on corporate boards may influence corporate governance and firm performance (Terjesen et al., 2009).

Numerous researches has analysed the effects of female directors on boards and corporate performance, but only a few of them have examined the factors that may influence their election to serve on a corporate board. Unlike previous research that has focused to analyse the presence of women on boards in a specific dimension of corporate governance, this study provides a broad and comprehensive overview of gender diversity on boards. As a result, the aim of this research is to examine how the presence of women on boards affects board governance and, in consequence, influences corporate performance as well as analyse the determinants associated with their appointment as board members.

So, a review of previous literature was conducted. Numerous researches has been examined to synthesise the contributions that female directors make to board governance through their participation in the board decision-making process and board monitoring function as well as their impact on financial and corporate social performance. In addition, previous research analysing the factors that may influence their appointment to hold a seat on boards has been also considered.

The results of this research show that their influence on board governance extends beyond their mere presence. In addition, these contributions on corporate boards undoubtedly have an impact on corporate performance. Financial results and social and environmental performance are affected by their presence on corporate boards. In this way, the interests and demands of shareholders and stakeholders are more likely to be considered by female directors. Despite their contributions, this research has concluded that women are underrepresented on boards of directors. The results seem to suggest that their appointments as female directors are influenced by factors unrelated to their contributions to board governance and corporate performance. This research contributes to the literature on gender diversity on boards and provides relevant conclusions that must be considered to ensure that women on boards are no longer considered a minority group and that truly egalitarian boards are formed.

This paper is structured as follows. Section 2 examines the role of women on corporate boards. Section 3 presents the impact of female directors on firm performance, particularly, financial results and CSR performance. Section 4 details the strategies for appointing women to serve on boards and the reasons for their nominations. Section 5 analyses the findings, and Section 6 describes the conclusions, implications and arguments for future research.

2 Women on corporate boards

The composition of corporate boards, particularly in terms of gender diversity, has an impact on corporate governance (Terjesen et al., 2009). Through the corporate boards' meetings, relevant business information is obtained, and important business decisions are made to establish the governance system for the firms. As a result, attendance at board meetings is, a priori, fundamental. In this regard, female directors usually attend more board meetings than male directors and their presence also improves board attendance of male counterparts thereby strengthening board governance (Adams and Ferreira, 2009). However, the contribution of the boards to corporate governance extends beyond the

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mere presence of their board members in these meetings, being necessary a true contribution. In this sense, the greater interpersonal sensitivity of female directors allows reducing board conflicts, which facilitates board discussions (Nielsen and Huse, 2010a). In addition, even when female directors are a minority board group (Kanadli et al., 2018), their professional background, skills and values improve the quality of discussions and contribute positively to the board decision-making process (Nielsen and Huse, 2010b). This contribution is especially relevant in decisions related to firm strategy rather than other operational responsibilities of the corporate boards (Nielsen and Huse, 2010a). Gender diversity on boards provides not only more knowledge but also broader perspectives which are especially important when making these types of decisions (Post and Byron, 2015). If corporate boards are unable to consider female directors as equal board members and do not recognise their human capital, gender stereotypes bias appears to prevent them from reaching their full potential reducing their contribution to board decisions (Nielsen and Huse, 2010b).

Following corporate board make decisions, it is necessary to ensure that they are carried out correctly. According to agency theory (Fama and Jensen, 1983), the board of directors is also responsible for overseeing management performance to ensure that managers act on behalf of shareholders' interests. The presence of women on boards is associated with an improvement in the monitoring role of corporate boards (Adams and Ferreira, 2009). In addition, based on upper echelon theory (Hambrick and Mason, 1984), previous experience, knowledge and values that female directors possess provide broader perspectives that increase the potential of female directors for effective monitoring (Post and Byron, 2015). This contribution to the monitoring function is reflected in the fact that the presence of women on boards is associated with a decrease in earnings manipulation by managers (Gull et al., 2018; Wahid, 2019) and fraud (Cumming et al., 2015), higher quality and transparency of the firm's reports improving the informative stock price (Gul et al., 2011) and greater control of the language used by managers in earnings reports published into the media preventing distortion of the information to investors (Mather et al., 2021) which, consequently, increase shareholders' benefit. Nevertheless, other research has established that the monitoring function is not necessarily related to the gender diversity of the corporate boards. In this sense, (Garcia Lara et al., 2017) have demonstrated that due to female and male directors possessing the same capabilities and, in absence of gender bias, performing in a similar way, the monitoring role played by them should be the same. As a result, the monitoring function would be more related to the independence of directors than to the gender of corporate board members.

The contribution of female directors on board governance is also related to the number of seats that they hold in corporate boards. Based on token theory (Kanter, 1977), when a member from a minority group, known as a token, is integrated into a group, it tends to attract the attention of the majority members. This higher visibility exerted high pressure on tokens, which tend to hide their abilities and change their behaviour to assimilate with the majority of the group and avoid being isolated. However, when the number of members of the minority reaches a critical mass, it gains trustworthily and increases the degree of influence within the group. In terms of gender diversity on boards, this critical mass is reached with at least three female directors (Erkut et al., 2008; Konrad et al., 2008), whose presence will be required to influence board governance (Torchia et al., 2011).

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3 Board gender diversity and corporate performance

3.1 Board gender diversity and financial performance

The contribution of female directors to board governance affects financial performance. Numerous researches have been conducted to analyse their impact with multiple results. In fact, the same research can show both a positive impact on accounting measures of firm performance and a negative reaction on market value (Bennouri et al., 2018; Carter et al., 2010; Post and Byron, 2015). Even analysing firms in the same country, one research found a positive relationship between women on boards and market value (Carter et al., 2003) while another established a negative influence (Adams and Ferreira, 2009). The endogeneity caused by reverse causality (Post and Byron, 2015) or the great variety of performance measures examined over time and across countries with different specifications and methodologies (Adams et al., 2015) could explain the inconclusive results.

Based on different theories and the contribution of female directors on board governance, numerous researches have stated a positive relationship between the presence of women on boards and financial performance. Gender diversity on boards, according to resource dependence theory (Pfeffer and Salancik, 1978), provides access to external experience, connections and extensive resources, which improves corporate governance and financial results (Carter et al., 2010; Liu et al., 2014). In this sense, this positive impact is more related to the human capital (skills, experience on the same board or multiple boards and reputation) that female directors bring to corporate boards rather than their gender (Bennouri et al., 2018). In addition, gender diversity on boards creates more heterogeneous boardrooms with multiple perspectives in the board decision-making process resulting in improved financial performance (Erhardt et al., 2003). In a similar way, from a perspective of upper echelon theory (Hambrick and Mason, 1984), previous perceptions and experiences of female directors determine the decisions that they make on corporate boards having also a positive influence on financial performance, which is especially relevant in countries with greater gender parity and stronger shareholder protection where corporate boards really take into consideration these positive values of female board members (Post and Byron, 2015).

Despite previous research indicating a positive influence, other research has demonstrated that the presence of women on boards has no effect on financial performance (Marinova et al., 2016; Provasi and Harasheh, 2020; Rose, 2007). Some research has suggested that one of the possible causes may be the impossibility of female directors to demonstrate their values. When female directors, as a minority group on boards, have to change their own behaviour to fit in with the majority board members and avoid isolation, the benefits of their gender traits on financial results fade (Rose, 2007). Similarly, if female directors are appointed only to comply with the minimum number of women on boards required by gender quotas or in response to external pressures, their presence will have no impact on financial performance (Provasi and Harasheh, 2020) or, may even have the opposite effect, reducing firm value (Yang et al., 2019). Therefore, the presence of women on boards only has a significant impact when they are more than just a representation and can influence corporate governance through their participation on boards (Green and Homroy, 2018). In this regard, it would be necessary that the number of women on boards reach the critical mass to influence positively on firm performance (Brahma et al., 2020). Nevertheless, their contribution to board governance may have the

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opposite effect, if their greater attendance at board meetings results in over-monitoring of management performance, which may have a negative impact on financial results (Adams and Ferreira, 2009). Other research, on the other hand, has justified the lack of impact on financial performance appointing out that investors may not perceive gender diversity as the only mechanism to improve board effectiveness (Bennouri et al., 2018) or that financial markets simply do not consider any difference in board activities between male and female directors (Loy and Rupertus, 2020) so the market value does not react to the appointment of women on corporate boards (Farrell and Hersch, 2005).

3.2 Board gender diversity and CSR performance

In recent years, the monitoring function of the board of directors to maximise financial results on behalf of shareholders has been expanded to include all stakeholders who are also concerned about corporate social responsibility performance (Hafsi and Turgut, 2013). Firms have thus added to their financial objectives other corporate purposes that are more concerned with social, ethical and environmental issues (Walls et al., 2012). Corporate boards, as supervisors and advisors to corporate management, are the principal mechanism of corporate governance to implement them (Garcia Martin and Herrero, 2020; Shaukat et al., 2016) and their effectiveness in decision-making processes depends on their composition, particularly in terms of gender diversity (Rao and Tilt, 2016). The presence of women on boards has significant implications for the multiple dimensions of CSR strategies with heterogeneous results (Amorelli and García-Sánchez, 2021).

The presence of stakeholders, who have interests in corporate performance in addition to shareholders, forces corporate boards to consider their needs in the governance process, according to stakeholder theory (Freeman, 1984). In this sense, boardroom diversity, particularly gender diversity, provides the diverse points of view and opinions that corporate boards require to satisfy the CSR demands of these multiple stakeholders about social and environmental issues (Garcia Martin and Herrero, 2020; Harjoto et al., 2015; Kassinis et al., 2016; Provasi and Harasheh, 2020). In addition, according to resource dependence theory (Pfeffer and Salancik, 1978), the presence of female directors allows corporate boards to access resources that contribute to the strategic decision-making process which, based on upper echelon theory (Hambrick and Mason, 1984), is influenced by previous knowledge and values of female directors, resulting in a positive influence on corporate social performance (Byron and Post, 2016) and environmental practises (Li et al., 2017; Nadeem et al., 2017). On the other hand, women have greater sensitivity, communal values and are more concerned with the needs of others due to the values they learn on their childhood, from the perspective of gender socialisation theory (Dawson, 1997; Gilligan, 1982), and the social role that society assigns to them, according to social role theory (Eagly and Steffen, 1984). As a result, female directors are more likely to pay attention to stakeholders' needs and incorporate them into management performance, which has a positive impact on social performance (Ardito et al., 2020; Hafsi and Turgut, 2013) and environmental initiatives (Shoham et al., 2017). Indeed, female directors tend to emphasise their awareness of CSR issues to counteract gender stereotypes that ignore their professional values, assuming that management is only masculine (Boulouta, 2013). In sum, the presence of women on boards tends to reduce corporate social irresponsibility practices (Boukattaya and Omri, 2021) and environmental misbehaviour (Liu, 2018), while also enhancing environmental innovation of industrial processes (He and Jiang, 2019; Nadeem et al., 2020a) and

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sustainable investment (Atif et al., 2020) to reduce firms' environmental footprint (Haque, 2017; Konadu et al., 2022; Nuber and Velte, 2021). Precisely, their presence is especially relevant in industries with a higher environmental impact (Li et al., 2017; Lu and Herremans, 2019), despite the fact that other authors have demonstrated an insignificant or non-existent impact on firms' environmental strategies to combat climate change (Galbreath, 2010; Glass et al., 2016), and even exceeding the critical mass on boards (Birindelli et al., 2018). However, more interestingly are the results diametrically opposed when the social and environmental dimensions of CSR strategies are analysed simultaneously, with female directors having a positive impact on social performance but a negative influence on environmental performance. Some research has attempted to explain these differences using different theoretical perspectives. In this way, (Ardito et al., 2020) have pointed out that the opposite results may be explained by the perspective of upper echelon theory (Hambrick and Mason, 1984), associating female directors with a stronger background in community issues rather than technical abilities. On the other hand (Orazalin and Baydauletov, 2020), based on resource dependence theory (Pfeffer and Salancik, 1978), have suggested that environmental strategies may be more dependent on other corporate governance resources rather than board gender diversity. Similarly, the stakeholder theory (Freeman, 1984) may justify the positive impact on a social dimension by associating women with a greater orientation towards social demands, but gender bias and stereotypes that associate environmental decisions with only male directors reduce their positive impact (Galbreath, 2011; Hussain et al., 2018). Beyond the social and environmental dimensions of CSR, the inclusion of women on boards has also a positive impact on ethical firm behaviour, such as corporate philanthropy through charitable contributions (Williams, 2003), the response of the firms to natural disasters (Jia and Zhang, 2013), the implementation of ethical codes (Garcia-Sanchez et al., 2015) or human rights protection (Beji et al., 2020; Mallin and Michelon, 2011). However, given the positive impact on corporate image, firms may incorporate ethical governance into their strategic decisions regardless of the gender diversity of their corporate boards (Ardito et al., 2020).

The contribution of female directors is related not only to the implementation of CSR policies but also to the publication of firms' commitment to the needs of stakeholders and citizenship (Amorelli and García-Sánchez, 2021). In this regard, gender diversity on boards tends to increase the reporting of the firms on CSR activities in response to stakeholders' demands for greater transparency in social and environmental practices (Guerrero-Villegas et al., 2018; Jizi, 2017; Lagasio and Cucari, 2019; Liao et al., 2015; Valls Martinez et al., 2019). In addition, the presence of women on boards is associated with lower manipulation (García-Sánchez et al., 2019) and higher quality of CSR reporting (Al-Shaer and Zaman, 2016) providing greater credibility and reliability in CSR information (Arayssi et al., 2016). Nevertheless, some research has demonstrated that this positive impact is only possible when the number of female directors reaches the critical mass of at least three women (Ben-Amar et al., 2017; Fernandez-Feijoo et al., 2014) or when a greater diversity of human capital on boards reduces gender bias and allows female directors to be considered as equal board members (Amorelli and García-Sánchez, 2020).

In addition to previous influences, the presence of women on boards increases the probability of firms being included in reputational lists (Landry et al., 2016), ethical rankings (Bernardi et al., 2009) or CSR indexes (Hyun et al., 2016; Valls Martinez et al., 2019), as well as obtain higher scores on social and environmental ratings when reaches a

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critical mass to influence board decisions (Post et al., 2011). Therefore, the greater social, ethical and environmental commitment of firms enhanced by the presence of women on boards creates value for stakeholders that extends beyond financial results (Nadeem et al., 2020b) and establishes a corporate image of good citizenship perceived as appropriate by them (Zhang et al., 2013).

4 The appointment of female directors

Previous research has highlighted the influence of female directors on board governance as well as financial, social, ethical and environmental corporate performance. Based on these results, it would be reasonable to expect that firms increase their presence on boards. However, the number of female directors remains relatively low. Only 28.2% of board seats were held by women in the 100 largest companies in the United States (Fortune 100) in 2020 and this percentage drops to 26.5% in the Fortune 500 (Catalyst, 2020). Similarly, is the situation in the European Union, where female directors represent 34% of board members in firms listed on the STOXX Europe 600 index (European Women On Boards, 2021). What's more astonishing is how slowly they have progressed over time. According to Catalyst (2020), the number of seats occupied by women in Fortune 100 companies has barely increased 2% per year since 2004. These data seem to suggest that there may be some scepticism about the benefits of gender diversity on boards (Mensi-Klarbach et al., 2021) even though (Singh et al., 2008) have demonstrated that female directors have the similar human capital to their male counterparts in terms of education, reputational capital and previous board experience, making women equally qualified to serve on boards and fading the arguments for their under-representation on boards to lack of skills.

Beyond their personal characteristics and values, some organisational factors may facilitate or hinder the access of women to corporate boards. In this way, larger companies tend to have a higher representation of female directors, as their greater media and social visibility exert more pressure on them to achieve gender egalitarian corporate boards (Hillman et al., 2007). In a similar way, firms with more contacts with their investors and, thus, more visible in financial markets, are more likely to have more female directors (Terjesen et al., 2016). In fact, all of these pressures are the mechanism that ensures that the recommendations of gender diversity on boards, included in their good governance codes, are followed (Mensi-Klarbach et al., 2021). On the other hand, industries with a large number of female employees (Hillman et al., 2007) or with an ownership structure integrated by diverse groups of shareholders (Kang et al., 2007; Terjesen et al., 2009) are expected to have more women on their corporate boards.

The current board composition may also influence the appointment of women on boards. Indeed, their presence tends to increase when corporate boards are integrated by directors serving on other boards with female directors, promoting gender diversity practices between companies (Geiger and Marlin, 2012; Hillman et al., 2007), and by a large number of independent directors, who are aware of the positive assistance that female directors can provide them in their principal role of monitoring management performance (Halliday et al., 2020). The actual gender composition is another important factor influencing the appointment of new female directors. In this way, companies with multiple women on their boards are more likely to reduce their proposals for new female directors because they are under less external pressure than firms with no or only one

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female director (Knippen et al., 2019). In addition, the objective of the firms to increase board gender diversity may determine the strategy that firms use for the incorporation of new female directors. On the one hand, firms are more likely to propose a new female director if the departing board member is another woman (Farrell and Hersch, 2005). This effect of substitution of one female director for another maintains the presence of women on boards but prevents from achieving the real objective of gender diversity, which is to have an equal number of female and male directors (Tinsley et al., 2017). On the other hand, firms tend to appoint new female directors through the increase of board size, adding new and specific seats in boardrooms for female directors rather than replacing male directors whose number remains unchanged (Bennouri et al., 2018). According to Knippen et al. (2019), the appointment of female directors for additional seats is the most practical response of firms to external pressure to include women on boards, because it allows them to achieve this required target quickly. However, as that research also pointed out, this strategy is at the expense of increasing gender bias among board members, as male counterparts tend to perceive that the appointment of new female directors is more related to their gender than to their professional values. This perception can be reversed and effective and real substitution of male directors can be achieved if boardrooms are composed of multiple female directors because their presence reduces external pressure for gender diversity on boards (Knippen et al., 2019).

Other research has identified factors related to the national context in which firms operate that may influence the gender diversity in boardrooms (Grosvold and Brammer, 2011; Kirsch, 2018). The presence of women in cultural, social or labour institutions (Iannotta et al., 2016) and cultures with an inclusive language that reduces gender distinctions (Shoham et al., 2017) reinforce the effects of gender equality on society, reflecting in an increase in the number of female directors appointed to boards of directors (Humbert et al., 2019). In fact, firms located in these countries are more likely to reach the critical mass of three female directors on their corporate boards (Fernandez-Feijoo et al., 2014). On the other hand, the political systems of countries as well as public policies implemented by governments and other political institutions to combat gender stereotypes may also contribute to an increase or decrease in the presence of women on boards (Terjesen et al., 2009). In a similar way, countries with more developed financial markets (Terjesen et al., 2016) and higher female representation in the labour market and senior management positions (Grosvold et al., 2016) have a positive impact on the presence of women on boards. In addition, countries that guarantee pay parity for women and men in the same employment also tend to extend this equality to corporate boards (Terjesen and Singh, 2008).

5 Discussion

Previous research has shown that the presence of women on corporate boards may influence their performance. Their presence enables corporate boards to increase the diversity of board members, which provides a broader range of perspectives and points of view that encourage board discussions and increase creativity in decision making. However, the true value of boards in terms of corporate performance is not only the diversity of their members but also the capabilities and skills that their directors bring to them for dealing with more complex corporate environments. In this sense, the results seem to indicate that the personal values and characteristics that do different women from

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men provide unique perspectives to corporate boards (Nielsen and Huse, 2010a, 2010b; Post and Byron, 2015). The knowledge and experience those female directors bring to corporate boards enable them to explore new methods and visions that could make a difference in board governance, such as the decision-making process and the monitoring function of corporate boards. Nevertheless, previous research has concluded that prior contributions are only possible when female directors are capable to influence corporate boards (Torchia et al., 2011). For this purpose, literature has established that a minimum number of three female directors may be required (Erkut et al., 2008; Konrad et al., 2008). Beyond the numbers, the results indicate that it is more critical that female directors can be considered as equal board members by male counterparts (Nielsen and Huse, 2010b). In this way, when corporate boards are able to recognise female directors based on their human capital rather than their gender, board governance may improve with positive consequences for the development of board tasks and management performance and, as a result, better organisational outcomes.

Between among outcomes, firms are constantly analysed in relation to their financial results. Shareholders invest in companies with the objective to obtain a return on their investments. Corporate boards act as intermediaries between them and managers and their decisions are made on behalf of shareholders. As a result of the positive role that female directors play on corporate boards, it would be reasonable to expect that their presence on boards improves financial performance. However, previous research has found mixed results. Some of them have shown a positive impact (Bennouri et al., 2018; Carter et al., 2010; Erhardt et al., 2003), but other research has been unable to establish the same correlation, pointing out that gender bias on corporate boards prevents the presence of female directors from having an impact on financial results (Green and Homroy, 2018; Provasi and Harasheh, 2020; Rose, 2007). Other research goes further, stating directly that investors and financial markets do not regard gender diversity on boards as a factor influencing financial performance (Bennouri et al., 2018; Farrell and Hersch, 2005; Loy and Rupertus, 2020).

In addition to shareholders, nowadays, firms must necessarily consider other stakeholders in their performance. These stakeholders expect that financial results be maximised while adequate social, ethical and environmental performance is maintained. Again, corporate boards are responsible for ensuring that this combination is carried out. In this sense, the results seem to suggest that, in addition to the positive contributions of female directors on board governance previously commented, women also possess other gender-specific values that turn them into valuable resources for CSR performance (Amorelli and García-Sánchez, 2021; Garcia Martin and Herrero, 2020; Harjoto et al., 2015). Previous research has appointed out their social and communal values as well as more predisposition of women to consider the needs of others, as possible factors to explain the positive impact that female directors have on CSR performance in its multiple dimensions (Ardito et al., 2020; Hafsi and Turgut, 2013; Shoham et al., 2017). Their presence on corporate boards appears to influence, on the one hand, that board members consider the social and environmental implications of their decisions and, on the other hand, that these issues are included on board meeting agendas. However, what is truly remarkable are the opposing findings regarding the influence of female directors on social and environmental performance. While most of the research shows that female directors have a positive impact on social performance, the conclusions on environmental performance are less clear. Some research has found a positive influence (Li et al., 2017; Nadeem et al., 2017; Shoham et al., 2017), but the negative results demonstrated by

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others (Galbreath, 2010; Glass et al., 2016), seems to indicate that gender stereotypes have remerged on this dimension, suggesting that environmental decisions require specialised knowledge that female director does not possess (Ardito et al., 2020; Galbreath, 2011; Hussain et al., 2018). However, the findings are more conclusive in demonstrating a positive relationship between the presence of women and an improvement in ethical firm behaviour and CSR disclosure (Beji et al., 2020; Garcia-Sanchez et al., 2015; Williams, 2003). Stakeholders require that firms implement CSR practices, but they also need to know how their demands are carried out by firms. The presence of women on boards seems to improve the quality of these publications and, more importantly, promote the confidence of the stakeholders in these reports. As a result, corporate performance is approved not only by shareholders but also by the rest of the stakeholders, improving the corporate image and the firm value.

Although research does not seem to be capable of establishing conclusive results about the contribution of female directors, it would be reasonable to expect that the positive implications demonstrated were reflected in the number of women who serve on boards. However, according to the most recent reports, the percentage of female directors on boards remains low (Catalyst, 2020; European Women On Boards, 2021). Some research has tried to identify the drivers that may increase or hinder their proposals (Farrell and Hersch, 2005; Geiger and Marlin, 2012; Grosvold and Brammer, 2011; Hillman et al., 2007; Kirsch, 2018). Their results suggest that, despite the values, experience and abilities that female directors bring to corporate boards, their appointment as board members is more related to the response of the firms to external pressure to establish gender egalitarian boards (Hillman et al., 2007; Mensi-Klarbach et al., 2021; Terjesen et al., 2016). Although a priori, it may not be the most appropriate strategy, external pressure seems to increase the number of women on boards. However, this contribution appears to vanish to identify the methods that firms use to appoint female directors. The findings suggest that female directors are appointed, on the one hand, to substitute another female director who has left the board (Farrell and Hersch, 2005) and, on the other hand, when board size is increased and seats are added specifically for them (Bennouri et al., 2018; Knippen et al., 2019). In both cases, the proposals of female directors are not intended to replace male counterparts or to achieve gender equality among board members. Even, it could be said that these results seem to suggest that gender diversity on boards may be further away, since these strategies that prioritise the gender of directors over their abilities, not only do not reduce gender bias on corporate boards but actually increase it. In this regard, it is possible that the environmental context could reverse these considerations. The results appointed by numerous research suggest that when gender equality is embedded in the political, social, cultural and economic institutions of the countries and when, in general, is acknowledged by society, gender diversity also becomes a part of organisational structures, including corporate boards (Humbert et al., 2019; Terjesen et al., 2009, 2016).

6 Conclusions, implications and future research

The presence of women on boards and their impact on boards' governance and corporate performance have been analysed. The results show that gender diversity on boards tends to improve the board decision-making process and board monitoring, with the values, experiences and capabilities that women bring to corporate boards being more relevant

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than their mere presence. Their contribution corporate boards has also influenced financial and CSR performance. Although the results have been mixed results, a relevant conclusion has emerged indicating that when gender bias appears on corporate boards, the contribution of female directors disappears. In addition, the findings of the appointment of female directors seem to have no effect on reducing them. Indeed, their proposals appear to be more related to the firm response to external pressure to include female directors on their boards, and the strategies used do not appear to be aimed at achieving gender equality on corporate boards.

This research has some relevant theoretical implications. Firstly, this study contributes to extend the literature on corporate governance by focusing on the gender diversity of corporate boards. Second, the findings regarding the contribution of female directors lead to a better understanding of the role that women play on corporate boards and their impact on organisational outcomes. Thirdly, the analysis has highlighted that gender diversity on boards can be explained by several theories, stating a theoretical framework for understanding the influence of female directors on board governance and, as a result, financial and CSR performance. Finally, this research has also noted that, despite the extensive prior literature on the business case for women on corporate boards, the results about their influence remain inconclusive and their presence on boards is still scarce, providing arguments for continuing the discussion about the presence of women on boards and the factors may influence on their proposals.

In addition, this research has also significant practical implications for companies and corporate boards, as well as managers, shareholders, stakeholders and policymakers. First, this research analysing the impact of female directors on relevant organisational outcomes such as financial results and CSR performance should be considered by companies to promote the presence of women on their corporate boards with the objective to increase firm value for shareholders and stakeholders. In addition, given the results indicate a scarce presence of women on boards, firms should ensure the implementation of good corporate governance practices to achieve gender egalitarian boards and avoid appointing female directors solely in response to external pressure. Second, this research is particularly pertinent to corporate boards. Since the results of this research reveal that women possess personal characteristics, values and previous knowledge that can contribute to the decision-making process and board monitoring, corporate boards should consider them to improve their governance. In addition, corporate boards, as the principal mechanism of corporate governance with an impact on corporate performance, should encourage the presence of women on boards so that the results reveal the contributions of gender diversity on boards on financial, social, ethical and environmental performance. This research has also disclosed the existence of numerous gender biases that fades the skills of female directors, thus, corporate boards should mitigate them and avoid that women on boards being considered as a minority group by other board members.

Thirdly, the findings of this research also indicate that the presence of women on boards can improve corporate performance and increase the value of the company and, therefore, managers should take into consideration their decisions and recommendations. Fourthly, these results are especially relevant for shareholders and stakeholders, who should encourage the presence of women on boards as the main beneficiaries of firm value. In addition, this study shed light on how their interests and demands may determine the appointment of women on boards. As a result, shareholders, who are responsible for the election of board members, and stakeholders, who can exert pressure

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on companies, should consider their influence to promote gender diversity on boards. Fifthly, policymakers should take into consideration the findings regarding the low number of women on boards and the strategies used by firms to increase their number, to implement regulations and norms that promote gender diversity on boards. Beyond the specific legislative initiatives related to corporate boards, the results indicating that their efforts to strengthen gender equality in all spheres of society can also increase gender egalitarian boards should be considered to reduce inequalities between female and male directors.

Future research should consider continuing the analysis of personal and professional values that female directors bring to their boards to obtain a better understanding of the influence of female directors on board governance. This line could be used to investigate the impact of female directors on other organisational outcomes or to reduce the mixed results on financial and CSR performance. In addition, future research should continue analysing possible factors that may improve or harm the presence of women on boards, such as investigating the factors considered by firms that are subject to less external pressure, examining if the factors have changed over time or studying the similarities and differences of factors across countries.

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La gestión empresarial atraviesa un proceso de transformación en el que la sostenibilidad ha dejado de ser una opción para convertirse en una necesidad estratégica esencial para generar valor a largo plazo. En este contexto, los consejos de administración, como principal mecanismo de gobierno corporativo, desempeñan un papel clave. Esta investigación analiza los factores de su composición que favorecen la adopción de modelos de negocio sostenibles. Los resultados evidencian que los atributos personales de los consejeros y las características del consejo actúan como inductores del desempeño sostenible, la innovación y la competitividad, destacando el papel esencial de las mujeres. Esta investigación contribuye al avance en el conocimiento sobre la influencia del gobierno corporativo en la creación de valor sostenible.