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Análisis de la información narrativa contable de las empresas españolas

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ANÁLISIS DE LA INFORMACIÓN NARRATIVA

CONTABLE DE LAS EMPRESAS ESPAÑOLAS

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Con todo el cariño y amor, a mis padres y

mi hermana, por su apoyo constante y por

llenar mi vida con sus valiosos consejos.

Elige un trabajo que te guste y no tendrás
que trabajar ni un día de tu vida.

Confucio

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RESUMEN

La presente tesis tiene por objeto analizar la información narrativa contable de las empresas españolas en aspectos de singular relevancia, para los *stakeholders* y la sociedad en general, tales como el gobierno corporativo (evaluado a través del cumplimiento de las recomendaciones de buenas prácticas), la trasparencia informativa (medida por la legibilidad de las narrativas contables), o la igualdad de género en los consejos de administración (cuantificada por la brecha salarial). Para ello, dicho análisis se estructura en tres estudios novedosos.

El primer estudio considera la independencia del consejo de administración como una variable fundamental en la explicación de las prácticas de buen gobierno. Los resultados para todas las empresas revelan que el tamaño de la empresa, la dispersión de la propiedad y la independencia del consejo de administración tienen una relación positiva con las buenas prácticas, y que la relación entre la independencia del consejo y las prácticas de buen gobierno se ve moderada por la dispersión de la propiedad. Sin embargo, cuando distinguimos entre las empresas que cumplen con la recomendación de independencia del consejo y aquellas que no lo hacen, los resultados difieren sustancialmente en términos de signo, magnitud y nivel de significación.

El segundo estudio relaciona la legibilidad de las narrativas contables, su extensión y el cumplimiento de las empresas con las prácticas de buen gobierno. Los resultados revelan que los informes de gestión más extensos, es decir, aquellos con mayor cantidad de texto, son los menos legibles, y que el uso de elementos visuales en los informes ayuda a mejorar su legibilidad. Además, las empresas que siguen prácticas de buen gobierno emiten información compleja con más claridad, fluidez y simplicidad, lo que mejora la legibilidad de las narrativas contables.

El tercer estudio examina la brecha salarial de género en los consejos de administración que presentan diversidad, analizando grupos homogéneos de personas y compensaciones. Los resultados revelan que la brecha salarial de género existe a nivel de consejero ejecutivo para la retribución fija, variable y total. Sin embargo, la brecha es inexistente para los consejeros dominicales e independientes, para cualquier tipo de retribución. Además, las consejeras ejecutivas tienen menos probabilidades de recibir una remuneración variable que sus homólogos masculinos. Finalmente, al emparejar consejeros y consejeras con características individuales y de empresa similares, los resultados confirman lo anterior y destacan que los consejeros ejecutivos perciben tres veces más retribución.

ABSTRACT

The purpose of this thesis is to analyse the narrative accounting information of Spanish companies in aspects of singular relevance, for stakeholders and society in general, such as corporate governance (evaluated through compliance with the recommendations of good practices), informative transparency (measured by the legibility of accounting documents), or gender equality in the boards of directors (quantified by salary gap). For this, this analysis is structured in three novel studies.

The first study considers the board independence as a fundamental variable in the explanation of good governance practices. The results for all companies reveal that firm size, ownership dispersion and board independence have a positive relationship with good practices, and the relationship between board independence and good governance practices is moderated by ownership dispersion. When we distinguish between firms that comply with board independence recommendation and those that do not, however, the results differ substantially, in terms of sign, magnitude and significance level.

The second study relates the legibility of accounting narratives, their extension, and companies' compliance with good governance practices. The results reveal that the most extensive management reports (that is, those with the greatest quantities of text) are the least readable and that the use of visual elements in reports helps to improve their readability. Moreover, companies that follow good governance practices issue complex information with more clarity, speed, and simplicity, which improves the readability of accounting narratives.

The third study examines the gender pay gap in boards of directors that present gender diversity, analyzing homogeneous groups of individuals and compensation. The results reveal that the gender pay gap exists at executive-director-level for fixed, variable and total compensation. However, the gap is non-existent for proprietary and independent directors for any type of compensation. Moreover, female executive directors are less likely to receive variable compensation than their male counterparts. Finally, when matching male and female directors with similar individual and firm characteristics, the results confirm the above and highlight that male executive directors receive three times more remuneration.

Capítulo 1

Introducción

1.1. Interés y justificación de la investigación

La contabilidad ha sido considerada tradicionalmente como una ciencia orientada a los números, con el objetivo, entre otros muchos, de cuantificar la actividad económica de las empresas. En este sentido, basta con hacer un breve repaso a los documentos que conforman las Cuentas Anuales para comprobar que cuatro de los cinco documentos que los integran (Balance de situación, Cuenta de Pérdidas y Ganancias, Estado de Cambios en el Patrimonio Neto y Estado de Flujos de Efectivo), tienen una naturaleza puramente cuantitativa y solo la Memoria, el último de los documentos, complementa al resto mediante comentarios que apoyan los datos numéricos incluidos en ellos.

Sin embargo, el siglo XXI es el siglo de la información, donde las empresas tratan de aumentar su legitimidad creando un entorno de confianza, transparencia y rendición de cuentas, necesario para favorecer las inversiones a largo plazo, la estabilidad financiera y la integridad en los negocios. Por eso, desde hace décadas, se ha demostrado repetidamente la insuficiencia de estas Cuentas Anuales a la hora de satisfacer las necesidades de información de los grupos de interés que se relacionan con la empresa, llamados también *stakeholders*. En los últimos años, hemos visto varios ejemplos de cómo la información financiera divulgada por la contabilidad tradicional no ha sido capaz de evitar los escándalos financieros de algunas empresas o la crisis económica en general.

Por todo ello, se ha producido un interés creciente por la información narrativa contable que, complementando a las Cuentas Anuales tradicionales, resulta fundamental para alcanzar los niveles de transparencia informativa y legitimidad empresarial requeridos por los *stakeholders* y por los diversos organismos encargados de garantizar esta transparencia. De esta forma, las narrativas contables permiten corregir las limitaciones de la información financiera tradicional, y ayudan a establecer una visión de la empresa mucho más completa e, incluso, a valorar sus perspectivas futuras. En este sentido, entendemos por narrativas contables, cualquier información relativa a la empresa que se presenta al margen de las Cuentas Anuales (Domínguez, Arcay, Suárez Fernández, & Vidal Lopo, 2015).

La investigación acerca de la información narrativa es de sumo interés para los usuarios de esta información, así como para los profesionales contables y organismos reguladores. Entre otras cuestiones, el estudio de los contenidos informativos presentados actualmente, su utilidad o las posibilidades de ampliación, son importantes de cara al conocimiento de los

factores que posibilitan la solución de los problemas de falta de relevancia de la información financiera tradicional.

Además, la reciente crisis económico-financiera ha exhibido diferentes fallos en el comportamiento empresarial y en los organismos reguladores y controladores, afectando a los sistemas de información y a los sistemas de control públicos destinados a la protección del interés colectivo (Banegas, Manzaneque, & Priego, 2013). Esto ha contribuido a poner de manifiesto los problemas de agencia, especialmente por los fallos de gobierno corporativo, que perjudica tanto a los propietarios o inversores principales como a los otros grupos de interés (Bueno, 2012). Por ello, todo lo relacionado con la transparencia y la información del gobierno de la empresa también ha experimentado un crecimiento importante durante los últimos años. La mayoría de estos cambios han ido dirigidos a la reducción del conflicto de intereses entre directivos y accionistas o, dentro del consejo de administración, a mejorar la función de auditoría y el control de riesgos, a reorientar la composición de los consejos de administración, otorgando mayor importancia a la independencia de cada consejo, y a controlar los sistemas de remuneración de los altos ejecutivos (Klisberg, 2009).

La necesidad de implementación de estos cambios ha provocado que la información exigida por la Comisión Nacional del Mercado de Valores a las empresas cotizadas españolas haya sido mayor. Esta mayor exigencia de información se traslada a diversos documentos. En primer lugar, al Informe de Gestión que complementa las cuentas anuales, de tal manera que la información contable emitida por las empresas no solo exprese la imagen fiel de sus negocios, sino que también incorporen aspectos clave como son la posible evolución futura de estos, una descripción de los principales riesgos e incertidumbres a los que se enfrentan o cuestiones relaciones con la responsabilidad social y el medioambiente (CNMV, 2013). En segundo lugar, al Informe Anual de Gobierno Corporativo, donde se emite información sobre estatutos sociales, juntas generales de accionistas, composición y funciones del consejo de administración y sus diferentes comisiones, sistemas internos de control y riesgos, o cumplimiento de buenas prácticas de gobierno corporativo. Y, en tercer lugar, al Informe Anual de Remuneraciones que, aunque forme parte del Informe Anual de Gobierno Corporativo, en la práctica se entiende como un documento diferente a este, en el cual las empresas hacen constar la remuneración de todos sus consejeros, además de divulgar su política de retribuciones a largo plazo, basada en el cumplimiento de objetivos, o las remuneraciones, utilizando instrumentos de patrimonio propio de la empresa, entre otras cuestiones.

Teniendo en cuenta este contexto descrito, la idea de realizar la tesis surge de la situación actual en la que se encuentran las empresas, donde cada vez se les demanda una información más rica y variada, que ayude al usuario a formarse una imagen, más o menos aproximada, de la realidad económica de dichas empresas. Esta información, que supone un esfuerzo adicional para las empresas que la elaboran, puede ser considerada como un elemento que añade valor a las mismas, ya que estas intentan ser consideradas legítimas a los ojos de sus grupos de interés, comunicando sus contribuciones al desarrollo de un mundo más justo y sostenible. Así, las empresas podrán poner de manifiesto, a través de su información narrativa, aspectos muy valorados por los *stakeholders* y por la sociedad en general, tales como el buen gobierno corporativo, la transparencia, medida por legibilidad de las narrativas contables, o la igualdad en todas sus dimensiones. Aspectos que son analizados en esta tesis, a través de diferentes estudios, como se explicará a continuación.

1.2. OBJETIVOS DE LA TESIS

Como se ha indicado, esta tesis nace de la preocupación académica y profesional por una información narrativa contable, que ofrezca una imagen de mayor transparencia y claridad para las empresas, al mismo tiempo que ayude a evitar escándalos financieros, como los acontecidos en las últimas décadas.

El objetivo de esta investigación es, por tanto, analizar la información narrativa que divulgan las empresas a través de un triple enfoque, que se corresponde con tres documentos contables diferentes. El primero se ha centrado en estudiar la información contenida en el Informe Anual de Gobierno Corporativo y, más concretamente, en las recomendaciones que establecen los Códigos de Buen Gobierno, gracias a los cuales, las empresas pueden ofrecer una imagen de buena gobernanza ante sus inversores y grupos de interés. El segundo se ha basado en el estudio de la información narrativa voluntaria a través del Informe de Gestión, analizando la legibilidad de la información emitida por las empresas a través de este informe. Por último, el tercero utiliza el Informe Anual de Remuneraciones como documento de análisis, para abordar un aspecto muy valorado por los *stakeholders* y el conjunto de la sociedad actualmente, como es el de la igualdad de género.

Respecto al primer análisis, el objetivo general propuesto, ha sido analizar los factores que influyen en el cumplimiento de las buenas prácticas de gobierno corporativo, haciendo especial hincapié en la figura del consejero independiente. De este objetivo general, se

desprenden varios objetivos específicos que han sido abordados en esta primera parte de la tesis doctoral:

- Estudiar la evolución de la presencia de consejeros independientes en los últimos años.

- Corroborar la influencia de dos factores determinantes en el cumplimiento de buenas prácticas, como son el tamaño empresarial y la estructura de propiedad.

- Analizar, como novedad a lo aportado por la literatura, la independencia del consejo de administración como factor influyente en el buen gobierno de las empresas.

- Observar si la estructura de propiedad de la empresa ejerce algún efecto moderador en la relación entre independencia del consejo y buen gobierno.

En cuanto al segundo análisis, el objetivo principal de este ha sido analizar la facilidad o dificultad de lectura de la información emitida por las empresas a través de sus Informes de Gestión, teniendo en cuenta que una mayor legibilidad de la información comunicada ofrece una imagen de mayor transparencia para la empresa. Los objetivos específicos de este trabajo han sido:

- Observar la evolución de la legibilidad de los Informes de Gestión a lo largo del tiempo.

- Estudiar el impacto de la extensión de estos documentos sobre la legibilidad, descomponiendo la extensión en dos aspectos fundamentales: cantidad de texto y cantidad de elementos visuales.

- Proponer como novedad un factor que puede contribuir a mejorar la legibilidad de la información contable, como es el cumplimiento de buenas prácticas de gobierno, estudiado en el enfoque anterior y considerado como generador de transparencia y buen hacer para las empresas.

Por último, el tercer análisis tiene como objetivo estudiar la igualdad salarial de género a través de la información que proporcionan las empresas en sus Informes Anuales de Remuneraciones. Concretamente, este estudio trata de examinar si existe una brecha salarial de género en los consejos de administración, analizando distintos tipos de consejeros y distintos tipos de retribuciones. Este tema es de gran interés para toda la población en la

actualidad, donde todavía existe un gran debate acerca de si hemos alcanzado la igualdad de género a todos los niveles.

Los resultados extraídos de este triple análisis, en el que se estudian las narrativas contables a través de diferentes documentos, permitirán avanzar en el conocimiento teórico y extraer conclusiones prácticas que permitan a las empresas desarrollar estrategias a la hora de emitir su información contable. Estas estrategias se pueden convertir en un elemento de valor para las mismas, proyectando al exterior una imagen de buen hacer, transparencia e igualdad, entre otros.

1.3. ESTRUCTURA DE LA TESIS DOCTORAL

Para la consecución de los objetivos planteados, la presente tesis doctoral se ha estructurado en cinco capítulos. Después de realizar una introducción y establecer los objetivos, los capítulos 2, 3 y 4 se corresponden, cada uno, con un trabajo de investigación diferente. Cada una de estas investigaciones aborda el análisis de las narrativas contables a través de distintos documentos. Por último, el capítulo 5 pone fin a la tesis con una sección de conclusiones, destacando sus contribuciones e implicaciones, así como sus limitaciones y futuras líneas de investigación.

Capítulo 1 Introducción		
Capítulo 2 Determinants of good governance practices	**Capítulo 3** Readability in Management Reports	**Capítulo 4** The Gender Pay Gap in the board of directors
Informe Anual de Gobierno Corporativo	Informe de Gestión	Informe Anual de Remuneraciones
Capítulo 5 Conclusiones		
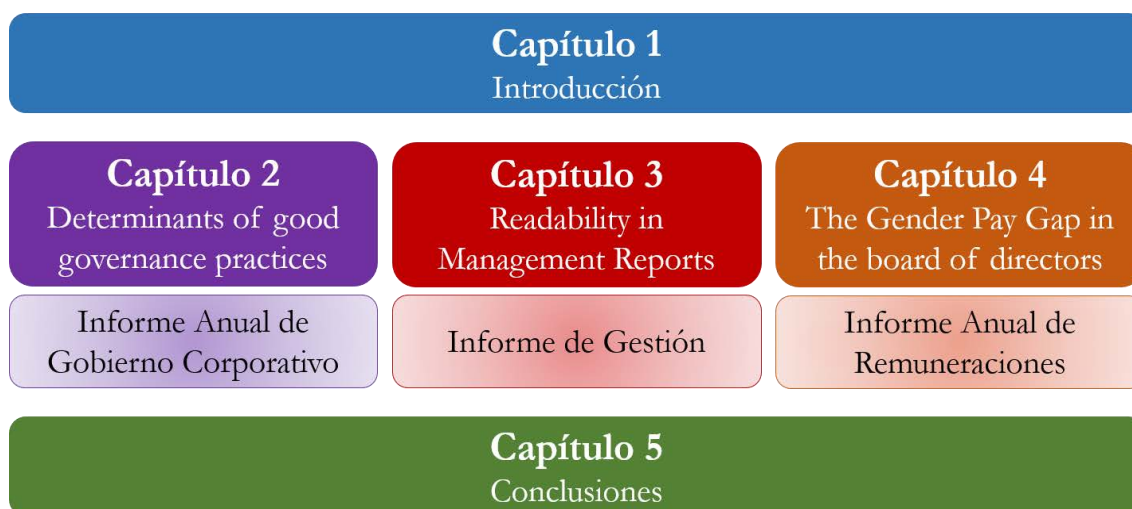
Figura 1.1. Estructura y contenido de la tesis doctoral

El capítulo 2 analiza una parte de la información narrativa contenida en el Informe Anual de Gobierno Corporativo que elaboran las empresas. Concretamente, se centra en el estudio del apartado que tiene ver con el grado de seguimiento de las recomendaciones de gobierno corporativo. El objetivo de esta investigación es analizar cuáles son los factores

determinantes que influyen en el cumplimiento de las buenas prácticas de gobierno corporativo, que son tan importantes para la empresa. En este sentido, el cumplimiento de estas recomendaciones permite a las empresas mejorar su legitimidad frente a los inversores (Zattoni & Cuomo, 2008), además de crear un ambiente de confianza, transparencia y responsabilidad, necesario para favorecer las inversiones a largo plazo y la integridad de las empresas (OCDE, 2016). Dentro de los factores que son determinantes en el cumplimiento de estas recomendaciones, este estudio centra su atención, de forma novedosa, en la importancia de los consejeros independientes dentro del consejo de administración de las empresas. Esta investigación ha sido publicada este año 2020 en el número 3 del volumen 49 de la Revista Española de Financiación y Contabilidad / *Spanish Journal of Finance and Accounting* (JCR; *Business, Finance* Q3).

El capítulo 3, por su parte, toma el Informe de Gestión de las empresas como documento contable de referencia para analizar la legibilidad de la información voluntaria divulgada por estas. La tendencia de los últimos años ha sido emitir cada vez una mayor cantidad de información por parte de las empresas. Esto ha hecho que la complejidad de los documentos contables que emiten estas sea también cada vez mayor y se cuestione de manera intensa. Esta mayor complejidad ha desencadenado la puesta en marcha de diversos proyectos por parte de organismos reguladores, con el objetivo de mejorar la legibilidad y transparencia de estos documentos (Lim, Chalmers, & Hanlon, 2018) y reducir su dimensión.   El objetivo de este trabajo se centra en determinar si la extensión de los informes influye en la facilidad o dificultad de lectura de los mismos, como medida de claridad y transparencia. Además, estudiamos un factor novedoso en la explicación de la legibilidad contable, como es el cumplimiento de buenas prácticas de gobierno corporativo, que pueden transmitir esa fuente de transparencia y legitimidad a las narrativas contables. Esta investigación será publicada el próximo año 2021 en el número 1 del volumen 24 del de la Revista de Contabilidad / *Spanish Accounting Review* (JCR; *Business, Finance* Q3).

El capítulo 4, que supone la última investigación de la tesis, analiza el Informe Anual de Remuneraciones de las empresas, tomando como eje principal la igualdad de género. Más concretamente, esta investigación trata de determinar si existe una brecha salarial de género en posiciones corporativas altas, como es el caso del consejo de administración. Una de las principales críticas a los estudios sobre brecha salarial tiene que ver con el análisis de muestras o grupos de personas demasiados heterogéneos (Grund, 2015), así como la heterogeneidad de los diferentes conceptos que componen la remuneración de un trabajador (Amado, Santos, & São José, 2018). Es quizás por este motivo, por el cual la evidencia empírica no ha

llegado a un consenso sobre brecha salarial de género en estos trabajados altamente cualificados y pagados. Por este motivo, nuestra investigación trata de corregir estas deficiencias, estudiando la brecha salarial de género por diferentes tipos de consejeros y por diferentes tipos de remuneraciones. Además de ello, lo hacemos únicamente en aquellas empresas en las que convivan hombres y mujeres de cada tipo, es decir, donde existe diversidad de género. Esta investigación está en proceso evaluación en una revista JCR de *Business, Finance*.

Finalmente, el último capítulo, como no podía ser de otra manera, está dedicado a recopilar las principales conclusiones, destacando sus contribuciones e implicaciones derivadas de esta tesis doctoral, al mismo tiempo que señala las principales limitaciones y propone futuras líneas de investigación en este campo de conocimiento.

1.4. REFERENCIAS

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Capítulo 2

Determinants of good governance practices: the role of board independence

VISIÓN GENERAL

Motivación

En las últimas dos décadas ha habido un interés creciente por todo lo relacionado con el gobierno corporativo, que se ha visto favorecido por la última crisis financiera y algunos escándalos corporativos a nivel mundial. Por tanto, no es de extrañar que haya habido una proliferación de códigos de buen gobierno o de gobierno corporativo desde que se publicó el Código Cadbury en 1992.

Estos códigos contienen recomendaciones sobre prácticas de buen gobierno, lo que significa mejorar la efectividad de las empresas en términos de gobierno corporativo y aumentar su legitimidad ante los inversores (Zattoni & Cuomo, 2008). Estos facilitan la creación de un entorno de confianza, transparencia y rendición de cuentas, necesario para favorecer las inversiones a largo plazo, la estabilidad financiera y la integridad en los negocios (OCDE, 2016).

El tamaño de la empresa y su estructura de propiedad son dos variables tradicionalmente consideradas para explicar el cumplimento con las recomendaciones de gobierno corporativo. Otra variable relacionada es el consejo de administración y, dentro del consejo de administración, la independencia del consejo es el tema que más interés ha despertado (López-Iturriaga & Morrós-Rodríguez, 2012) debido al papel fundamental que juegan los consejeros independientes en la neutralización de conflictos. Sin embargo, hasta donde sabemos, ningún trabajo ha vinculado la independencia del consejo y el cumplimiento de las recomendaciones de buen gobierno corporativo, ya que la evidencia existente se centra en la relación entre consejeros independientes y principalmente variables de desempeño. Por tanto, esta relación novedosa ha guiado nuestro estudio sobre las prácticas de buen gobierno.

Objetivo

El objetivo del trabajo es examinar los factores que influyen en el cumplimiento de las prácticas de buen gobierno, dando una especial importancia a la independencia del consejo como factor reductor de problemas de agencia. En primer lugar, se intenta verificar si la proporción de consejeros independientes en el consejo ha ido aumentando con el tiempo, de acuerdo con las recomendaciones de los diferentes códigos (H1). A continuación, se pretende corroborar la existencia de relaciones positivas entre el tamaño de la empresa (H2)

y la estructura de propiedad (H3) sobre las prácticas de buen gobierno, como sugiere la literatura. Finalmente, se propone una novedosa relación positiva entre la proporción de consejeros independientes y las buenas prácticas (H4), considerando la independencia del consejo como un mecanismo para mejorar la eficacia del consejo de administración. Además, se analiza si esta relación entre la independencia del consejo y las prácticas de buen gobierno puede estar moderada por la estructura de propiedad (H5).

Enfoque

Nuestra muestra está compuesta por sociedades cotizadas en el Mercado Continuo de la Bolsa de Madrid, eliminando aquellas empresas financieras e inmobiliarias, así como empresas en proceso de liquidación, sin cuentas anuales consolidadas disponibles y con menos de 5 de observaciones consecutivas. Se estudia el grado de cumplimiento con las recomendaciones de buen gobierno contenidas en los Informes Anuales de Gobierno Corporativo y el período de análisis abarca desde 2010 hasta 2016. Como resultado, tenemos un panel no equilibrado de 87 empresas españolas cotizadas y 595 observaciones.

Los datos relacionados con las variables dependientes (cumplimiento total, cumplimiento total y parcial, y cumplimiento total y parcial ponderado) y la variable independiente de independencia del consejo se recogieron de los Informes Anuales de Gobierno Corporativo. La información financiera correspondiente al resto de variables independientes y de control (características de las empresas) se obtuvieron de la base de datos SABI.

La evolución de la independencia del consejo se examinó mediante estadísticos descriptivos y la prueba de Friedman. Para analizar los factores que influyen en las prácticas de gobierno corporativo, se propusieron dos modelos de datos de panel con variables dependientes censuradas para el límite superior de uno, ya que el cumplimiento de las recomendaciones de buen gobierno tiene un límite superior de uno para aquellas empresas que cumplen el 100% de las recomendaciones. El primero, para la muestra entera, trata de determinar qué variables están detrás de las prácticas de buen gobierno. El segundo, que distingue entre empresas que cumplen con la recomendación de la independencia del consejo y aquellas que no cumplen, intenta verificar si hay diferencias de comportamiento en las variables explicativas de las buenas prácticas entre ambos grupos de empresas, en términos de signo, magnitud y nivel de significación. Estos modelos se estimaron mediante efectos aleatorios, utilizando una función de verosimilitud.

Hallazgos

En primer lugar, se analizó la evolución de los consejeros independientes a lo largo del período elegido. Los datos mostraron que la proporción de consejeros independientes en los consejos de administración sigue una tendencia creciente a lo largo de los años. Así, en 2010 la media (mediana) de esta variable fue del 33,29% (33,33%) de consejeros independientes por cada consejo, y en 2016 la media (mediana) fue del 41,70% (40,00%). La prueba de Friedman nos permitió encontrar diferencias estadísticamente significativas entre los años seleccionados, verificando la hipótesis H1.

A continuación, se analizaron las posibles relaciones entre las variables independientes y el grado de cumplimiento de las prácticas de buen gobierno. El análisis de regresión mostró una relación positiva entre el tamaño de la empresa y el cumplimiento de buenas prácticas, corroborando la hipótesis H2. También mostró una relación positiva entre la dispersión de la propiedad y la variable dependiente, apoyando la hipótesis H3. Además, mostramos que la independencia del consejo de administración contribuye a mejores prácticas de gobierno corporativo, por lo que se verificó la hipótesis H4. Finalmente, se observa la existencia de un efecto moderador de la variable dispersión de la propiedad sobre la relación entre la independencia del consejo y el cumplimiento de las recomendaciones. El signo negativo de este efecto indica que, en aquellas empresas con mayor dispersión de la propiedad, la importancia de los consejeros independientes como factor explicativo de las prácticas de buen gobierno es menor, corroborando la hipótesis H5.

Sin embargo, realizando un análisis más profundo, observamos un comportamiento diferente entre las empresas que cumplen con la recomendación de independencia del consejo y las empresas que no la cumplen. De esta forma, las empresas que cumplen con esta recomendación presentan un mayor grado de cumplimiento de las prácticas de buen gobierno. Dividiendo la muestra en estos dos grupos, mostramos diferentes hallazgos. Las empresas que no cumplen con la recomendación de independencia del consejo mostraron un comportamiento similar a los resultados globales anteriores (es decir, el tamaño de la empresa, la dispersión de la propiedad y la independencia del consejo influyen positivamente en las prácticas de buen gobierno, y la relación entre la independencia del consejo y las buenas prácticas se ve moderada negativamente por la dispersión de la propiedad). No obstante, los resultados difieren sustancialmente para las empresas que cumplen esta recomendación. En particular, la dispersión de la propiedad no tiene un efecto significativo en las buenas prácticas, ni modera la relación entre la independencia y la variable dependiente. Además, la

influencia positiva de la independencia del consejo de administración en las prácticas de buen gobierno es mucho menor. Esto destaca la importancia de los consejeros independientes a la hora de explicar las prácticas de buen gobierno.

Contribuciones e implicaciones

Este estudio proporciona nueva evidencia sobre los determinantes de las prácticas de buen gobierno como mecanismo de gobierno corporativo. Como novedad, mostramos la influencia de la independencia del consejo de administración en las prácticas de buen gobierno, destacando el efecto moderador de la estructura de propiedad en esta relación. También mostramos el diferente comportamiento de estos factores cuando distinguimos entre empresas que cumplen o no cumplen la recomendación de independencia del consejo.

Como consecuencia, este trabajo proporciona información relevante para los profesionales, revelando la importancia de los consejeros independientes como factor para mejorar las prácticas de buen gobierno. También podría resultar interesante para legisladores y responsables políticos que puedan utilizar este conocimiento para seguir desarrollando y actualizando las recomendaciones contenidas en los códigos de buen gobierno. No hay que olvidar que el cumplimiento de estos códigos por parte de las empresas les otorga una imagen de mayor fiabilidad y transparencia, además de ser considerado un buen mecanismo de gobierno corporativo.

OVERVIEW

Motivation

In the last two decades there has been a growing interest in everything related to corporate governance, which has been favoured by the contribution of the last financial crisis and some corporate scandals worldwide. It is thus not surprising that there has been a proliferation of good governance or corporate governance codes since the Cadbury Code was published in 1992.

These codes contain recommendations on good governance practices, which means improving the effectiveness of companies in terms of corporate governance and increasing their legitimacy before investors (Zattoni & Cuomo, 2008). They facilitate the creation of an environment of trust, transparency and accountability, necessary to favour long- term investments, financial stability and integrity in business (OCDE, 2016).

Firm size and ownership dispersion are the two variables traditionally considered to explain compliance with corporate governance recommendations. Another variable related to corporate governance is board of directors. Within board of directors, the board independence is the issue that has aroused most interest (Lopez-Iturriaga & Morrós-Rodríguez, 2012) due to the fundamental role played by independent directors in the neutralisation of conflicts. To our knowledge, however, no work has linked board independence and compliance with the recommendations of good corporate governance practices, since the existing evidence focuses on the relationship between independent directors and mainly performance variables. Therefore, this novel relationship has guided our study on good governance practices.

Purpose

The aim of paper is to examine the determinants that influence the compliance of good governance practices, giving special importance to board independence as a reducing factor of agency problems. First, it tries to verify whether the proportion of independent directors on the board has been increasing over time, in accordance with the recommendations of the different codes (H1). Next, it tries to corroborate the existing positive relationships between company size (H2) and ownership structure (H3) on good governance practices, as suggested by the literature. Finally, a novel positive relationship between the proportion of independent directors and good practices is proposed (H4), considering board independence as a

mechanism to improve the effectiveness of the board of directors. In addition, it is analysed whether this relationship between board independence and good governance practices can be moderated by the ownership dispersion (H5).

Approach

Our sample is composed of listed companies on the Continuous Market of the Madrid Stock Exchange, eliminating financial and real estate companies, as well as companies in liquidation processes, without available consolidated annual accounts and with less than five consecutive observations. We study the degree of compliance with good governance recommendations contained in the Annual Corporate Governance Reports and the analysis period runs from 2010 to 2016. As a result, we have an unbalanced panel of 87 listed Spanish companies and 595 observations.

The data related to the dependent variables (total compliance, total y partial compliance, and total and partial compliance weighted) and the independent variable of board independence were collected from the annual corporate governance reports. The financial information corresponding to the rest of the independent and control variables (firm characteristics) were obtained from the SABI database.

The evolution of board independence was examined through descriptive statistics and Friedman test. To analyse the determinants that influence good governance practices, two models of panel data have been developed with the censured dependent variables by the upper limit of one, since the compliance with good governance recommendations has a lower limit of one for those companies that comply 100% of the recommendations. The first, for the whole sample of companies, is to determine which variables are behind good governance practices. The second distinguishes companies that comply with the recommendation of board independence from those that do not, to determine whether there is a different behaviour in the explanation of good practices between one and another group of companies, in terms of sign, magnitude and significance. These models were estimated through random effects, using a likelihood function.

Findings

First, the evolution of independent directors was analysed throughout the chosen period. The data showed that the proportion of independent directors on the boards of directors follows a growing trend over the years. Thus, in 2010, the average (median) of this variable

was 33.29% (33.33%) independent directors for each board, and in 2016, the average (median) was 41.70% (40.00%). The Friedman test allowed us to find statistically significant differences between the selected years, verifying hypothesis H1.

Next, the possible relationships between the independent variables and the degree of compliance with good governance practices were analysed. The regression analysis showed a positive relationship between company size and compliance with good practices, corroborating hypothesis H2. It also showed a positive relationship between ownership dispersion and the dependent variable, supporting hypothesis H3. Moreover, we demonstrated that board independence contributes to better corporate governance practices, so hypothesis H4 was verified. Finally, we note the existence of a moderating effect by the ownership dispersion variable on the relationship between board independence and compliance with recommendations. The negative sign of this effect indicates that, in those companies with more ownership dispersion, the importance of independent directors as an explanatory factor of good governance practices is lower, corroborating hypothesis H5.

Nevertheless, doing a deeper analysis, we note a different behaviour between companies that comply with the recommendation of board independence and companies that do not. Thereby, companies that comply with this recommendation exhibit a greater degree of compliance with good governance practices. Splitting the sample into these two groups, we demonstrated different findings. Companies that do not comply with board independence recommendation, showed similar behaviour to previous global results (i.e. firm size, ownership dispersion and board independence positively influence good governance practices, and the relation between board independence and good practices is negatively moderated by ownership dispersion). However, the results differ substantially for companies that do. In particular, ownership dispersion does not have a significant effect on good practices, nor does it moderate the relationship between independence and the dependent variable. In addition, the positive influence of board independence on good governance practices is much lower. This highlights the importance of independent directors in explaining good governance practices.

Contributions and implications

This study provides new evidence on the determinants of good governance practices as a corporate governance mechanism. As a novelty, we demonstrated the influence of board independence on good governance practices, highlighting the moderator effect of ownership

structure in this relationship. We also show the different behaviour of the determinants when we distinguish between companies that comply or do not comply board independence recommendation.

As a consequence, this paper provides relevant information for practitioners, revealing the importance of independent directors as a factor to improve good governance practices. It could also be interesting for legislators and policymakers who can use this knowledge to continue developing and updating the recommendations contained in the good governance codes. It should not be forgotten that compliance with these codes by companies gives them an image of greater reliability and transparency, in addition to being considered a good corporate governance mechanism.

RESUMEN

Este estudio contribuye a ampliar el conocimiento sobre gobierno corporativo de las empresas. En particular, consideramos la independencia del consejo de administración como una variable fundamental en la explicación de las prácticas de buen gobierno. Para ello, analizamos los Informes Anuales de Gobierno Corporativo de las sociedades cotizadas españolas en el Mercado Continuo de la Bolsa de Madrid durante el período 2010-2016. Los resultados para todas las empresas revelan que el tamaño de la empresa, la dispersión de la propiedad y la independencia del consejo de administración tienen una relación positiva con las buenas prácticas, y que la relación entre la independencia del consejo y las prácticas de buen gobierno se ve moderada por la dispersión de la propiedad. Sin embargo, cuando distinguimos entre las empresas que cumplen con la recomendación de independencia del consejo y aquellas que no lo hacen, los resultados difieren sustancialmente en términos de signo, magnitud y nivel de significación. Esto resalta la importancia de la independencia del Consejo de administración para explicar las prácticas de buen gobierno.

PALABRAS CLAVE

Gobierno corporativo; códigos de gobierno corporativo; prácticas de buen gobierno; tamaño empresarial; dispersión de la propiedad; independencia del consejo

ABSTRACT

This study contributes to broadening our knowledge of the corporate governance of firms. In particular, we consider board independence as a fundamental variable in the explanation of good governance practices. For this purpose, we analyse the Annual Corporate Governance Reports of the Spanish listed companies on the Continuous Market of the Madrid Stock Exchange during the period 2010–2016. The results for all companies reveal that firm size, ownership dispersion and board independence have a positive relationship with good practices, and the relationship between board independence and good governance practices is moderated by ownership dispersion. When we distinguish between firms that comply with board independence recommendation and those that do not, however, the results differ substantially, in terms of sign, magnitude and significance level. This highlights the importance of board independence in explaining good governance practices.

KEYWORDS

Corporate governance; corporate governance codes; good governance practices; firm size; ownership dispersion; board independence

2.1. INTRODUCTION

This study provides new evidence on the corporate governance of companies and compliance with good governance codes. As a novelty, we show the relationship between board independence and good governance practices and also highlight the moderator effect that ownership dispersion exerts on this relationship. Moreover, we show that the behaviour of the explanatory variables, which are behind the good governance practices, differs (in terms of sign, magnitude, and significance level), when we distinguish between firms that comply with board independence recommendation and those that do not.

As a consequence, this paper provides relevant information not only for the practitioners, since it reveals empirical evidence of the importance of the board independence variable in explanation of good governance practices; but also for legislators and policymakers who can use this knowledge to continue developing and updating the recommendations that contain the good governance codes.

In the last two decades there has been a growing interest in everything related to corporate governance, which has been favoured by the contribution of the last financial crisis and some corporate scandals worldwide. It is thus not surprising that there has been a proliferation of good governance or corporate governance codes since the Cadbury Code was published in 1992.

These codes contain recommendations on good governance practices, which means improving the effectiveness of companies in terms of corporate governance and increasing their legitimacy before investors (Zattoni & Cuomo, 2008). They facilitate the creation of "an environment of trust, transparency and accountability, necessary to favour long-term investments, financial stability and integrity in business" (OCDE, 2016).

Firm size and ownership dispersion are the two variables traditionally considered to explain compliance with corporate governance recommendations. It is worth highlighting the papers of Akkermans et al. (2007), Nowland (2008), and Werder, Talaulicar, and Kolat (2005) which have studied the relationships between good governance practices and firm size, and/or ownership dispersion.

Another variable related to corporate governance is boards of directors. Within boards of directors, the board independence is the issue that has aroused most interest (Lopez-Iturriaga & Morrós-Rodríguez, 2012). This interest is due to the fundamental role played by independent directors in the neutralization of conflicts, given that they provide objective

judgments for the benefit of the companies because they are disconnected from any relationship with the directors and shareholders (Stein & Plaza, 2011). To our knowledge, however, no work has linked board independence and compliance with the recommendations of good corporate governance practices, since the existing evidence focuses on the relationship between independent directors and mainly performance variables (Benkel, Mather & Ramsay, 2006; Kumar & Sivaramakrishnan, 2008; Lefort & Urzúa, 2008) and not in relationship to compliance with good practices. As we have previously anticipated, this paper therefore addresses a novel topic that has not yet been considered in the literature.

Agency theory (Jensen & Meckling, 1976), with the existing conflicts of interest between principal and agent (ownership and management), and even between principals (when companies have large shareholders), will be relevant in this area, given that corporate governance mechanisms, such as board independence and compliance with good practices, seek to reduce agency costs, providing the environment of trust and transparency demanded by today's society.

In accordance with the above, the variables that affect the development of good governance practices will be analysed, highlighting the role played by board independence, as a novelty of this study, and with special emphasis the moderator effect that ownership dispersion exerts on the relationship between board independence and good practices. To this end, the study will focus on Spanish listed companies in the Continuous Market of the Madrid Stock Exchange during the 2010-2016 period, through an examination of the Annual Corporate Governance Report, which includes the recommendations of good governance in force at the time.

In order to formalise the relationships with good practices, two models of panel data have been developed with the dependent variable censored. The first, for the whole sample of companies, is to determine which variables are behind good governance practices. The second distinguishes companies that comply with the recommendation of board independence from those that do not, to determine whether there is a different behaviour in the explanation of good practices between one and another group of companies, in terms of sign, magnitude and significance.

The most important results on compliance with the recommendations of good governance reveal, in general terms and for the whole sample of companies: positive relationships with respect to firm size and ownership dispersion, and a positive relationship in relation to board independence, which is mitigated by the moderating effect of ownership

dispersion. When we distinguish between companies that comply with board independence recommendation and those that do not, however, we observe very different behaviours between both groups of companies. Companies that comply with this recommendation thus present a greater compliance with the recommendations of good governance, while variables such as ownership dispersion and its interaction with board independence lack explanatory power, and others such as board independence shows less intensity in the relationship with good practices.

Our research makes several contributions to the field. It covers a gap in the scientific literature regarding the board independence and compliance with good governance practices. To this end, we introduce a new variable to explain compliance with the recommendations of good governance, such as board independence, measured both in relative terms (through the proportion of independent directors, which is simply denominated 'board independence') to evaluate the explanatory content of this variable, as in absolute terms of compliance with the recommendation of board independence (board independence dummy) in order to capture the differential behaviour of both groups of companies. This novel distinction between both groups of companies, as will be seen below, will be fundamental to the explanation of good corporate governance practices. It also corrects the main methodological limitations that, according to Cuomo et al. (2016), are present in the previous studies, such as the lack of control of specific characteristics of the company (for example, the book-to-market, the age of the company and the leverage), the use of Ordinary Least Squares (OLS) regressions, and the problem of unobserved heterogeneity among companies.

The paper is structured as follows. In the section shown below, the literature on good corporate governance practices is reviewed and the hypotheses to be tested are presented. Next, the methodology and the design of the research are exposed, to continue with the presentation of the obtained results. The work ends with the conclusions reached from the results of the study.

2.2. CORPORATE GOVERNANCE CODES AND HYPOTHESES DEVELOPMENT

2.2.1. Corporate governance codes

The corporate governance codes help to achieve an atmosphere of trust by raising good practices that, if followed by corporations and their members, give an idea of their commitment and involvement with corporate governance (Carrasco & Laffarga, 2007). The codes are based on the 'comply or explain' principle to improve corporate governance

practices; that is, companies have the option of complying with the good practices included in the codes or explaining why they do not comply with them[1]. This principle gives companies flexibility, as it allows them to choose the corporate governance structure they want to adopt in order to achieve, in the way they consider most appropriate, the objectives that have been proposed, while at the same time ensuring greater transparency in the market (Aguilera & Cuervo-Cazurra, 2004, 2009; Cuomo, Mallin, & Zattoni, 2016; Christine Mallin, 2013).

The market values companies that comply with good practices positively, and therefore motivates them to continue striving to achieve compliance. Financial scandals, together with the latest financial crisis, however, have brought to light failures in business behaviour, and in regulatory and control institutions. These failures broke the atmosphere of confidence which the introduction of new stricter principles for international organizations, such as the G20 and the OECD, had tried to introduce, with the intention of improving corporate control and responsibility, as well as the adequate separation of functions, duties and responsibilities.

For the Spanish case, the evolution of the codes began with the Olivencia Report (1998). This report advised publishing the information referring to good governance practices with no standardized format, which means informative heterogeneity and lack of comparability. The Olivencia Report was followed by the Aldama Report (2003), which suggested using a predetermined model (the Annual Corporate Governance Report). The Olivencia report established 23 recommendations that were complemented with those in the Aldama Report.

Since then, Spain has undergone a profound transformation in relation to corporate governance, in line with the evolution of new trends and good international practices. The first Unified Code of Good Governance in Spain dates back to 2006 (with 58 recommendations). In 2013, a partial update of this code was approved in order to adapt or eliminate those recommendations that had become part of the current legislation (with 53 recommendations). Subsequently, the Law 31/2014, which amends the Capital Companies Law (CCL), was approved and the new Code of Good Governance of listed companies was published in February 2015. In this new code of 2015 the recommendations of the Unified Code of 2006 and the international standards of good governance were taken into account

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[1] For instance, in Spain, of the 64 current recommendations of the code of 2015, 21 admit four possible options: 'comply', 'partially comply', 'explain' and 'not applicable'; eight recommendations only admit two options: 'comply' and 'explain'; 33 allow three to be chosen: 'comply', 'partially comply' and 'explain'; and only two allow the options: 'comply', 'explain' and 'not applicable'.

(in particular, it contains the 64 recommendations and they come from doctrinal approaches, from the European Commission, from other international organizations, and from legislation applied in other countries).

Law 26/2003 of the Securities Market force listed companies to publish an Annual Corporate Governance Report and Order ECO/3722/2003, on the 26th of December, established the minimum content of this report. Since 2007 the Annual Corporate Governance Report contains the good corporate governance practices proposed by the corporate governance codes in a standardized format. In addition, this document is part of the Management Report and, therefore, the annual financial statements.

2.2.2. Hypotheses development

Firm size and/or ownership dispersion affect compliance with good corporate governance practices, as demonstrated by several studies (Akkermans et al., 2007; Albu & Girbina, 2015; Black, Jang, & Kim, 2006; Nowland, 2008). Albu and Girbina (2015) reveal that larger companies comply more with the recommendations of the good governance codes and find no significant relationship between ownership dispersion and the compliance level. Akkermans et al. (2007) also show that larger firms comply significantly more with good practices than smaller companies. The underlying argument can be that larger companies listed in the different stock market get more attention and are more closely scrutinised by the media and the investor community. They may therefore lose more from non-compliance. Moreover, large companies can more easily afford to comply due to scale economies. Black et al. (2006) illustrate that the firm size is the most significant among the factors that affect firms' corporate governance practices. Nowland (2008), after examining the adoption of major board-related corporate governance recommendations by nonfinancial companies in seven East Asian nations, shows that bigger companies and with less concentrated ownership have been more likely to improve their corporate governance practices. Cuomo et al. (2016) suggest that agency costs are the reason for this, which increase more than proportionally with the size of the companies, since larger companies need more sophisticated government practices and the pressure they are under to comply is greater because their ownership structure is more dispersed and they are more exposed to the outside. In addition, according to agency theory, ownership dispersion prevents directly observing the efforts of managers and, therefore, good corporate governance practices can mitigate this problem, so that investors are expected to be more interested in companies that pursue high levels of corporate governance (Kaspereit, Lopatta, & Onnen, 2017).

Another tool of great interest in the field of corporate governance is boards of directors. Their importance has meant that the literature has been busy studying them in depth. Several papers have analysed board size, their structure and/or their functioning (Andres, Lopez-Iturriaga, Azofra & Lopez, 2005; Boone, Casares Field, Karpoff & Raheja, 2007; Gales & Kesner, 1994; Kumar & Sivaramakrishnan, 2008). However, board independence is the issue that has aroused most interest, given that independent directors play a fundamental role within boards in neutralizing conflicts between managers and shareholders, contributing objectivity to a company (Stein & Plaza, 2011). Lawmakers and stock exchanges around the world also have embraced board independence as an essential element of good corporate governance (Liu et al., 2015). These authors show that independent directors play an important role in Chinese corporate governance. The codes therefore recommend an increasing number of independent directors (Zattoni & Cuomo, 2010)[2], which is considered a factor that reduces the problems of agency, improves the good practices of boards and increases the performance of companies (Aguilera & Cuervo-Cazurra, 2004). The theory also points out that a strong board of directors can improve the performance of the company through more effective control over managers and through the reduction of agency problems. It can also serve to protect the rights of minority shareholders when the legal system does not (Liu Miletkov, Wei, & Yang, 2015). In addition, a study carried out by the French Institute of Corporate Governance on companies that apply the MiddleNext Code reveals that some of the firm characteristics, such as the presence of independent directors, explain their choice in terms of corporate governance (Albu & Girbina, 2015).

In this sense, several papers have also analysed the relationship between independent directors and other variables, such as: (1) corporate social responsibility (Jo & Harjoto, 2012; Sahin, Sahin Basfirinci, & Ozsalih, 2011; Sánchez, Sotorrío, & Díez, 2011; Villiers, Naiker, & Van Staden, 2011), and (2) transparency and informative quality (Armstrong, Core, & Guay, 2014; Bravo & Reguera-Alvarado, 2017; Ferreira, Ferreira, & Raposo, 2011; Petra, 2007; Yekini, Adelopo, Andrikopoulos, & Yekini, 2015). Despite the high number of studies on boards of directors and the importance of independence directors in these relationships and, in particular, in the performance of companies (Aggarwal, Erel, Stulz, & Williamson, 2010; Benkel et al., 2006; Kumar & Sivaramakrishnan, 2008; Lefort & Urzúa, 2008; Luan & Tang, 2007; Uribe-Bohorquez, Martínez-Ferrero, & García-Sánchez, 2018), as far as we

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[2] The Unified Code of Good Spanish Government of 2006 proposed that at least one third of the total number of directors be independent, while the Code of Good Governance of 2015 proposes that at least half of all board members be independent.

know, no work has studied the relationship between board independence and compliance with the recommendations of good corporate governance practices.

Agency theory dominates investigations into corporate governance (Zattoni & Cuomo, 2010), wherein the mechanisms used by corporate governance try to avoid the opportunistic behaviour of agents, who are strongly motivated to take advantage of the asymmetry of information between them and shareholders. External and internal mechanisms are used to achieve this. External mechanisms include the competitive labour market (Fama, 1980), the corporate control market (Kosnik, 1987), the external auditor, the legal environment and the media (Aguilera, Desender, Bednar & Lee, 2015). Internal mechanisms include an increase in the number of independent directors and the use of other practices designed to increase the responsibility and effectiveness of the board (Aguilera & Cuervo-Cazurra, 2009; Zattoni & Cuomo, 2008). In accordance with this premise, the independent directors and the good practices contained in the codes are intended to align the interests of the directors with those of the shareholders (Fama & Jensen, 1983). Therefore, a positive relationship between board independence and compliance with the recommendations of good governance practices can be expected. In addition, as will be seen later, this relationship between board independence and good governance practices can be moderated by the ownership dispersion.

In line with these arguments, we propose a series of hypotheses related to corporate governance. The first is to verify whether proportion of independent directors are increasing in boards of directors, in accordance with the recommendations of good governance contained in the codes of 2006 and 2015.

H1: The independence of board of directors is expanding.

The next two hypotheses are to corroborate positive relationships between firm size and ownership dispersion on good governance practices, as suggested in previous works (Akkermans et al., 2007; Nowland, 2008).

H2: Firm size has a positive effect on good corporate governance practices.

H3: Ownership dispersion has a positive effect on good corporate governance practices.

The last two hypotheses, which represent a novelty with respect to such studies, contrast the relationship between board independence and good governance practices, as well as the moderating effect that ownership dispersion can exert on this latter relationship. For this, extending the approach of previous works that relate the board independence with very different variables (Ben Barka & Legendre, 2017; K. Li, Lu, Mittoo, & Zhang, 2015; Sahin et

al., 2011; Yekini et al., 2015) and assuming the neutral and objective role of independent directors, we propose a positive relationship with the good governance practices.

H4: Board independence has a positive effect on good corporate governance practices.

Once the main relationship between board independence and good governance practices has been established, it is reasonable to propose that the influence of ownership dispersion can be exerted by moderating this main relationship. According to Uribe-Bohorquez et al. (2018), which show the moderating effect of institutional context on the relationship between board independence and firm performance, and Li et al. (2015), which find a moderating effect of ownership concentration also on the relationship between board independence and firm performance, we also believe that, in companies with more dispersed ownership, the effect of independent directors on good corporate governance practices is reduced, due to an increase in the external pressures they are under to comply with them.

H5: Ownership dispersion has a moderating effect, reducing the impact of independent directors on good corporate governance practices.
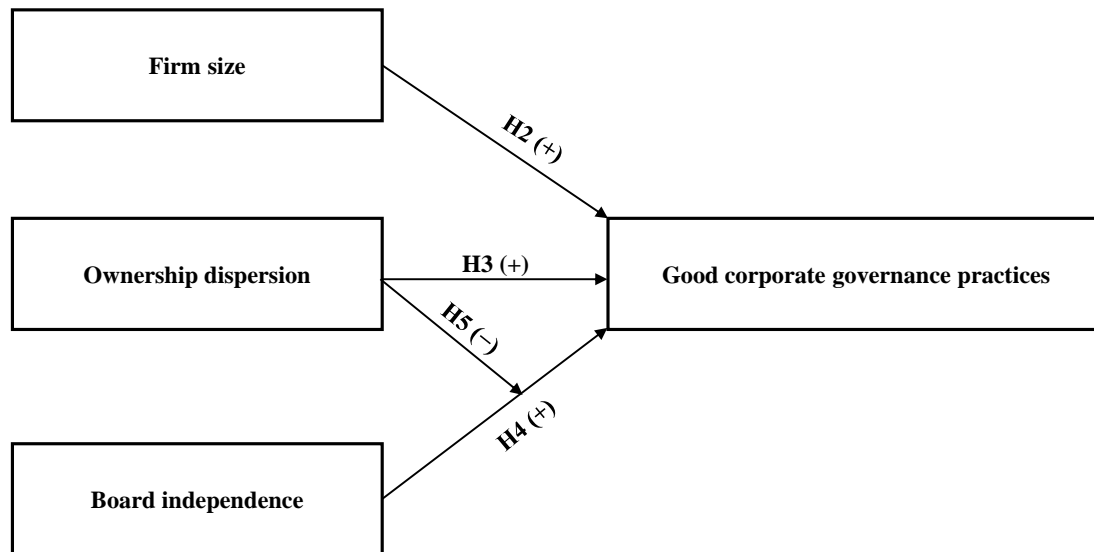
Figure 2.1. Hypotheses to be tested about good corporate governance practices

Figure 1 illustrates the last four hypotheses. A dummy variable representative of compliance with the recommendation of board independence (board independence dummy) is later incorporated to determine whether the companies that comply with this recommendation have different behaviour in the good practices of corporate governance, in terms of sign, magnitude and level of significance, both in the level of compliance with these

recommendations and in the relationships that have been described in the last four hypotheses. This novel incorporation, as will be seen below, will be fundamental in the explanation of good corporate governance practices.

2.3. METHODOLOGY AND DESIGN OF THE RESEARCH

2.3.1. Data

We used firms listed on the Continuous Market of the Madrid Stock Exchange during the period 2010-2016 to create our database. All those companies belonging to the financial and real estate sectors –namely banks, insurance companies, real estate companies, and investment companies– were eliminated. The use of this first filter is justified by the special characteristics that these types of firms have. The firms that were subjected to liquidation in the years examined were eliminated, because this situation could lead to abnormal behaviour in the publication of their information. In a third filter, companies that did not have information on their consolidated annual accounts were deleted, either because they presented only individual annual accounts or because they were foreign companies without an obligation to publish accounts in Spain. We also considered only companies with at least five consecutive years of available information to provide greater efficiency for the estimates of the panel data models with censored dependent variables. As a result, we have an unbalanced panel of 87 listed Spanish companies and 595 observations (see Table 2.1).

Table 2.1. Companies that make up the sample

Step	Filter	Numbers of firms						
		2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Initial sample	Total Spanish listed companies	141	146	141	137	153	152	148
First filter	Financial and real estate companies	-39	-41	-37	-36	-44	-42	-38
Second filter	Liquidated companies	-4	-4	-3	-3	-3	-1	
Third filter	Companies without consolidate data	-8	-10	-10	-9	-13	-14	-16
Fourth filter	Companies with less than five consecutive observations	-7	-5	-4	-2	-6	-11	-13
Final sample		**83**	**86**	**87**	**87**	**87**	**84**	**81**

This table shows the process used to debug the database for the period 2010-2016.

We studied the Annual Corporate Governance Report[3], presented by these companies in the period 2010-2016, particularly the section related to the structure of board of directors of companies and the section that refers to the degree of compliance with the recommendations proposed by the good governance codes.

2.3.2. Variables

2.3.2.1. Dependent variables

We intend to analyse the degree of compliance with the recommendations of good governance, proposed in the Annual Corporate Governance Report, as an indicator of good practices for companies[4]. In order to measure the degree of compliance with these recommendations, we have taken into account both total and partial compliance, and this has been linked to the number of recommendations with which a company can comply (that is, the number of total recommendations minus the number of recommendations that are not applicable to each particular company). In both cases, we have removed, both in the numbered and in the denominator, with the recommendation that refers to compliance with board independence (that is, at least one third for the period 2010-14 and half for the years 2015 and 2016). Following previous literature (Alves & Mendes, 2004; Price, Román, & Rountree, 2011), we have thus created the following three variables:

Total compliance (TC): Measures the proportion of recommendations with which a company has totally complied, excluding recommendations with which a company only partially complied. The calculation of this variable is obtained as:

$$TC = \frac{\text{number of recommendations with which a company has totally complied}}{\text{number of total recommendations } - \text{ number of recommendations not applicable}}$$

Total and partial compliance (TPC): Measures the proportion of recommendations with which a company has complied, both totally and partially, without making a distinction between the two. The mathematical expression that provides the value of this variable is the following:

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[3] The Annual Corporate Governance Report is the document in the annual financial statements that includes the follow-up that listed companies make regarding recommendations on good practices proposed in the codes of good governance, through compliance with a standardized format required by the National Commission of the Stock Market.

[4] Of the 64 current recommendations of the code, 21 admit four possible options: 'comply', 'partially comply', 'explain' and 'not applicable'; eight recommendations only admit two options: 'comply' and 'explain'; 33 allow three to be chosen: 'comply', 'partially comply' and 'explain'; and only two allow the options: 'comply', 'explain' and 'not applicable'.

$$\text{TPC} = \frac{\text{recommendations totally complied with } + \text{ recommendations partially complied with}}{\text{total recommendations } - \text{ recommendations not applicable}}$$

Total and partial compliance weighted (TPCW): Measures the proportion of recommendations with which a company has totally and partially complied, weighted by the importance of each one. The recommendations with which a company has totally complied are thus assigned a weight of 1, and the recommendations with which a company has partially complied are weighted as 0.5. The computation of this variable is as follows:

$$\text{TPCW} = \frac{\text{recommendations totally complied with} \cdot 1 + \text{recommendations partially complied with} \cdot 0.5}{\text{total recommendations } - \text{ recommendations not applicable}}$$

Panel A of Table 2.2 shows the descriptive statistics of these three dependent variables. The average (median) values of total compliance, total and partial compliance and total and partial compliance weighed are, respectively, 85.81% (87.76%), 92.85% (97.96%) and 89.33% (95.00%) with ranges of variation between 52.38%−100%, 64.29%−100% and 58.33%−100%.

Table 2.2. Descriptive statistics of the dependent, independent and control variables

Variable	Mean	Std. dev.	Min	1st Q	Median	3er Q	Max	N
Panel A: Dependent variables								
TC	0.8581	0.0993	0.5238	0.7959	0.8776	0.9348	1.0000	595
TPC	0.9285	0.0639	0.6429	0.8980	0.9412	0.9796	1.0000	595
TPCW	0.8933	0.0787	0.5833	0.8500	0.9082	0.9500	1.0000	595
Panel B: Independent variables								
FS	13.8910	2.1678	7.8216	12.3474	13.8354	15.2195	18.6813	595
OD	0.4417	0.2200	0.0085	0.2782	0.3874	0.6022	0.9996	595
BI	0.3664	0.1760	0.0000	0.2500	0.3333	0.5000	1.0000	595
Panel C: Control variables								
BTM	0.9321	1.7853	-25.6928	0.3197	0.6920	1.3128	12.9107	595
A	3.7282	0.8120	0.0000	3.2189	3.8066	4.2627	5.6733	595
L	0.6637	0.3455	0.0361	0.5002	0.6563	0.7879	3.7169	595

This table contains the descriptive statistics for the three dependent variables that measure good corporate governance practices, through the proportion of recommendations with which a company has complied: TC (total compliance), TPC (total and partial compliance) and TPCW (total and partial compliance weighted). It also shows the descriptive statistics of the independent and control variables. These variables are: FS (firm size) quantified as the logarithm of total assets; OD (ownership dispersion) measured as the percentage of shares held by the public; BI (board independence) computed as the proportion of independent directors; BTM (book-to-market) calculated as the quotient between book value and market value of equity; A (age) quantified as the logarithm of firm age; and L (leverage) measured as the quotient between total debt and total assets

2.3.2.2. Independent variables

Firm size (FS) was the first variable considered, which was measured as the logarithm of the total assets. It is expected that larger companies have a greater amount of resources that allow them to comply with a greater number of recommendations. Large companies are also more visible and their information is more exposed with respect to their stakeholders, so they will be more concerned about good corporate governance practices.

The second is ownership dispersion (OD), which has been defined as the percentage of shares held by the public. According to agency theory, if ownership structure is very dispersed, agency costs increase, due to the increase in the likelihood of conflicts of interest between owners and managers (Jensen & Meckling, 1976). In order to reduce these costs, the companies that present a greater ownership dispersion will be, a priori, those that carry out best corporate governance practices.

The third is board independence, measured in two ways: a) as the proportion of independent directors (BI, which we call 'board independence' and which is the quotient between the number of independent directors and the number of board members that comprise it), and b) through a board independence dummy (BID, which takes value one if the recommendation of board independence is complied with and zero otherwise). With respect to the first measure, ex ante, we expect that those companies that have a greater proportion of independent directors will comply with a greater number of recommendations, given that independent directors provide objective value judgments and neutralize conflicts between ownership and management. We also expect this relationship to be moderated by ownership dispersion. Finally, the incorporation of the dummy variable for board independence will allow us to analyse whether the companies that comply with this recommendation show different behaviours in the good practices of corporate governance compared to those that do not.

Panel B of Table 2.2 shows the statistical description of the independent variables used in the empirical model. As can be seen, it should be noted that the proportion of independent directors has a minimum value of 0% and a maximum value of 100%, which correspond, respectively, to companies that do not have any independent director in their board members (e.g., Liwe Española) and to companies that 100% of their directors are independent (e.g., Vertice Trescientos Sesenta Grados).

2.3.2.3. Control variables

The control variables used in this work were book-to-market, age of company and level of financial leverage, as well as sector and year dummies.

Book-to-market (BTM) can be defined as the quotient between the book value of the company and its market value. Equity variable was used to compute the book value, and the value of its market capitalization was used for the market value of the company, that is, the number of shares multiplied by their unit quotation value. Companies with lower ratios have greater growth opportunities and, in principle, we expect compliance with recommendations to be higher in these companies.

Older companies have fewer information asymmetries and accumulate more experience to comply with good governance recommendations. However, it is no less true that in recent years, special attention has been paid to everything related to good corporate governance practices. In this sense, the newer companies have assumed this role in an innate way since their creation and do not have to go through an adaptation process in the same way as older companies. This relationship with respect to compliance with recommendations can be both positive and negative, depending on whether one or the other approach prevails. We used the logarithm of company age (A) to incorporate the age of a company as a control variable.

The degree of leverage (L), measured as the quotient of the total debt of the company and its total assets, was another variable considered as a control variable. It is expected that companies that are more involved in external financing will be more concerned with offering a better image in terms of good practices and greater compliance with recommendations.

Panel C of Table 2.2 summarizes the statistical description of the control variables. As can be seen, it should be noted that the book-to-market variable shows a negative minimum value and the leverage variable presents a maximum value greater than one, which correspond to companies that have a negative book value of equity variable (e.g., Grupo Ezenties)[5].

Finally, we also included sector and year dummies, as control variables, to measure the industry and temporal effects in all the proposed regressions.

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[5] In view of this data, we repeated all analyses to check the validity of the results by removing those companies that presented a negative book value of equity variable. The results were the same, so we opted to work with all the companies that reflect the plurality of the market of the Spanish listed companies during the period 2010-2016.

2.3.3. Methodology and models

The evolution of the proportion of the independent directors will be studied to analyse H1, whether board independence is expanding, and to test the other hypotheses (H2, H3, H4 and H5) we propose a panel data model with censored dependent variable by the upper limit, because a large proportion of the values is concentrated in the highest value. This model of censored dependent variable has three variants depending on the dependent variable used, considering the nature of the three dependent variables that measure the degree of compliance with good governance recommendations.

The model with censored dependent variable is specified as:

$$C_{it} = \beta_0 + \beta_1 \cdot FS_{it} + \beta_2 \cdot OD_{it} + \beta_3 \cdot BI_{it} + \beta_4 \cdot OD_{it} \cdot BI_{it} + \Sigma \beta_j \cdot CV_{jit} + \varepsilon_{it} \qquad (1)$$

where C_{it} is the proportion of recommendations complied by company i in year t, measured by the three variables proposed – total compliance (TC), total and partial compliance (TPC), and total and partial compliance weighted (TPCW) −; FS_{it} is the firm size i in year t, quantified by the logarithm of the total assets; OD_{it} is ownership dispersion of company i in year t, measured by the percentage of shares held by the public; BI_{it} is board independence of company i in year t, quantified by the proportion of independent directors; $OD_{it} \cdot BI_{it}$ measures the moderating effect of ownership dispersion on the relationship between the degree of compliance with the recommendations and board independence of company i in year t, and CV_{jit} is the corresponding control variable j of company i in the year t, which has been previously described. Finally, ε_{it} is the error term, which is split into three components: the individual effect (η_i), the temporal effect (d_t), and white noise or random disturbance (v_{it}).

Afterwards, to analyse whether there is a different behaviour in the explanatory variables of good corporate governance practices between companies that do not comply with board independence recommendation and those that do, in terms of sign, magnitude and level of significance, we introduce the board independence dummy and propose the following regression multiplicative model, again applied to the three dependent variables used:

$$C_{it} = \beta_0 + \beta_1 \cdot FS_{it} + \beta_2 \cdot OD_{it} + \beta_3 \cdot BI_{it} + \beta_4 \cdot OD_{it} \cdot BI_{it} + \beta_5 \cdot BID_{it} +$$

$$+ \beta_6 \cdot FS_{it} \cdot BID_{it} + \beta_7 \cdot OD_{it} \cdot BID_{it} + \beta_8 \cdot BI_{it} \cdot BID_{it} +$$

$$+ \beta_9 \cdot OD_{it} \cdot BI_{it} \cdot BID_{it} + \Sigma \beta_j \cdot CV_{jit} + \varepsilon_{it} \qquad (2)$$

where BID_{it} is the board independence dummy, which takes a value of one if the company complies with the recommendation of board independence and zero otherwise. The rest of the variables have been previously defined in the model (1).

This multiplicative model reflects the interaction of board independence dummy variable, which indicates whether a company complies with board independence recommendation, with the remaining explanatory variables. Specifically, the coefficients of the interaction between the original explanatory variables and board independence dummy variable (i.e., β_5, β_6, β_7, β_8, y β_9) capture and show the differences in each explanatory variable for firms that comply with the recommendation of board independence compared to those that do not. Moreover, the coefficients of the original explanatory variables (i.e., β_0, β_1, β_2, β_3, y β_4) are for firms that do not.

These models with censored dependent variables were estimated through random effects, using a likelihood function. Random effects estimators were used because there are no fixed effects estimators that are efficient in models with censored variables. The panel data methodology was used to avoid obtaining biased estimates, due to the problem of unobservable heterogeneity and the possible of endogeneity of the regressors.

2.4. RESULTS

Table 2.3 shows the descriptive statistics of the variable that measures board independence, through the proportion of independent directors by years, together with the Friedman test that allows us to test whether this proportion is equal for all the years.

Table 2.3. Descriptive statistics of the proportion of independent directors by years

Year	Mean	Std. dev.	Min	1st Q	Median	3er Q	Max	N	Friedman test
2010	0.3329	0.1736	0.0000	0.2500	0.3333	0.4000	0.8750	83	
2011	0.3418	0.1794	0.0000	0.2500	0.3333	0.4444	0.8750	86	
2012	0.3535	0.1832	0.0000	0.2353	0.3333	0.5000	0.8889	87	
2013	0.3600	0.1975	0.0000	0.2308	0.3333	0.5000	1.0000	87	371.48*** (0.000)
2014	0.3698	0.1733	0.0000	0.2500	0.3636	0.5000	0.7857	87	
2015	0.3926	0.1528	0.1429	0.2753	0.3944	0.5000	0.7778	84	
2016	0.4170	0.1580	0.1429	0.3000	0.4000	0.5294	0.8571	81	

This table shows the main descriptive statistics of the board independence variable by years, measured by the proportion of independent directors. The Friedman test allows us to test whether the median is equal for all years. *** Significant at 1%.

As can be seen, the data shows that the proportion of independent directors on the boards of directors of listed companies follows a growing trend over the years. In 2010, the average (median) of this variable was 33.29% (33.33%) independent directors for each board, and in

2016 the average (median) was 41.70% (40.00%). There are statistically significant differences between the selected years, as verified by the Friedman test, which corroborates the hypothesis H1. This temporal evolution of independent directors can be appreciated graphically through Figure 2.

As previously anticipated, it should also be noted that during the period 2010-2014 there are some companies such as Liwe Española (for the entire period), which does not include any independent director on its boardroom, despite the recommendation of the Unified Code of Good Governance. The reason why this event does not occur in the following years could be explained by the change of quota proposed by the new Unified Code of Good Governance in 2015, going from recommending a third of independent directors to half. It should also be highlighted the case of Vertice Trescientos Sesenta Grados in 2013, where all of its directors are independent directors.
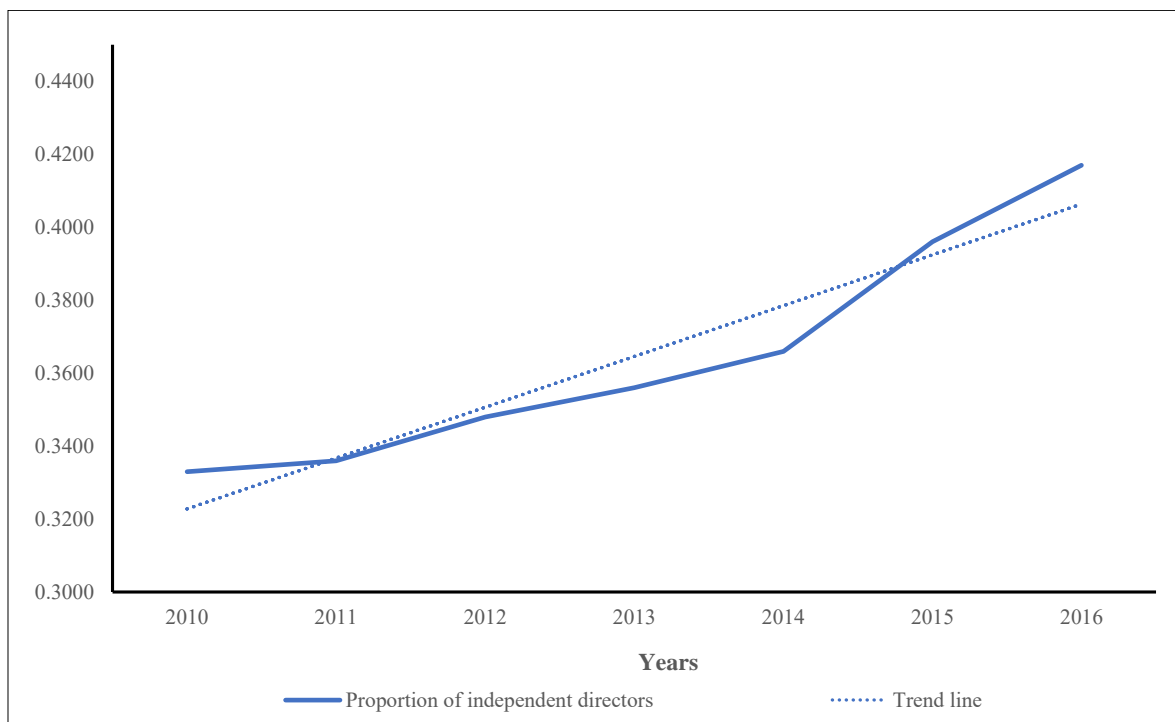
Figure 2.2. Temporal evolution of the proportion of independent directors

Table 2.4 provides the matrix of correlations and the variance inflation factors (VIFs) among the variables used in the models presented above and allows us to examine the possible problems of multicollinearity between these explanatory variables. The results show that there are no problems of multicollinearity (between the independent and control variables) and their possible negative consequences on the regression analysis, because although there are some significant correlations between independent variables, all are well

below 0.7 (Tabachnick & Fidell, 1996). Specifically, they are between -0.339 and 0.487. All the VIFs of the explanatory variables (independent and control) are close to one.

Table 2.4. Matrix of correlations and variance inflation factors

	TC	TPC	TPCW	FS	OD	BI	BTM	A	L
TC	1.000								
TPC	0.853 ***	1.000							
TPCW	0.977 ***	0.944 ***	1.000						
FS	0.293 ***	0.363 ***	0.333 ***	1.000					
OD	0.307 ***	0.241 ***	0.291 ***	0.154 ***	1.000				
BI	0.482 ***	0.446 ***	0.485 ***	0.218 ***	0.487 ***	1.000			
BTM	-0.049	-0.048	-0.050	-0.004	-0.141 ***	-0.172 ***	1.000		
A	-0.232 ***	-0.176 ***	-0.218 ***	-0.218 ***	-0.004	-0.140 ***	0.012	1.000	
L	-0.010	-0.042	-0.024	0.017	0.180 ***	0.055	-0.339 ***	-0.149 ***	1.000
VIF				1.10	1.37	1.41	1.17	1.10	1.20

This table contains the Pearson correlation coefficients between the dependent, independent and control variables, and the variance inflation factors (VIFs) between the independent and control variables. These variables are: TC (total compliance), TPC (total and partial compliance) and TPCW (total and partial compliance weighted), all measured as a proportion of recommendations with which a company has complied; FS (firm size) quantified as the logarithm of total assets; OD (ownership dispersion) measured as the percentage of shares held by the public; BI (board independence) computed as the proportion of independent directors; BTM (book-to-market) calculated as the quotient between book value and market value of equity; A (age) quantified as the logarithm of firm age; and L (leverage) measured as the quotient between total debt and total assets. The VIF close to one reveals that there are no collinearity problems among the independent and control variables. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

After verifying that there are no problems of multicollinearity between the independent and control variables, we analyse the relationships between firm size, ownership dispersion and board independence with the degree of compliance with good governance recommendations, controlling for various factors. We also examine whether ownership dispersion can have a moderating effect on the relationship between board independence and the recommendations with which a company has complied.

Table 2.5 shows the results of the regressions obtained for the three variables that measure good corporate governance practices, through the proportion of recommendations with which a company has complied: TC (total compliance), TPC (total and partial compliance)

and TPCW (total and partial compliance weighted). The estimates were carried out through random effects, using a likelihood function.

Firm size is statistically significant in the three regressions and positively affects the proportion of recommendations with which a company has complied. The largest companies are thus those that also perform best regarding corporate governance practices, so our hypothesis H2 is verified. Ownership dispersion also presents a positive and statistically significant relationship with the proportion of recommendations with which a company has complied. This means that in those companies where the control of the company is not concentrated in a few majority shareholders, the realization of good corporate governance practices is greater, so that our hypothesis H3 is supported.

There is a positive and statistically significant relationship between board independence and compliance with the recommendations of good governance. This shows that greater board independence contributes to better corporate governance practices, verifying our hypothesis H4. Finally, we note the existence of a moderating effect by the ownership dispersion variable on the relationship between board independence and compliance with recommendations, since the term interaction is statistically significant. The negative sign of this effect indicates that, in those companies with more ownership dispersion, the importance of independent directors as an explanatory factor of good governance practices is lower. Our hypothesis H5 is also supported.

Regarding the control variables, the age of the company appears as a statistically significant variable with a negative sign in regression (1), so that the older companies comply with fewer recommendations. In addition, there is a negative and statistically significant relationship between leverage and compliance in regressions (2) and (3). Contrary to what may be expected, those companies with higher debt ratios comply with a lower number of recommendations.

Wald tests allow us to test the joint significance of the explanatory variables of the models, and likelihood tests agree that these panel data models with censored variables are preferable to pooled models. The rho coefficients reveal that between 56.69% and 60.65% of the variance of the models, depending on the dependent variable used, is due to the panel data structure.

Table 2.5. Variables that explain compliance with the recommendations of good corporate governance

Independent variables		Dependent variables		
		(1) TC	(2) TPC	(3) TPCW
	Predicted sign	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Constant		0.6606*** (0.000)	0.7172*** (0.000)	0.6903*** (0.000)
Firm size	+	0.0118*** (0.001)	0.0090*** (0.000)	0.0105*** (0.000)
Ownership dispersion	+	0.1222*** (0.006)	0.0941*** (0.003)	0.1079*** (0.002)
Board independence	+	0.3426*** (0.000)	0.2502*** (0.000)	0.2939*** (0.000)
Ownership dispersion · Board independence	−	-0.3040*** (0.001)	-0.2230*** (0.001)	-0.2720*** (0.000)
Control variables				
Book-to-market	−	0.0009 (0.610)	0.0011 (0.374)	0.0010 (0.499)
Age	− / +	-0.0220** (0.027)	-0.0029 (0.660)	-0.0125 (0.104)
Leverage	+	-0.0176 (0.139)	-0.0216*** (0.008)	-0.0195** (0.035)
Sector dummies		Yes	Yes	Yes
Year dummies		Yes	Yes	Yes
Observations/Groups		595/87	595/87	595/87
Wald test		199.04*** (0.000)	189.57*** (0.000)	213.13*** (0.000)
Likelihood test		306.24*** (0.000)	270.02*** (0.000)	305.17*** (0.000)
Rho (ρ)		0.6065	0.5669	0.6019

This table shows, for the whole sample, the regression results for the three dependent variables that measure good corporate governance practices, through the proportion of recommendations with which a company has complied: total compliance (TC), total and partial compliance (TPC), and total and partial compliance weighted (TPCW). The independent and control variables are: firm size (quantified as the logarithm of total assets); ownership dispersion (measured as the percentage of shares held by the public); board independence (computed as the proportion of independent directors); book-to-market (calculated as the quotient between book value and market value of equity); age (quantified as the logarithm of firm age); leverage (measured as the quotient between total debt and total assets). All the regressions include sector and year dummies and have been estimated through random effects, using a likelihood function. The Wald test measures the joint significance of the explanatory variables of the model. The likelihood test quantifies the significance of the convenience of the panel data model with censored variable with respect to a pooled model. The rho coefficient (ρ) computes the percentage contribution to the total variance of the panel data structure. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

Given that the behaviour of the companies in terms of corporate governance may be different depending on compliance with the recommendation of board independence, the dummy variable representative of compliance with the board independence recommendation is incorporated (board independence dummy), through three multiplicative regressions,

representative of the three dependent variables. This allows us to determine whether there are different behaviours in the explanatory variables of both groups of companies (that is, between firms that do not comply with the recommendation of board independence and those that do) in terms of sign, magnitude and level of significance.

Table 2.6 shows the results of the multiplicative regressions, obtained for the three variables of good corporate governance practices. The coefficients of the original explanatory variables reflect the influence they have on good practices for companies that do not comply with board independence recommendation, and the coefficients of the interactions of the original variables with board independence dummy capture and show the differences in the respective explanatory variables of the companies that comply with this recommendation compared to those that do not.

The results for companies that do not comply are similar to those obtained for all companies (see Table 2.5): firm size, ownership dispersion and board independence have a positive relationship with good practices, and the relationship between board independence and good practices is moderated by ownership dispersion. For the companies that comply, the results differ significantly for the variables board independence dummy, ownership dispersion, board independence and interaction between ownership dispersion and board independence.

These results reveal that the positive constant, observed for companies that do not comply, which represents the mean proportion of recommendations with which these companies have complied, is significantly expanded for the companies that do, showing that these companies exhibit a greater degree of compliance with the recommendations of good governance (Table 2.A1 of the appendix also shows evidence on these same results). The positive relationship of ownership dispersion, observed for the companies that do not comply, is annulled by the negative relationship that this variable presents for the companies that do. The positive relationship of the board independence of companies that do not comply is reduced by the negative relationship that this variable shows for the companies that do. The negative relationship between ownership dispersion and board independence, observed for companies that do not comply, is annulled by the positive relationship of this interaction for the companies that do. We obtain the same results for the control variables that we obtained for all the companies.

Table 2.6. Variables that explain compliance with the recommendations of good corporate governance: multiplicative models with the inclusion of the dummy variable of board independence

Independent variables	Predicted sign	Dependent variables		
		(1) **TC**	**(2)** **TPC**	**(3)** **TPCW**
		Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Constant		0.5422*** (0.000)	0.6285*** (0.000)	0.5885*** (0.000)
Firm size	+	0.0155*** (0.000)	0.0116*** (0.000)	0.0137*** (0.000)
Ownership dispersion	+	0.2652*** (0.000)	0.2012*** (0.000)	0.2294*** (0.000)
Board independence	+	0.5878*** (0.000)	0.4351*** (0.000)	0.5061*** (0.000)
Ownership dispersion · Board independence	−	-1.0000*** (0.000)	-0.7653*** (0.000)	-0.8795*** (0.000)
Board independence dummy (BID)		0.2129*** (0.000)	0.1800*** (0.000)	0.1872*** (0.000)
Firm size · BID		-0.0045 (0.148)	-0.0025 (0.232)	-0.0098 (0.148)
Ownership dispersion · BID		-0.2762*** (0.003)	-0.2431** (0.000)	-0.2426*** (0.001)
Board independence · BID		-0.4609*** (0.001)	-0.4099*** (0.000)	-0.4166*** (0.000)
Ownership dispersion · Board independence · BID		0.9997*** (0.001)	0.8475*** (0.000)	0.8852*** (0.000)
Control variables				
Book-to-market	−	-0.0001 (0.962)	0.0001 (0.921)	-0.0001 (0.994)
Age	− / +	-0.0189* (0.051)	-0.0005 (0.929)	-0.0098 (0.185)
Leverage	+	-0.0169 (0.150)	-0.0197** (0.013)	-0.0184** (0.042)
Sector dummies		Yes	Yes	Yes
Year dummies		Yes	Yes	Yes
Observations/Groups		595/87	595/87	595/87
Wald test		222.55*** (0.000)	244.27*** (0.000)	254.69*** (0.000)
Likelihood test		292.28*** (0.000)	235.36*** (0.000)	282.77*** (0.000)
Rho (ρ)		0.5992	0.5464	0.5904

This table contains the results of the multiplicative regressions for the three dependent variables that measure good corporate governance practices, differentiating between firms that do not comply with the recommendation of board independence and those that do. The dependent, independent and control variables, with the exception of board independence dummy (measured as binary variable equal to one if the company comply with the board independence recommendation and zero otherwise), have been defined in tables 4 and 5. All the regressions include sector and year dummies and have been estimated through random effects, using a likelihood function. The Wald test measures the joint significance of the explanatory variables of the model. The likelihood test quantifies the significance of the convenience of the panel data model with censored variable with respect to a pooled model. The rho coefficient (ρ) computes the percentage contribution to the total variance of the panel data structure. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

In summary, the evidence so far suggests that there are different behaviours in the explanatory variables of good governance practices in both groups of companies, in terms of sign, magnitude and significance level. To better illustrate these differences and in order to provide robustness, we now run the three initial regressions (through model (1)) for each group of companies separately.

Table 2.7 shows the explanatory variables for good governance practices separately for firms that do not comply with board independence recommendation and those that do. The results are basically coincident with those shown in Table 2.6 for companies that do not comply (i.e., firm size, ownership dispersion and board independence show a positive relationship with good practices, and the relationship between board independence and good practices is moderated by the dispersion of ownership).

For companies that do comply, however, the results differ substantially. In particular, its constant is greater, ownership dispersion and its interaction with board independence are not significant, and board independence presents a significant positive relationship, but its intensity is much lower (note that the regression coefficients of these variables in the multiplicative models of Table 2.6 had already anticipated these results). They suggest that firms that do comply also comply with a greater number of good governance practices. Ownership dispersion for this group of firms does not affect good practices; that is, the compliance of board independence recommendation favours good practices and nullifies the explanatory power of ownership dispersion. Finally, board independence also shows a significant positive relationship with good practices for this type of firm (with the exception of regression (5), which is not significant at the traditional levels of 10%, 5% and 1%) though its intensity is lower.

In the control variables, we obtain the same results as in Table 2.5 and Table 2.6 for companies that do comply. That is, company age appears as a statistically significant variable with a negative sign in regression (4), and leverage also shows a negative and statistically significant relationship in regressions (5) and (6).

Table 2.7. Variables that explain compliance with good corporate governance recommendations: firms that do not comply with the recommendation of board independence versus firms that do

Independent variables		Dependent variables					
		Firms that do not comply with the recommendation of board independence			Firms that comply with the recommendation of board independence		
		(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
		TC	**TPC**	**TPCW**	**TC**	**TPC**	**TPCW**
	Predicted sign	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Constant		0.4472***	0.5533***	0.5033***	0.7746***	0.8279***	0.7970***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm size	+	0.0171***	0.0122***	0.0142***	0.0072*	0.0074***	0.0074**
		(0.000)	(0.000)	(0.000)	(0.066)	(0.004)	(0.015)
Ownership dispersion	+	0.2205***	0.2030***	0.2135***	0.0650	-0.0063	0.0404
		(0.002)	(0.000)	(0.000)	(0.403)	(0.911)	(0.496)
Board independence	+	0.5759***	0.4144***	0.4923***	0.2147**	0.0865	0.1666**
		(0.000)	(0.000)	(0.000)	(0.018)	(0.192)	(0.017)
Ownership dispersion · Board independence	–	-1.0196***	-0.7877***	-0.8962***	-0.1658	-0.0244	-0.1340
		(0.000)	(0.000)	(0.000)	(0.270)	(0.928)	(0.244)
Control variables							
Book-to-market	–	-0.0002	-0.0010	-0.0003	-0.0008	0.0004	-0.0002
		(0.955)	(0.756)	(0.943)	(0.640)	(0.753)	(0.899)
Age	– / +	-0.0169	0.0039	-0.0062	-0.0185*	-0.0034	-0.0111
		(0.230)	(0.618)	(0.543)	(0.096)	(0.648)	(0.196)
Leverage	+	-0.0076	-0.0168	-0.0119	-0.0201	-0.0209**	-0.0202**
		(0.701)	(0.205)	(0.452)	(0.135)	(0.026)	(0.049)
Sector dummies		Yes	Yes	Yes	Yes	Yes	Yes
Year dummies		Yes	Yes	Yes	Yes	Yes	Yes
Observations/ Groups		232/58	232/58	232/58	363/76	363/76	363/76
Wald test		80.95***	84.61***	86.43***	112.60***	96.28***	116.64***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Likelihood test		114.48***	82.65***	99.82***	175.77***	143.42***	182.73***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Rho (ρ)		0.7076	0.5658	0.6479	0.6507	0.6030	0.6620

This table shows the regression results for the three dependent variables that measure good corporate governance practices for firms that do not comply with the recommendation of board independence and those that do. The dependent, independent and control variables have been defined in tables 4 and 5. All the regressions include sector and year dummies and have been estimated through random effects, using a likelihood function. The Wald test measures the joint significance of the explanatory variables of the model. The likelihood test quantifies the significance of the convenience of the panel data model with censored variable with respect to a pooled model. The rho coefficient (ρ) computes the percentage contribution to the total variance of the panel data structure. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

In summary, comparing the explanatory variables of good practices in both groups of companies, we can observe that, for companies that do not comply with board independence recommendation, firm size, ownership dispersion and board independence show a positive relationship with good practices, and this latter is moderated by ownership dispersion. For companies that do, however, firm size and board independence present a positive relationship with good practices. In particular, for the latter group of companies, in relation to the former, the good practices recommendations with which these companies have complied: a) are greater; b) present positive relationships with firm size; c) are not affected by ownership dispersion; d) show positive relationships with board independence less intense and e) this last relationship is not moderated by ownership dispersion.

2.5. CONCLUSIONS

In the last two decades there has been a notable interest in all issues related to corporate governance, whose purpose is to facilitate the creation of an environment of trust, transparency and accountability, necessary to favour long-term investments, financial stability and business integrity. Good governance codes have proliferated, containing recommendations on good governance practices and representing an effective improvement in matters of corporate governance for companies that comply with these recommendations.

The works that have approached the study of this topic have confirmed the importance of firm size and ownership dispersion in compliance with the recommendations of good corporate governance practices, however, there is another variable, closely linked to corporate governance, such as board independence, which has not yet been studied in relation to compliance with good corporate governance practices.

Our analysis of the variables that affect the development of good governance practices, highlighting the role played by the variable board independence, is thus a novelty of this study. This variable has been measured both in relative terms (through the proportion of independent directors, which we will call board independence) and absolute (through the board independence dummy). The Annual Corporate Governance Reports of the Spanish listed companies in the Continuous Market of the Madrid Stock Exchange during the period 2010-2016 were analysed for this purpose.

The results corroborate the growing concern about the proportion of independent directors on boards of directors, reflecting a clear upward trend in recent years. They also reveal that firm size, together with ownership dispersion, are positively related to compliance

with good practices. Larger companies with a more dispersed ownership structure comply with a higher number of recommendations. A novelty of the present paper is that the results show that board independence positively influences good corporate governance practices and that ownership dispersion diminishes the relationship between board independence and good practices. These results suggest that greater board independence contributes to the improvement of good governance practices by companies, and that this relationship is attenuated as ownership dispersion increases.

These results differ substantially when we distinguish between companies that do not comply with board independence recommendation and those that do. That is, we observe a different behaviour in the explanatory variables of good governance practices in both groups of companies, in terms of sign, magnitude and significance level. Both groups of firms exhibit very different degrees of compliance with the good practice recommendations. In particular, firms that do not comply with board independence recommendation present lower degrees of compliance with the good practices recommendations, and their significant explanatory variables are firm size, ownership dispersion, board independence and interaction between ownership dispersion and board independence. The significant explanatory variables of firms that do comply are firm size and board independence (i.e., ownership dispersion and its moderation effect on board independence are not significant, and board independence presents less intense relationships).

As limitations of this research, it should be noted that there are different ways to measure the independence of the boardroom. In this paper the figure of the independent director has been chosen, taking into account the legal requirements that are necessary to be considered as an independent director in Spain. For instance, in this country any director with at least 3% participation in the company cannot be independent, while in other countries the percentage of participation reaches 10%. Further research may consist of determining in alternative ways whether a director is independent or not. In addition, board independence could also be measured through the external directors (or non-executive directors), which in the Spanish context would include both independent and proprietary directors. Moreover, the period of study chosen between 2010 and 2016 covers 7 years, however future research could be extended starting from year 2007, which assumes the first year with a standardized format for compliance with the recommendations because of the first Unified Code of Good Governance (2006).

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2.7. APPENDIX

Table 2.A1. Descriptive statistics of the variables that measure compliance with the recommendations of good governance: firms that do not comply with the recommendation of board independence versus firms that do

Year		Mean	Std. dev.	Min	1st Q	Median	3er Q	Max	N	Mann-Whitney test
TC	Not comply	0.8093	0.0991	0.5238	0.7421	0.8273	0.8846	0.9615	232	-9.93*** (0.000)
	Comply	0.8893	0.0861	0.6042	0.8400	0.9020	0.9583	1.0000	363	
TPC	Not comply	0.8960	0.0647	0.6429	0.8667	0.9123	0.9412	0.9804	232	-11.60*** (0.000)
	Comply	0.9492	0.0541	0.6939	0.9259	0.9615	0.9815	1.0000	363	
TPCW	Not comply	0.8526	0.0787	0.5833	0.8043	0.8674	0.9124	0.9700	232	-10.93*** (0.000)
	Comply	0.9193	0.0669	0.6531	0.8878	0.9340	0.9896	1.0000	363	

This table contains the main descriptive statistics about the three dependent variables that measure good corporate governance practices, through the proportion of recommendations with which a company has complied: total compliance (TC), total and partial compliance (TPC), and total and partial compliance weighted (TPCW). The Mann-Whitney test allows us to test whether the median is the same between firms that do not comply with the recommendation of board independence and those that do. *** Significant at 1%.

Capítulo 3

Readability in Management Reports: Extension and Good Governance Practices

VISIÓN GENERAL

Motivación

A medida que se amplían las narrativas contables divulgadas por las empresas, se cuestiona la complejidad de estos documentos. Esto ha llevado a la comunidad internacional a iniciar proyectos sobre la simplificación de los informes anuales para mejorar su legibilidad (Lim et al., 2018) y reducir su tamaño, ya que ha habido un aumento en el número de palabras (Li, 2008) y un aumento en los recursos visuales (es decir, tablas, imágenes, gráficos y figuras), lo que ha provocado que los documentos aumenten de tamaño con el tiempo (Loughran & McDonald, 2014).

Esta preocupación de algunas instituciones reguladoras, como la SEC, por la longitud de los documentos contables y su legibilidad, nos ha llevado a analizar si la cantidad de texto y de elementos visuales, que definen la extensión de estos documentos, afectan realmente a su legibilidad. Esto es, si estas dos características de los documentos afectan a la legibilidad.

Además, se investiga si las prácticas de buen gobierno explican la legibilidad de las narrativas contables, ya que estas son herramientas que las empresas utilizan para incrementar su transparencia (Mallin, 2013) y, por tanto, la legibilidad de las narrativas contables que ellas proporcionan.

Objetivo

El objetivo del trabajo es mostrar la relación existente entre la legibilidad de las narrativas contables y la extensión de estos documentos contables, medida por la cantidad de texto y de elementos visuales que contienen. En primer lugar, se intenta verificar si la legibilidad no cambia con el tiempo (H1). A continuación, se pretende corroborar la existencia de una relación negativa con la cantidad de texto (H2) y de una relación positiva con la cantidad de elementos visuales (H3). Finalmente, a diferencia de la mayor parte de la literatura, que se ha encargado de relacionar la legibilidad con los indicadores financieros, este trabajo trata de relacionar la legibilidad con un mecanismo de buen gobierno, como es el cumplimiento de las prácticas de buen gobierno, proponiendo una relación positiva (H4).

Enfoque

Nuestra base de datos está compuesta por sociedades cotizadas en el Mercado Continuo de la Bolsa de Madrid, eliminando empresas financieras e inmobiliarias, así como empresas en proceso de liquidación, sin cuentas anuales consolidadas disponibles y con menos de 5 observaciones consecutivas. Se estudia la legibilidad de la información narrativa contenida en los Informes de Gestión y el período de análisis abarca desde 2010 hasta 2016. Como resultado, tenemos un panel no equilibrado de 87 empresas españolas cotizadas y 595 observaciones.

Los datos relacionados con la variable dependiente (legibilidad, medida a través del índice de Fernández-Huerta), las variables independientes (cantidad de texto y de elementos visuales) y la variable de control (cumplimiento de la guía de la CNMV para la elaboración de informes de gestión) se recogieron manualmente de los Informes de Gestión, mientras que los correspondientes al cumplimiento de buenas prácticas se han extraído de los Informes Anuales de Gobierno Corporativo. La información financiera correspondiente al resto de variables de control (características de las empresas) se obtuvo de la base de datos SABI.

Para alcanzar los objetivos propuestos, primero se realizó un análisis exploratorio para analizar la evolución de la legibilidad en los informes de gestión (H1). Posteriormente, para probar las hipótesis H2-H4, se estimaron varios modelos utilizando la metodología de datos de panel. En particular, se utilizaron modelos de efectos aleatorios con el estimador de mínimos cuadrados generalizados factibles (FGLS).

Hallazgos

En primer lugar, los estadísticos descriptivos de las puntuaciones de legibilidad indican que la media (mediana) se mueve entre los valores 47,38–48,67 (48,13–49,95) y la distribución de estas puntuaciones está concentrada entre los rangos 30–50 y 50–60, que se corresponden con informes de gestión que son entre difíciles y bastante difíciles de leer en la escala de legibilidad. Además, estos valores medios y medianos se mantienen relativamente estables a lo largo de los años analizados y, según el test de Friedman, se corrobora la hipótesis H1.

A continuación, se probaron las hipótesis H2 y H3. Los resultados de los primeros modelos de regresión sugieren que existe una relación negativa y estadísticamente significativa entre la cantidad de texto y la legibilidad de los informes de gestión. Esto significa que la emisión de textos largos por parte de las empresas produce informes de gestión que son más difíciles

de leer. Los informes de gestión más largos que presentan una mayor cantidad de texto son menos legibles que los más breves, por lo que se apoya la hipótesis H2. En cuanto al uso de elementos visuales en los informes de gestión, se pudo ver cómo tienen una influencia positiva y estadísticamente significativa en la legibilidad de los informes. La cantidad de elementos visuales no solo favorece la comprensión de la información desde un punto de vista global, sino que también permite a las empresas escribir textos más legibles en los informes de gestión. Por tanto, podemos concluir que la hipótesis H3 se verifica.

También se encuentra que existe una relación entre las buenas prácticas de gobierno y la legibilidad, la cual es positiva y estadísticamente significativa. Las empresas que cumplen con un mayor porcentaje de recomendaciones conducen a la creación de un entorno de mayor confianza y transparencia. Esta mayor transparencia se traduce en una información publicada por las empresas más clara y confiable, incluidos los informes de gestión, que se vuelven más legibles. Por tanto, podemos concluir que las empresas que siguen buenas prácticas de gobierno corporativo emiten informes de gestión más fáciles de leer. Estos resultados verifican la hipótesis H4.

Finalmente, y con el fin de dar robustez a los resultados, se procesaron nuevamente los modelos de regresión, utilizando el índice de Szigriszt como medida alternativa de legibilidad. Los resultados estuvieron en línea con los obtenidos previamente.

Contribuciones e implicaciones

Este artículo aporta nueva evidencia empírica sobre la legibilidad de la información narrativa contable en idioma español. Nuestro trabajo realiza varias aportaciones novedosas. En primer lugar, amplía el conocimiento sobre la legibilidad de las narrativas contables, su extensión y el cumplimiento por parte de las empresas de las prácticas de buen gobierno, ya que no hemos encontrado ningún trabajo que relacione estas variables en la literatura. En segundo lugar, es el primer trabajo que analiza la legibilidad en España durante un período actual de poscrisis y utiliza una amplia muestra de empresas cotizadas (prácticamente la totalidad de la población de empresas). Es importante señalar que la mayoría de los artículos que estudian la legibilidad se han centrado en documentos escritos en inglés y en países de habla inglesa. En tercer lugar, analiza el Informe de Gestión de las sociedades cotizadas españolas, documento que no ha recibido la atención que merece, a pesar de que es un informe de obligado cumplimiento para dichas sociedades y, por tanto, aporta valor al estudio.

En consecuencia, este estudio podría ser de interés no solo para los responsables de la elaboración de la información financiera y las partes interesadas, sino también para los organismos reguladores. En la actualidad, donde la información contable se está expandiendo y es cada vez más compleja, este trabajo aporta evidencia empírica que sustenta los proyectos y recomendaciones emitidos por varios organismos internacionales para mejorar la legibilidad. Así, nuestros resultados están en línea con la propuesta de la SEC (1998) que recomendaba limitar el tamaño de los informes. También estamos de acuerdo con las recomendaciones de la CNMV (2013), la IOSCO (2003) y el IASB (2006, 2010) sobre el uso de recursos gráficos, ya que los resultados indican que los elementos visuales mejoran la legibilidad de los informes de gestión. Finalmente, proponemos, como novedad, que el cumplimiento de las buenas prácticas de gobierno corporativo mejora la transparencia de la información contable, lo que se traduce en informes más legibles.

OVERVIEW

Motivation

As the accounting narratives disclosed by companies is expanding, the complexity of these documents is questioned. This has prompted the international financial reporting community to initiate projects on streamlining annual reports to improve their readability (Lim et al., 2018) and to reduce the size of annual reports. There has been an increase in the number of words (Li, 2008) and an increase in visual resources (i.e., tables, images, graphs and figures), which has caused documents to increase in size over time (Loughran & McDonald, 2014).

This concern of some regulatory bodies like the SEC about the length of accounting documents and their readability leads us to analyse whether the quantity of text and the quantity of visual elements that define their extension really affect their readability, that is, if these two characteristics of the documents affect readability.

In addition, in this study we focus on investigating whether good governance practices explain the readability of accounting narratives, since good governance practices have become a tool that encourages companies to increase their transparency (Mallin, 2013) and, therefore, the readability of the accounting narratives they provide.

Purpose

The aim of paper is to demonstrate the relationship between readability of accounting narratives and the extension of these accounting documents, measured by the quantity of text and the quantity of visual elements that they contain. First, it tries to verify whether the readability does not change over time (H1). Next, it tries to corroborate the existing of a negative relationship with the quantity of the text (H2) and a positive relationship with the amount of visual elements (H3). Finally, unlike most of the literature, which has been in charge of relating readability to financial indicators, this paper tries to relate readability to a good governance mechanism, such as compliance with good governance practices, proposing a positive relationship (H4).

Approach

Our sample is composed of listed firms on the Continuous Market of the Madrid Stock Exchange, eliminating financial and real estate companies, as well as companies in a

liquidation process, with no consolidated annual accounts available and with less than five consecutive observations. We study the readability of the narrative information contained in the Management Reports and the analysis period runs from 2010 to 2016. As a result, we have an unbalanced panel of 87 listed Spanish companies and 595 observations.

The data related to the dependent variable (readability, measured as Fernández-Huerta index), the independent variables (quantity of text and visual elements) and the control variable (compliance with the CNMV guide for the elaboration of management reports) were manually collected from the management reports, while those corresponding to compliance with good practices were taken from the annual corporate governance reports. The financial information corresponding to the rest of the control variables (firm characteristics) were obtained from the SABI database.

To achieve the proposed objectives, first an exploratory analysis was carried out to analyse the evolution of readability in the management reports (H1). Subsequently, to test the H2-H4 hypotheses, several models were estimated using panel data methodology. In particular, we used random effects models with the Feasible Generalised Least Squares (FGLS) estimator.

Findings

First, the descriptive statistics of readability scores indicate that the mean (median) moves between the values 47.38–48.67 (48.13–49.95) and the distribution of the score is concentrated between the difficult and fairly difficult scores, which correspond respectively to the scoring ranges 30–50 and 50–60. In addition, these mean and median values are relatively stable over the years analysed and according to the Friedman test, hypothesis H1 is corroborated.

Next, hypotheses H2 and H3 were tested. The results in the first regression models suggest that there is a negative and statistically significant relationship between the amount of text and the readability of management reports. This means that issuing long texts by companies produces management reports that are more difficult to read. Longer management reports that present greater quantities of text are less readable than shorter ones, so hypothesis H2 is supported. Regarding the use of visual elements in management reports, we can see how they have a positive and statistically significant influence on the readability of the report. The quantity of visual elements not only favours understanding of information from a global

point of view, but also allows companies to write more readable texts in the management reports. We can therefore conclude that hypothesis H3 is verified.

We also find that there is a relationship between good governance practices and readability, which is positive and statistically significant. Companies complying with a higher percentage of recommendations leads to the creation of an environment of greater trust and transparency. This greater transparency translates into clearer and more reliable information published by companies, including the management reports, which become more readable. We can therefore conclude that companies following good corporate governance practices issue management reports that are easier to read. These results verify hypothesis H4.

Finally, and in order to provide robustness to the results, the regression models were processed again, using the Szigriszt index as an alternative measure of readability. The results were in line with those previously obtained.

Contributions and implications

This paper provides new evidence on the readability of accounting narrative information in the Spanish language. Our work makes several novel contributions. First, it extends knowledge about the readability of accounting narratives, their extension and companies' compliance with good governance practices, since we have not found any paper that relates these variables in the literature. Second, it is the first paper that analyses readability in Spain during a current post-crisis period and uses a large sample of listed companies (practically the entire population of companies). It is important to note that most papers that study readability have focused on documents written in English and in English-speaking countries. Third, it analyses the management report of Spanish listed companies, a document that has not received the attention it deserves, in spite of the fact that it is a mandatory report for those companies and so adds value to the study.

As a consequence, this study could not only be interest for those responsible for preparing financial information and stakeholders, but also for regulatory bodies. At the present time, where accounting information is expanding and increasingly complex, this paper provides empirical evidence that supports the projects and recommendations issued by several international organisations to improve the readability. Thus, our results are in line with the proposal made by the SEC (1998) that recommended limiting the size of the reports. We also agree with the recommendations of the CNMV (2013), the IOSCO (2003) and the IASB (2006, 2010) on the use of graphic resources, since the results indicate that visual elements

improve readability of management reports. Finally, we propose, as a novelty, that compliance with good corporate governance practices improves the transparency of the accounting information, which translates into more readable reports.

RESUMEN

Este estudio expande el conocimiento sobre la legibilidad de las narrativas contables, su extensión y el cumplimiento de las empresas con las prácticas de buen gobierno. También cubre un vacío en el análisis de la legibilidad de la información narrativa escrita en español. Examinamos la legibilidad en los Informes de Gestión de las empresas españolas que cotizan en el Mercado Continuo de la Bolsa de Madrid durante el período 2010-2016. Los resultados revelan que los informes de gestión más extensos, es decir, aquellos con mayor cantidad de texto, son los menos legibles, y que el uso de elementos visuales en los informes ayuda a mejorar su legibilidad. Además, las empresas que siguen prácticas de buen gobierno, emiten información compleja con más claridad, fluidez y simplicidad, lo que mejora la legibilidad de las narrativas contables.

PALABRAS CLAVE

Legibilidad; índice de Fernández Huerta; prácticas de buen gobierno; informe de gestión; información no financiera; información narrativa

ABSTRACT

This study expands our knowledge about the readability of accounting narratives, their extension and companies' compliance with good governance practices. It also covers a gap in the analysis of the readability of narrative information written in Spanish. We examined the readability in Management Reports of Spanish companies listed on the Continuous Market of the Madrid Stock Exchange during the period 2010–2016. The results reveal that the most extensive management reports — that is, those with the greatest quantities of text — are the least readable and that the use of visual elements in reports helps to improve their readability. Moreover, companies that follow good governance practices issue complex information with more clarity, speed, and simplicity, which improves the readability of accounting narratives.

KEYWORDS

Readability; Fernández Huerta index; good governance practices; management report; non-financial information; narrative information

3.1. INTRODUCTION

This paper provides new evidence on the readability of accounting narrative information in the Spanish language. As a novelty, we demonstrate the relationship between readability and two characteristics that define the extension of accounting narratives, such as the quantity of text and visual elements, and also the relationship with respect to good corporate governance practices. These two relationships constitute the objectives of this study.

'Readability' and 'legibility' are intrinsic elements that have an impact on the ease and speed of reading a text. The first has to do with the style in which a message is written (basically the length of words and sentences). The second refers to visually engaging with the text (size, typeface, margins and spaces, among others). This study focuses on readability and adds to the growing literature currently investigating the language used in accounting disclosures (Asay, Libby, & Rennekamp, 2018; Bonsall, Leone, Miller, & Rennekamp, 2017; F. Li, 2008; Lim et al., 2018; Lo, Ramos, & Rogo, 2017; Loughran & McDonald, 2014; Moreno & Casasola, 2016; Suárez Fernández, 2016).

As annual reports have expanded, the complexity of accounting narratives is being questioned more intensely. The complexity of the disclosures made by companies has led regulatory bodies to initiate projects to improve the readability (Lim et al., 2018) and to reduce the size of annual reports. Organisations such as the Securities and Exchange Commission (SEC, 1998) have proposed limiting the number of pages allowed in the reports based on factors such as the industry and the size of the company. They have also contemplated the use of readability indices, such as Fog's, to help improve the reading of financial documents (Loughran & McDonald, 2014). However, for these authors, interest should not be focused on the style of writing (readability), but on writing more concise documents. The concern of some regulatory bodies like the SEC about the length of documents and their readability leads us to analyse whether the quantity of text and the quantity of visual elements that define their extension really affect their readability, that is, if these two characteristics of the documents affect readability. One the one hand, the shorter texts are easier to read (Loughran & McDonald, 2014) and, on the other hand, graphic resources, which are also expanding, (Beattie & Jones, 1997; Havemo, 2018) serve to "support the information and reasoning presented in paragraphs of a narrative nature" (CNMV, 2013, p. 35), both affecting readability.

An important part of the research has focused on associating readability with the characteristics of the companies, mainly with financial performance (Asay et al., 2018;

Bushee, Gow, & Taylor, 2018; Guay, Samuels, & Taylor, 2016; F. Li, 2008), and to a lesser extent with other characteristics such as corporate governance mechanisms (Cerbioni & Parbonetti, 2007; Ginesti, Drago, Macchioni, & Sannino, 2018; Suárez Fernández, 2016; Velte, 2018). However, in this study we focus on investigating whether good governance practices, contained in the unified code of good governance, explain the readability of accounting narratives, since good governance practices have become a tool that encourages companies to increase their transparency (C. Mallin, 2013). If so, transparency will be transmitted to accounting narratives, which will disclose complex information with more clarity, speed and simplicity (readability). Consequently, our proposal is that good governance practices, by positively influencing transparency, affect the communications made by companies and, therefore, the readability of the accounting narratives they provide.

In this context we present our work for the Spanish case. The aim is to analyse the readability of non-financial information contained in Management Reports[1]. In particular, we analyse whether the quantity of text and visual elements, that determine the extension of management reports, and compliance of good governance practices, included in the Annual Corporate Governance Report[2], explain the readability of these reports. To this end, we have analysed a total of 595 management reports of Spanish listed companies during the period 2010–2016. Readability is measured with the Fernández Huerta index, developed especially to analyse the readability of texts in Spanish, since the classic indices based on English (i.e., the Fog and Flesch indices) are not suitable[3]. As a preliminary result, we find that management reports that present more text are less readable, and that the use of visual elements helps to improve the readability of these documents. Finally, we demonstrate that companies that follow a greater number of good governance practices are those that issue more readable information.

Our work makes several contributions. First, it extends knowledge about the readability of accounting narratives, their extension and companies' compliance with good governance practices, since we have not found any paper that relates these variables in the literature. In

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[1] The Management Report of the European Unión is equivalent to the Management Commentary of the IASB, the Management Discussion and Analysis (MD&A) of the United States of America (USA) and Canada and the Operational and Financial Review of the United Kingdom (UK).

[2] The Securities Market Law in Spain establishes that listed companies must make public an Annual Corporate Governance Report and disseminate it as a relevant event, detailing the degree of compliance with the recommendations of the Unified Code.

[3] The indices are not suitable when taking into account the differences between the languages, both in length and linguistic style (Ngai & Singh, 2014).

particular, it illustrates evidence of the relationship between the readability and two characteristics that define the extension of management reports, such as the amount of text and visual elements, since those more concise reports and that has the support of more visual elements will be easier to read. The relationship with good governance practices is also analysed, since it is expected that transparency and therefore readability will be greater in those companies that comply with a greater number of good governance recommendations. Second, it adds to the papers of Fialho, Fuertes and Pascual (2002), Suárez Fernández (2013, 2016) and Moreno and Casasola (2016) to cover a gap in the study of the readability of narrative information written in Spanish, being the first paper that analyses readability in Spain during a current post-crisis period and uses a large sample of listed companies (practically the entire population of companies). It is important to note that most papers that analyse readability have focused on documents written in English and in English-speaking countries. In addition, it is important to remember that Spanish is the second language of communication in the world (Instituto Cervantes, 2017). Third, it analyses the management report of Spanish listed companies, a document that has not received the attention it deserves, in spite of the fact that it is a mandatory report for those companies and so adds value to the study.

Our results may be of interest to the regulatory bodies that issue standards that are concerned with improving the readability of financial reports, since they must take into account that, according to our findings, this improvement depends on the quantity of text and visual elements contained in the reports and on whether or not companies comply with good governance practices. It may also interest those responsible for preparing financial information, as well as analysts and general users of this kind of information.

The remainder of the paper is organised as follows. We provide background and develop hypotheses in section 2. The methodology used and the research design are then discussed in section 3. In section 4, the main results are presented. The work ends with the conclusions reached in section 5.

3.2. BACKGROUND AND HYPOTHESES DEVELOPMENT

As the accounting narratives disclosed by companies is expanding, the complexity of these documents is questioned. That is, "Because many investors are neither lawyers, accountants, nor investment bankers, we need to start writing disclosure documents in a language investors can understand … The legalese and jargon of the past must give way to everyday

words that communicate complex information clearly … Brokers and investment advisers can make better recommendations to their clients if they can read and understand these documents quickly and easily" (SEC, 1998, p. 9). This has prompted the international financial reporting community to initiate projects on streamlining annual reports to improve their readability (Lim et al., 2018). For the Spanish case, Suárez Fernández (2016) suggests the publication of a guide of good practices that helps companies to elaborate narrative information in a more understandable way, following the example of documents elaborated in the United States or in England. The usefulness of corporate disclosure depends on readability and understandability (Ajina, Laouiti, & Msolli, 2016).

Readability relates to the text's inherent capability of being read quickly and easily (Schroeder & Gibson, 1990). Readability formulas have been frequently used in the literature in several fields of knowledge. Their implementation is simple, quick and inexpensive (Courtis, 1987), as well as being passive, so reader participation is not required (Jones, 1997).

Most formulas are based on two variables — the number of syllables per word (semantic variable) and the number of words per sentence (syntactic variable) — that predict how readable a text will be (Courtis, 1986). The first measures semantic difficulty and recognition speed, whereas the second measures the burden on short-term memory (Smith & Taffler, 1992). The resulting scores can be interpreted against a scale of difficulty (Jones, 1997), where for the Flesch Reading Ease Formula (FREF), for example, high scores indicate reading ease (or a low educational level required for reading) and low scores indicate reading difficulty (or a high educational level required for reading).

Some of the most widely used formulas in the literature — henceforth called indices — to analyse the readability of accounting narratives are the Flesch index (Flesch, 1948) and the Gunning Fog Index or Fog Index (Gunning, 1952). The results of research in this topic are quite similar, concluding that accounting documents can be classified as difficult or very difficult to read within this scale of difficulty (Clatworthy & Jones, 2001; Courtis, 1995; Dolphin & Wagley, 1977; Lewis, Parker, Pound, & Sutcliffe, 1986; Loughran & McDonald, 2014; Smith & Taffler, 1992; Soper & Dolphin, 1964). Loughran and McDonald (2014) used the Fog index to measure the readability of 10-K filings, which they considered illegible. Despite the difficulty due to the use of technical business language, these authors pointed out that experienced readers of these types of documents are unlikely to consider them difficult to read.

3.2.1 Readability evolution

The literature has also used these indices to analyse the evolution of the readability of accounting narratives over time. The most widespread conclusion, when working with small samples of companies, is that documents are becoming increasingly difficult to read (Courtis, 1995; Dolphin & Wagley, 1977; Jones, 1988; Lewis et al., 1986; Soper & Dolphin, 1964). However, when large samples of companies have been used in the analysis, the results are inconclusive. Li (2008) observed that annual reports after 1999 improved in readability until 2002, when they became even more difficult to read than before 1999. On the other hand, Loughran and McDonald (2014) found that readability was similar in the two periods analysed, from 1994 to 2002 and from 2003 to 2011. Suaréz Fernández (2016) also found that readability was similar during the years 2007, 2008 and 2009. With this background of mixed evidence, we propose the first hypothesis:

H1: The readability of the narrative information contained in management reports does not change over time.

3.2.2 Readability and quantity of text and visual elements

It should also be noted that accounting narrative information released by companies has been expanding in recent decades (Beattie & Davison, 2015; Beattie, McInnes, & Fearnley, 2004; Beattie & Smith, 2013; Tarca & Seah, 2006). There has been an increase in the number of words (F. Li, 2008) and an increase in visual resources (i.e., tables, images, graphs and figures), which has caused documents to increase in size over time (Loughran & McDonald, 2014).

Therefore, we wonder whether including more text affects the readability index scores of the documents. A portion of the literature has tried to justify that more text implies lower readability. Li (2008) has suggested that reports that contain more text also require higher information-processing costs and seem to be more difficult to read, since the length of reports could be used by managers to make reports less transparent. It also seems that the information on bad news is less readable than for good news, since such information is masked by more complex texts (Asay et al., 2018; Bushee et al., 2018; Guay et al., 2016; F. Li, 2008). Loughran and McDonald (2014) consider that those companies that try to hide information are more likely to go unnoticed if they use more extensive documents. It is not surprising that these authors recommend that the SEC encourage managers to write more concisely, since documents written in this way are more likely to be easier to read. As part of the explanations that relate the amount of text with readability may be motivated by firm size

or by different techniques of manipulation of narrative information (such as impression management, management obfuscation and/or incomplete revelation) in the face of poor performance, it will be necessary to control the analysis by the firm size and its performance. We also incorporate other control variables that could be behind this relationship.

Based on the work of Li (2008) and Loughran and McDonald (2014), together with the lack of empirical evidence relating these two variables (i.e., text quantity and readability), we formulate the second hypothesis:

H2: Management reports that contain greater quantities of text are more difficult to read.

Naturally, this hypothesis corresponds to a very broad readability approach, based on Li (2008), where longer texts are more deterring and require higher costs of information-processing, and Loughran and McDonald (2014), who argued readability is defined as the ability to assimilate valuation-relevant information. In a traditional approach based on readability indices, such as the Flesch index (Flesch, 1948) or the Fog index (Gunning, 1952), where readability is measured on the length of words and sentences, this is not so obvious, since those longer reports with short words and sentences will be more readable.

On the other hand, Hopwood (2007) has identified a radical transformation in accounting narratives, evolving from minimalist legal documents to creative documents that often combine text, images, graphics and other elements. This is motivated and encouraged by organisations such as the SEC (1998), the International Organization of Securities Commissions (IOSCO, 2003), the IASB (2006, 2010) and the National Securities Market Commission (CNMV, 2013) that propose the use of visual elements as a tool that allows companies to write simpler and more readable reports.

Taking into account the above in relation to the quantity of visual elements and readability, and again being aware of the lack of empirical evidence, we consider the third hypothesis:

H3: The use of visual elements (i.e., tables, charts, graphs, figures, maps, flowcharts and other graphics) allows companies to create management reports that are easier to read.

3.2.3 Readability and good governance practices

In the current scenario of uncertainty and recent financial scandals, it is necessary to increase the transparency of the information published by companies in order to reduce information asymmetries. One of the principles of corporate governance established by the OCDE (2016) is the disclosure of information and transparency. This principle requires,

among other information minimums, the disclosure of non-financial information, usually as an integral part of company's management report. In this sense, the readability of corporate disclosures is crucial to mitigate the information asymmetry and improve stakeholders' perception of the firm (Ginesti et al., 2018).

Previous literature has investigated the influence of various factors of corporate governance on the disclosure of information. Bravo and Reguera-Alvarado (2017) have documented a positive association between board independence and financial reporting quality. Yekini et al. (2015) indicate a statistically significant relationship between board independence and the quality of community disclosures. Liu and Zhang (2017) have demonstrated a positive correlation between state-owned shareholding ratio, number of directors, number of meetings of the supervisory board and proportion of managerial staff shareholding, and the level of disclosure of social responsibility information; while the share ratio of the largest shareholder has a negative correlation. Wang (2016) also concluded that corporate governance has a positive correlation to the value of disclosure of environmental information.

On the other hand, the literature has also focused on associating readability with the characteristics of companies, mainly financial performance (Asay et al., 2018; Bushee et al., 2018; Guay et al., 2016; F. Li, 2008), measured through several variables such as earnings persistence (F. Li, 2008; Lo et al., 2017), profitability (Dempsey, Harrison, Luchtenberg, & Seiler, 2012; Moreno & Casasola, 2016), or stock return volatility, analyst forecast dispersion and analyst earnings forecast accuracy (Loughran & McDonald, 2014; Bonsall et al., 2017). To a lesser extent, attempts have also been made to associate readability with other firm characteristics, such as corporate governance mechanisms (Cerbioni & Parbonetti, 2007; Ginesti et al., 2018; Suárez Fernández, 2016; Velte, 2018). However, we have not found empirical evidence that associates readability with compliance with good governance practices.

The good governance codes aim to provide solutions to the asymmetric information problems between managers and shareholders. Kaspereit et al. (2017) suggested that investors who operate in markets with asymmetric information are more interested in the actions of companies that achieve high levels of corporate governance. The good governance codes contain recommendations on good governance practices, which improve the effectiveness of companies in terms of corporate governance and increase their legitimacy before investors (Zattoni & Cuomo, 2008). For this, good governance practices are a tool that facilitates the creation of an environment of trust, transparency and accountability (C.

Mallin, 2013; OCDE, 2016). In this sense, Pucheta-Martínez and Narro-Forés (2014) argued that good governance practices arise to improve business management with principles such as transparency, which translates into clearer and more reliable information, increasing stakeholder confidence. If so, transparency will be transmitted to accounting documents, which will become more readable, since good corporate governance practices try to avoid the opportunistic behaviour of managers, who are tempted to take advantage of information asymmetries with respect to stakeholders (Cuomo et al., 2016; Fama & Jensen, 1983). Therefore, we propose the last hypothesis:

H4: Companies that comply with a greater number of the recommendations of good governance practices issue more readable management reports.

3.3. RESEARCH DESIGN AND METHODOLOGY

3.3.1 Data

Our database contains the management reports of listed firms on the Continuous Market of the Madrid Stock Exchange during the period 2010–2016. All companies belonging to the financial and real estate sectors — namely banks, insurance companies, real estate companies and investment companies — were eliminated. The use of this first filter was justified by the special characteristics of these types of firms. Firms subjected to liquidation in the years examined were eliminated because liquidation could lead to abnormal behaviour in the publication of their information. In a third filter, companies that did not have information on their consolidated annual accounts were deleted, either because they presented only individual annual accounts or because they were foreign companies without an obligation to publish accounting documents in Spain. We also only considered companies with at least five consecutive years of available information to provide greater efficiency in the estimates of the panel data models. As a result, we have an unbalanced panel of 87 listed Spanish companies with 595 observations of consolidated management reports for the period 2010–2016 (see Table 3.1).

Although management reports are one of the main documents with narrative information that Spanish firms produce, its content and structure is practically voluntary, owing to the lack of laws or guidelines to standardise its format and regulate its extent, epigraphs, and degree of detail, with the exception of the *Guide for the Preparation of the Management Report of Listed Companies* (CNMV, 2013), which was implemented in 2014 and its compliance is voluntary for companies.

Table 3.1. Sample description

Step	Filter	Numbers of firms						
		2010	2011	2012	2013	2014	2015	2016
Initial sample	Total Spanish listed companies	141	146	141	137	153	152	148
First filter	Financial and real estate companies	-39	-41	-37	-36	-44	-42	-38
Second filter	Liquidated companies	-4	-4	-3	-3	-3	-1	
Third filter	Companies without consolidate data	-8	-10	-10	-9	-13	-14	-16
Fourth filter	Companies with less than five consecutive observations	-7	-5	-4	-2	-6	-11	-13
Final sample		**83**	**86**	**87**	**87**	**87**	**84**	**81**

This table shows the process used to debug the database for the period 2010–2016.

The data related to the dependent variable (readability), the independent variables (quantity of text and visual elements) and the control variable (compliance with the CNMV guide for the elaboration of management reports) were collected from the management reports, while those corresponding to compliance with good practices were taken from the annual corporate governance reports. Finally, the financial information corresponding to the rest of the control variables (firm characteristics) were obtained from the SABI database.

3.3.2 Readability analysis

As we anticipated, the indices most frequently used in the literature to analyse the readability of accounting documents have been the Flesch index (Flesch, 1948) and the Fog index (Gunning, 1952). However, these indices were developed for English texts, so their application in Spanish texts is meaningless (Fernández Huerta, 1959; Rabin, 1988). As an example, the words in English are shorter and, therefore, would be considered as easier to read than words in Spanish according to these indices (Jones & Shoemaker, 1994). Sentences in Spanish also have a greater number of words (Fialho et al., 2002), so they would be considered more difficult to read according to these indices. Following Moreno and Casasola (2016), we used two adaptations to the Spanish of the original Flesch index, the Flesch–Fernández Huerta index or the Fernández Huerta index (Fernández Huerta, 1959) and Flesch–Szigriszt index or Szigriszt index (Szigriszt Pazos, 1992). As both indices are highly correlated, we initially chose the Fernández Huerta index to make the estimates, due to its wider use. However, in order to provide robustness, we repeated all the regressions with the Szigriszt index as dependent variable, as will be illustrated later.

The readability analysis of the reports was carried out in several steps. First, the consolidated annual accounts of all the companies were obtained for the years 2010–2016, to extract from them the consolidated management reports (595 in total) that were analysed. These documents were converted to Word format for later text processing. Second, all visual elements were removed and a fragment of each management report representing 10% of the total text of document was randomly selected[4]. We chose to analyse a similar percentage for all documents instead of a specific number of words, to ensure that all the texts analysed represented the same proportion of the total document. Once the part of the management report to be analysed was chosen, we cleaned the text, which was necessary for final analysis through the computer software. Third, each of the 595 management report fragments, already cleaned, were copied into the INFLESZ program[5] to obtain the number of syllables, words, sentences and, finally, the Fernández Huerta index value.

Regarding the text-cleaning step, several adjustments were made in each fragment. Periods that would generate fictitious sentences were eliminated, as were punctuation marks that generated additional sentences — that is, they cut sentences (e.g., dashes, parentheses, brackets, etc.). All numbers, symbols, abbreviations and acronyms were also replaced by their text equivalents.

3.3.3 Variable measurements

3.3.3.1 Dependent variable: Readability

The variable to be explained in our work was readability, measured by the Fernández Huerta index (Fernández Huerta, 1959). This index is an adaptation of the Flesch index for application to Spanish texts and takes into account word length (number of syllables per word) and sentence length (number of words per sentence) to determine the reading ease or difficulty. The word factor measures semantic difficulty and recognition speed, while the sentence factor quantifies the burden on short-term memory (Adelberg, 1979; Smith & Taffler, 1992).

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[4] The selection of 10% of the total of the document is justified by the enormous work of cleaning the text, which must necessarily be carried out manually with the Word program as a step prior to the analysis with the INFLESZ program.

[5] Available at: https://legibilidad.blogspot.com/2015/01/el-programa-inflesz.html.

This adaptation is justified because the Flesch index is designed for English texts and its direct application to Spanish texts is inappropriate because English words are shorter, and Spanish uses longer sentences. The Fernández Huerta index is calculated as follows:

$$\text{Fernández Huerta index} = 206.835 - 0.6 \cdot \text{wl} - 1.02 \cdot \text{sl}$$

where wl is the average length of the words (measured in syllables per word and multiplied by 100) and sl is the average length of the sentences (measured in words per sentence).

This produces a score between 0 and 100 points. The lower end indicates a very difficult text to read, typical of scientific texts, and the upper end indicates a very easy to read text. Table 3.2 illustrates the full scale for this index.

Table 3.2. Readability scores and their correlation with typical magazines

Score	Difficulty	Educational level	Typical magazine
90-100	Very easy	Grade 5	Comics
80-90	Easy	Grade 6	Pulp fiction
70-80	Fairly easy	Grade 7	Slick fiction
60-70	Standard	Grades 8−9	Digests
50-60	Fairly difficult	Grades 10−12	Quality
30-50	Difficult	Undergraduate degree	Academic
0-30	Very difficult	Postgraduate degree	Scientific

Adapted from Flesch (1948).

3.3.3.2 Independent variables

Quantity of text was the first variable considered, measured as the log of text words contained in each management report. It is expected that larger reports have a lower readability score, since longer texts require higher information-processing costs and also the length of a report could be used strategically by managers in order to make this report less transparent and to hide adverse information from investors (F. Li, 2008). In addition, organisations such as the SEC have suggested that companies avoid lengthy sentences and documents (1998). Therefore, we expected a negative relationship between the text quantity contained in the management report and its readability, that is, those companies that use large quantities of text produce reports with lesser readability.

The second variable was the quantity of visual elements. Visual elements are contained in management reports to help the reader to better process the information (Van Beest, Braam, & Boelens, 2009) and to organize the ideas in a clearer way. Management reports can

therefore contain tables, charts, graphs, figures, maps, flowcharts and other graphics to facilitate readability. The main regulatory bodies (CNMV, 2013; IASB, 2010; IOSCO, 2003; SEC, 1998, among others) recommend the use of these visual resources. To measure the quantity of visual elements in each report, we compared the space occupied by visual elements to the space occupied by the rest of the information printed (i.e., text words and visual elements). This created a quantitative measure of the visual elements used in each report based on their proportion of the whole. We expected a positive relationship between the proportion of visual elements contained in the management report and its readability, since the use of visual elements will allow the creation of more readable texts.

The third variable was good governance practices, which measure the proportion of recommendations that a company has totally and partially complied with in its Annual Corporate Governance Report[6], weighted by importance. The recommendations with which a company had totally complied were assigned a weight of 1, and the recommendations with which a company had partially complied were weighted 0.5. The computation of good governance practices (GGP) is as follows:

$$GGP = \frac{\text{recommendations totally complied with} \cdot 1 \ + \text{recommendations partially complied with} \cdot 0.5}{\text{total recommendations} \ - \ \text{recommendations not applicable}}$$

We expected that companies that carry out a greater compliance with recommendations of corporate governance practices are those that issue more readable management reports.

3.3.3.3 Control variables

The control variables used in this work are related to the compliance with the CNMV guide for the elaboration of management reports and firm characteristics. These variables were CNMV guide, performance, size, leverage, age, corporate actions and qualified audit report.

The first control variable was compliance with the CNMV guide for the preparation of management reports, proposed by the National Stock Market Commission (CNMV, 2013). This guide recommends a series of sections that each report should contain, as well as several guidelines for publishing the information in those sections. For use of the CNMV guide

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[6] The Annual Corporate Governance Report is the component of annual financial statements that includes the follow-up that listed companies make regarding recommendations on good practices proposed in the codes of good governance through compliance with a standardised format required by the National Commission of the Stock Market. Each recommendation supports up to four of the following options: 'comply', 'partially comply', 'explain' and 'not applicable'. We will focus on the recommendations complied, both totally and partially, in relation to those that are applicable.

when preparing management reports, which establishes a management report structure with nine epigraphs, we used a dichotomous variable to separate the companies that follow the CNMV guide from those that do not. We expected a positive relationship between this variable and the readability of the management report, since the objective of the CNMV guide is for companies to publish reports that are more transparent and therefore more readable.

Performance was measured as the return on assets, defined by the earnings before interest and taxes (EBIT) divided by total assets. Following previous studies that found a positive relationship between performance and readability (Ajina et al., 2016; Dempsey et al., 2012; F. Li, 2008; Subramanian, Insley, & Blackwell, 1993), we expected that companies with better profits would produce more readable reports so that stakeholders would be aware of their good performance.

Following Courtis (1995), Li (2008), Lo et al. (2017), Rutherford (2003), Smith et al. (2006) and Suárez Fernández (2013, 2016), the third control variable was company size. This variable was computed as the log of the average number of workers. Large companies have more complex operations to report and thus produce more complex narratives (Ajina et al., 2016; Jones, 1988; F. Li, 2008; Lim et al., 2018). We therefore expected that larger companies would issue less readable reports, so the relationship will be negative. However, large companies also have more resources to spend on producing clearer reports than small companies and, therefore, may produce more readable reports (Courtis, 1995; Drago, Ginesti, Pongelli, & Sciascia, 2018). Considering both approaches, we expected both negative and positive relationships depending on whether operational complexity or information clarity would prevail when companies prepared their management reports (Lo et al., 2017).

The degree of leverage, quantified as the quotient of the total debt of the company and its total assets, was another control variable (Courtis, 1986; Rutherford, 2003; Smith et al., 2006). Firms with more debt in their capital structure may have more complex disclosures when explaining all the information related to their debt structure. Following previous studies (Ajina et al., 2016; Dempsey et al., 2012; Rutherford, 2003; Smith & Taffler, 1992), we expected a negative relationship between a company's level of indebtedness and the readability of its reports.

We used the age of the company as the fifth control variable, measured by the log of the age. Older companies have fewer information asymmetries and, therefore, less uncertainty in the elaboration of information owing to accumulated experience, so their reports may be

simpler and more readable (F. Li, 2008). However, it is also true that older companies tend to be larger and have more complex operations, so they may produce more complicated reports that are therefore less readable. Consequently, we expected both positive and negative relationships, depending on whether information asymmetries or the complexity of operations determined the greater or lesser readability of management reports (Lo et al., 2017).

Ownership dispersion was the sixth control variable used, defined as the proportion of shares held by the public (Ajina et al., 2016). Following the agency theory, if the ownership structure is more dispersed, agency costs increase because of the increased probability of conflict of interest between owners (Jensen & Meckling, 1976). We expected that firms with high ownership dispersion would be likely to issue more readable management reports (Ajina et al., 2016; Oliveira, Lima Rodrigues, & Craig, 2006).

To reflect the effect that corporate actions may have on the readability of management reports, public offerings and takeover bids were considered. A dichotomous variable was created with the value one if the company has made a public offer or received a takeover bid during the corresponding year and the value zero otherwise. These types of complex operations require greater effort to explain the company's performance in that year and, therefore, we expected less readable management reports (F. Li, 2008).

We also included the dichotomous variable of a qualified audit report, which was given the value of one if the company received the audit report with qualifications and zero if it was an unqualified audit report. It is possible that companies have obtained a qualified audit as a result of having published complex and not very transparent reports. We therefore expected a negative relationship between this variable and readability.

Table 3.A1 of the appendix contains the descriptive statistics of all the variables used in our study (i.e., dependent, independent and control variables), both measured in scalar terms and dichotomised.

Finally, we included sector and year dummies as control variables to measure the industry and temporary effects in all the proposed relationships.

3.3.4 Models and methodology

The first objective of the paper is to analyse whether the amount of text (H2) and visual elements (H3) that determine the extension of management reports, explain the readability of these reports. To analyse these relationships, the following model was proposed:

$$FHI_{it} = \beta_0 + \beta_1 \cdot TQ_{it} + \beta_2 \cdot QVE_{it} + \Sigma \beta_j \cdot CV_{jit} + \varepsilon_{it} \qquad (1)$$

where FHI_{it} is the Fernández Huerta index of the management report for company i in year t; TQ_{it} is the text quantity contained in the management report of company i in year t, quantified by the log of text words; QVE_{it} is the quantity of visual elements contained in the management report of company i in year t, measured by the proportion of visual elements; and CV_{jit} is the corresponding control variable j of company i in the year t, which has been previously described. Finally, ε_{it} is the error term, which is split into three components: the individual effect (η_i), the temporal effect (d_t) and white noise or random disturbance (v_{it}).

The second objective of the research is to examine to what extent the compliance of good governance practices (H4) explains the readability of management reports. To do this, the good governance practices variable was incorporated into the previous proposed model:

$$FHI_{it} = \beta_0 + \beta_1 \cdot TQ_{it} + \beta_2 \cdot QVE_{it} + \beta_3 \cdot GGP_{it} + \Sigma \beta_j \cdot CV_{jit} + \varepsilon_{it} \qquad (2)$$

where GGP_{it} represents good governance practices of company i in year t, quantified through the proportion of complied recommendations in its annual corporate governance report. The rest of the variables have been previously defined in model (1).

We estimated all models using panel data methodology. The use of panel data estimations allows us to control for individual effects or unobserved heterogeneity. We controlled this heterogeneity in companies to avoid biased results by modelling it as individual effects, η_i. In particular, we used random effects models with the Feasible Generalised Least Squares (FGLS) estimator.

Before beginning the analysis, we also ran several tests to choose the method of estimation. First, we ran the Breusch–Pagan test, to check that a panel data model would be preferable to a pool of data. Second, we ran the Hausman test to compare the Within Groups (WG) estimator in fixed effects and the FGLS estimator in random effects, under the null hypothesis that the difference in coefficients is not systematic. We cannot reject the null hypothesis, so the FGLS estimator in random effects is preferable because it is more efficient. Finally, we ran the Pesaran test of cross-sectional independence, the Wooldridge test for autocorrelation and the Wald test for group-wise heteroscedasticity. All models had no cross-

sectional dependence and no autocorrelation but heteroscedasticity, so they accounted for heteroscedasticity in residual distribution.

3.4. RESULTS

Table 3.3 illustrates the descriptive statistics and score distribution of the Fernández Huerta index by year. As can be seen, the data indicate that the mean (median) moves between the values 47.38–48.67 (48.13–49.95) and the distribution of the score is concentrated between the difficult and fairly difficult scores, which correspond respectively to the scoring ranges 30–50 and 50–60. These results are in line with previous studies such as Jones (1988), Curtis (1995), Hynes and Bexley (2004) and Moreno and Casasola (2016) for the Spanish case. In addition, these mean and median values are relatively stable over the years analysed, according to the Friedman test, so hypothesis H1 is corroborated. Suaréz Fernández (2016) also found that readability was similar during his period of study (i.e., the years 2007, 2008 and 2009).

Table 3.A2 of the appendix provides the correlation matrix and the variance inflation factors (VIFs) between the independent and control variables used in the models presented above and allows us to examine the possible problems of multicollinearity. The results indicate that there are no problems of multicollinearity (between the independent and control variables), as well as their possible negative consequences on the regression analysis, because although there are some significant correlations between independent variables, all are well below 0.7 (Tabachnick & Fidell, 1996). Specifically, they are between −0.377 and 0.544. In addition, all the VIFs of the explanatory variables (independent and control) are close to one.

After verifying that there were no problems of multicollinearity between the independent and control variables, we studied the relationships proposed previously through the regression models. We analysed the relationships between text quantity and the readability of management reports and between the quantity of visual elements and readability in regression (1), after controlling for several factors. Next, we incorporated the variable measuring good governance practices in regression model (2). Table 3.4 illustrates the results of the regressions obtained for the Fernández Huerta index with respect to the two variables that measure the extension of management reports (i.e., quantity of text and visual elements) and with respect to good governance practices. The estimates were carried out through random effects.

Table 3.3. Descriptive statistics and score distribution of Fernández Huerta index by years

Year	2010	2011	2012	2013	2014	2015	2016
Panel A: Descriptive statistics							
Mean	48.26	47.38	47.68	48.26	48.36	48.67	48.47
Std. dev.	9.92	8.77	9.39	8.84	9.67	8.11	8.67
Min	18.71	16.47	6.26	17.57	18.85	20.56	24.09
1st Q	43.69	42.51	42.28	43.91	44.01	44.64	43.85
Median	49.80	48.92	48.76	49.21	49.95	48.95	48.13
3er Q	54.61	52.79	53.30	53.06	53.91	53.37	52.29
Max	63.65	69.07	70.30	69.69	67.59	64.60	72.53
N	83	86	87	87	87	84	81
Friedman test				2.092 (0.351)			
Panel B: Score distribution (in percentage)							
Very easy (90-100)	0	0	0	0	0	0	0
Easy (80-90)	0	0	0	0	0	0	0
Fairly easy (70-80)	0	0	1.15	0	0	0	1.24
Standard (60-70)	7.23	2.33	5.75	10.35	8.05	4.76	7.41
Fairly difficult (50-60)	42.17	41.86	37.93	31.03	40.23	41.67	29.63
Difficult (30-50)	44.58	50.00	52.87	54.02	44.83	51.19	58.03
Very difficult (0-30)	6.02	5.81	2.30	4.60	6.90	2.38	3.70
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

This table presents the descriptive statistics and score distribution of the Fernández Huerta index by years. The Friedman test allows us to test whether the median is equal in all years

The results in regression (1) suggest that there is a negative and statistically significant relationship between the amount of text and the readability of management reports. This means that issuing a large amount of information by companies produces management reports that are more difficult to read. Longer management reports that present greater quantities of text are less readable than shorter ones, so hypothesis H2 is supported. These results are in line with the approaches of Bonsall et al. (2017), Li (2008), and Loughran and McDonald (2014).

Table 3.4. Influence of text, visual elements and good governance practices on readability

Independent variable		Dependent variable	
		(1) **Fernández** **Huerta index**	**(2)** **Fernández** **Huerta index**
	Predicted sign	Coefficient (p-value)	Coefficient (p-value)
Intercept		64.912*** (0.000)	55.226*** (0.000)
Text quantity	−	-1.754** (0.012)	-1.847*** (0.009)
Quantity of Visual elements	+	7.261** (0.036)	6.726** (0.046)
Good governance practices	+		12.483* (0.071)
Control variables			
CNMV guide	+	2.334* (0.094)	2.468* (0.080)
Performance	+	-0.024 (0.982)	0.201 (0.850)
Firm size	− / +	0.291 (0.280)	0.200 (0.472)
Leverage	−	-3.982*** (0.001)	-3.607*** (0.004)
Age	− / +	0.023 (0.980)	0.156 (0.865)
Ownership dispersion	+	-0.125 (0.950)	-1.177 (0.582)
Corporate actions	−	1.264 (0.535)	1.518 (0.457)
Qualified audit report	−	1.075 (0.453)	1.561 (0.301)
Sector dummies		Yes	Yes
Year dummies		Yes	Yes
Observations/Groups		595/87	595/87
Wald test		47.48*** (0.001)	46.09*** (0.001)
Rho (ρ)		0.1774	0.1778

This table shows the regression results for the Fernández Huerta index. Independent and control variables are: text quantity (log text words); quantity of visual elements (proportion of visual elements); good governance practices (proportion of recommendations with which a company has totally and partially complied, weighted by the importance of each recommendation); CNMV guide (binary variable equal to one if the management report of firm is disclosure according to the guide proposed by the CNMV and zero otherwise); performance (return on assets); firm size (log of average number of workers); leverage (ratio of total debt to total assets); age (log firm age); ownership dispersion (proportion of shares held by the public); corporate actions (binary variable equal to one if the firm has made a public offering or has received a takeover bid and zero otherwise); and qualified audit report (binary variable equal to one if the audit report is issued with qualifications and zero otherwise). Both regressions include sector and year dummies. They have been estimated through random effects, using FGLS regressions. The Wald test measures the joint significance of the explanatory variables of the model. The rho coefficient (ρ) computes the percentage contribution to the total variance of the panel data structure. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

If we look at the use of visual elements in management reports, we can see how they have a positive and statistically significant influence on the readability of the report. The quantity of visual elements not only favours understanding of information from a global point of view (CNMV, 2013; IASB, 2006, 2010; IOSCO, 2003; SEC, 1998), but also allows companies to write more readable texts in the management reports. We can therefore conclude that hypothesis H3 is verified.

Finally, we incorporated the variable measuring good governance practices in regression model (2). The results obtained provide robustness to those shown in model (1). The relationship between the text quantity of a management report and its readability is negative and statistically significant, supporting hypothesis H2. The results also reveal again a positive and statistically significant relationship between the quantity of visual elements and the readability of the management reports, so hypothesis H3 is corroborated.

The main finding of this model (2) is that there is a relationship between good governance practices and readability, which is positive and statistically significant. Companies complying with a higher percentage of recommendations leads to the creation of an environment of greater trust and transparency (C. Mallin, 2013; OCDE, 2016). This greater transparency translates into clearer and more reliable information published by companies, including the management reports, which become more readable. In this way, compliance with good governance practices prevents the opportunistic behaviour of managers, who are tempted to take advantage of information asymmetries with respect to stakeholders (Cuomo, Mallin, & Zattoni, 2016). We can therefore conclude that companies following good corporate governance practices issue management reports that are easier to read. These results verify hypothesis H4.

Regarding the control variables, we highlight the CNMV guide variable that appears to have a positive and significant relationship with the readability of the reports, revealing that the companies following the CNMV guide to elaborate their reports tend to issue more readable reports. The leverage variable is also statistically significant with a negative sign. Thus, more indebted companies tend to issue less readable management reports (Ajina et al., 2016).

Wald tests allow us to confirm the joint significance of the explanatory variables in models (1) and (2). The rho coefficients reveal that 17.74% and 17.78%, respectively, of the variance in the models is due to the panel data structure.

3.4.1 Robustness check

In order to provide robustness to the results, the two regression models were processed again, using the Szigriszt index as an alternative measure of readability. The Szigriszt index is computed as follows:

$$\text{Szigriszt index} = 206.835 - 0.623 \cdot \text{wl} - 1 \cdot \text{sl}$$

Table 3.5 illustrates the regression models (1) and (2) for the Szigriszt index as a dependent variable. As can been seen, the results are similar to those obtained in Table 3.4 with the Fernández Huerta index. That is, there is a negative and statistically significant relationship between the amount of text in management reports and their readability (H2). The relationship between the use of visual elements and readability is positive and statistically significant (H3). Finally, it is confirmed again that good governance practices have a positive influence on the readability of the narrative information contained in the management report (H4).

Concerning the control variables in the regressions, the previous relationships observed with respect to CNMV guide and leverage variables are confirmed [CNMV guide variable is about to be significant in model (1)]. That is, those companies that follow the CNMV guide issue more readable reports, while more indebted companies provide less readable management reports. Again, Wald tests confirm the joint significance of the explanatory variables in both regressions and rho coefficients reveal that 17.54% and 17.59%, respectively, of the variance in the models is due to the panel data structure.

Table 3.5. Robustness check: Szigriszt index as readability measure

Independent variable	Predicted sign	(1) Szigriszt index Coefficient (p-value)	(2) Szigriszt index Coefficient (p-value)
		Dependent variable	
Intercept		60.246*** (0.000)	50.531*** (0.000)
Text quantity	–	-1.725** (0.013)	-1.818*** (0.009)
Quantity of Visual elements	+	7.116** (0.039)	6.578* (0.050)
Good governance practices	+		12.518* (0.070)
Control variables			
CNMV guide	+	2.254 (0.104)	2.388* (0.088)
Performance	+	0.066 (0.952)	0.292 (0.787)
Firm size	– / +	0.284 (0.289)	0.192 (0.487)
Leverage	–	-3.890*** (0.002)	-3.514*** (0.005)
Age	– / +	0.038 (0.966)	0.171 (0.851)
Ownership dispersion	+	-0.105 (0.958)	-1.163 (0.584)
Corporate actions	–	1.307 (0.510)	1.562 (0.432)
Qualified audit report	–	1.182 (0.402)	1.671 (0.259)
Sector dummies		Yes	Yes
Year dummies		Yes	Yes
Observations/Groups		595/87	595/87
Wald test		46.81*** (0.001)	45.52*** (0.002)
Rho (ρ)		0.1754	0.1759

This table contains the regression results for the Szigriszt index. Independent and control variables are: text quantity (log text words); quantity of visual elements (proportion of visual elements); good governance practices (proportion of recommendations with which a company has totally and partially complied, weighted by the importance of each recommendation); CNMV guide (binary variable equal to one if the management report of firm is disclosure according to the guide proposed by the CNMV and zero otherwise); performance (return on assets); firm size (log of average number of workers); leverage (ratio of total debt to total assets); age (log firm age); ownership dispersion (proportion of shares held by the public); corporate actions (binary variable equal to one if the firm has made a public offering or has received a takeover bid and zero otherwise); and qualified audit report (binary variable equal to one if the audit report is issued with qualifications and zero otherwise). Both regressions include sector and year dummies. They have been estimated through random effects, using FGLS regressions. The Wald test measures the joint significance of the explanatory variables of the model. The rho coefficient (ρ) computes the percentage contribution to the total variance of the panel data structure. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

3.5. CONCLUSIONS

In this paper, we have analysed the readability of narrative information contained within the management reports of Spanish companies listed on the Continuous Market of the Madrid Stock Exchange during the period 2010–2016. We used a measure of readability adapted to the singularity of texts in Spanish, since the Flesch index was developed for English texts and its application in Spanish texts is meaningless. In particular, we applied the Fernández Huerta index, which is an adaptation to the Spanish of the original Flesch index. Once we obtained the Fernández Huerta index for each management report, we tried to determine whether readability changed over time and whether the quantity of text and visual elements affected readability after controlling for several factors. We also examined whether there is a relationship between good governance practices and readability.

Our results indicate that readability was very stable during the years analysed, in line with Suaréz Fernández (2016). We also corroborated that text quantity has a negative impact on the readability of management reports: longer texts are less readable [i.e., this finding lends support to the more generalist approaches of Bonsall et al. (2017), Li (2008), and Loughran and McDonald (2014)]. However, the use of visual elements favours the presentation of more readable texts in management reports, according to regulatory bodies such as the CNMV (2013), IOSCO (2003), IASB (2006, 2010) and SEC (1998) that propose the use of visual elements to encourage companies to write simpler and more readable reports. There is also a positive and significant relationship between good governance practices and readability, which reveals that companies that follow a greater number of corporate governance practices issue more readable management reports. Good corporate governance improves the transparency of accounting narratives (C. Mallin, 2013; OCDE, 2016), communicating complex information with more clarity, speed, and simplicity (i.e., reports are more readable). Finally, regarding the control variables, we found that more indebted companies presented less readable management reports, while those that followed the CNMV guide issued more readable reports.

This study could not only be interest for those responsible for preparing financial information and stakeholders, but also for regulatory bodies. At the present time, where accounting information is expanding and increasingly complex, this paper provides empirical evidence that supports the projects and recommendations issued by several international organisations to improve the readability. Thus, our results are in line with the proposal made by the SEC (1998) that recommended limiting the size of the reports. We also agree with the

recommendations of the CNMV (2013), the IOSCO (2003) and the IASB (2006, 2010) on the use of graphic resources, since the results indicate that visual elements improve readability of management reports. Finally, we propose, as a novelty, that compliance with good corporate governance practices improves the transparency of the accounting information, which translates into more readable reports.

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3.7. APPENDIX

Table 3.A1. Summary statistics of variables

Scalar variable	Mean	Std. Dev.	Min	1st Q	Median	3rd Q	Max	N
Fernández Huerta index	48.148	9.041	16.256	43.614	49.158	53.362	72.534	595
Szigriszt index	46.823	8.984	12.868	39.204	44.745	49.017	68.189	595
Text quantity	8.524	0.822	6.303	7.896	8.461	9.030	10.884	595
Quantity of visual elements	0.139	0.129	0.000	0.014	0.117	0.229	0.650	595
Good governance practices	0.893	0.079	0.583	0.850	0.908	0.950	1.000	595
Performance	0.027	0.242	-4.808	0.009	0.043	0.082	0.912	595
Firm size	7.872	2.094	1.946	6.635	7.673	9.485	12.564	595
Leverage	0.664	0.345	0.036	0.500	0.656	0.788	3.717	595
Age	3.728	0.812	0.000	3.219	3.807	4.263	5.673	595
Ownership dispersion	0.442	0.220	0.008	0.278	0.387	0.602	1.000	595

Dummy variable	Frequency			Percentage				
	No	Yes	Total	No	Yes	Total		
CNMV guide	520	75	595	87.39	12.61	100.00		
Corporate actions	584	11	595	98.15	1.85	100.00		
Qualified audit report	572	23	595	93.13	6.87	100.00		

This table presents the descriptive statistics for all the variables used. These variables are: Fernández Huerta index; Szigriszt index; text quantity (measured as the logarithm of the text words); quantity of visual elements (quantified as the proportion of visual elements); good governance practices (computed as the proportion of recommendations with which a company has totally and partially complied, weighted by the importance of each practice); performance (quantified as the return on assets); firm size (computed as the logarithm of the average number of workers); leverage (measured as the ratio of total debt to total assets); age (quantified as the logarithm of the firm age); ownership dispersion (computed as the proportion of shares held by the public); CNMV guide (measured as a binary variable equal to one if the management report of the firm is disclosed according to the guide proposed by the CNMV and zero otherwise); corporate actions (quantified as a binary variable equal to one if the firm has made a public offering or has received a takeover bid and zero otherwise); and qualified audit report (measured as a binary variable equal to one if the audit report is issued with qualifications and zero otherwise).

Table 3.A2. Correlation matrix and variance inflation factors

Variables	1	2	3	4	5	6	7	8	9	10	11
1. TQ	1.000										
2. QVE	0.358 ***	1.000									
3. GGP	0.273 ***	0.190 ***	1.000								
4. CNMVG	0.322 ***	0.024	-0.001	1.000							
5. P	0.035	0.035	-0.018	0.029	1.000						
6. FS	0.544 ***	0.328 ***	0.313 ***	0.123 ***	0.142 ***	1.000					
7. L	0.132 ***	-0.038	-0.024	0.056	-0.377 ***	0.074 *	1.000				
8. A	-0.126 ***	-0.103 **	-0.218 ***	0.074 *	0.032	-0.185 ***	-0.149 ***	1.000			
9. OD	0.305 ***	-0.007	0.291 ***	0.036	-0.085 **	-0.120 ***	0.180 ***	-0.004	1.000		
10. CA	0.017	0.054	-0.027	0.061	-0.023	-0.019	0.031	-0.038	-0.054	1.000	
11. QAR	-0.142 ***	0.002	-0.209 ***	0.029	-0.242 ***	-0.204 ***	0.154 ***	0.124 ***	0.035	-0.028	1.000
VIF	1.88	1.25	1.31	1.17	1.26	1.61	1.30	1.13	1.25	1.02	1.17

This table contains the Pearson correlation coefficients and the variance inflation factors (VIFs) between the independent and control variables. These variables are: TQ (text quantity) measured as the logarithm of the text words; QVE (quantity of visual elements) quantified as the proportion of visual elements; GGP (good governance practices) computed as the proportion of recommendations with which a company has totally and partially complied, weighted by the importance of each practice; CNMVG (CNMV guide) measured as a binary variable equal to one if the management report of the firm is disclosed according to the guide proposed by the CNMV and zero otherwise; P (performance) quantified as the return on assets; FS (firm size) computed as the logarithm of the average number of workers; L (leverage) measured as the ratio of total debt to total assets; A (age) quantified of the logarithm of the firm age; OD (ownership dispersion) computed as the proportion of shares held by the public; CA (corporate actions) measured as a binary variable equal to one if the firm has made a public offering or has received a takeover bid and zero otherwise; and QAR (qualified audit report) quantified as a binary variable equal to one if the audit report is issued with qualifications and zero otherwise. A VIF close to one reveals that there are no collinearity problems between the independent and control variables. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

Capítulo 4

The Gender Pay Gap in the board of directors: An analysis with homogeneous groups of directors and compensation

VISIÓN GENERAL

Motivación

Para la Organización para la Cooperación y el Desarrollo Económico (OCDE), el progreso en la igualdad y la eliminación de las brechas de género es demasiado lento, a pesar de la conciencia mundial de que la igualdad de las mujeres es una prioridad (OCDE, 2019). En opinión de la Comisión Europea (CE), la discriminación salarial, aunque es ilegal, sigue alimentando la brecha salarial de género. Los puestos de dirección y supervisión no son ajenos a esta realidad, ya que son ocupados mayoritariamente por hombres, quienes ascienden con mayor facilidad que las mujeres y, en consecuencia, reciben un salario mayor. Esta tendencia es evidente en el organigrama empresarial, con menos del 6% de mujeres ocupando puestos de CEO (Comisión Europea, 2018). Por tanto, hay dos cuestiones relacionadas con las mujeres en los puestos superiores: primero, hay pocas; y segundo, ganan menos dinero que los hombres (Mohan, 2014).

Sin embargo, la evidencia académica que sustenta estas brechas en los roles gerenciales es mixta y no se ha alcanzado un consenso en este aspecto. Además, la investigación es aún más escasa, si cabe, cuando se centra en la retribución del consejo de administración.

Las críticas a gran parte de la investigación sobre la brecha salarial de género se han centrado en la heterogeneidad de las muestras utilizadas. Así, Grund (2015) señala que muchos estudios se han basado en personas y puestos bastante heterogéneos, cuestionándose si captan las principales diferencias entre hombres y mujeres. Otra crítica a la heterogeneidad tiene que ver con los tipos de remuneración incluidos en las muestras para el cálculo de la brecha salarial de género. La mayoría de las investigaciones examinan las diferencias salariales considerando la compensación total. Sin embargo, las brechas pueden diferir entre los diferentes componentes que conforman la compensación total, por lo que todos los conceptos de compensación individual que conforman la compensación total deben ser tomados en cuenta en su medición (Amado, Santos, & São José, 2018). Por tanto, esta preocupación por la homogeneidad de las muestras ha guiado nuestro estudio sobre la brecha salarial de género en los consejos de administración.

Objetivo

El objetivo del trabajo es cubrir un hueco en el estudio de la brecha salarial de género en los consejos de administración, teniendo en cuenta los problemas de heterogeneidad dentro de las muestras. En concreto, nuestro objetivo es analizar la brecha salarial de género en grupos homogéneos por tipos de consejeros (es decir, ejecutivo, dominicales e independientes): (1) en la retribución total, y (2) en los diferentes componentes retributivos (es decir, fija, variable y otras retribuciones). Además, requerimos la presencia de diversidad de género en las empresas para cada tipo de consejero, ya que no puede haber brecha salarial de género donde no hay diversidad de género. La categoría de otros consejeros no fue analizada, ya que no es homogénea y contiene aquellos consejeros que no se pueden incluir en las categorías previas de ejecutivos, dominicales e independientes.

Enfoque

Nuestra base de datos incluye todos los consejeros que pertenecen a los consejos de administración de las sociedades cotizadas españolas durante el periodo 2013-2018, eliminando las empresas financieras, así como empresas en proceso de liquidación y sin cuentas anuales consolidadas disponibles. Como resultado, nuestra muestra se compone de 7.221 observaciones de consejeros por año pertenecientes a 651 observaciones de empresas por año. De todas estas observaciones, hemos seleccionado aquellas empresas y consejeros que incorporan la diversidad de género en cada tipo de consejero. De esta forma, evitamos el sesgo de comparar empresas con y sin consejeras. En consecuencia, tenemos 3.449 observaciones de consejeros por año en empresas con diversidad de género para cada tipo de consejero (650 observaciones de empresas por tipo de consejero y año).

En general, la presencia de mujeres en los consejos de administración, aunque ha ido en aumento durante los últimos años, es baja (de media, por debajo del 15%), especialmente entre los consejeros ejecutivos (3,66%), que presentan una diversidad de género, en términos de empresas, del 5,22% y, en términos de consejeros, del 8,33%.

Los datos relacionados con las variables retributivas se recogieron manualmente del Informe Anual de Remuneraciones, mientras que la información correspondiente a consejeros individuales (género, factor tiempo, antigüedad, pertenencia a diferentes comisiones, puesto de CEO, puesto de presidente del consejo, estudios de doctorado y relaciones) y consejo de administración en su conjunto (tamaño del consejo, propiedad del consejo, independencia

de la comisión de nombramientos y retribuciones, presencia de mujeres en la comisión de nombramientos y retribuciones, e índice de buenas prácticas de remuneración) se tomaron del Informe Anual de Gobierno Corporativo. Para ambos documentos se tomaron datos consolidados. Finalmente, las características de las empresas (tamaño de la empresa, endeudamiento y desempeño) se obtuvieron de la base de datos SABI.

Para examinar la brecha salarial de género en cada uno de los componentes retributivos y en cada tipo de consejero, se propone un modelo de datos de panel con variable dependiente censurada en cero para el límite inferior, ya que la retribución de los consejeros tiene un límite inferior de cero para esos consejeros que no reciben ninguna compensación. En estos modelos, si el género del consejero presenta una relación significativamente negativa con la remuneración, significa que las consejeras reciben una remuneración menor que sus homólogos masculinos. Estos modelos se estimaron mediante efectos aleatorios. Además, reestimamos los modelos con compensación variable y otra compensación como variables dependientes, a través de modelos probit, ya que una gran proporción de consejeros no percibe ninguno de estos tipos de remuneración. Por último, y para brindar solidez, utilizamos como enfoque alternativo el emparejamiento por puntaje de propensión para emparejar a las consejeras de nuestra muestra con los consejeros varones más similares en características a nivel de empresa y de consejero.

Hallazgos

Primero realizamos un análisis exploratorio, donde vimos que la compensación que reciben los consejeros ejecutivos es mucho mayor que la que reciben los dominicales e independientes. Además, la remuneración variable está presente principalmente en la categoría de ejecutivos y más concretamente en los consejeros ejecutivos masculinos. Por otro lado, también llevamos a cabo una primera aproximación al estudio de la brecha salarial de género a través de varios tests de diferencias de medias. Estas pruebas mostraron una brecha salarial de género en contra de las mujeres, ubicada en los consejeros ejecutivos y para todas las variables retributivas (es decir, total, fija, variable y otras remuneraciones), además de otras remuneraciones para los consejeros independientes, que también fue significativa.

A continuación, se realizó el análisis explicativo mediante modelos de regresión, teniendo en cuenta un conjunto de variables de control. Los resultados confirmaron la existencia de una brecha salarial de género para los consejeros ejecutivos en retribución fija, variable y total. Sin embargo, la brecha es inexistente para los consejeros dominicales e independientes.

Además, estos modelos fueron reestimados a través de modelos probit para las compensaciones variables y otras, como variables dependientes, mostrando que las consejeras ejecutivas tienen menos probabilidad de recibir una compensación variable (de cualquier cantidad) que sus homólogos masculinos.

Finalmente, proporcionamos robustez a los resultados realizando un análisis de emparejamiento de puntajes de propensión. Los resultados estuvieron en línea con los obtenidos previamente. Es decir, las consejeras ejecutivas reciben una remuneración significativamente menor que sus homólogos masculinos para el mismo tiempo, antigüedad, responsabilidades, puesto, cualificación y relaciones, y dentro de empresas similares, y en el mismo año. En concreto, las consejeras ejecutivas perciben unos 785.286 € menos que los consejeros ejecutivos, siendo su retribución total un 66,21% inferior.

Contribuciones e implicaciones

La brecha salarial de género es un problema que persiste en todo el mundo, a pesar de que la igualdad de género es una prioridad para la Organización para la Cooperación y el Desarrollo Económico. Este estudio proporciona nueva evidencia sobre la brecha salarial de género en los principales puestos corporativos, como es el caso del consejo de administración. Para ello, este trabajo intenta corregir el problema de heterogeneidad en las muestras, mediante el estudio de grupos homogéneos. Es decir, analizando cada tipo de consejero por separado y, además, estudiando su retribución total desglosándola en distintos componentes retributivos. Todo ello para empresas que presentan diversidad de género para cada tipo de consejero.

Nuestro trabajo tiene diferentes implicaciones para el debate sobre la brecha salarial de género. En primer lugar, los responsables de la formulación de políticas y los reguladores deberían tenerlos en cuenta. Estos resultados deben alentarles a promover leyes o reglamentos que conduzcan a la participación efectiva y a la igualdad de remuneración entre hombres y mujeres en los consejos de administración. La igualdad entre consejeros y consejeras aún no se ha logrado a pesar del objetivo de alcanzar un 40% de consejeras en 2015, propuesto por la Ley Orgánica 3/2007 para la igualdad efectiva de mujeres y hombres, que se relajó al 30% de mujeres en 2020 a través del Código Unificado de Buen Gobierno (CNMV, 2015). En segundo lugar, nuestros resultados pueden ser de utilidad para las empresas a la hora de diseñar las políticas de remuneración del consejo de administración para evitar estas enormes brechas salariales. En tercer lugar, las consejeras deben conocer las

brechas salariales de género para defender sus derechos y negociar sus retribuciones. En cuarto lugar, estos resultados también pueden ser de interés para los inversores preocupados por las buenas prácticas de gobierno corporativo de las empresas cotizadas. Finalmente, una implicación importante que se puede derivar de nuestro trabajo es que un consejo de administración no puede considerarse un grupo homogéneo. Asimismo, considerar la retribución total de los consejeros en su conjunto, puede llevar a obtener resultados sesgados por los distintos componentes retributivos.

OVERVIEW

Motivation

For the Organisation for Economic Co-operation and Development (OECD), progress in equality and the elimination of gender gaps is too slow, despite the awareness worldwide that women's equality is a priority (OECD, 2019). In the opinion of the European Commission (EC), wage discrimination, although illegal, continues to fuel the gender pay gap (GPG). Management and supervisory positions are not unrelated to this reality, since they are mainly occupied by men, who are promoted more easily than women and, consequently, receive a higher salary. This trend is evident in the business organization chart, with less than 6% of women occupying CEO positions (European Commission, 2018). Therefore, there are two issues related to women in senior positions: first, there are few; and second, they earn less money than men (Mohan, 2014).

However, the academic evidence substantiating these gaps in managerial roles is mixed and a consensus has not been reached in this regard. Moreover, research is even more scarce, if this is possible, when it focuses on the remuneration of the board of directors.

Criticism of much of the gender pay gap research has focused on the heterogeneity of the samples used. Thus, Grund (2015) points out that many studies have been based on quite heterogeneous individuals and positions, questioning whether they capture the main differences between men and women. Another criticism on the heterogeneity has to do with the types of remuneration included in the samples for computing the gender pay gap. Most research examines pay gaps considering full compensation. However, the gaps may differ between the different components that make up the total compensation, so all individual compensation concepts that make up total remuneration must be taken into account in their measurement (Amado, Santos, & São José, 2018). Therefore, this concern for homogeneity of the samples has guided our study on the gender pay gap in the boards of directors.

Purpose

The aim of paper is to fill a gap in the study of the gender pay gap in the boards of directors, taking into account the problems of heterogeneity within the samples. Specifically, our aim is to analyse the gender pay gap in homogeneous groups by types of directors (that is, executive, proprietary and independent): (1) in total compensation, and (2) in the different compensation components (that is, fixed, variable and other compensation). In addition, we

require the presence of gender diversity in firms for each type of director, since there can be no gender pay gap where there is no gender diversity. The category of other directors was not analysed, since it is not homogeneous and contains those directors that cannot be included in the previous categories of executive, proprietary and independent.

Approach

Our database includes all the directors that belong to the boards of directors of the Spanish listed companies during the period 2013-2018, eliminating financial companies, as well as companies in liquidation processes and without available consolidated annual accounts. As a result, our sample is composed of 7,221 director-year observations within 651 firm-year observations. Of all this observations, we have selected those firms and directors that incorporate gender diversity in each type of director. Thus, we avoid the bias of comparing companies both with and without female directors. Consequently, we have 3,449 director-years observations in companies with gender diversity for each type of director (650 director-firm-year observations).

In general, the presence of women on the boards of directors, although it has been increasing during the last years, is low (on average, below 15%), especially among executive directors (3.66%), that present a gender diversity, in terms of companies, of 5.22% and, in terms of directors, of 8.33%.

The data related to the compensation variables were manually collected from the Annual Remuneration Report, while the information corresponding to individual directors (gender, factor time, tenure, membership of different committees, CEO position, chairperson position, PhD studies, and relationships) and board of directors as a whole (board size, ownership held by the board of directors, independence of the nomination and compensation committee, presence of women on the nomination and compensation committee, and of good remuneration practices index) were taken from the Annual Corporate Governance Reports. For both documents the consolidated data was chosen. Finally, firm characteristics (firm size, leverage and performance) were obtained from the SABI database.

To examine the gender pay gap in each of the compensation components and in each type of director, we propose a panel data model with censored dependent variable of zero for the lower limit, since the directors' compensation has a lower limit of zero for those directors who do not receive any compensation. In these models, if the director's gender presents a

significantly negative relationship with compensation, it means that female directors receive less compensation than their male counterparts. These models were estimated through random effects. In addition, we re-estimate the models with variable and other compensation as dependent variables through probit models, since a large proportion of directors do not receive any of these types of remuneration. Finally, and to provide robustness, we use as an alternative approach the propensity score matching to pair the female directors in our sample with the most similar male directors in firm-level and director-level characteristics.

Findings

We first did an exploratory analysis, where we saw that the compensation received by executive directors is much higher than that received by proprietary and independent ones. Moreover, variable compensation is present mainly in executive directors and very specifically in male executives' directors. Furthermore, we did a first approximation for the study of the gender pay gap through several mean difference tests. These tests showed a gender pay gap against women, located in the executive directors and for all compensation variables (that is, total, fixed, variable and other compensation), in addition to other compensation for independent directors, which was also significant.

Next, the explanatory analysis was performed through regression models, taking into account a set of control variables. The results confirmed the existence of a gender pay gap for executive directors in fixed, variable and total compensation. However, the gap is non-existent for proprietary and independent directors. Also, these models were re-estimated through probit models for variable and other compensation as dependent variables. We showed that female executive directors are less likely to receive variable compensation (in any amount) than their male counterparts.

Finally, we provide robustness to the results performing a propensity score matching analysis. The results were in line with those previously obtained. That is, female executive directors receive a significantly lower compensation than male executive directors with the same time, tenure, responsibilities, position, qualifications, and relationships, and within similar firms, and in the same year. Specifically, female executive directors receive about € 785,286 less than male executive directors, being her total compensation a 66.21% less.

Contributions and implications

The gender pay gap is an issue that persists around the world, despite the fact that gender equality is a priority for the Organisation for Economic Co-operation and Development. This study provides new evidence on the gender pay gap in top corporate jobs as is the case of board of directors. For this, this paper tries to correct the problem of heterogeneity un the samples through the study of homogeneous groups. That is, analysing each type of director separately and, in addition, studying their total compensation breaking it down into different remuneration components. All this for companies that present gender diversity for each type of director.

Our work has different implications for the gender pay gap debate. First, they should be usefully taken into account by policymakers and regulators. These results should encourage them to promote laws or regulations that lead to effective participation and equal pay between men and women on the boards of directors. Equality between male and female directors has still not been achieved despite the objective of reaching 40% women directors by 2015, proposed by Organic Law 3/2007 for the effective equality of women and men, which was relaxed to 30% women by 2020 through the Unified Code of Good Governance (CNMV, 2015). Second, our results can be useful for companies when designing the remuneration policies of the board of directors in order to avoid these huge wage gaps. Third, female directors should be aware of the gender pay gaps in order to defend their rights and to negotiate their remunerations. Fourth, these results may also be of interest to investors concerned about good corporate governance practices of listed companies. Finally, an important implication that can be derived from our work is that a board of directors cannot be considered as a homogeneous group. Similarly, considering the total compensation of directors as a whole, can lead to obtaining biased results by the different compensation components.

RESUMEN

Este estudio contribuye a ampliar nuestro conocimiento sobre la brecha salarial de género en los consejos de administración. En concreto, cubre un hueco en el estudio de la brecha salarial de género, analizando grupos homogéneos de personas y compensaciones. Examinamos la remuneración de los consejeros de las sociedades cotizadas españolas durante el período 2013-2018. Los resultados revelan que la brecha salarial de género existe a nivel de consejero ejecutivo para la retribución fija, variable y total. Sin embargo, la brecha es inexistente para los consejeros dominicales e independientes, para cualquier tipo de retribución. Además, las consejeras ejecutivas tienen menos probabilidades de recibir una remuneración variable que sus homólogos masculinos. Finalmente, al emparejar consejeros y consejeras con características individuales y de empresa similares, los resultados confirman lo anterior y destacan que los consejeros ejecutivos perciben tres veces más retribución. Los resultados pueden ser útiles, entre otros, para los legisladores, quienes deberían promulgar leyes o reglamentos para eliminar la brecha salarial de género.

PALABRAS CLAVE

Brecha salarial de género; remuneración de consejeros; consejo de administración; diversidad de género; consejeras

ABSTRACT

This study contributes to expand our knowledge about the gender pay gap in the board of directors. Specifically, it covers a gap in the study of gender pay gap, analysing homogeneous groups of individuals and compensation. We examined the compensation of directors of Spanish listed companies during the period 2013–2018. The results reveal that the gender pay gap exists at executive-director-level for fixed, variable and total compensation. However, the gap is non-existent for proprietary and independent directors for any type of compensation. Moreover, female executive directors are less likely to receive variable compensation than their male counterparts. Finally, when matching male and female directors with similar individual and firm characteristics, the results confirm the above and highlight that male executive directors receive three times more remuneration. The results may be useful for, among others, lawmakers, who should enact laws or regulations to eliminate the gender pay gap.

KEYWORDS

4.1. INTRODUCTION

A fundamental principle of the Charter of the United Nations, approved in 1945, is "equal rights for men and women". However, for the Organisation for Economic Co-operation and Development (OECD), progress in equality and the elimination of gender gaps is too slow, despite the awareness worldwide that women's equality is a priority (OECD, 2019). In the opinion of the European Commission (EC), wage discrimination, although illegal, continues to fuel the gender pay gap (GPG). Management and supervisory positions are not unrelated to this reality, since they are mainly occupied by men, who are promoted more easily than women and, consequently, receive a higher salary. This trend is evident in the business organization chart, with less than 6% of women occupying CEO positions (European Commission, 2018). Therefore, there are two issues related to women in senior positions: first, there are few; and second, they earn less money than men (Mohan, 2014).

Yet the academic evidence substantiating these gaps in managerial roles is mixed. Some studies show that male managers or executives earn more than their female counterparts (Bell, 2005; Bertrand & Hallock, 2001; Carter, Franco, & Gine, 2017; Elkinawy & Stater, 2011; Hutchinson, Mack, & Verhoeven, 2017; Muñoz-Bullón, 2010; Vieito & Khan, 2012; Yanadori, Gould, & Kulik, 2016). Others demonstrate that there is no gender pay gap in managerial positions (Bowlin, Renner, & Rives, 2003; Jordan, Clark, & Waldron, 2007). Finally, there are those that confirm the gender pay gap in favour of women (Gayle, Golan, & Miller, 2012). Gupta, Mortal, and Guo (2018) point out the little research that has been carried out on gender pay gap at CEO-level. Thus, Hill, Upadhyay, and Beekun (2015) demonstrate the existence of a gender pay gap in favour of women, while the majority of the works maintain that the pay gap is non-existent (Bugeja, Matolcsy, & Spiropoulos, 2012; Geiler & Renneboog, 2015; Gupta et al., 2018; Yanadori et al., 2016). Moreover, research is even more scarce, if this is possible, when it focuses on the remuneration of the board of directors (Pucheta-Martínez & Bel-Oms, 2015). Thus, some papers have analysed the gender pay gap in executive directors (Geiler & Renneboog, 2015; Kulich, Trojanowski, Ryan, Alexander Haslam, & Renneboog, 2011), and others have focused on external or non-executive directors (Goh & Gupta, 2016). Only the work of García Martín and Herrero (2019) performs a detailed analysis of the gender pay gap, grouping the sample by type of directors. In general, these papers confirm that male directors earn more than female directors.

Criticism of much of the gender pay gap research has focused on the heterogeneity of the samples used. Thus, Grund (2015) points out that many studies have been based on quite heterogeneous individuals and positions, questioning whether they capture the main differences between men and women. This author proposes that the results of the gaps in the research be interpreted taking into account the heterogeneity in the sample, which could mean obtaining biased results. In this sense, Weichselbaumer and Winter-Ebmer (2005) indicate that restricting the sample to certain homogeneous groups has a great impact on gender pay gaps. For this reason, García Martín and Herrero (2019) separate the members of the boards of directors by categories (that is, executive, proprietary and independent directors), and the results confirm the existence of a gender pay gap at executive director-level, but not at proprietary and independent director-level. These authors also point out that it is only possible to consider a pay gap when the same organization pays different amounts to men and women in similar positions. For this, they propose the exclusion of those companies in which there are only men or only women for each type of director, since they point out that there can be no gender pay gap where there is no gender diversity.

Another criticism on the heterogeneity has to do with the types of remuneration included in the samples for computing the gender pay gap. Some bodies such as the OECD and the EC only consider fixed compensation, despite the fact that the EC recognizes that all individual compensation concepts that make up total remuneration must be taken into account in their measurement (Amado et al., 2018). By contrast, most research examines pay gaps considering full compensation. However, the gaps may differ between the different components that make up the total compensation. Grund's (2015) work studies both total compensation and individual compensation concepts among a group of highly educated professionals working in a specific industry. Among his results, he highlights that "*gender pay gaps are much more pronounced for bonus payments than they are for fixed salaries*", which leads him to suggest that future gender pay gap studies include various payment components (Grund, 2015, p. 188). Similarly, García Martín and Herrero (2019) plan to carry out new studies that analyse whether the gender pay gap is maintained in all the remuneration concepts of the boards of directors.

This paper tries to answer the points raised in the literature, presented above, taking into account the heterogeneity problems within the samples. Specifically, our aim is to analyse whether the gender pay gap occurs in homogeneous groups by types of directors (1) in total compensation, and (2) in the different remuneration components (that is, fixed, variable and other compensation). In addition, we require the presence of gender diversity in firms for

each type of director, as there can be no gender pay gap where there is no gender diversity. To this end, we have analysed the compensation of all the directors belonging to the boards of directors of Spanish listed companies in the period 2013-2018. The importance of directors' compensation is key for companies, since they perceive it as reducing agency conflicts through an efficient control function, which consequently translates into an increase in the value of the firm (Hillman & Dalziel, 2003).

As a foretaste, the results demonstrate the existence of a gender pay gap among executive directors in terms of fixed, variable and total compensation; although there is no gap among proprietary and independent directors either in total compensation or in its components. Thus, according to the propensity score matching method that provides robustness to the regression analysis, it is important to highlight that a male executive director receives about three times the compensation of a female executive director, with similar characteristics and in similar firms.

Our work contributes to understanding the influence of gender on the remuneration of directors. It also contributes to deepen the analysis of the gender pay gap from the formation of homogeneous groups: (1) of each type of director and (2) of each remuneration concept, for companies that present gender diversity in each of the types of director. Our results can be useful for companies when designing remuneration policies for the board of directors; for lawmakers who should act to avoid the gender pay gap; for female directors who must be aware of the gender pay gap in order to defend their rights; and for investors concerned about good corporate governance practices of listed companies.

The rest of the paper is structured as follows. We provide a background in section 2. The methodology used and the research design are discussed in section 3. In the next section, the main results obtained are presented. Finally, the work concludes with the conclusions reached in section 5.

4.2. BACKGROUND

4.2.1. Spanish regulatory framework on the boards of directors of listed companies

In Spain, the consolidating text of the Capital Companies Law, approved by Royal Legislative Decree 1/2010 of 2 July, sets out that listed companies must be managed by a board of directors that will ensure that the selection procedures for their members favour diversity in matters such as age, gender, disability or training and professional experience. In particular, the selection of female directors will be facilitated in a number that allows

achieving a balanced presence of women and men. Moreover, this law classifies directors into: executive directors (those who perform top management duties in the company); proprietary directors (appointed to be shareholders or representatives thereof); independent directors (appointed to carry out external advisory tasks that provide supervision, experience, knowledge and relationships to the company, without being conditioned by relationships with the company, its shareholders or its managers); and other directors (those who do not belong to the previous groups).

Regarding remuneration, this law also states that, unless otherwise provided in the statutes, the position of director of a listed company will necessarily be remunerated. The remuneration of each director will take into account the functions and responsibilities attributed to each director, as well as belonging to board committees and other circumstances deemed relevant. Listed companies must prepare and publish the Annual Remuneration Report that details the individual remuneration earned by each of the directors, and reports, among other matters, on the amount of the fixed and variable components. However, as will be seen later, this disaggregated information was not available until 2013, when a standardized remuneration document for listed companies was published by the National Stock Market Commission, in which the compensation of each director was broken down into different concepts (Order ECE/461/2013, of 20 March).

4.2.2. Literature review on the gender pay gap in the remuneration of board directors

Overall, a large body of research supports the notion that there is a gender bias in the payment of employees in favour of men, both in managerial and executive compensation (Bell, 2005; Bertrand & Hallock, 2001; Carter et al., 2017; Elkinawy & Stater, 2011; Hutchinson et al., 2017; Muñoz-Bullón, 2010; Vieito & Khan, 2012; Yanadori et al., 2016) and in the compensation of board directors (García Martín & Herrero, 2019; Geiler & Renneboog, 2015; Goh & Gupta, 2016; Kulich et al., 2011; Pucheta-Martínez & Bel-Oms, 2015). However, the gender pay gap is not so evident at CEO-level, since the majority of studies maintain that it does not exist (Bugeja et al., 2012; Geiler & Renneboog, 2015; Gupta et al., 2018; Yanadori et al., 2016).

If we focus on the analysis of directors' compensation, which is the field of study of our research, Adams and Ferreira (2009) relate gender diversity to director compensation, for both the fraction of equity-based pay and the total pay, controlling for several factors. However, it is not a study on gender pay gap but on diversity and its effects on directors'

compensation. For a sample of S&P-listed firms, these authors conclude that there is strong evidence that the proportion of female directors is associated with more equity-based director pay, which is suggestive of a board that is more aligned with the interests of shareholders. They also find some weak evidence of higher total director compensation in boards with relatively more female directors.

Kulich et al. (2011) are the first to analyse the gender pay gap for board directors and relate it to company performance. For a matched sample of female and male executive directors of UK-listed firms and controlling for director and firm characteristics, they find the existence of gender pay disparities in directors' compensation and point out that company performance has a moderating impact on pay inequalities. Moreover, they conclude that female directors not only have lower base salaries than those of their male colleagues, but also that their variable pay (materialized in bonuses) is smaller. The variable compensation of male executive directors is also much more performance-sensitive than that of female executives, for whom variable compensation is virtually nil. However, this study is focused on the executive directors of the board and the regression analysis is limited to the absolute and relative size of the bonuses earned by these directors.

In this same vein, Geiler and Renneboog (2015), in an extensive paper on the gender pay gap for executive directors of UK-listed firms (controlling for position, tenure, age, industry, time period, marital status and parenthood), show that there is strong pay discrimination against female executive directors and it is visible in all components of pay: salary, bonus, and equity-based compensation. Moreover, the remuneration of executive directors is performance sensitive, but in this respect, there is no difference between male and female directors, unlike the work of Kulich et al. (2011). These authors also find that the gender pay gap is lower in firms with female non-executive directors on the board and in male dominated industries. However, this is higher in the case of marriage and parenthood.

In order to explain the gender pay gap for the boards of directors, Pucheta-Martínez and Bel-Oms (2015) analyse the explanatory factors for a sample of boards of Spanish listed companies. For this purpose, they measure the gender pay gap at firm or board level, as the difference between the compensation of male and female directors, comprising fixed and variable pay, as well as allowances. Their findings show that the percentage of female directors on the board of directors and the geographical region have no effect on the gender pay gap. In addition, the gender pay gap increases with women's presence on the nomination and compensation committee, the firm size, the board size and the performance; while this gap narrows when there are qualified independent directors on the board of directors, with

the seniority of the female directors and when the company belongs to the financial and real estate sector. However, the study is carried out for boards of directors as a whole and not for each type of director and, furthermore, as the authors recognize for future lines of research, it would be convenient to distinguish between fixed and variable compensation, since it would be valuable to shed light on those compensation components that determine the gender pay gap.

Considering the importance of the role of non-executive directors in corporate governance and that little is known about how they are remunerated, Goh and Gupta (2016) study the remuneration of non-executive directors for a large sample of FTSE All-Share listed firms, using specific characteristics of the three dimensions of the role of non-executive directors (monitoring, service and resource dependence). They find there is a gender gap for both total pay and scale pay (measured by the remuneration compared to the average remuneration of non-executive board colleagues in the same firm), showing strong evidence of a gender gap in remuneration both examining inter- and intra-firm variations, as well as using a propensity-score matching procedure. In addition, this work does not differentiate between fixed and variable components, according to the authors, since the remuneration of non-executive directors in the UK is almost entirely cash-based, with no performance-related element, suggesting that their remuneration is largely set ex-ante.

Finally, García Martín and Herrero (2019) also study the gender pay gap for board directors of Spanish-listed firms. However, this study focuses on directors, in contrast to the work of Pucheta-Martínez and Bel-Oms (2015) which focuses on boards of directors as a whole. In particular, these authors analyse separately the three main types of directors (executive, proprietary and independent), since each category of director has similar tasks and responsibilities on the board of directors. The results show that female executive directors present a pay gap compared to their male counterparts, which is not observed in the categories of proprietary and independent directors. However, the study examines total compensation, without disaggregating by compensation components. These authors, similar to Pucheta-Martínez and Bel-Oms (2015), also propose that future studies be carried out to examine whether the observed differences are maintained in all components of compensation, since it may be that the observed differences in the total remuneration of female executive directors is motivated by the existence of a gap in one remuneration component and not in another.

According to the previous studies presented above on the gender pay gap for board directors, and taking into account the indications of the works of Grund (2015) and Yanadori

et al. (2016) on the homogeneity of the sample and the compensation components, we analyse the total compensation and its different compensation components in a disaggregated way for each type of board director (executive, proprietary and independent). In addition, according to García Martín and Herrero (2019), we require the presence of gender diversity in firms for each type of director, as there can be no gender pay gap where there is no gender diversity. This will allow us to analyse homogeneous samples of directors and types of compensation in order to examine in detail the extent to which female directors are worse off in terms of remuneration.

4.3. Methods

4.3.1. Data

Our database includes information on all the directors that belong to the board of directors of the Spanish listed companies. Companies belonging to the financial sector—namely banks, insurance companies, and investment companies—were deleted. This filter is justified by the special characteristics of these types of firms that may affect their remuneration policies (they are under special scrutiny by financial authorities that constrain the role of their board of directors and their special accounting practices). In addition, those companies that were in a liquidation process were not taken into account, because liquidation could lead to abnormal behaviour in the remuneration policy and board composition. In a third filter, companies that did not have information on their consolidated annual accounts were deleted, either because they presented only individual annual accounts or because they were companies with no obligation to publish accounting documents in Spain. Panel A of Table 4.1 shows this debugging process at firm level, while panel B contains the number of directors by type of director for the final sample of firms.

As a result, our final sample is composed of 7,221 director-year observations within 651 firm-year observations. In particular, executive and other directors represent respectively 15.12% and 7.41% (i.e. 1,092 and 535 of 7,221 director-year observations), while proprietary and independent directors account for respectively 38.67% and 38.80%. The data set covers a time period of 6 years, from 2013 up until 2018. We took the year 2013 as a starting point because it was the first year in which the National Stock Market Commission published a standardized remuneration document for listed companies, in which the compensation of each director was broken down into different categories (Order ECE/461/2013, of 20 March). Previously, this information was incomplete and was scattered among the narrative

information contained in the Annual Remuneration Report, so it was practically impossible to start the study before 2013.

Table 4.1. Sample description

	2013	2014	2015	2016	2017	2018	Total
Panel A – Number of firms							
Initial sample	137	153	152	148	150	143	884
First filter	-20	-23	-24	-21	-20	-19	128
Second filter	-9	-8	-2	-1	-1	0	21
Third filter	-11	-14	-15	-15	-15	-14	84
Final sample of firms	97	108	111	111	114	110	651
Panel B – Number of directors by type of director							
Executive directors	184	189	190	182	179	168	1,092
Proprietary directors	475	518	480	442	431	446	2,792
Independent directors	381	425	461	498	531	506	2,802
Other directors	63	82	88	95	98	109	535
Final sample of directors	1,103	1,214	1,219	1,217	1,239	1,229	7,221
Panel C – Number of firms with gender diversity in each type of director							
Executive directors	6	6	5	6	6	5	34
Proprietary directors	33	39	38	38	41	41	230
Independent directors	36	43	56	64	73	74	346
Other directors	2	7	6	8	9	8	40
Panel D – Number of directors with gender diversity in each type of director							
Executive directors							
Women	7	6	5	6	6	5	35
Men	12	11	8	10	8	7	56
Total	19	17	13	16	14	12	91
Proprietary directors							
Women	52	60	58	53	60	62	345
Men	179	108	171	152	156	169	1,035
Total	231	268	229	205	216	231	1,380
Independent directors							
Women	59	72	84	106	126	131	578
Men	142	159	203	247	281	269	1,301
Total	201	231	287	353	407	400	1,879
Other directors							
Women	2	7	6	8	9	8	40
Men	3	9	9	15	12	11	59
Total	5	16	15	23	21	19	99

This table shows the companies and directors that constitute our database for the period 2013-2018. The initial sample of companies is composed of all those listed on the Continuous Market of the Madrid Stock Exchange. The first filter eliminates those financial companies, the second the companies that were subject to liquidation and the third the companies that did not have information on their consolidated annual accounts. Gender diversity refers to the fact that women and men coexist in each type of director.

Figure 1 illustrates the evolution in the number of female and male directors for each type of director. The data reveal that, in general, the presence of women on the boards of directors is infrequent (on average, below 15%), although it has been increasing during the last years. This increase has been mainly due to the greater female representation among independent directors and has been motivated by the objective of achieving 40% women directors by 2015, proposed by the Organic Law 3/2007, of 22 March, for the effective equality of women and men. However, this target was relaxed to 30% women directors by 2020 through the Unified Code of Good Governance (CNMV, 2015). The data also seems to confirm that this 30% target is unreachable by 2020, since female representation has gone from 11.70% in 2013 to 17.98% in 2018. In addition, this female representation is also unevenly distributed by types of directors, highlighting the low numbers of women among executive directors, which represents 3.66% (i.e. 40 female directors of 1,092 executive directors).

Unlike most papers, where the total number of firms and directors have been chosen to perform the analyses, we have selected those firms and directors that incorporate gender diversity in each type of director, according to García Martín & and Herrero (2019), that is, those companies that have male and female directors for each of the categories (executive, proprietary, independent and other). Thus, we avoid the bias of comparing companies both with and without female directors. Consequently, from the 651 firm-year observations and 7,221 director-year observations, we took 3,449 directors in companies with gender diversity for each type of director (650 director-firm-year observations). Panel C and Panel D of Table 4.1 show this sample selected at both firm-level and director-level.

In terms of firms, the data reveal that gender diversity is rare among executive directors and other directors, since gender diverse companies represent 5.22% and 6.14% respectively (i.e. 34 and 40 of 651 firm-year observations), while among the proprietary directors and independent directors these values reach respectively 35.33% and 53.15%. In terms of types of directors, executive directors have the lowest gender diversity (with 8.33%, i.e. 91 of 1,092), followed by other directors (with 18.50%, i.e. 99 of 535), proprietary directors having almost 50% (with 49.43%, i.e. 1,380 of 2,792) and finally independent directors who slightly exceed 67% (with 67.06%, i.e. 1,879 of 2,802). For each type of director, female directors account for respectively 38.46% and 40.40% of executive directors and other directors (i.e. 35 out of 91 executive directors and 40 out of 99 other directors), while for proprietary directors and independent directors these values are 25.00% and 30.76% respectively (i.e. 345 out of 1,380 proprietary directors and 578 out of 1,879 independent directors). Therefore, as it has been observed, the executive directors show the lowest gender diversity,

while at the other end are the independent directors. However, when gender diversity has already been achieved, women's representation is higher among executive and other directors than among proprietary and independent directors.
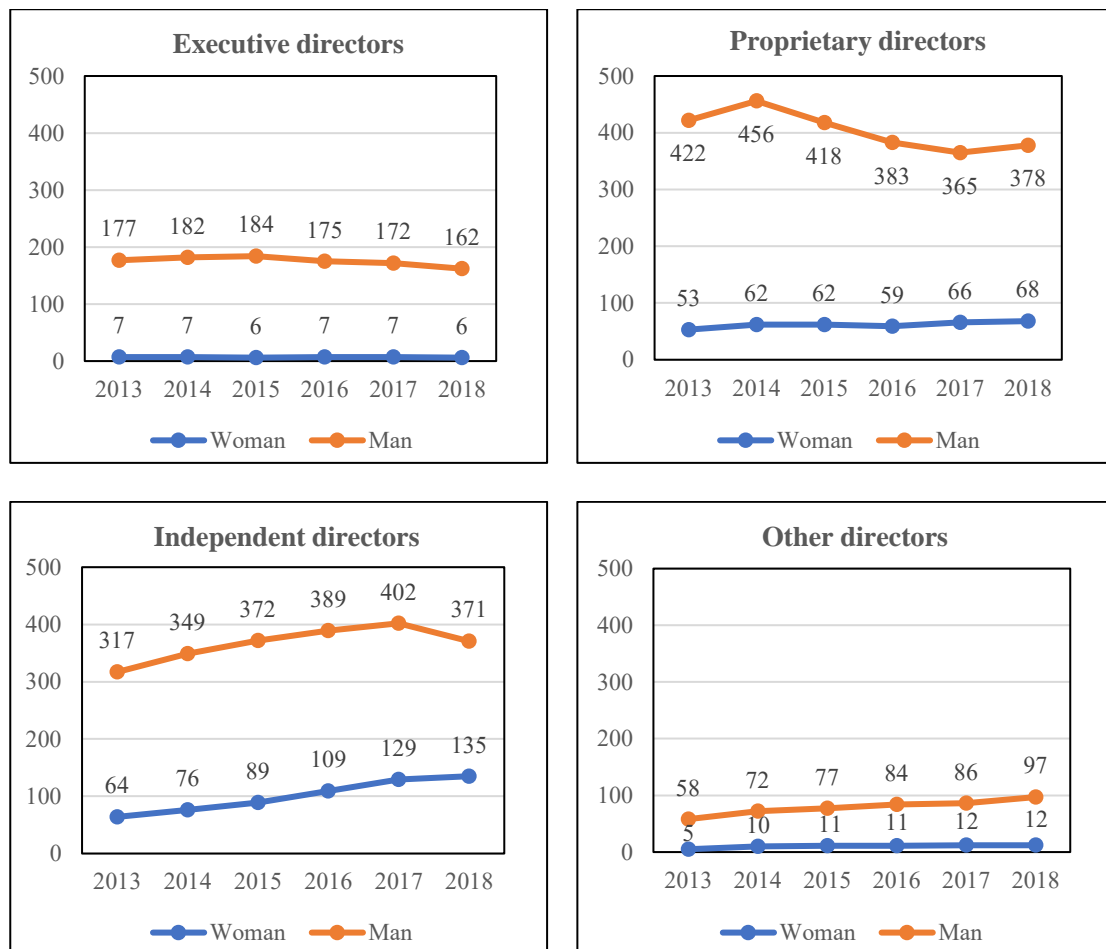
Figure 4.1. Evolution of the number of female and male directors for each type of director

Taking into account this previously selected sample, we will focus the analysis on the gender pay gap in those companies that present gender diversity between their directors for each type of director. In particular, we select those directors who perform similar activities and have the same responsibilities, which are each of the categories of executive, proprietary and independent directors, without including the category of other director. This last category was not analysed since it is not homogeneous and contains those directors who cannot be included in the previous categories.

The data related to the compensation variables were manually collected from the Annual Remuneration Report, while the information corresponding to individual directors (gender, factor time, tenure, membership of different committees, CEO position, chairperson position, PhD studies, and relationships) and board of directors as a whole (board size, ownership held by the board of directors, independence of the nomination and compensation committee, presence of women on the nomination and compensation committee, and of good remuneration practices index) were taken from the Annual Corporate Governance Reports. For both documents, which are part of the Annual Report, the consolidated data was chosen. Finally, firm characteristics (firm size, leverage and performance) were obtained from the SABI database.

4.3.2. Variables

4.3.2.1. Dependent variables

The variable to be explained in our work is compensation of directors. First, we examine the total remuneration of directors and, then, we distinguish between fixed, variable and other compensation. All these compensation variables were measured in thousands of euros and were also winsorized at 1% to neutralize the effect of outliers.

The main variable to analyse is *Totcomp*, which represents the total compensation earned by each director in one year. The total remuneration of each director is composed of a fixed compensation (*Fixcomp*), a variable compensation (*Varcomp*) and other remunerations (*Othcomp*). Therefore, *Totcomp* is calculated as:

$$Totcomp = Fixcomp + Varcomp + Othcomp \qquad (1)$$

The *Fixcomp* variable, which represents the fixed compensation, consist of four remunerative concepts: base salary, fixed wages, attendance fees, and remuneration for membership. Base salary represents the compensation that the director has earned for his or her executive duties, without including the remunerations received due to his or her status as director. Fixed wages include the amount of cash compensation earned by the director for belonging to the board of directors, regardless of his or her effective attendance at board meetings. Attendance fees include the compensation derived from attending the meetings of the board of directors and, where appropriate, from its committees. Remuneration for membership takes into account the earned amounts applied according to the number of committees in which the director participates.

The *Varcomp* variable*,* which shows the variable compensation, is also computed as the sum of four components: short-term bonus, long-term bonus, equity-based pay, and long-term incentive plans. Short-term and long-term bonus include the variable wages accrued in a period equal to or less than one year and more than one year respectively, linked to the performance or the achievement of certain objectives. Equity-based pay represents the amounts accrued through the remuneration plans based on the delivery of shares, stock options, or referenced to the value of the shares. Long-term incentive plans include retirement compensation and any other survival benefit financed partially or totally by the company.

The *Othcomp* variable includes redundancy payment and other compensations such as wages in kind.

Finally, each compensation variable was incorporated into the regression model using the logarithm of one plus the compensation variable (that is, log (1 + compensation variable)).

4.3.2.2. Independent variables

Our main variable under study is *gender* of directors. We use a dichotomous variable that takes the value of one if the director is a woman and zero in the case of it being a man. In accordance with the theoretical framework set out above, a negative relationship between gender and compensation can be expected (García Martín & Herrero, 2019; Geiler & Renneboog, 2015; Goh & Gupta, 2016; Kulich et al., 2011).

4.3.2.3. Control variables

The control variables used in this work are related to the individual characteristics of directors, board of directors' characteristics, and firm characteristics. Individual characteristics include factor time, tenure, committees' membership, CEO position, chairperson position, educational qualifications, and relationships. Board of directors' characteristics chosen were board size, ownership, independence of the nomination and compensation committee, presence of women in the nomination and compensation committee, good remuneration practices index, and CEO duality. Firm characteristics selected were firm size, leverage and performance.

Directors' characteristics

The first control variable was *factime*, which measures the time that the director has been on that board of directors for a given year. This variable takes values between zero and one, with one being the value assigned to the directors who remain in the company during the

entire year (365 days). As far as we know, there are no previous papers that have considered this factor. However, most of the compensation a director receives is directly related to the time he has spent in the company. In addition, 40% of directors do not remain on the board of directors for the entire year. Therefore, it is essential to control the results by this variable. Considering this, we expect a positive relationship between *factime* and director's compensation.

Tenure, which includes, among other skills, the accumulated experience of the director within the company, was computed through the logarithm of the number of years on the board. Directors with previous board experience may be better able to provide advice to the board, having learned from previous experience in high-level decision making (Beckman, 2006). Experience on the board provides familiarity with the company's strategies and operations. In addition, it is a key factor in the promotion of directors, so that it is to be expected that a longer tenure in a firm will open the way to positions of responsibility. Therefore, a positive relationship would be expected with compensation because the within firm experience and loyalty makes the director more valuable (Goh & Gupta, 2016). However, following Muñoz-Bullón (2010), Elkinawy and Stater (2011), Carter et al. (2017) and García Martín and Herrero (2019), we considered a non-linear relationship, so the *Tenure2* variable has been included as squared tenure, which indicates that the positive effect on compensation decreases with tenure.

Our analyses also include a variable indicating participation in the different committees of the board of directors (*committees*); namely executive committee, nomination and remuneration committee, audit committee, and corporate social responsibility committee. This variable was measured as the logarithm of the number of committees to which each director belongs. These functions carry additional responsibilities to the basic function of director and, therefore, they can provide additional remuneration in the form of meeting fees (Adams & Ferreira, 2008; Brick, Palmon, & Wald, 2006). Consequently, we expect a positive relationship between participation in committees and remuneration.

Following the previous research on executive compensation (Carter et al., 2017; Elkinawy & Stater, 2011; Graham, Li, & Qiu, 2011; Muñoz-Bullón, 2010; Vieito & Khan, 2012), we have included two dummy variables that represent CEO position (*CEO*) and chairperson position (*Chairperson*). In addition, to assuming additional tasks on the board, the figures of the CEO and chairperson should fall to directors with extensive experience, training and skills to advise the company on decision making and properly supervise the board's tasks.

For this reason, a positive relationship between these two variables and the remuneration of the director is expected.

PhD is a binary variable equal to one if the director has a PhD and zero otherwise. Education, which is a human capital variable that is positively related to the ability of the director, has a clear effect on pay (Coelho Duarte, Esperança, Curto, Santos, & Carapeto, 2010). Knowledge can also provide more structured or critical approaches to decision making or performance evaluation. These benefits from qualifications lead to the hypothesis that a director's qualifications are associated with higher compensation (Goh & Gupta, 2016).

Relationships was computed as the logarithm of the number of boards of directors to which each director belongs. Relational capital in directors is a highly valued resource by companies. It provides an additional set of contacts and business opportunities, and access to additional sets of information and finance (Hillman & Dalziel, 2003). A director's network enables him or her to make more managerial influence-oriented connections and also brings additional skills and knowledge. According to Renneboog and Zhao (2011), who found a positive relationship between CEO networks and remuneration, and Goh and Gupta (2016), who also found a positive relationship between networks of non-executive directors and remuneration, we expect a positive association between relationships and compensation.

Board characteristics

Relating to board characteristics, the first control variable was *Board_Size*, measured as the logarithm of the number of directors in the boardroom. The board of directors must be of an appropriate size to effectively perform its functions with sufficient depth and range of opinions. In this vein, the Unified Code of Good Governance of 2015 (CNMV, 2015) recommended that a board of directors should have not less than five members and not more than fifteen. On the one hand, smaller boards require lower monitoring costs, as they tend to be more cohesive groups than large ones, where costs are higher, and monitoring is more complex and less effective (Andreas, Rapp, & Wolff, 2012). In addition, large boards may suffer free-riding problems in decision-making and control, diluting monitoring incentives for their board members (Boone et al., 2007; Jensen, 1993). Thus, Geiler and Renneboog (2015) found a positive relationship between the compensation of directors and board size. On the other hand, in large boards, due to the major coordination problems that exist, the CEO has greater power and limits the directors' compensation in order to discourage monitoring (Ryan & Wiggins, 2004). In line with this second argument, Ryan and

Wiggins (2004), Brick et al. (2006) and Adams and Ferreira (2009) found a negative relationship between the size of the board and the total compensation of directors.

We include ownership structure (*Board_Own*), defined as the proportion of shares held by the board of directors. It can be argued that a higher percentage of ownership in the hands of the director members would allow the objectives of the directors to be aligned with those of the shareholders and reduce the agency costs (Arrondo, Fernández, & Fernández, 2008; Jensen & Meckling, 1976). Moreover, directors with significant ownership may have sufficient vested interests that they do not need to be compensated for their time, as changes in the value of their ownership interests outweigh the potential compensation received. Ozkan (2011) linked non-executive director ownership to restraint on CEO pay. Therefore, we expect that the greater the shareholding of the directors, the lower the compensation received by them. However, a significant ownership may favour the entrenchment of directors and raise their remuneration (Arrondo et al., 2008; Holderness & Sheehan, 1988).

The regulatory bodies propose that boards of directors be composed of a large percentage of independent directors and, in addition, advise their presence in the different committees. In Spain, the Unified Code of Good Governance of 2015 (CNMV, 2015) recommends that at least half of the board of directors be independent, and that the committees are mostly composed of directors of this type. Thus, we include the independence of the nomination and compensation committee (*NCC_Indep*), measured by the percentage of independent directors in this committee, since it is responsible for designing the remuneration policy of the board. Ryan and Wings (2004) suggest that independent directors have a bargaining advantage over the CEO that results in compensation more closely aligned with shareholders' objectives. For this reason and following Fernández Méndez et al. (2012) and Pucheta-Martínez and Narro-Forés (2014), one would expect that in nomination and compensation committees with a higher proportion of independent directors, agency costs would be lower and, consequently, the remuneration received by directors would be lower. In line with this argument, Arrondo et al. (2008) and Andreas et al. (2012) observe a negative relationship between the percentage of independent directors and the total compensation received by directors.

We included a binary variable (*NCC_Women)* equal to one if there is a woman in the nomination and compensation committee, and zero otherwise. Shin (2012) shows that the gender gap in executive pay is smaller when a greater percentage of women sit on the compensation committee of the board, which is the group responsible for setting compensation. Accordingly, we expected a negative association between this variable and

director's compensation, since one way to reduce the gender pay gap is to reduce the compensation of male directors, who form the bulk of the study sample. Moreover, the presence of women on the board contributes to best corporate governance practices (Burgess & Tharenou, 2002; Nielsen & Huse, 2010), which means, among others, avoiding the excessive remuneration that some male directors obtain.

We generated an index of good remuneration practices (*GRP_Index*) following Melón-Izco et al. (2019). The Spanish Codes of Good Governance make a series of recommendations that have to do with the remuneration policy of companies. This variable measures the proportion of these specific recommendations that a company has totally or partially complied with weighted by importance. The recommendations with which a company had totally complied were assigned a weight of 1, and the recommendations with which a company had partially complied were weighted 0.5. The computation of the index is as follows:

$$\text{GRP} = \frac{\text{recommendations totally complied with} \cdot 1 \ + \text{recommendations partially complied with} \cdot 0.5}{\text{total recommendations} \ - \ \text{recommendations not applicable}}$$

We expected that companies that carry out a greater compliance with recommendations of compensation policy remunerate their directors in a stricter way, avoiding overly high compensations. Therefore, we expect a negative relationship between good remuneration index and compensation of directors.

CEO_duality is also a binary variable that takes the value of one for directors of a board in which the CEO and the chairperson are the same person. This accumulation of power in a single person within the boardroom produces greater agency costs and the possibility of entrenchment. This can translate into a higher remuneration level (Brick et al., 2006; García-Meca, 2016). On the contrary, as previously anticipated, a powerful CEO may have greater control over the board and therefore reduce the efficacy of directors' monitoring through a lower remuneration (Ryan & Wiggins, 2004).

Firm characteristics

Regarding firm characteristics, the first control variable was *Firm_Size*, computed as the logarithm of the average number of workers (Renner, Rives, & Bowlin, 2002). Larger companies tend to have a greater need for monitoring and are willing to hire and retain the best directors available in the labour market, offering much higher wages (Brick et al., 2006). In addition, directors of large companies will receive greater compensation due to the higher degree of complexity of tasks, the potentially greater value placed on directors' decisions,

and, hence, the greater reward from making them (Andreas et al., 2012; Brick et al., 2006). For this reason, and in line with the papers of Ryan and Wiggins (2004), Arrondo et al. (2008), Andreas et al. (2012), Fernández Méndez et al. (2012), Amin et al. (2014), García-Meca (2016) and Goh and Gupta (2016), we expect a positive relationship of company size on the compensation of directors.

We also control for *Leverage* through the leverage ratio, which was defined as the quotient between total liabilities and total assets. On the one hand, higher levels of debt reduce the agency costs of free cash flow by reducing the cash flow available for spending at the discretion of managers (Jensen, 1986). The extension of this argument allows us to establish a negative relationship between the indebtedness and the compensation of the directors (Andreas et al., 2012; Bryan, Hwang, Klein, & Lilien, 2000). On the other hand, it is true that the most indebted companies have a greater need for monitoring due to the greater difficulty involved in their management and, therefore, the remuneration of directors will be higher (Brick et al., 2006; López-Iturriaga, García-Meca, & Tejerina-Gaite, 2015). Depending on which of these two forms of reasoning carries more weight, the relationship of this variable with compensation of directors will be negative or positive respectively.

Performance was measured as the return on assets (ROA), defined by the earnings before interest and taxes (EBIT) divided by total assets. According to the agency theory, directors' compensation allows the interests of directors and shareholders to be aligned, thus avoiding the extraction of benefits. Following previous studies that found a positive relationship between performance and director compensation (Amin et al., 2014; Andreas et al., 2012; Arrondo et al., 2008; Fernández Méndez et al., 2012; Kulich et al., 2011), we expected a positive relationship between firm performance and directors' remuneration.

Finally, we included sector and year dummies as control variables to measure the industry and temporary effects in all of the proposed relationships.

Table 4.2 summarizes the set of variables used in the analysis of results, as well as the measurement used for the variables and their expected relationship with respect to the compensation variable.

Table 4.2. Definition variables

Variable	Label	Measurement	Expected sing
Dependent variable			
Total compensation	Totcomp	Log of (1 + total compensation)	
Fixed compensation	Fixcomp	Log of (1 + fixed compensation)	
Variable compensation	Varcomp	Log of (1 + variable compensation)	
Other compensation	Othcomp	Log of (1 + other compensation)	
Independent variable			
Gender	Gender	Dummy value (0 = Man; 1 = Woman)	−
Control variable of directors			
Factor time	Factime	Proportion of board time in a year	+
Tenure	Tenure	Log of the number of years that a director serves on the board	+
Squared tenure	Tenure2	$(Tenure)^2$	−
Committees presence	Committees	Log of the number of committees in which a director participates	+
CEO position	CEO	Dummy value (0 = No; 1 = Yes)	+
Chairperson position	Chairperson	Dummy value (0 = No; 1 = Yes)	+
Educational qualification	PhD	Dummy value (0 = No ; 1 = Yes)	+
Relationships	Relationships	Log of the number of boards to which each director belongs	+
Control variable of boards			
Board size	Board_Size	Log of the number of directors in the board	+/−
Board ownership	Board_Own	Proportion of shares held by the board	+/−
Independence of the nomination and compensation committee	NCC_Indep	Proportion of independent directors in this committee	−
Women presence in the nomination and compensation committee	NCC_Women	Dummy value (0 = No; 1 = Yes)	−
Good remuneration practices index	GRP_Index	Proportion of compliance in remuneration recommendations	−
CEO and Chairperson duality	CEO_duality	Dummy value (0 = No; 1 = Yes)	+/−
Control variable of firms			
Firm size	Firm_Size	Log of the number of workers in the firm	+
Leverage ratio	Leverage	Total liabilities divided by total assets	+/−
Performance	Performance	EBIT divided by total assets (ROA)	+

This table contains the label and measure of dependent, independent and control variables. It also shows the expected sing for independent and control variables. The control variables are grouped taking into account the director, board and firm characteristics.

4.3.3. Methodology and empirical models

To analyse the gender pay gap in the board of directors, we propose a regression model where *gender* is the independent variable to be analysed. The following model was proposed:

$$\text{Compensation}_{it} = \beta_0 + \beta_1 \cdot \text{Gender}_{it} + \Sigma \, \beta_j \cdot \text{CVj}_{it} + \varepsilon_{it} \tag{2}$$

where Compensation_{it} are total compensation, fixed compensation, variable compensation, and other compensation–measured as the log (1 + compensation variable)–for director *i* in year *t*; Gender_{it} represents the sex of director *i* in year *t*, throughout a dummy variable; and CVj_{it} is the corresponding control variable *j* of director *i* in year *t*, which has been previously described. Finally, ε_{it} is the error term, which is split into three components: the individual effect (η_i), the temporal effect (d_t) and white noise or random disturbance (ν_{it}).

To examine the gender pay gap in each of the compensation components, we propose a panel data model with censored dependent variable of zero for the lower limit (Kulich et al., 2011), since the directors' compensation has a lower limit of zero for those directors who do not receive any compensation. The panel data methodology was used to avoid obtaining biased estimates, due to the problem of unobservable heterogeneity and the possibility of endogeneity of the regressors. These models with censored dependent variables were estimated through random effects.

In addition, given that in the categories variable compensation and other compensation a large proportion of directors do not receive any compensation (between 51.8% for variable compensation of male executive directors and 93.3% for other compensation of male proprietary directors, as will be shown below in the statistical description of the dependent variables), we propose a probit panel data model to study the gender pay gap, where the dependent variable becomes a binary variable equal to 1 if the director receives compensation and zero otherwise. In this way, we analyse whether the probability of earning a variable remuneration and other remuneration is lower in women than in men. This dichotomization of the dependent variables allows us to reduce the estimation biases that are present when we analyse them as continuous variables and only a few directors receive these types of compensation (between 6.7% for other compensation of male proprietary directors and 48.2% for variable compensation of male executive directors, as will be shown below in the statistical description of the dependent variables). These groups of regressions were also estimated through random effects.

Before beginning the analysis, we ran some tests to properly choose the estimation method. First, we ran a likelihood-ratio test which formally compares the pooled estimator (tobit) with the panel estimator. Second, we ran the Hausman test to compare the Within Groups (WG) estimator in fixed effects and the Feasible Generalized Least Squares (FGLS) estimator in random effects, under the null hypothesis that the difference in coefficients is not systematic. We cannot reject the null hypothesis, so the FGLS estimator in random effects is preferable because it is more efficient.

Finally, and to provide robustness to the results previously obtained in the regression models, we use as an alternative approach the propensity score matching to pair the female directors in our sample with the most similar male directors in firm-level and director-level characteristics. This procedure mitigates selection problems by matching treated and untreated observations based on a set of observable characteristics.

Following Rosenbaum and Rubin (1983), we calculate a single propensity score to reduce the number of dimensions to one. The propensity score method uses first logit models estimating the propensity of a board to have a female director given some observables covariates. Thus, the propensity score expresses how closely a female director (treated group) can be matched to a male director (control group) given the set of observed characteristics. To reduce the selection bias in our treatment effect estimation, we take into account a whole vector of a director's characteristics including the factor time, tenure, committees' membership, CEO and chairperson positions, educational qualifications and relationships; in addition to the firm size and time variable. We then match each female-year observation with a male-year observation with the closest score. This enables us not only to analyse whether there are differences in compensation between women and men with similar observed characteristics, except gender; but also quantify the average difference in these compensation variables.

We assume that we observe all variables that affect both the treatment and the outcome (unconfoundedness assumption), and equally that we observe both treated and controls with similar values concerning the observed characteristics (overlap assumption). We chose nearest neighbour matching as the applicable matching method, which is the standard procedure to minimize the bias in estimations. We use matching without replacing to avoid duplicate observations of the same match and lower precision in the estimations. Finally, we only match with a single control (male director), which ensures the smallest distance in propensity scores between treated and control, and consequently yields the lowest bias.

4.4. RESULTS

4.4.1. Descriptive statistics

Table 4.3 contains the descriptive statistics of directors' compensation for those directors that present gender diversity distinguishing between women and men for each type of director. As can be seen, the data indicate that the average values of the four compensation variables are much higher in men than in women for executive directors. This can also be observed through decile distribution, so the data points towards a gender pay gap in executive directors. However, these differences are not evident in the proprietary and independent directors, both in terms of average values and decile distributions.

In addition, the four compensation variables of executive directors are much higher than their counterparts of proprietary and independent directors, both in terms of average values and decile distributions. It can also be noted that the total and fixed compensation of independent directors are much higher than those of their counterparts of proprietary directors, both in terms of average values and decile distributions, while variable and other compensation are very similar.

Regarding variable compensation, it should be noted that this is present mainly in executive directors[1], as can be seen both in average terms and decile distribution, and very specifically in male executives directors (that is, in male directors, variable compensation represents 49.17% of the total compensation and in female directors 28.34%). However, in proprietary and independent directors this compensation does not exceed 4.38% (that is, 3.29% for male proprietary directors and 4.38 for female proprietary directors, and 1.77% for female independent directors and 2.10% for male independent directors).

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[1] The Unified Code of Good Governance of 2015 (CNMV, 2015) recommends non-executive directors to be excluded from variable remuneration linked to the performance of the company and the director, with some exceptions. The aim is to avoid potential conflicts of interest that would affect external directors when they have to make decisions that could alter the immediate results of the company, if such results and values had remunerative effects for them.

Table 4.3. Summary statistics of directors' compensation for each type of director

Variable	Mean	SD	D1	D3	D5	D7	D9	N
Panel A – Executive directors								
Women								
Totcomp	320.800	562.331	70.000	116.000	196.000	259.000	504.000	35
Fixcomp	225.771	232.697	65.000	102.000	175.000	248.000	363.000	35
Varcomp	90.914	342.424	0.000	0.000	0.000	0.000	42.000	35
Othcomp	4.114	11.499	0.000	0.000	0.000	0.000	8.000	35
Men								
Totcomp	1,311.696	1,635.528	187.000	326.000	695.500	1,234.000	4,230.000	56
Fixcomp	613.286	505.362	158.000	233.000	463.500	711.000	1,406.000	56
Varcomp	644.911	1,157.069	0.000	0.000	0.000	777.000	2,900.000	56
Othcomp	19.875	54.297	0.000	0.000	0.000	9.000	23.000	56
Panel B – Proprietary directors								
Women								
Totcomp	62.829	80.314	0.000	20.000	47.000	65.000	138.000	345
Fixcomp	51.307	51.704	0.000	17.000	39.000	62.000	115.000	345
Varcomp	2.754	12.434	0.000	0.000	0.000	0.000	0.000	345
Othcomp	2.255	13.030	0.000	0.000	0.000	0.000	0.000	345
Men								
Totcomp	64.317	93.061	0.000	11.000	38.000	66.000	146.000	1,035
Fixcomp	54.900	73.248	0.000	10.000	36.000	61.000	130.000	1,035
Varcomp	2.118	10.579	0.000	0.000	0.000	0.000	0.000	1,035
Othcomp	3.181	15.963	0.000	0.000	0.000	0.000	0.000	1,035
Panel C – Independent directors								
Women								
Totcomp	109.815	97.131	24.000	56.000	89.000	126.000	200.000	578
Fixcomp	105.083	95.463	19.000	54.000	84.000	120.000	196.000	578
Varcomp	1.939	8.180	0.000	0.000	0.000	0.000	0.000	578
Othcomp	2.389	10.580	0.000	0.000	0.000	0.000	2.000	578
Men								
Totcomp	116.506	90.863	26.000	61.000	95.000	135.000	247.000	1,301
Fixcomp	109.495	85.048	22.000	60.000	90.000	128.000	229.000	1,301
Varcomp	2.445	9.219	0.000	0.000	0.000	0.000	0.000	1,301
Othcomp	3.473	13.066	0.000	0.000	0.000	0.000	3.000	1,301

This table summarizes the statistical description of the four compensation variables (expressed in thousands of euros) for those directors that present gender diversity: total compensation (Totcomp), fixed compensation (Fixcomp), variable compensation (Varcomp) and other compensation (Othcomp), distinguishing between women and men for each type of director.

Finally, it should be noted that around 2% of executive and independent directors do not receive total compensation and fixed compensation, while this percentage rises substantially for proprietary directors (between 14.5% for total compensation of female directors and 19.9% for fixed compensation of male directors). Regarding the directors who do not receive variable compensation and other compensation, these percentages are substantially higher and are between 51.8% for variable compensation of male executive directors and 93.3% for other compensation of male proprietary directors.

Table 4.4 shows the gender pay gap for each type of compensation and of director. The data reveal that this gap is located in the executive directors and for the four compensation variables (i.e. total compensation, fixed compensation, variable compensation and other compensation), with the exception of other compensation for independent directors, which is also significant.

Table 4.4. Gender pay gap by type of director

Type of director	Variable	Women		Men		Differences between woman and men		
		N	Mean	N	Mean	Mean	%	t-test (p-value)
Executive directors	Totcomp	35	320.800	56	1,311.696	-990.896	-75.54%	-4.158 (0.000)***
	Fixcomp	35	225.771	56	613.286	-387.514	-63.19%	-4.959 (0.000)***
	Varcomp	35	90.914	56	644.911	-553.996	-83.32%	-3.356 (0.001)***
	Othcomp	35	4.114	56	19.875	-15.761	-79.30%	-2.098 (0.040)**
Proprietary directors	Totcomp	345	62.829	1,035	64.317	-1.488	-2.31%	-0.286 (0.775)
	Fixcomp	345	51.307	1,035	54.900	-3.592	-6.54%	-0.999 (0.318)
	Varcomp	345	2.754	1,035	2.118	0.636	30.03%	1.077 (0.394)
	Othcomp	345	2.255	1,035	3.181	-0.926	-29.11%	-0.411 (0.282)
Independent directors	Totcomp	578	109.815	1,301	116.506	-6.691	-5.74%	-1.405 (0.160)
	Fixcomp	578	105.083	1,301	109.495	-4.412	-4.03%	-0.955 (0.340)
	Varcomp	578	1.939	1,301	2.445	-0.506	-20.70%	-1.188 (0.235)
	Othcomp	578	2.389	1,301	3.476	-1.084	-31.19%	-1.902 (0.057)*

This table shows the gender pay gap (expressed in thousands of euros and percentage) for each type of compensation and of director. The four compensation variables are: total compensation (Totcomp), fixed compensation (Fixcomp), variable compensation (Varcomp) and other compensation (Othcomp). * Significant at 10%. ** Significant at 5%. *** Significant at 1%

These mean difference tests between compensation of women and men for each type of compensation and of the director represent a first approximation for the study of the gender

pay gap, which must be carried out by controlling several variables, as already anticipated previously.

4.4.2. Explanatory analysis

As a previous step, Table 4.A1 of the appendix provides the matrix of correlations and the variance inflation factors (VIFs) among the variables used to explain the directors' compensation by type of director and allows us to examine the possible problems of multicollinearity between these explanatory variables. The results show that there are no problems of multicollinearity (between the independent variables) and their possible negative consequences on the regression analysis because, although there are some significant correlations between explanatory variables, all the VIFs of the explanatory variables are close to one (Besley, Kuh, & Welsch, 2013; Kutner, Nachtsheim, Neter, & Li, 2005).

After verifying that there were no problems of multicollinearity between the explanatory variables, Table 4.5 shows the regression results of directors' compensation for executive directors, as well as the gender pay gap. The first three regressions are for total, fixed and variable compensation and were estimated through random effects for panel data models with censored dependent variable, while the fourth is for other compensation and was estimated through a pool model with censored dependent variable to avoid convergence problems.

The results of these regressions allow us to point out that director's gender presents a significant negative relationship with compensation, which means that female directors receive less compensation than their male counterparts do. In particular, women earn less fixed and variable pay, and consequently, less total compensation. However, the gender pay gap in the category of other compensation is not statistically significant. These results are in the same line as those obtained by García Martín and Herrero (2019) for total compensation, Kulich et al. (2011) for variable compensation, and Geiler and Renneboog (2015) in all remuneration components.

Table 4.5. Compensation and gender pay gap for executive directors

Independent variable	Dependent variable			
	Total compensation	**Fixed compensation**	**Variable compensation**	**Other compensation**
	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Gender	-0.876**	-0.702*	-1.767***	-1.059
	(0.037)	(0.085)	(0.006)	(0.356)
Factime	3.188***	2.955***	1.665	-1.308
	(0.000)	(0.000)	(0.262)	(0.602)
Tenure	0.880	0.996	-2.376	2.987
	(0.210)	(0.104)	(0.126)	(0.394)
Tenure2	-0.336*	-0.352**	0.866***	-0.903
	(0.072)	(0.038)	(0.006)	(0.290)
Committees	0.666	0.302	3.371***	0.651
	(0.228)	(0.506)	(0.001)	(0.748)
CEO	0.595***	0.342*	5.117***	1.252
	(0.009)	(0.073)	(0.000)	(0.278)
Chairperson	0.380	0.339	-5.215***	0.161
	(0.343)	(0.319)	(0.000)	(0.899)
PhD	0.329	0.417	1.525	3.393
	(0.791)	(0.723)	(0.289)	(0.392)
Relationships	0.257	0.146	4.656***	2.713
	(0.648)	(0.754)	(0.000)	(0.198)
Board_Size	2.314*	1.387	-4.311	3.485
	(0.054)	(0.185)	(0.147)	(0.338)
Board_Own	-0.449	-0.459	-15.775***	1.157
	(0.653)	(0.560)	(0.000)	(0.700)
NCC_Indep	-0.091	-0.023	-8.467***	-1.789
	(0.853)	(0.952)	(0.000)	(0.404)
NCC_Women	0.222	0.257	2.656**	-1.246
	(0.501)	(0.331)	(0.010)	(0.284)
GRP_Index	0.465	0.334	-16.458***	-7.732**
	(0.617)	(0.644)	(0.000)	(0.023)
CEO_duality	-0.558**	-0.484**	-2.388***	-1.260
	(0.025)	(0.014)	(0.000)	(0.290)
Firm_Size	-0.139	-0.097	-0.429*	0.546
	(0.282)	(0.380)	(0.053)	(0.229)
Leverage	-0.137	-0.145*	-0.965	0.380
	(0.155)	(0.092)	(0.249)	(0.137)
Performance	0.727	0.549	6.110***	-3.655
	(0.351)	(0.392)	(0.002)	(0.200)
Constant	-1.382	0.544	41.136***	-6.439
	(0.722)	(0.867)	(0.003)	(0.500)
Year dummies	Yes	Yes	Yes	No
Sector dummies	Yes	Yes	Yes	No
Observations	91	91	91	91
Rho (ρ)	0.8134	0.8837	0.9693	
Likelihood test	18.41***	27.61***	45.29***	
	(0.000)	(0.000)	(0.000)	

This table gathers the results of regressions on compensation and shows gender pay gap for executive directors. The dependent and explanatory variables were defined in Table 4.2. In total, fixed and variable compensation, panel data models with censored dependent variable, in zero by the lower limit, were estimated through random effects. In other compensation, a pool model with censored dependent variable was estimated to avoid convergence problems. The rho coefficient (ρ) computes the percentage contribution to the total variance of the panel data structure. The likelihood test quantifies the significance of the convenience of the panel data model with respect to a pooled model. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

If we look at the relationships obtained between the rest of the control variables and the dependent variables, we can highlight two issues. First, fixed and total compensation follow a very similar behaviour, because total compensation is composed of a high proportion of fixed remuneration. Secondly, the variables that appear as statistically significant show relationships in the previously established direction. As exceptions, the positive sign of the *Tenure2* variable with the variable compensation, as well as the negative sign of the *Chairperson* variable also with the variable compensation, indicate that the chairperson is not remunerated primarily with variable compensation. Also surprising is the statistically significant and positive relationship between the presence of women on the nomination and compensation committee and the variable compensation of directors. We previously stated a negative relationship because the presence of women could reduce the gender pay gap. However, the way to reduce the gap could occur through an increase in women's compensation, rather than a reduction in men's. In line with this argument, Bilimoria (2006) and Singh et al. (2008) already demonstrated that boards with higher representation of women were more likely to have female directors in high positions of command, which consequently means higher remuneration for them. Finally, firm size is negatively linked to variable compensation. It is possible that larger companies remunerate a larger amount to the board globally, but it may happen that the number of directors is higher in these companies and, therefore, the compensation is distributed among more directors.

Table 4.6 shows the regression results for the group of proprietary directors. As can be seen, there is no gender pay gap for this group, since the gender variable is not statistically significant. It is important to point out that proprietary directors sit on the board of directors for owning an important part of the company. For this reason, it seems logical that both their participation and their remuneration are not conditioned by gender characteristics. These results are similar to those obtained by García Martín and Herrero (2019), who found no significant relationship between gender and total compensation in proprietary directors; and they are contrary to those obtained by Goh and Gupta (2016), who demonstrated the gender pay gap within non-executive directors in UK firms.

Table 4.6. Compensation and gender pay gap for proprietary directors

Independent variable	Dependent variable			
	Total compensation	**Fixed compensation**	**Variable compensation**	**Other compensation**
	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Gender	-0.050	-0.052	-0.127	-0.833
	(0.768)	(0.777)	(0.878)	(0.353)
Factime	2.247***	2.278***	1.950*	1.071
	(0.000)	(0.000)	(0.077)	(0.303)
Tenure	-0.156	-0.230	0.153	0.628
	(0.393)	(0.210)	(0.915)	(0.619)
Tenure2	0.063	0.079	0.220	-0.188
	(0.285)	(0.180)	(0.578)	(0.604)
Committees	0.127	0.124	0.293	1.131
	(0.240)	(0.255)	(0.705)	(0.158)
CEO	-	-	-	-
Chairperson	0.307	0.096	2.188*	2.728***
	(0.102)	(0.611)	(0.075)	(0.005)
PhD	-0.068	-0.060	-1.301	-0.998
	(0.701)	(0.750)	(0.197)	(0.380)
Relationships	0.081	0.098	0.387	-1.359
	(0.455)	(0.374)	(0.641)	(0.179)
Board_Size	-0.007	0.159	-6.347***	-2.483
	(0.974)	(0.475)	(0.001)	(0.186)
Board_Own	-0.249	-0.107	-2.401	0.297
	(0.220)	(0.600)	(0.205)	(0.860)
NCC_Indep	-0.413***	-0.386***	-6.001***	2.509*
	(0.006)	(0.010)	(0.000)	(0.078)
NCC_Women	0.146*	0.084	-1.007*	0.898
	(0.097)	(0.350)	(0.068)	(0.196)
GRP_Index	0.402**	0.396**	-1.780	0.924
	(0.035)	(0.038)	(0.158)	(0.591)
CEO_duality	0.142	0.214*	0.647	0.936
	(0.240)	(0.077)	(0.515)	(0.227)
Firm_Size	0.133***	0.122***	0.027	1.201***
	(0.000)	(0.000)	(0.883)	(0.000)
Leverage	0.455*	0.519*	1.700	-4.273*
	(0.091)	(0.055)	(0.372)	(0.090)
Performance	0.300	0.268	10.094**	-3.756**
	(0.258)	(0.315)	(0.024)	(0.029)
Constant	-0.819	-1.254*	-14.890	-36.974
	(0.249)	(0.083)	(0.992)	(0.957)
Year dummies	Yes	Yes	Yes	Yes
Sector dummies	Yes	Yes	Yes	Yes
Observations	1,380	1,380	1,380	1,380
Rho (ρ)	0.8845	0.8881	0.9069	0.8535
Likelihood test	1,068.80*** (0.000)	1,135.60*** (0.000)	140.07*** (0.000)	163.98*** (0.000)

This table gathers the results of regressions on compensation and shows gender pay gap for executive directors. The dependent and explanatory variables were defined in Table 4.2. In total, fixed and variable compensation, panel data models with censored dependent variable, in zero by the lower limit, were estimated through random effects. In other compensation, a pool model with censored dependent variable was estimated to avoid convergence problems. The rho coefficient (ρ) computes the percentage contribution to the total variance of the panel data structure. The likelihood test quantifies the significance of the convenience of the panel data model with respect to a pooled model. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

Concerning the control variables, the positive relationship between the independence of the nomination and compensation committee and other compensation is striking, while the relationship between this variable and the rest of the compensation components is negative as we expected. This may be caused by opportunistic behaviour by independent directors who favour proprietary directors with high dismissal payments when they leave their position on the board of directors. Similarly to the variable compensation of executive directors, the positive relationship between the presence of women on the nomination and compensation committee and total compensation is obtained. In addition, directors' compensation in firms with better remuneration practices is higher, at least in fixed and total compensation. This may be due to the fact that companies with the best remuneration practices prefer to pay more fixed compensation at the cost of reducing the variable remunerations that tend to present more extreme amounts. Finally, while variable compensation is positively influenced by performance, other compensation is negatively related to it.

The last group of directors to analyse is that of independent directors. Table 4.7 shows the results of the regressions for this group. Similar to proprietary directors, there is no gender pay gap for independent directors, as can be seen through the gender variable. Companies hire independent directors according to their experience, skills, relationships, etc., so it seems clear that their remuneration should not be conditioned by gender, but rather by these individual characteristics that represent a greater value in their work. García Martín and Herrero (2019) also found no significant relationship between gender and total compensation in independent directors. However, Goh and Gupta (2016) demonstrated a gender pay gap at non-executive directors-level.

Table 4.7. Compensation and gender pay gap for independent directors

Independent variable	Dependent variable			
	Total compensation	**Fixed compensation**	**Variable compensation**	**Other compensation**
	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Gender	-0.073	-0.083	0.171	-0.248
	(0.181)	(0.149)	(0.804)	(0.646)
Factime	2.079***	2.030***	3.523***	1.026
	(0.000)	(0.000)	(0.000)	(0.101)
Tenure	0.107	0.184*	-2.679**	1.380
	(0.243)	(0.053)	(0.020)	(0.132)
Tenure2	-0.008	-0.051*	0.994***	-0.189
	(0.794)	(0.093)	(0.005)	(0.504)
Committees	0.298***	0.324***	-0.561	-0.364
	(0.000)	(0.000)	(0.363)	(0.434)
CEO	-	-	-	-
Chairperson	0.788***	0.657***	3.395*	1.859
	(0.000)	(0.000)	(0.065)	(0.254)
PhD	-0.067	-0.033	-2.594**	-0.157
	(0.259)	(0.594)	(0.031)	(0.771)
Relationships	0.016	0.008	-0.283	0.593*
	(0.684)	(0.845)	(0.564)	(0.090)
Board_Size	0.165*	0.175**	-0.220	0.138
	(0.057)	(0.050)	(0.877)	(0.902)
Board_Own	-0.642***	-0.695***	-2.825*	0.218
	(0.000)	(0.000)	(0.061)	(0.866)
NCC_Indep	-0.069	-0.072	0.276	1.525*
	(0.374)	(0.368)	(0.777)	(0.066)
NCC_Women	0.066*	0.069*	0.550	-0.334
	(0.084)	(0.079)	(0.177)	(0.452)
GRP_Index	0.138	0.090	2.883**	3.417***
	(0.125)	(0.327)	(0.017)	(0.004)
CEO_duality	0.019	-0.015	1.990***	1.648***
	(0.632)	(0.712)	(0.000)	(0.000)
Firm_Size	0.179***	0.183***	-0.363*	0.955***
	(0.000)	(0.000)	(0.059)	(0.000)
Leverage	0.052	0.067*	-0.327	-0.621
	(0.142)	(0.069)	(0.667)	(0.557)
Performance	0.327***	0.302***	8.142***	-1.207
	(0.000)	(0.000)	(0.002)	(0.184)
Constant	0.706***	0.636**	-8.229**	-18.793***
	(0.008)	(0.021)	(0.034)	(0.000)
Year dummies	Yes	Yes	Yes	Yes
Sector dummies	Yes	Yes	Yes	Yes
Observations	1,879	1,879	1,879	1,879
Rho (ρ)	0.6505	0.6738	0.8868	0.9168
Likelihood test	505.18***	699.56***	245.57***	377.51***
	(0.000)	(0.000)	(0.000)	(0.000)

This table gathers the results of regressions on compensation and shows gender pay gap for executive directors. The dependent and explanatory variables were defined in Table 4.2. In total, fixed and variable compensation, panel data models with censored dependent variable, in zero by the lower limit, were estimated through random effects. In other compensation, a pool model with censored dependent variable was estimated to avoid convergence problems. The rho coefficient (ρ) computes the percentage contribution to the total variance of the panel data structure. The likelihood test quantifies the significance of the convenience of the panel data model with respect to a pooled model. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

Regarding the control variables, the results show a non-linear inverted u-shaped relationship between tenure and fixed compensation as previously anticipated. However, the variable compensation presents a non-linear u-shaped relationship, contrary to what we expected. There is also a negative relationship between PhD studies and variable compensation. The presence of independent directors on the nomination and compensation committees positively influences other compensation, as was the case of proprietary directors. In addition, the presence of women directors on the nomination and compensation committee positively influences total and fixed compensation, as was the case of the variable compensation of executive directors and the total compensation of proprietary directors. In the same way, good remuneration practices positively influence variable and other remuneration again, as was the case of the total and fixed compensation of proprietary directors. Finally, directors in larger firms earn more fixed, other and total compensation. However, they received less variable compensation, similarly to the variable compensation of executive directors.

Finally, we re-estimated the previous regressions for variable compensation and other compensation, dichotomizing them. Thus, Table 4.8 shows the regressions for the three groups of directors (executive, proprietary and independent directors) for variable and other compensation; where the dependent variables take the value of 1 if the director receives that type of remuneration and 0 otherwise. We carry out this additional analysis because a large number of directors do not receive these types of compensation, so it is interesting to analyse them as limited dependent variables. In this way, we study whether the probability of earning variable compensation and other compensation is lower in women than in men. Note that for the group of executive directors, the *PhD* variable has been omitted. When this dichotomous control variable interacts with the dichotomous dependent variable, the crosstab of these two variables show 0 observations in one of the cells (i.e. there are no executive directors who have PhD studies and at the same time do not receive variable compensation and other compensation), so that variable drop to the estimates.

Table 4.8. Compensation and gender pay gap for directors in the variable compensation and other compensation through probit panel data models

Independent variable	Executive directors		Proprietary directors		Independent directors	
	Variable comp.	**Other comp.**	**Variable comp.**	**Other comp.**	**Variable comp.**	**Other comp.**
	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Gender	-8.950*	-0.296	0.097	-0.337	0.128	-0.147
	(0.061)	(0.469)	(0.860)	(0.485)	(0.765)	(0.721)
Factime	-15.342	-0.359	1.300	0.247	1.844**	0.979*
	(0.005)	(0.677)	(0.108)	(0.696)	(0.012)	(0.075)
Tenure	-4.363	0.565	-0.187	0.580	-1.215	1.542*
	(0.511)	(0.631)	(0.839)	(0.464)	(0.140)	(0.057)
Tenure2	-0.455	-0.198	0.234	-0.166	0.513**	-0.265
	(0.728)	(0.492)	(0.349)	(0.446)	(0.038)	(0.272)
Committees	33.700***	-0.218	0.068	0.497	-0.309	-0.262
	(0.001)	(0.766)	(0.887)	(0.280)	(0.490)	(0.495)
CEO	9.698***	0.297	-	-	-	-
	(0.004)	(0.475)				
Chairperson	7.337**	0.248	1.155	1.342**	1.665	0.934
	(0.047)	(0.598)	(0.118)	(0.022)	(0.178)	(0.445)
PhD	-	-	-1.549*	-0.490	-1.618**	0.033
			(0.059)	(0.499)	(0.031)	(0.936)
Relationships	4.169	1.095	0.016	-0.982*	-0.193	0.364
	(0.500)	(0.189)	(0.977)	(0.097)	(0.603)	(0.211)
Board_Size	45.110*	0.801	-3.739***	-1.743	-0.012	-0.248
	(0.053)	(0.556)	(0.001)	(0.118)	(0.990)	(0.771)
Board_Own	-119.786*	0.940	-1.876*	0.215	-1.367	-0.533
	(0.072)	(0.386)	(0.095)	(0.812)	(0.170)	(0.593)
NCC_Indep	-26.083	-0.725	-3.989***	1.188	-0.321	0.678
	(0.149)	(0.349)	(0.000)	(0.186)	(0.662)	(0.318)
NCC_Women	3.478	-0.378	-0.749*	0.332	0.478	-0.623*
	(0.691)	(0.359)	(0.074)	(0.459)	(0.170)	(0.077)
GRP_Index	6.246	-2.814**	-0.736	0.586	2.700***	3.091***
	(0.774)	(0.029)	(0.466)	(0.562)	(0.006)	(0.001)
CEO_duality	-12.945**	-0.403	0.602	0.345	1.414***	1.460***
	(0.027)	(0.345)	(0.302)	(0.479)	(0.000)	(0.000)
Firm_Size	-2.872*	0.289*	0.137	0.815***	-0.214*	0.826***
	(0.075)	(0.080)	(0.208)	(0.000)	(0.091)	(0.000)
Leverage	-130.669*	0.163*	0.295	-2.924**	-0.034	-0.720
	(0.058)	(0.075)	(0.802)	(0.046)	(0.935)	(0.370)
Performance	75.457***	-1.479	6.740**	-2.439***	3.959**	-0.986
	(0.001)	(0.144)	(0.022)	(0.016)	(0.024)	(0.154)
Constant	73.666	-1.981	2.941	-7.692***	-6.509**	-14.366***
	(0.254)	(0.567)	(0.299)	(0.004)	(0.018)	(0.000)
Year dummies	Yes	No	Yes	Yes	Yes	Yes
Sector dummies	Yes	No	Yes	Yes	Yes	Yes
Observations	91	91	1,380	1,380	1,879	1,879
Rho (ρ)	0.9771		0.9300	0.8906	0.8868	0.9168
Likelihood test	9.01** (0.001)		153.92*** (0.000)	153.40*** (0.000)	245.57*** (0.000)	377.51*** (0.000)

This table shows the results of regressions on compensation and shows gender pay gap for directors in the variable compensation and other compensacion trough probit panel data models. The dependent and explanatory variables were defined in Table 4.2. Probit panel data models, where the dependent variable is a binary variable equal to one if the director receives compensation and zero otherwise, were estimated through random effects for the first and last four regressions, while in the second regression a probit pool model was estimated to avoid convergence problems.. The rho coefficient (ρ) computes the percentage contribution to the total variance of the panel data structure. The likelihood test quantifies the significance of the convenience of the panel data model with respect to a pooled model. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

The results in Table 4.8 show that female executive directors are less likely to receive variable compensation than their male counterparts, although these differences do not exist for other compensation. According to Kulich et al. (2011), women are offered contracts that are less performance sensitive and more suited for risk averse managers. As for proprietary and independent directors, there are no gender-motivated differences in the likelihood of collecting these types of remuneration. The results are in line with those previously obtained in Tables 4.5, 4.6 and 4.7, where these variables were analysed as continuous variables.

Regarding control variables, most of them show previously established relationships. However, we found some exceptions, such as the *Factime* variable, which contrary to what might be expected, presents a significant negative relationship with the variable compensation for executive directors and the positive sign of the *Tenure2* variable with the variable compensation for independent directors. Also surprising are the statistically significant and negative relationships between the qualifications of proprietary and independent directors and variable compensation, as well as a significant negative relationship between the *Relationship* variable and other compensation for proprietary directors. The same applies to the positive sign presented by the *GRP_Index* variable for variable compensation and other compensation of independent directors. In addition, there is a negative relationship between firm size and variable compensation when analysing executive and independent directors. Finally, it is highlighting that performance negatively influence other compensation of proprietary directors.

4.4.3. Robustness check

A potential concern when analysing directors' characteristics and compensation is a possible selection bias in hiring decisions within the board of directors, since companies hire directors with certain characteristics according to their needs. According to Adams, Hermalin, and Weisbach (2010), the composition of the board of directors and their actions are jointly endogenous. Thus, female board representation and remuneration policy would be endogenous. To provide robustness to the results previously obtained in the regression models, we use as an alternative approach the propensity score matching. This method captures the average treatment effects of individual director characteristics (a treatment) on their remuneration (a treatment effect), compared to a sample of non-treatment directors in the same or a similar firm.

Table 4.9. Treatment effects in gender pay gap by type of director

Variable		Executive directors		Proprietary directors		Independent directors	
		Gender pay gap	t-test (p-value)	Gender pay gap	t-test (p-value)	Gender pay gap	t-test (p-value)
Totcomp	Mean	-785.286	-1.616* (0.057)	0.204	0.028 (0.511)	0.556	0.088 (0.535)
	%	-66.21	-3.404*** (0.001)	22.63	1.345 (0.910)	3.15	-0.416 (0.339)
Fixcomp	Mean	-222.057	-2.059** (0.023)	-4.839	-0.855 (0.196)	2.856	0.474 (0.682)
	%	-49.94	-3.406*** (0.001)	-13.20	0.822 (0.794)	3.54	-0.465 (0.321)
Varcomp	Mean	-494.114	-1.332* (0.095)	1.006	1.104 (0.865)	-0.035	-0.057 (0.477)
	%	-86.17	-1.419* (0.082)	5.87	0.776 (0.781)	-1.00	-0.157 (0.438)
Othcomp	Mean	-22.371	-1.112 (0.136)	-0.745	-0.618 (0.268)	-0.440	-0.564 (0.286)
	%	-56.53	-1.058 (0.148)	-1.98	-0.268 (0.394)	-3.15	-0.482 (0.315)

This table summarizes the results of a treatment effect estimation on gender pay gap (expressed in thousands of euros and percentage) for each type of compensation and of director. The four compensation variables are: total compensation (Totcomp), fixed compensation (Fixcomp), variable compensation (Varcomp) and other compesation (Othcomp). It compare the directors' compesation who are similar in factor time, tenure, committees presence, CEO and chairperson positions, educational qualification, relationships, firm size and year. The treatment effect is the variable gender. The average treatment effect on the treated (ATT) using nearest neighbor matching method with no replacement was chosen. * Significant at 10%. ** Significant at 5%. *** Significant at 1%.

Table 4.9 shows the results for propensity score matching method. Regarding executive directors, women receive a significantly lower compensation than men with the same time, tenure, responsibilities, position, qualifications, and relationships, and within similar firms, and in the same year. Specifically, female executive directors receive about € 785,286 less than male executive directors, being her total compensation a 66.21% less. If we analyse the different remuneration components, the main gender pay gap is in the variable compensation, where the female executive directors earn about € 494,114 or an 86.17% less than men. These results are in line with those obtained by Muñoz-Bullón (2010), who explained that much of the gender pay gap among top executives is due to differences in variable compensation, and Geiler and Renneboog (2015), who showed that female executive directors received less variable compensation. There are also important differences in fixed compensation, since women receive about € 222,057 less than men, which means 49.94% less pay. Differences in other compensations also exist against female directors, although there are no statistically significant differences: women earn about € 22,371 on average less than men do (or 56.53%). However, the results show that there is no gender pay gap when

we talk about proprietary and independent directors with similar profiles. These results reinforce those previously obtained in the regression analysis and show that female executive directors receive less compensation than their male counterparts, exclusively because of the gender factor.

4.5. CONCLUSIONS

The gender pay gap is an issue that persists around the world, despite the fact that gender equality is a priority for the Organisation for Economic Co-operation and Development (OECD, 2019). The gender pay gap also extends to highly qualified and well paid jobs, as is the case of the board of directors in listed companies. Furthermore, not only do women earn less than their male counterparts, but they also reach these positions much less frequently (Mohan, 2014).

The studies that have examined this topic have obtained mixed results. The main reason why different results have been obtained between the diverse works is due to great heterogeneity in three ways: (1) individuals of the sample, (2) remuneration concepts, and (3) requirement or not of gender diversity. According to the first one, some studies have tried to study whether there is a gender pay gap among top managers of companies; other authors have focused their efforts on studying this gap for a smaller group of these managers, such as CEOs; and finally, another group of papers have studied the gender pay gap in the boards of directors, analysing it through the executive directors or through the external directors. Only García Martín and Herrero (2019) analyse this topic, grouping by types of directors. Regarding the second, most papers have studied the gender pay gap in total compensation, despite the fact that the remuneration policy is different for each remuneration component, which consequently have different behaviours. Finally, referring to the third item, most of the related studies have not taken into account the gender diversity present in their analysis groups. Specifically, these studies have studied the gender gap both in companies with gender diversity and in companies employing only men. In this sense, Grund (2015) expresses doubt regarding whether the differences between men and women are really captured when analysing such heterogeneous groups, so this problem can lead to biased results.

According to the above, this paper tries to correct this problem of heterogeneity through the study of homogeneous groups, analysing the gender pay gap within the board of directors. For this purpose, we analysed a sample of directors in Spanish listed companies during the period 2013-2018, taking into account only those companies where there is gender

diversity for each type of director. We study each type of director separately and, in addition, study their total compensation, breaking this compensation down into different remuneration components.

Our results corroborate the different behaviour both between individuals (i.e. between types of directors) and between compensations (i.e. between remuneration components). First, we show that executive directors receive much higher compensation than the rest of directors, likewise independent directors are remunerated higher than proprietary directors. Second, variable compensations are mainly present for executive directors, according to the recommendation of the Good Governance Code (CNMV, 2015). This type of remuneration represents, on average, almost half the total compensation for male executive directors and about 28% for female executive directors.

When analysing the gender pay gap through regression models, controlling by director, board and firm characteristics, our results suggest that a gender pay gap exists for executive directors in fixed, variable and total compensation (not in other compensations). Executive directors work within the company performing management tasks. This makes their remuneration policy much more complex than the rest of the directors and, therefore, it is easier to find remuneration gaps between the different individuals who belong to this category. For instance, variable compensation is used mainly for this group and is a discretionary element of remuneration, which can increase these differences. In this sense, we found no gender pay gap for proprietary or independent directors. On the one hand, proprietary directors have a place on the board by owning a part of the company, which gives them the right to participate in its decisions. Therefore, it is appropriate that all of them are remunerated in the same way in each board and, consequently, there should be no gender gap between male and female directors. On the other hand, independent directors are external directors of the company, who are hired for their skills, experience and qualification, among others. Accordingly, their remuneration should be based on these individual characteristics that add value to the company, and not based on gender. Therefore, it is logical that there is no pay gap due only to gender issues.

Moreover, we wanted to study whether the probability of earning variable compensation and other compensation is different between male and female directors, since they involve discretionary remuneration elements. The results continue to be in line with previous findings and suggest that female executive directors are less likely to receive variable compensation than their male counterparts. According to previous literature (Bertrand, 2011; Grund, 2015; Kulich et al., 2011), this may be due to greater risk aversion on the part of

women, who prefer receiving a known fixed compensation rather than greater potential compensation based on performance.

Finally, we provide robustness through a propensity score matching procedure. This allows us to deal with endogeneity issues and quantify the gender pay gap between directors with the same individual characteristics and working in similar companies. Again, the results show a gender pay gap for the group of executive directors in fixed, variable and total compensation. It must be highlighted that female executive directors earn about 785,000 € less than their male counterparts, which means they receive only a third of male directors' compensation. Furthermore, we show that the main gender pay gap is in the variable compensation, where female directors earn about 86% less than male directors. Muñoz-Bullón (2010) and Geiler and Renneboog (2015) had also found similar findings.

Our results have different implications for the gender pay gap debate. First, they should be usefully taken into account by policymakers and regulators. These results should encourage them to promote laws or regulations that lead to effective participation and equal pay between men and women on the boards of directors. Equality between male and female directors has still not been achieved despite the objective of reaching 40% women directors by 2015, proposed by Organic Law 3/2007 for the effective equality of women and men, which was relaxed to 30% women by 2020 through the Unified Code of Good Governance (CNMV, 2015). Second, our results can be useful for companies when designing the remuneration policies of the board of directors in order to avoid these huge wage gaps. Third, female directors should be aware of the gender pay gaps in order to defend their rights and to negotiate their remunerations. Fourth, these results may also be of interest to investors concerned about good corporate governance practices of listed companies. Finally, an important implication that can be derived from our work is that a board of directors cannot be considered as a homogeneous group. Similarly, considering the total compensation of directors as a whole, can lead to obtaining biased results by the different compensation components.

As limitations of this research, the low proportion of female directors in our sample of boards of directors should be noted, which further reduces our sample of board directors when we demand gender diversity in each type of director (in particular, in the executive director group). In addition, we conducted the study in Spain, where a one-tier board system is established (i.e. all directors, executives and non-executives make up the board) and where there is no regulation that strictly requires reaching a quota of female directors. Further research should be conducted to compare the gender pay gap in different contexts (i.e. two-

tier board system, countries with a gender quota in the board, common-law countries). Finally, the next step in research on the gender pay gap in homogeneous groups would be to analyse the determinants that may influence it.

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4.7. APPENDIX

Table 4.A1. Matrix of correlations and variance inflation factors for the explanatory variables of directors' compensation by type of director

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) Gender	1 / 1 / 1																
(2) Factime	-0.053* / 0.096*** / -0.026	1 / 1 / 1															
(3) Tenure	-0.035 / -0.007 / -0.207***	0.379*** / 0.426*** / 0.382***	1 / 1 / 1														
(4) Committees	-0.122*** / 0.031 / -0.039*	0.095*** / 0.097*** / 0.170***	0.052* / 0.079*** / 0.197***	1 / 1 / 1													
(5) CEO	-0.106*** / - / -	-0.018 / - / -	-0.071** / - / -	0.058* / - / -	1 / 1 / 1												
(6) Chairperson	-0.106*** / -0.069** / -0.087***	0.078*** / 0.036 / 0.017	0.314*** / 0.125*** / -0.008	0.081*** / -0.011 / -0.000	0.070** / - / -	1 / 1 / 1											
(7) PdD	-0.049* / -0.050* / 0.098***	-0.045 / -0.019 / 0.062***	0.089*** / 0.039 / 0.031	-0.018 / -0.045* / -0.016	-0.027 / - / -	0.143*** / 0.006 / -0.035	1 / 1 / 1										
(8) Relationships	-0.003 / -0.039 / 0.041*	0.057* / 0.103*** / 0.162***	0.013 / 0.010 / -0.007	0.150*** / 0.148*** / 0.087***	-0.010 / - / -	0.133*** / 0.078*** / 0.098***	0.066** / -0.016 / 0.076***	1 / 1 / 1									
(9) Board_Size	-0.062** / -0.081** / 0.000	0.053* / 0.026 / 0.146***	0.062** / -0.030 / 0.196***	0.223*** / -0.005 / -0.037	0.018 / - / -	-0.079*** / -0.127*** / -0.058**	0.141*** / -0.092*** / 0.097***	0.140*** / 0.072*** / 0.121***	1 / 1 / 1								
(10) Board_Own	0.082*** / -0.019 / -0.032	0.081*** / 0.027 / 0.024	0.113*** / 0.112*** / -0.029	-0.054* / -0.035 / 0.092***	-0.073*** / - / -	-0.010 / 0.082*** / -0.073***	-0.155*** / -0.002 / 0.125***	-0.093 / -0.102*** / -0.073***	-0.277*** / -0.109*** / -0.196***	1 / 1 / 1							
(11) NCC_Indep	-0.049* / 0.082*** / -0.009	0.031 / 0.044 / 0.186***	0.011 / 0.039 / 0.127***	-0.155*** / -0.101*** / -0.044*	0.102*** / - / -	0.034 / 0.034 / 0.012	0.095*** / 0.004 / -0.045*	-0.019 / -0.013 / 0.056**	0.026 / -0.268*** / -0.011	-0.131*** / -0.125*** / -0.186***	1 / 1 / 1						

Table 4.A1. Matrix of correlations and variance inflation factors for the explanatory variables of directors' compensation by type of director (continued)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(12) NCC_Women	0.029	-0.112***	-0.059*	.064**	0.034	-0.001	0.074**	0.004	0.207***	-0.166***	-0.062**	1					
	0.079***	-0.006	0.057**	0.021	-	0.023	-0.014	0.045*	-0.033	-0.047*	0.037	1					
	0.074***	-0.029	0.034	0.056**	-	-0.069***	-0.023	0.012	0.101***	-0.102***	0.076***	1					
(13) GRP_Index	0.080***	0.027	-0.003	0.063**	-0.015	-0.042	0.002	0.056*	0.054*	0.042	-0.036	-0.007	1				
	0.001	-0.054**	-0.111***	-0.047*	-	-0.019	0.036	-0.028	0.105***	0.131***	-0.093***	-0.0136	1				
	-0.022	0.098***	0.122***	-0.002	-	-0.019	-0.001	0.063***	0.051**	-0.023	0.070***	-0.015	1				
(14) CEO_duality	0.081***	0.030	0.145***	-0.037	0.123***	0.294***	0.063**	0.006	-0.017	0.069**	0.168***	0.007	-0.091***	1			
	0.079***	0.003	0.004	-0.037	-	-0.138***	-0.044*	-0.037	-0.028	-0.097***	0.173***	-0.045*	-0.010	1			
	-0.005	-0.004	0.029	0.032	-	-0.089***	0.033	-0.104***	-0.024	0.054**	0.098***	0.099***	-0.076***	1			
(15) Firm_Size	-0.023	-0.007	0.107***	0.171***	0.013	-0.071**	0.131***	0.183**	0.645***	-0.215***	0.102***	0.169***	0.187***	0.023	1		
	0.039	0.042	0.056***	-0.003	-	-0.117***	-0.051*	0.057**	0.504***	-0.066**	0.044*	0.035	0.199***	0.202***	1		
	-0.040*	0.070***	0.109***	0.049**	-	-0.041*	0.015	0.152***	0.559***	-0.186***	0.202***	0.143***	0.166***	0.0825** *	1		
(16) Leverage	0.097***	-0.146***	-0.129***	-0.026	0.021*	0.007	-0.019	-0.016	-0.112***	-0.094***	-0.077***	0.094***	0.029	0.072** *	-0.091***	1	
	0.007	-0.118***	-0.068**	0.063***	-	-0.016	-0.079***	0.044	0.157***	-0.177***	-0.161***	0.063**	0.133***	0.195***	0.189***	1	
	0.001	-0.102***	-0.148***	-0.016	-	-0.019	-0.053**	-0.085***	-0.119***	-0.138***	-0.036	0.011	-0.070***	0.1487** *	-0.058**	1	
(17) Performance	0.031	0.228***	0.098***	-0.020	-0.047	-0.003	0.018	0.042	0.126***	0.094***	0.023	-0.018	-0.032	0.035	0.090***	-0.348***	1
	-0.009	0.032	0.025	-0.064**	-	-0.077***	0.015	0.008	0.143***	0.030	0.054**	-0.067**	-0.064**	0.006	0.097***	-0.576***	1
	0.006	0.060***	0.066***	0.014	-	-0.022	0.041*	0.083***	0.096***	0.104***	0.003	0.012	0.029	0.023	0.104***	-0.419***	1
VIF	1.09	1.28	1.39	1.16	1.06	1.32	1.09	1.09	1.93	1.22	1.14	1.12	1.08	1.21	1.92	1.21	1.22
	1.05	1.29	1.30	1.06	-	1.08	1.03	1.07	1.67	1.15	1.26	1.03	1.12	1.20	1.61	1.97	1.73
	1.09	1.29	1.35	1.11	-	1.04	1.06	1.11	1.69	1.19	1.19	1.06	1.07	1.10	1.69	1.32	1.24

This table contains the correlation coefficients for the explanatory variables of directors' compensation by type of director. For each pair of variables, the first coefficient is obtained with executive directors, the second coefficient with proprietary directors and the third with independent directors. The explanatory variables were defined in Table 2. In addition, it also contains variance inflation factors (VIFs) for each explanatory variable. A variance inflation factor close to one reveals that there are no collinearity problems among the explanatory variables. *** Significance at the 1% level. ** Significance at the 5% level. * Significance at the 10% level.

Capítulo 5

Conclusiones

5.1. CONCLUSIONES

Dada la importancia que tiene la información narrativa contable en la actualidad, tanto para las empresas como para los *stakeholders* e incluso la sociedad en general, además de la escasa investigación empírica en algunos de sus contenidos, esta tesis ha tratado de profundizar en el análisis de las narrativas contables a través de un triple enfoque. El primero de ellos se ha centrado en estudiar el buen gobierno de las empresas, a través del cumplimiento de las recomendaciones contenidas en los Códigos de Buen Gobierno y divulgadas por las empresas en sus Informes Anuales de Gobierno Corporativo. El segundo ha analizado la transparencia de la información emitida por las empresas, mediante el estudio la legibilidad de sus Informes de Gestión. Por último, el tercer enfoque se ha ocupado del estudio de la igualdad de género en los consejos de administración, a través del análisis de las retribuciones de consejeros y consejeras. Las principales contribuciones y conclusiones de esta tesis doctoral han sido las siguientes:

5.1.1. Buenas prácticas de gobierno corporativo

En las dos últimas décadas se ha producido un creciente interés sobre cuestiones relacionadas con gobierno corporativo, cuyo objetivo es crear un ambiente de confianza, integridad y transparencia para las empresas. Simultáneamente, se han desarrollado Códigos de Buen Gobierno, que recogen una serie de recomendaciones para las empresas que, en caso de cumplirlas, ofrecerán una imagen al exterior de buena gobernanza y confianza. Además, en última instancia, podrían suponer un aumento de valor para las empresas.

A través del estudio de los factores que influyen en el cumplimiento de estas buenas prácticas, hemos confirmado la importancia que ejercen el tamaño empresarial y la estructura de propiedad, de acuerdo con la muy escasa literatura previa existente. Sin embargo, hemos mostrado que existe un factor explicativo adicional, no estudiado anteriormente, como es la independencia del consejo de administración. En este sentido, hemos encontrado la existencia de una relación directa entre la proporción de consejeros independientes en los consejos y las buenas prácticas de gobierno corporativo. Además, nuestros resultados sugieren que esta relación se ve atenuada por la dispersión de la propiedad, ejerciendo un efecto moderador sobre ella.

Sin embargo, no todas las empresas se comportan de modo similar. Cuando distinguimos entre empresas que cumplen con la recomendación de independencia y las que no la cumplen, los resultados difieren entre unas y otras. Así, las empresas que no cumplen con

esta recomendación, que al mismo tiempo cumplen con menos recomendaciones en términos globales, presentan las mismas relaciones que las obtenidas para el conjunto de empresas. Sin embargo, para el resto de las empresas que sí cumplen con dicha recomendación y, al mismo tiempo, son las que cumplen con un mayor número de recomendaciones, únicamente el tamaño empresarial y la independencia del consejo influyen positivamente en sus buenas prácticas (si bien la influencia de la independencia del consejo es menor y la estructura de la propiedad no ejerce ningún efecto significativo).

Por ello, este primer estudio revela información valiosa para las empresas, ya que deberían ser conscientes de la importancia de la figura del consejero independiente sobre la mejora del gobierno corporativo. Y también para los legisladores y reguladores, para continuar desarrollando y actualizando los Códigos de Buen Gobierno, teniendo en cuenta estos resultados.

5.1.2. Legibilidad

Respecto al segundo estudio, nuestro trabajo aporta nueva evidencia empírica sobre la legibilidad de la información narrativa contable en castellano, ya que la mayor parte de estudios realizados en este ámbito se han llevado a cabo en documentos escritos en inglés. Además, se trata del primer trabajo que analiza la legibilidad contable en España durante un período actual de poscrisis y utiliza una amplia muestra de empresas (prácticamente la totalidad de la población de empresas cotizadas). Adicionalmente, el análisis se ha llevado a cabo tomando como referencia al Informe de Gestión, un documento que prácticamente no ha sido estudiado, a pesar de ser de obligado cumplimiento para las sociedades cotizadas, entre otros motivos, por su complejidad al no ser un documento estandarizado.

Los resultados de este trabajo indican que los informes de gestión de las empresas españolas son entre difíciles y bastante difíciles de leer y que, esa dificultad de lectura se ha mantenido constante a lo largo de los últimos años. En cuanto a la extensión de los documentos como factor explicativo de la legibilidad, tenemos en cuenta dos componentes: cantidad de texto y cantidad de elementos visuales que lo acompañan. Así, los resultados sugieren que los documentos contables más largos, son al mismo tiempo los más difíciles de leer. Sin embargo, el uso de elementos visuales para complementar el texto, contribuye a mejorar la facilidad de lectura de estos documentos. Por último, descubrimos como principal novedad que el buen gobierno corporativo, medido a través del cumplimiento de buenas prácticas, mejora la transparencia de las narrativas contables, de modo que contribuye a comunicar la información de una manera más simple y clara.

Estos hallazgos deberían ser tenidos en cuenta por los profesionales encargados de emitir la información contable de sus empresas, con el objetivo de tratar de mejorar estas comunicaciones que resultan difíciles de leer para los *stakeholders* que se relacionan con ella. Además, estos resultados pueden ser útiles para los organismos reguladores, ya que confirman que algunos de los proyectos llevados a cabo internacionalmente para mejorar la legibilidad contable van en la línea correcta. Por último, les aportamos como nuevo conocimiento, que la imagen de transparencia y confianza que ofrecen las empresas bien gobernadas se traslada también a su información contable, haciéndose más fácil de leer.

5.1.3. Igualdad salarial de género

La brecha salarial de género es un problema que persiste en la actualidad alrededor de todo el mundo y que además se produce en trabajos altamente pagados y cualificados, como es el caso de los consejos de administración. Respecto a este tema, la evidencia empírica ha obtenido resultados mixtos, siendo muy escasa en el estudio de la brecha salarial en el consejo de administración. Además, la mayoría de estos estudios han sido criticados por el análisis de muestras demasiado heterogéneas, así como por la heterogeneidad en las retribuciones estudiadas. Por todo ello, nuestro trabajo ha tratado de aportar luz a este campo de investigación, realizando un estudio exhaustivo de la brecha salarial de género por tipos de consejeros y por tipos de remuneraciones, además de realizarlo únicamente en empresas con diversidad de género. De esta forma, corregimos las limitaciones presentes en los estudios realizados anteriormente y aportamos nueva evidencia empírica.

Cuando analizamos la brecha salarial por tipos de consejeros, vemos efectivamente que los resultados difieren de un grupo a otro. De este modo, únicamente se observa la existencia de una brecha salarial de género, en contra de las mujeres, para los consejeros ejecutivos, en todos los componentes retributivos excepto en la categoría de otras remuneraciones. Sin embargo, los resultados sugieren que no existe una brecha salarial de género para las categorías de consejeros dominicales e independientes. Al mismo tiempo, también mostramos las consejeras ejecutivas tienen menos probabilidad de recibir compensaciones variables (basadas en objetivos a corto y largo plazo) que sus homólogos masculinos. Esta brecha entre consejeras y consejeros ejecutivos es bastante grande ya que, a través de un análisis de robustez con técnicas de emparejamiento, vimos que los hombres reciben de media tres veces más remuneración que las mujeres.

Estos resultados ofrecen implicaciones muy importantes para el debate actual sobre brechas salariales de género. En primer lugar, desde el punto de vista teórico, podemos

resaltar la importancia que tiene realizar estos análisis con muestras homogéneas, ya que los resultados obtenidos de otra forma serían totalmente diferentes y estarían claramente sesgados. En segundo lugar, nuestros resultados deben motivar a los reguladores y legisladores a promover leyes o normativas encaminadas a conseguir tanto una participación efectiva de la mujer en estos puestos, como una igualdad salarial en los mismos. En tercer lugar, deben ser útiles para las empresas, que deberían elaborar sus políticas de retribución con el objetivo de eliminar estas grandes diferencias en la retribución por sexos. Y por supuesto, para las propias consejeras que, siendo conscientes de este hecho, deben seguir luchando por defender sus derechos y negociar sus remuneraciones para conseguirlos.

5.2. LIMITACIONES Y FUTURAS LÍNEAS DE INVESTIGACIÓN

Esta Tesis Doctoral tiene ciertas limitaciones debido al hecho de haber realizado todos los estudios para el contexto español. Respecto al gobierno corporativo, España sigue un sistema de un solo nivel, donde el consejo de administración está formado tanto por consejeros internos (trabajadores de la empresa) como por consejeros externos (dominicales e independientes) y donde la propiedad de la empresa está mucho más concentrada. Por ello, podría ser interesante extender estas líneas de investigación a otros contextos más amplios, como al sistema anglosajón (donde la propiedad está más dispersa entre los accionistas y existe un alto grado de protección de estos) o a otros países europeos con un sistema de gobierno dual, donde existe, además, un consejo supervisor.

Otra de las limitaciones de esta investigación tiene que ver con las muestras o períodos temporales escogidos. Así, en el primer estudio sobre buenas prácticas de gobierno corporativo, la elección del horizonte temporal estaba condicionada a la proliferación de los nuevos Códigos de Buen Gobierno y a la obligatoriedad de las empresas de rellenar esa información. Por ello, podría ser interesante ampliar el estudio en el tiempo, comparando los dos códigos anteriores con el código actual de 2015. Del mismo modo, en cuanto al estudio sobre brecha salarial de género, el inicio del estudio está fijado en el año 2013, por ser el primer año con información sobre remuneraciones desglosada disponible de manera pública. A esto hay que añadir el bajo porcentaje de mujeres que se encuentran en la muestra del estudio, que termina reduciendo la muestra final al exigir la existencia de diversidad de género en cada empresa analizada. Por ello, también sería interesante extender el estudio en un futuro, dónde podríamos comprobar si para el año 2020 se ha cumplido el requisito de

alcanzar una cuota del 30% de mujeres en los consejos de administración y, en caso de conseguirlo, disponer de una muestra más completa de consejeros y consejeras.

Finalmente, a partir de este último trabajo de investigación se abren diversas posibilidades para seguir investigando sobre remuneraciones y brechas salariales. Un futuro estudio podría consistir en analizar la importancia de la diversidad de género a la hora de estudiar la brecha salarial, de manera que se comparen los resultados obtenidos entre empresas con diversidad de género y la totalidad de empresas. Otro camino, una vez descubierta la brecha salarial en los consejos de administración, podría ir encaminado a estudiar los factores que contribuyen a la formación de esas brechas salariales.