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Diversidad de género en los Consejos de Administración y Comités de Auditoría de las empresas cotizadas españolas

Gender diversity on Boards and Audit Committees of Spanish listed firms

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DIVERSIDAD DE GÉNERO EN LOS CONSEJOS DE ADMINISTRACIÓN Y COMITÉS DE AUDITORÍA DE LAS EMPRESAS COTIZADAS ESPAÑOLAS

GENDER DIVERSITY ON BOARDS AND AUDIT COMMITTEES OF SPANISH LISTED FIRM

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A mi padre

AGRADECIMIENTOS

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ABSTRACT

The aim of this thesis is to analyse whether gender diversity on the decision-making bodies of Spanish listed companies may influence the decisions made by these bodies. To achieve this general goal, we propose four specific objectives.

The first aim is to analyse whether gender diversity on Audit Committees (hereinafter AC's) impacts on the financial reporting quality, measured in terms of the type of opinion issued by external auditors in their audit reports. We analyse unqualified and qualified audit opinions. Moreover, the qualifications are divided into two groups: (1) errors, non-compliance and the omission of information and (2) uncertainties. Gender diversity is defined as the presence of women on AC's; the percentage of women making up AC's; the number of executive, institutional and independent women on AC's; and the number of AC's chaired by women. After controlling for other audit report qualifications-related factors, the results do not show a negative association between gender diversity on AC's and the probability of receiving qualifications with errors, non-compliance and the omission of information, but we do find a significant and positive relationship between the number of AC's chaired by women and the likelihood of disclosing qualifications with uncertainties, suggesting that having chairwomen on AC's would enhance the financial reporting quality.

The second aim of this thesis is to analyse whether a gender wage gap exists among boards of directors (hereinafter BD's) of companies listed on the Madrid Stock Exchange from 2004 to 2011. We hypothesize that the percentage of female directors on

BD's, the presence of female directors on Nomination and Compensation Committees, the presence of well-qualified independent female directors on BD's, the sector and the geographical region have an effect on the gender wage gap. The results show that the percentage of female directors on BD's and the geographical region have no effect on the gender wage gap. On the other hand, the findings report that the presence of women on the Nomination and Compensation Committee increases the gender gap in pay and it is reduced when the BD includes independent female directors who have gained a degree and when the company operates in the finance and real estate services sector. In addition, the results demonstrate that the seniority of the female director decreases the gender gap in pay, while there is a rise when the companies are bigger and the size of the BD and the return on assets increase. Thus, these conclusions should encourage regulatory bodies to adopt forceful rules in order to mitigate the gender gap in pay.

The third objective is to examine whether gender diversity on BD's influences the voluntary formation of their board sub-committees. Concretely, we hypothesize that the number of women on BD's, the percentage of independent, executive and institutional female directors on BD's, the percentage of shares held by female directors on BD's and the remuneration of female directors on BD's have an effect on the voluntary creation of board sub-committees. The results show that the number of women on BD's only encourages the voluntary creation of an Executive Commission, while the percentage of independent women on BD's increases the voluntary creation of all or some of their board sub-committees and the Committee for Supervision and Control. The percentage of female executive directors on BD's reduces the likelihood of creating an Executive Committee. Furthermore, the percentage of institutional female directors on BD's reduces the formation of all or some of their board sub-committees. Female directors on BD's, who hold shares, exert a positive influence on the voluntary formation of an Executive Committee. Finally, the findings reveal that the compensation of female directors on BD's does not contribute to the voluntary creation of all or some of the board sub-committees or to the formation of an Executive Committee and a Committee for Supervision and Control.

Finally, the fourth objective of this thesis is to study the impact of gender diversity on BD's on the dividend policy. We hypothesize that the percentage of female directors,

the percentage of independent, institutional and executive female directors and the percentage of shares held by female directors on BD's have an impact on the dividend payment. Our results show that the percentage of female directors and the percentage of shares held by female directors on BD's are positively associated with the dividend payout, while the percentage of institutional female directors on BD's has a negative impact on the dividend payment. The percentage of independent and executive female directors has no effect on the dividend payout.

The economic effects of the gender diversity in companies have experienced increased interest in the financial and accounting disciplines in recent years, being largely the contributions relating to the relation between gender diversity and some aspects of the companies (Erhardt et al., 2003; Adams and Ferreira, 2009; Kulich et al., 2010; Van Pelt, 2013). The introduction of gender diversity to AC's and BD's has an important role in the decision-making bodies of Spanish firms. Our evidence supports Act 3/2007 of 22 March, about equality of gender on Spanish decision-making bodies, which requires Spanish listed firms to achieve a gender quota of 40% on BD's from 2007 to 2015, since AC's chaired by women increase the likelihood of disclosing qualifications with uncertainties, gender diversity on BD's has an impact on the gender gap in pay, board diversity increases the board sub-committees and women's presence on BD's has an impact on the dividend policy. In sum, women have had to overcome external and internal barriers to obtain top positions in firms and exert a great impact on corporate governance. Nevertheless, the results show that there is a limited presence of female directors in high positions in companies; consequently, the progress made is still too slow to meet the government's 2015 target of achieving a gender quota of 40% on corporate boards. For this reason, it is recommendable that stronger government sanctions combined with more effective equality plans within companies are required for the quota to be met and it is also necessary to continue to conduct research about gender diversity in decision-making bodies, considering that gender diversity affects the functioning and efficiency of AC's and BD's.

RESUMEN

La idea de esta tesis es analizar si la diversidad de género en los órganos de decisión de las empresas cotizadas españolas puede influir en la toma de decisiones de estos órganos. Para alcanzar este objetivo general, proponemos cuatro objetivos específicos.

El primer objetivo es analizar si la diversidad de género en los Comités de Auditoría (de aquí en adelante, AC's) tiene un impacto en la calidad de la información financiera, medida como el tipo de opinión que emiten los auditores externos en los informes de auditoría. Analizamos los informes de auditoría con y sin salvedades. Además, las salvedades están divididas en dos grupos: (1) errores, incumplimiento y omisión de información y (2) incertidumbres. La diversidad de género se define como la presencia de mujeres en los AC's; el porcentaje de mujeres en los AC's; el número de mujeres ejecutivas, institucionales e independientes del AC y el número de AC's presididos por mujeres. Después de controlar otros factores del informe de auditoría relacionados con las salvedades, los resultados no muestran una asociación negativa entre la diversidad en los AC's y la probabilidad de recibir salvedades por errores, incumplimientos y omisión de información, pero encontramos una relación positiva entre el número de AC's presididos por mujeres y la probabilidad de publicar salvedades por incertidumbres, esto sugiere que tener mujeres presidentas en los AC's mejoraría la calidad de la información financiera.

La segunda idea de esta tesis es analizar si existe una brecha salarial por razón de género en los Consejos de Administración (en adelante, BD) de las empresas cotizadas

de la Bolsa de Valores de Madrid desde 2004 a 2011. Nuestra hipótesis es que el porcentaje de mujeres en el BD, la presencia de mujeres en el Comité de Nombramientos y Retribuciones, el nivel de formación de las mujeres independientes del BD, el sector y la localización geográfica tienen un efecto en la brecha salarial por razón de género. Los resultados muestran que el porcentaje de mujeres en el BD y la zona geográfica no tienen efecto en la brecha salarial por razón de género. Por otra parte, los resultados indican que la presencia de mujeres en el Comité de Nombramientos y Retribución incrementa la brecha salarial por razón de género y esta se reduce cuando en el BD hay mujeres independientes que han adquirido un grado y cuando las empresas operan en el sector financiero e inmobiliario. Además, los resultados también demuestran que la antigüedad de las consejeras disminuye la brecha salarial por razón de género, mientras que hay un incremento cuando las empresas son más grandes y el tamaño del BD y los rendimientos de los activos aumentan. Por lo tanto, estas conclusiones deberían incentivar a los organismos reguladores a adoptar normativas más contundentes para mitigar la brecha salarial por razón de género.

El tercer objetivo es examinar si la diversidad de género en los BD's influye en la formación voluntaria de Comisiones Delegadas del consejo. Concretamente, nosotros suponemos que el número de mujeres del BD, el porcentaje de mujeres independientes, ejecutivas e institucionales de los BD's, el porcentaje de acciones en manos de las mujeres del BD y la remuneración de las mujeres del BD tienen efecto sobre la creación voluntaria de Comités Delgados. Los resultados muestran que el número de mujeres en los BD's solo fomenta la creación voluntaria de una Comisión Ejecutiva, mientras que el porcentaje de mujeres independientes del BD incrementa la creación voluntaria de todas o algunas de las Comisiones Delegadas del consejo y los Comités de Supervisión y control. El porcentaje de mujeres ejecutivas del BD reduce la probabilidad de crear una Comisión Ejecutiva. Además, el porcentaje de mujeres institucionales del BD reduce la formación de todas o algunas de las Comisiones Delegadas del consejo. El porcentaje de acciones en manos de las mujeres del BD ejercen una influencia positiva en la formación voluntaria de una Comisión Ejecutiva. Para finalizar, los resultados revelan que la retribución de las mujeres del BD no contribuye a la creación voluntaria de todas o algunas de las Comisiones Delegadas del consejo, ni a la formación de una Comisión Ejecutiva ni a la creación de una Comisión de Supervisión y Control.

Finalmente, el cuarto objetivo de esta tesis es estudiar el impacto de la diversidad de género en los BD's y la política de dividendos. Nosotros suponemos que el porcentaje de consejeras, el porcentaje de mujeres independientes, institucionales y ejecutivas del BD, y el porcentaje de acciones de las mujeres del BD tienen un impacto en el pago de dividendos. Nuestros resultados muestran que el porcentaje de mujeres y el porcentaje de acciones en manos de las mujeres del BD esta positivamente asociado con el pago de dividendos, mientras que el porcentaje de mujeres institucionales del BD tiene un impacto negativo en el pago de dividendos. El porcentaje de mujeres independientes y ejecutivas del BD no tiene un efecto en el pago de dividendos.

El efecto económico de la diversidad de género en las empresas ha incrementado el interés de la disciplina financiera y contable en los últimos años, siendo extensas las contribuciones obtenidas sobre la relación entre la diversidad de género y algunos aspectos de las empresas (Erhardt et al., 2003; Adams and Ferreira, 2009; Kulich et al., 2010; Van Pelt, 2013). La introducción de la diversidad de género en los AC's y BD's tiene un papel importante en las órganos de decisión de las empresas españolas. Nuestra evidencia apoya la Ley 3/2007 de 22 Marzo, sobre la igualdad de género en los órganos de decisión españoles, que exige a las empresas cotizadas españolas alcanzar una cuota de mujeres del 40% en los BD's desde 2007 hasta 2015, ya que los AC's presididos por mujeres incrementan la probabilidad de divulgar salvedades con incertidumbres, la diversidad de género en el BD tiene un impacto en la brecha salarial por razón de género, la diversidad del consejo incrementa la creación de Comités Delegados y la presencia de mujeres en los BD's tiene un impacto en la política de dividendos. En resumen, las mujeres han tenido que superar barreras internas y externas para conseguir altos cargos en las empresas y proporcionar un gran impacto en el gobierno corporativo. Sin embargo, los resultados muestran que hay una limitada presencia de mujeres en los altos cargos de las compañías, y en consecuencia, los avances son todavía demasiado lentos para alcanzar una cuota de mujeres del 40% en los BD's. Por esta razón, se recomiendan fuertes sanciones gubernamentales combinados con más planes de igualdad efectivos dentro de las empresas necesarios para conseguir la cuota establecida y también es necesario continuar investigando acerca de la diversidad de género en los órganos de decisión, considerando que la diversidad de género afecta al funcionamiento y la eficiencia de los AC's y BD's.

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INTRODUCCIÓN

La investigación sobre la repercusión de la mujer en los órganos de decisión y control de las empresas ha incrementado el interés público y académico en los últimos años (Krishnan y Pearsons, 2008; Ye et al. 2010). La representación femenina en la alta dirección y en los puestos de responsabilidad de las empresas es todavía pequeña en la mayoría de los países, aunque este porcentaje ha aumentado en Estados Unidos y varios países europeos (Catalyst, 2004).

En España han sido diversos los autores que confirman el ligero incremento de mujeres en el mercado laboral en los últimos años (Mateos *et al.,* 2006; Del Brío y Del Brío, 2009, entre otros). Dos razones fundamentales podrían explicar la evolución de la diversidad de género en el ámbito nacional. La primera de ellas se refiere a los cambios políticos que ha sufrido España, tras el paso por una dictadura, que han llevado a la mujer a acceder a puestos de trabajo hasta ahora reservados para los hombres. Los cambios políticos han desatado un cambio cultural en la sociedad, provocando el reconocimiento de las mujeres en el ámbito personal y laboral. Ambos cambios han favorecido el incremento generalizado de la educación de las mujeres, impulsándolas en el contexto socio-laboral, y llevándolas a una independencia económica, que había sido obviada durante siglos a la población femenina. Algunos gobiernos, como los de Noruega y España, han regulado la composición de género en los BD's de las empresas cotizadas implantando un sistema de cuotas. El nombramiento de mujeres en los BD's de las empresas ha incrementado la delegación de funciones de responsabilidad y reconocimiento a las mujeres. La segunda razón se refiere a los cambios en materia

legislativa, más concretamente en derechos y leyes que han supuesto la igualdad entre hombres y mujeres. Los cambios políticos sufridos en España tras el fin de la dictadura en 1975 hasta la actualidad han llevado a la publicación de un conjunto de Códigos de Buen Gobierno Corporativo y leyes que recomendaban la igualdad de género en el ámbito laboral.

Estos cambios políticos, culturales, y legislativos han ido acompañados por cambios económicos. Los fraudes financieros ocurridos en las últimas décadas tanto a nivel nacional como internacional junto con la crisis económico-financiera mundial han llevado a las organizaciones a perder la transparencia en la gestión empresarial, la calidad de la información financiera y la credibilidad de los inversores.

La evidencia previa demuestra que la presencia de la mujeres en los BD's influye en los resultados empresariales (Adler, 2001; Krishnan y Park, 2005), en la política de dividendos (Van Pelt, 2013 and Wellalage et al., 2012) y en la calidad de la información financiera o en el fomento de buenas prácticas corporativas (Burgess y Tharenou, 2002; Rogelberg y Rumery, 1996), entre otras cuestiones.

La pérdida de la calidad de la información financiera y la credibilidad de los inversores han sido dos de los principales factores que han llevado a las empresas a demandar mecanismos de control internos y externos. El Código Unificado de Buen Gobierno Corporativo (CUBG, 2006), conocido como Código Conthe, recomendaba la constitución voluntaria de AC's entre otras comisiones. Una de las principales funciones de los AC's es revisar los estados financieros antes de remitirlos al BD. En 2002, se publicó la Ley de Medidas de Reforma del Sistema Financiero, obligando a las empresas cotizadas a constituir un AC. Trabajos previos (DeZoort y Salterio, 2001; Goodwin-Stewart y Kent, 2006) han evidenciado que la existencia de los AC's favorecía la obtención de informes de auditoría favorables, implicando la publicación de información financiera de calidad. Respecto a la diversidad de género en los AC's, la evidencia previa revela que la presencia de mujeres en los AC's redujo la probabilidad de recibir informes de auditoría con salvedades (Ittonen et al., 2010) y aumentó la calidad de la información financiera (Qi y Tian, 2012).

Por otra parte, la retribución de los hombres ha sido durante décadas superior a la percibida por las mujeres, originando una brecha salarial por razón de género. Estudios previos han documentado la existencia de diferencias salariales por razón de género tanto a nivel nacional (Hernández, 1995; Palacio y Simón, 2002) como internacional (Chu Ng, 2004; Cho, 2007). La paulatina incorporación de mujeres a los puestos de responsabilidad de las empresas les ha permitido realizar trabajos que habían sido reservados para los hombres durante décadas. Diversas han sido las teorías que han intentado explicar la brecha salarial por razón de género, entre las cuales destacan la teoría del capital humano (Varela et al., 2010) y la segregación ocupacional (De la Rica, 2007).

Entre las recomendaciones principales de los Códigos de Buen Gobierno españoles se anunciaba la constitución voluntaria de Comisiones Delegadas del BD. Las Comisiones Delegadas han sido modificadas a lo largo de las publicaciones de los Códigos de Buen Gobierno, siendo ahora las recomendadas por el CUBG (2006) el Comité Ejecutivo, el Comité de Nombramientos y Retribuciones y la Comisión de Estrategia e Inversiones, además del AC obligatorio por ley. Además, la creación voluntaria de Comisiones Delegadas varía en función del país y del Código de Buen Gobierno emitido en cada momento. Muchos estudios han analizado la creación voluntaria de Comités de Nombramiento (Carson, 2002), del Comité de Retribución (Liao y Hsu, 2013) y de los AC's (Collier y Zaman, 2005; Pucheta-Martínez y De Fuentes, 2007). Estudios previos evidencian la relación existente entre la presencia de mujeres en los BD's y la supervisión y control de las actividades del BD (Adams and Ferreira, 2009). Otros trabajos empíricos han examinado la relación existente entre la presencia de mujeres en el BD y la creación voluntaria de Comités de Nombramiento (Ruigrok et al. 2006), de Comités de Retribución (Carter et al. 2007) y de Comités de Auditoría (Kesner, 1988).

La política de dividendos de las empresas ha reducido los problemas de agencia que surgen entre propietarios y gerentes mediante la reducción del flujo de caja libre disponible de los gerentes (Grossman y Hart, 1980). Este argumento es apoyado por autores previos (Easterbrook, 1984; Díez and Esteban, 2001; Angelo et al., 2004), quienes han evidenciado que el pago de dividendos reduce los costes de agencia. La

política de dividendos es considerada como la política económica y financiera más importante para los gestores e inversores, ya que afecta al valor y la capacidad financiera y económica de la empresa. La evidencia previa ha documentado la relación existente entre la política de dividendos y los consejeros independientes (Sharma, 2011; O'Connor, 2013), los consejeros institucionales (Khan, 2006; Al-Kuwari, 2012), los consejeros ejecutivos (Maury and Pajuste, 2002; Mansourinia et al., 2013 y la diversidad de género en los BD's (Knyazeva et al., 2009; Wellalage et al., 2012). Respecto a esta última línea de investigación, los resultados han revelado que la diversidad de género en los BD's incrementa el pago de dividendos a los accionistas (Byoun et al., 2013; Van Pelt, 2013).

Así pues, el principal objetivo de esta tesis es analizar el efecto que la reciente incorporación de las mujeres en los órganos de decisión y control de las empresas cotizadas españolas tiene en las decisiones que se toman en los mismos. Concretamente, estudiamos si la diversidad de género en los AC's influye en la calidad de la información financiera que publican las empresas, en la brecha salarial que surge entre directivos y directivas de los BD's, en la creación de comisiones delegadas del BD y en la política de pago de dividendos. En este sentido, y como veremos a lo largo de la investigación, se ha intentado explicar cómo repercute la diversidad de género en los puestos de responsabilidad en las decisiones empresariales, desde que las empresas cotizadas españolas están obligadas a elaborar y publicar el Informe Anual de Gobierno Corporativo, es decir, desde el año 2004.

La muestra utilizada en esta tesis está compuesta por las empresas que cotizan la bolsa de Madrid desde 2004 hasta 2012. La metodología empleada para contrastar empíricamente las hipótesis planteadas que nos permitirán alcanzar los objetivos propuestos es una regresión logística para el primer y el tercer capítulo, y una regresión lineal para el segundo y cuarto.

La tesis está estructurada en cuatro capítulos que argumentan los objetivos planteados previamente.

En el primer capítulo tratamos de alcanzar el primero de los objetivos planteados, es decir, estudiar cómo la diversidad de género en los AC's afecta a la calidad de la información financiera. Para ello revisamos trabajos empíricos previos que analizan la presencia de las mujeres en los AC's y la calidad de la información financiera (Ittonen et al. 2010; Qi y Tian, 2012). Para medir la calidad de la información financiera publicada por las empresas utilizamos la opinión emitida por los auditores externos en los informes de auditoría, distinguiendo entre informes de auditoría que contienen salvedades por errores e incumplimiento de principios y normas contables generalmente aceptados, inclusive la omisión de información, y por otra parte, aquellos que contienen salvedades por incertidumbres. Varios trabajos previos han tenido como principal objetivo analizar la calidad de la información financiera y la demanda de AC's en las organizaciones (Abbott et al, 2003; Turley y Zaman, 2004; Goodwin-Stewart y Kent, 2006). La mayoría de la evidencia empírica se publicó a finales del siglo XX y principios del siglo XXI en países anglosajones, ya que son los países pioneros en Códigos de Buen Gobierno Corporativo.

La idea principal del segundo capítulo es analizar si existen diferencias salariales entre directivos y directivas de los BD's de las empresas cotizadas españolas, y si existen, averiguar qué factores podrían explicarlas. Para ello, presentamos las teorías que explican la existencia de la brecha salarial por razón de género y realizamos una revisión de la normativa más relevante en cuanto a la equidad de género en el ámbito nacional. Los estudios previos sobre diferencias salariales por razón de género se realizaron mayoritariamente en países de habla inglesa, países de Europa del este y algunos países asiáticos. Sin embargo, la escasa literatura española puede deberse a que los informes anuales que presentaban las empresas no incluían las remuneraciones de los consejeros hasta 2003, cuando se publicó la Ley de Transparencia de las Sociedades Cotizadas (Ley 26/2003), que junto a la Comisión Nacional del Mercado de Valores (CNMV), obligaron a las empresas a publicar el salario de los consejeros. Este capítulo adquiere especial relevancia en el ámbito empresarial, ya que gran parte de la literatura previa centra su análisis en las Encuestas Europeas de Estructura Salarial (EEES), mientras que este trabajo utiliza los datos proporcionados por los Informes de Gobierno Corporativo publicado por las empresas, y también porque hay escasos trabajos que traten de estudiar la brecha salarial por razón de género en el ámbito del BD.

En el tercer capítulo de la tesis analizamos si la diversidad de género en el BD contribuye a la creación voluntaria de Comisiones Delegadas del mismo. Para ello, se realiza una revisión de las recomendaciones efectuadas en los Códigos de Buen Gobierno españoles sobre la constitución voluntaria de comisiones delegadas del BD. Además, realizamos una exhaustiva revisión de trabajos previos que estudian si los BD's de las organizaciones crean voluntariamente comisiones delegadas. Por otra parte, también revisamos los escasos trabajos empíricos previos centrados en la relación que se pone de manifiesto entre la presencia de mujeres en el BD y la creación voluntaria de comisiones delegadas del mismo. La investigación empírica previa basada en la constitución de Comisiones Delegadas ha tenido lugar básicamente en países anglosajones, y la mayoría de ellos no han tenido en cuenta el impacto de la diversidad de género en la creación voluntaria de Comités Delegadas.

El propósito del cuarto y último capítulo de la tesis doctoral es realizar un análisis de la asociación existente entre la presencia de mujeres en el BD y la política de pago de dividendos establecida por las empresas. Para ello, hemos llevado a cabo una revisión de aquellos trabajos empíricos que documentaban el efecto de la política de dividendos en las organizaciones, concretamente en la reducción de los problemas de agencia, y aquellos que estudian la relación entre la diversidad de género en el BD y la política de pago de dividendos. Apoyándonos en la evidencia previa hemos planteado un conjunto de hipótesis para alcanzar el objetivo propuesto. Los estudios previos basados en la repercusión de la política de dividendos en las organizaciones han sido realizados mayoritariamente en países no europeos. Sin embargo, hay que destacar que han sido pocos los estudios que han examinado la relación existente entre la política de dividendos y la diversidad de género en los BD's.

CHAPTER 1

GENDER DIVERSITY IN AUDIT COMMITTEES AND FINANCIAL REPORTING QUALITY

1.1. INTRODUCTION

Recent corporate governance literature has acknowledged that gender diversity may affect the functioning and efficiency of corporate boards and committees (see e.g., Erhardt et al., 2003; Huse and Solberg, 2006; Adams and Ferreira, 2009; Huse et al., 2009; Nielsen and Huse, 2010 and Rose, 2007). This can explain why one of the most relevant issues currently facing the shareholders and managers of modern firms, mass media, politicians and legislators, among others, is gender diversity within the corporate governance system. Given the emphasis on gender diversity as a part of good corporate governance, the relationship between gender diversity and financial reporting quality deserves both theoretical and empirical examination.

The aim of this study is to contribute to the growing literature on the role of women in corporate governance and, more concretely, on the effectiveness of AC in terms of the enhancement of financial information quality. Spanish firms have voluntarily improved their committees (García, 2010), among them the AC. According to Leuz et al. (2003), earnings management is more intense in countries like Spain with weak legal protection for investors, where insiders and even large shareholders enjoy large private

control benefits. As a result, financial reporting quality could be severely damaged by accounting manipulation practices, especially in countries such as Spain where the litigation risk is low. In this sense, Sierra et al. (2012) have shown that AC's reduce earnings management in Spanish firms, which enhances financial reporting quality. Consistent with this idea is the necessity to encourage the creation of active AC's. Thus, we analyse whether gender diversity in AC's influences the quality of the financial information reported by companies listed on the Madrid Stock Exchange, measured in terms of the type of opinion issued by external auditors in their audit reports.

An AC may influence the issued audit report in two ways. Firstly, the existence of an AC may reduce the likelihood of receiving qualifications for errors or non-compliance, since it can put pressure on management to accept the auditor's proposed adjustments (see Pucheta-Martínez and de Fuentes, 2007; García-Meca and Sánchez-Ballesta, 2009). Thus, the AC could have an effective role in reducing the probability of a qualified audit report or at least the frequency of qualifications. Moreover, McMullen (1996) observed that AC's ask questions of both auditors and management as part of their oversight function and may thereby reduce the risk of material errors in financial statements by providing an information flow between the BD's, external auditors, internal auditors and company management. Secondly, the AC may affect the issuance of qualifications concerning uncertainties. The auditor may acquiesce to management demands for an unqualified opinion, in which case they would include an uncertainty (Carcello and Neal, 2000). In this regard, the effectiveness of the AC would lead to greater disclosure.

The wake of financial scandals in the last decade has drawn sharp criticism of the quality of financial information and the credibility of the financial system in general, among others. Examples of these scandals include Ahold in 2003 in the Netherlands; Enron in 2001 in the US and Afinsa-Fórum Filatélico in 2006 in Spain. Meanwhile, a series of regulations and corporate governance recommendations have been issued at both the national and the international level in an effort to mitigate the problem. Among these regulations, the publication of Codes of Corporate Good Governance (CGGs) can be highlighted. Numerous countries, including Spain, have shown an interest in CGGs (an extensive analysis of the most important CGGs can be found in Ferruz et al., 2010). AC's play an important role as a mechanism of corporate governance (Turley and

Zaman, 2004). One of the main functions of AC's is to review the financial statements before they are sent to the BD (CUBG, 2006). In addition, the AC should supervise the internal audit function of the firm and have important functions in terms of risk management (CUBG, 2006). In Spain, the Financial System Reform Act of 2002 (Law 44/2002, of 22 November) required that listed firms create AC's.

The findings from our study contribute to the extant literature in several ways. Firstly, our research shows that AC's chaired by women are positively associated with the disclosure of qualifications with uncertainties, suggesting an enhancement of the quality of financial information. The evidence we provide is important as it reinforces the belief that some aspects of gender diversity in a corporate governance system is likely to be useful for creating value to stakeholders such as financial information users or shareholders, by improving the reliability of financial reporting. These results suggest that women in AC's have an impact on the quality of information when they are in a position to exert significant influence. Secondly, the findings of this paper suggest that the historical background of Spain could, to some extent, have influenced these results. Spain is a society that is different from other societies since it was branded by the experience of the Franco dictatorship, which lasted from 1939 until 1975. The Franco regime's ideology was fiercely traditionalist, where women had no access to senior positions in the hierarchy, and were engaging in manual work and domestic family life. With the end of the dictatorship and the advent of democracy, this traditional, male-dominated society gave way to a more liberated order that has allowed women to climb to the highest positions of professional life. Although the legal, political, social and cultural changes in Spain in recent years have gradually increased gender diversity in senior management positions (CUBG, 2006; Effective Equality Act, Basic Law 3/2007, of 22 March), it seems that too short a time has passed to reach a definitive conclusion. Finally, our study contributes to the literature on corporate governance and gender diversity.

Additionally, this study is especially relevant to a country like Spain, as the empirical evidence that is currently available focuses largely on the Anglo-Saxon world, where the situation is relatively different from Spain. The business context in which Spanish-listed firms operate is characterised by less developed capital markets (as is the case in

most continental European countries), significant ownership concentration, lower levels of protection for minority investors, stronger presence of majority shareholders who are ideally placed to guide managers' work and a system in which firms are obliged to raise funds in the form of bank borrowings. Thus, these institutional, legal and corporate governance features that make Spain so different from the situation in Anglo-Saxon countries (including the US), which embody the contexts in which discussions on gender diversity in AC's exist, may affect the AC's efficiency and its impact on audit reports. Therefore, this investigation may provide new insights into the association between gender diversity in corporate governance systems, and AC's in particular, and auditor reporting behaviour in the Spanish setting, which highlights the importance of studying this relationship.

The structure of this paper is as follows: this introduction is followed by a review of the existing literature and development of the hypotheses we wish to test. The third section describes the methodology and samples used in the study and the fourth section shows the results obtained. In the final section, we discuss our conclusions and explain the limitations inherent to this study, while at the same time pointing to possible future lines of research.

1.2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

1.2.1. Literature Review

Like previous research (Carter et al., 2003; Aguilera et al., 2008), this study draws on agency theory to examine the link between gender diversity on AC's and the quality of financial information. The separation of management from ownership in the modern corporation provides an ideal context for the operation of agency theory. This theory describes the relationship between a principal (e.g. shareholder and other stakeholders such as users of financial information or blockholders) and the agent of the principal (e.g. directors and managers), often considering the costs of resolving conflicts and aligning interests across groups. Problems arise because of the separation of ownership from management and the resulting inability of the owners to observe the actions of management (Jensen and Meckling, 1976). Owners have incentives to demand control

devices to reduce the agency costs associated with information asymmetry (Jensen and Meckling, 1976; Fama and Jensen, 1983). Demands for monitoring may result in external audits (Chow, 1982; Anderson et al., 1993), the formation of AC's (Pincus et al., 1989; Menon and Williams, 1994) and the publication of the risk-related information of the firms as a communication strategy to reduce agency costs and to enhance corporate reputation (Oliveira et al., 2013), among other solutions. The use of AC's can be considered an important part of the decision control system for internal monitoring by a BD (Fama, 1980; Fama and Jensen, 1983). A common assumption in agency theory is that outside directors would act independently from their inside director counterparts and would act as good monitors for shareholders' interests.

AC's and the quality of financial information have been the subject of numerous studies. The wave of financial scandals that have occurred in recent years has led to the mandatory requirement for AC's in listed companies. The presence of AC's in listed companies is key to the eradication of bad accounting practice. Numerous empirical studies, including Beasley et al. (2000), Carcello and Neal (2000), Deli and Gillan (2000), DeZoort and Salterio (2001), Abbott et al. (2003), Goodwin-Stewart and Kent (2006), Turley and Zaman (2007) and Baxter and Cotter (2009), have shown that the existence of an AC favours the preparation of financial reports containing less accounting errors and, therefore, enhances the quality and credibility of the financial information presented.

On the one hand, the composition of the AC's is an important factor to assure the integrity and credibility of financial statements. Thus, the members of AC's should also be drawn from outside the management of the firm, as interests may exist that could favour the needs of internal members (Beasley, 1996; Klein, 2002; Ruiz-Barbadillo and Biedma, 2003; Karamanou and Vafeas, 2005; Peasnell et al., 2005; Yang and Krishnan, 2005; Ruiz-Barbadillo et al., 2007). On the other hand, the appropriate academic qualifications and professional experience of the members of AC's are a key component to improving the quality of financial information (DeZoort, 1998; Abbott et al., 2003; Al-Mudhaki and Joshi, 2004; Goodwin-Stewart and Kent, 2006; Chan and Li, 2008). A further key aspect is the activity of the AC. Frequent meetings between AC members imply greater control over management, which would improve the likelihood that

accounting irregularities would be detected (Beasley, 1996; Abbott et al., 2000; Al-Mudhaki and Joshi, 2004; Turley and Zaman, 2004). A meta-analysis of AC's has been performed by Pomeroy and Thornton (2008) and Hassink and Bollen (2009).

One other aspect of corporate governance characteristics that has received growing attention is the issue of gender diversity in top management (Carrasco and Laffarga, 2007). Research suggests that women play a significant role in enhancing board effectiveness. Previous findings have shown the positive impact of women's presence in company boards on improving the quality of financial information or fostering good corporate practice (Rogelberg and Rumery, 1996; Burgess and Tharenou, 2002).

1.2.2. Hypotheses

Women's Presence in Audit Committees

Given the importance that women have attained in our culture and society in recent decades, we need to know whether the presence of women on AC's might improve the quality of financial information, measured in terms of the type of opinion that firms receive in their audit reports. According to Ittonen et al. (2010), the presence of women on boards reduced the likelihood that the financial information presented by companies had errors. Furthermore, Huse and Solberg (2006) reported that their presence improved the efficacy and functioning of the BD.

Authors like Ruegger and King (1992) and Khazanchi (1995) have suggested that women are more ethically-minded than men and are better able to identify unethical conduct. Johnson and Powell (1994), Powell and Ansic (1997), Jianakoplos and Bernasek (1998), Byrnes et al. (1999) and Watson and Robinson (2003) found that female directors are more risk-averse in decision making and more conservative than men. The conservatism and risk-aversion of females may also have implications for the integrity of the financial reporting process. Fondas and Sassalos (2000) indicated that women tend to have higher expectations regarding their responsibilities as directors, which may induce them to expend more effort on their tasks. Similarly, Huse and Solberg (2006) showed that women in corporate boards are better prepared for board

meetings than men; thus, female representation may improve board behaviour and effectiveness.

Based on the recent corporate governance literature (e.g. Adams and Ferreira, 2009; Huse et al., 2009), we presume that female representation may improve the monitoring activities of the AC and enhance financial reporting quality as a result. Consequently, gender diversity may improve the efficiency of corporate boards and committees simply because female representatives, in general, are presumably highly competent and hardworking (Ittonen et al., 2010). In this sense, Qi and Tian (2012) reported that female directors in AC's reduce earnings management, which would suggest an increase in financial reporting quality. Heminway (2007) argued that women are more trustworthy than men, and would therefore be less likely to manipulate corporate financial and other disclosures. Nielsen and Huse (2010) illustrated that women's presence on a BD reduces the conflicts between the members of the board, thus promoting best practices in the company, and Schwartz-Ziv (2011) showed that women's presence on a board increased the supervision of the financial information of the company.

In sum, previous literature seems to support the notion that women's presence positively impacts on corporate governance bodies. Therefore, we predict that the presence of women in AC's may have a positive effect on the quality of financial information, because women are now fully integrated into the world of business in a wide range of roles (as politicians, shareholders, community leaders, important consumers and business professionals), and if the AC is made up of people of different genders with different skills, experience and capabilities, it would contain a greater variety of outlooks, opinions and values.

Hence, women would be keen to ensure that firms produce error-free financial statements and to comply with accounting standards, thereby increasing the likelihood that the audit reports received would be unqualified. Meanwhile, if the financial statements are subject to uncertainties, women would also ensure that managers do not seek to pressure auditors into issuing a clean opinion instead of a qualified opinion (McMullen, 1996; Carcello and Neal, 2000). Previous research associates have qualified

audit reports with stock prices declines (Jones, 1996), difficulty in raising debt capital (Firth, 1980) and a perception by management that a qualified audit report may precipitate the company's failure (i.e. the self-fulfilling-prophecy effect) (Mutchler, 1984). According to this finding, management may resist a qualified audit report (Mutchler, 1984). The hypothesis we wish to test is, then, as follows:

Hypothesis 1: The presence of women in AC's will increase the quality of financial information, reducing the receipt of qualified audit reports with errors, non-compliance with generally accepted accounting principles or the omission of information, and increasing the disclosure of qualified audit reports with uncertainties compared to the absence of women in AC's.

Percentage of Women in Audit Committees

Based on our judgment, the members of AC's should provide specialist knowledge and enhance control over accounting processes and financial statements, and the committee members should seek to prevent the presentation of fraudulent financial information. Gul et al. (2008) found that, as the number of women increased in BD's, the quality of the financial information improved because the supervision of the financial statements were enhanced. Schwartz-Ziv (2011) and Abbott et al. (2012) reported that a greater number of women on the board increased the supervision of financial information and the behaviour of the board members. Other studies have also shown that women are more sensitive to corporate social responsibility issues than men (e.g. Kedia and Kuntz, 1981; Wang and Coffey, 1992; Williams, 2003; Webb, 2004).

This evidence supports the view that a greater percentage of women in AC's can improve the quality of financial information. Thus, we predict that the likelihood that a company will receive audit reports containing qualifications relating to errors, non-compliance or the omission of information will decrease as the percentage of women on the AC increases, and the probability that companies will disclose more audit reports containing uncertainties qualifications will increase because women are better able to identify unethical conduct than men, as mentioned above. Hence, we will also test the following hypothesis:

Hypothesis 2: Firms whose AC's include a greater percentage of women will exhibit a higher quality of financial information, reducing the receipt of qualified audit reports with errors, non-compliance with generally accepted accounting principles or the omission of information, and increasing the disclosure of qualified audit reports with uncertainties compared to firms whose AC's have fewer female members.

Number of Executive Women in Audit Committees

Similar to the Spanish Corporate Governance Reports such as the Olivencia Report (1998), Aldama Report (2003), CUBG (2006) and the Cadbury Report (1992) recommends that AC's should be made up exclusively of outside directors to maintain independence from the management. Outside directors increase internal controls and good corporate governance. Nevertheless, most Spanish companies do not follow this recommendation and their AC's are made up by executive directors (Sierra et al., 2012).

Previous research has shown that executive directors in AC's would control the decision-making process of the company's top management, resulting in less objective decisions. In this sense, Gilson (1990), Kaplan et al. (1990), Shivdasami (1993) and Yermack (1996), among others, reported that executive directors provide only a restricted amount of information to non-executive directors in order to prevent stakeholders from getting all the information. The dominance of executive directors results in weak control mechanisms within the management structure. A firm's executives may have incentives to manipulate earnings in order to maximise its value and/or their own wealth at the expense of shareholders (see e.g. Holthausen, 1990; Christie and Zimmerman, 1994; Beneish, 2001). Accordingly, it is extensively recognised that the quality of financial reporting may depend on managerial motives and characteristics, and moreover, that the opportunism of the firm's executives tends to reduce earnings quality. Likewise, Fudenberg and Tirole (1995) argued that managers have incentives to manage earnings for their job security. Carcello and Neal (2003) reported that when an affiliated director is able to dominate the AC, management can often pressure the auditor into issuing an unqualified report despite ongoing issues and may even go so far as to dismiss its auditor for refusing to change an opinion with qualifications.

However, as mentioned in the first hypothesis, it has long been acknowledged in cognitive psychology and management literature that significant gender differences exist, for example in conservatism, risk averseness and ethical behaviour (see e.g. Powell and Ansic, 1997; Jianakoplos and Bernasek, 1998; Byrnes et al., 1999; Schubert, 2006), which may influence the quality of financial reporting. Consistent with this literature, Bernardi and Arnold (1997) and Qi and Tian (2012) have noted that female executive directors in AC's may be more conservative than male executive directors in AC's, and therefore, may also have a higher sense of ethical concern than male-dominated AC's.

Peni and Vahamaa (2010) provided evidence that female CFOs (Chief Financial Officers) (executive) engage in less earnings management than male CFOs. These results are consistent with the findings reported by Geiger and North (2006), Jiang et al. (2008) and Matsunaga and Yeung (2008), among others, suggesting that female executives provide better financial reporting quality.

Thus, we presume that executive women and executive men may act and behave somewhat differently, and that the gender-based differences in cognitive functioning, decision making and conservatism may have important implications for the quality of financial reporting. Therefore, we predict that as the number of executive women in the AC's increase, the probability of receiving errors, non-compliance or the omission of information qualifications will be reduced and the likelihood of disclosing more audit reports with uncertainties will increase. Hence, we will test the following hypothesis:

Hypothesis 3: Firms whose AC's include a greater number of executive women members will have higher quality of financial information, reducing the receipt of qualified audit reports with errors, non-compliance with generally accepted accounting principles or the omission of information, and increasing the disclosure of qualified audit reports with uncertainties compared to firms whose AC's have a smaller number of executive female members.

Number of Institutional Women in Audit Committees

According to CUBG (2006), non-executive members within Spanish AC's can be classified as institutional directors and independent directors. Institutional directors sit on the AC by their condition of shareholder or for being a large shareholder (CUBG, 2006) and can sit personally on the AC by means of a representative.

Given institutional shareholder incentives to supervise managerial actions, a positive influence of institutional directors on the quality of information would be expected. We believe that because earnings information is important for business valuation purposes, institutional directors would demand high quality information and exert more influence than other committee members. This is because institutional owners, as a group, command large amounts of capital that are professionally managed and employed in the equity markets. Using this capital, institutional owners can exert influence by buying and selling large blocks of a firm's securities, and by holding voting rights that can be directly employed to influence the decisions of management (Kane and Velury, 2004).

Chung et al. (2002), Rajgopal et al. (2002) and Jiraporn and Gleason (2007) suggested that institutional directors serve as monitors, mitigating earnings management behaviour. Along the same line, some authors have found that the higher the proportion of non-executive board members, the lower the probability of accounting fraud (Beasley, 1996; Xie et al., 2003; Peasnell et al., 2005). Ramalingegowda and Yu (2012) also noted that higher ownership by institutions that are likely to monitor managers is associated with more conservative financial reporting, and Ljungqvist et al. (2007) supported the hypothesis that the presence of institutional investors provides incentives for analysts to publish unbiased or less biased research. Klein (2002) also found a significantly negative association between abnormal accruals and the percentage of outside directors on the AC. Similarly, García-Osma and Gill de Albornoz (2007) showed that the main role in constraining earnings management in Spain is played by institutional directors. Hsu and Wu (2010) found that the greater the number of institutional directors on the board and AC, the lower the probability of corporate failure.

According to previous research, when AC's are made up of a high number of institutional directors, they are more likely to be more effective at protecting the credibility of the firm's financial reporting since they are also external directors and independent of management (Pucheta-Martínez and de Fuentes, 2007). In this case, it would also be more difficult for management not to accept the adjustments proposed by auditors (McMullen and Raghunandan, 1996; Song and Windram, 2004). Furthermore, institutional directors, given that they are independent of management, are more likely to mitigate any management pressure on auditors to issue a clean opinion when uncertainties are warranted (McMullen, 1996).

On the whole, prior evidence supports the view that institutional women in AC's may have an effect on financial reporting quality. Thus, we hypothesise that a higher number of institutional female directors in the AC will increase the likelihood that the quality of financial statements would be better controlled, while the likelihood of receiving qualified audit report with errors, non-compliance or the omission of information would decreases, and the probability of disclosing a qualified audit report with uncertainties would increase. Hence, we will test the following hypothesis:

Hypothesis 4: Firms whose AC's include a greater number of institutional female members will have a higher quality of financial information, reducing the receipt of qualified audit reports with errors, non-compliance with generally accepted accounting principles or the omission of information, and increasing the disclosure of qualified audit reports with uncertainties compared to firms whose AC's have a smaller number of institutional female members.

Number of Independent Women in Audit Committees

The presence of independent members in AC's is a key factor to ensuring that the AC will perform its control functions clearly and precisely. A number of studies, including the ones by Abbott et al. (2000), Carcello and Neal (2000), Deli and Gillan (2000), Felo et al. (2003), Karamanou and Vafeas (2005), Pucheta-Martínez and De Fuentes (2007) and Bédard and Gendron (2010), have shown that a higher number of independent members in AC's enhances the quality of the information that firms

disclose, as the AC's independent members would take steps to ensure that the firm prepares its financial statements in accordance with generally accepted accounting principles. Meanwhile, Ruiz-Barbadillo and Biedma (2003) found that larger firms incorporated independent members into their AC's, given their control needs. Song and Windram (2004) concluded that independent members in AC's contributed to better quality in a firm's financial reports. Vafeas and Waegelein (2007) reported that AC's with independent members were positively associated with higher audit fees, as the firms sought enhanced reliability and credibility in their published financial information. Carcello and Neal (2003) showed that firms were more likely to receive unqualified audit reports where the AC's members were independent and closely supervised the managers' work in preparing the financial statements.

Overall, previous research supports the idea that the number of independent women in AC's may have an impact on the quality of financial information, therefore, we predict that the more independent female members there are in the AC, the lower the likelihood that the audit reports received would contain qualifications relating to errors, non-compliance or the omission of information, and the greater the likelihood that the firm would disclose uncertainties through the audit report. Hence, we may formulate the following hypothesis:

Hypothesis 5: Firms whose AC's include a greater number of independent female members will have a higher quality in their financial information, reducing the receipt of qualified audit reports with errors, non-compliance with generally accepted accounting principles or the omission of information, and increasing the disclosure of qualified audit reports with uncertainties compared to firms whose AC's have a smaller number of independent female members.

Audit Committees Chaired by Women

For many years, women have had a negligible presence in corporate decision making bodies. However, the political, social and cultural changes that have taken place in recent years have increased gender diversity in positions of responsibility. Over the last

decade, women have acquired a relevant role in the workplace, as better education has increasingly allowed them to opt for the top jobs in organisations.

According to Krishnan and Parsons (2008), earnings quality is positively associated with gender diversity in senior management positions. Schwartz-Ziv (2011) showed that boards of directors chaired by women exercised greater supervision of financial information than boards that were chaired by men. Ye et al. (2010) reported that boards chaired by women do not exhibit earnings quality.

In general terms, previous research supports the notion that AC's chaired by women may improve the quality of financial information. Thus, this evidence leads us to predict that if a woman chairs the AC, she would exercise greater control over management and would be quicker to detect opportunistic behaviours than if the AC was chaired by a man (Ruegger and King, 1992; Khazanchi, 1995). Therefore, an AC chaired by a woman would reduce the likelihood of receiving audit reports that contain qualifications in relation to errors, non-compliance or the omission of information, and it would increase the likelihood that the firm would disclose uncertainties in audit reports. Hence, we propose the following hypothesis:

Hypothesis 6: Firms in which the AC is chaired by a woman will have a higher quality of financial information, reducing the receipt of qualified audit reports with errors, non-compliance with generally accepted accounting principles or the omission of information, and increasing the disclosure of qualified audit reports with uncertainties compared to firms whose AC is chaired by a man.

1.3. METHODOLOGY AND SAMPLE

1.3.1. Methodology

We shall use the following logistic regression model to empirically test the hypotheses proposed:

$$IA_{it} = \beta_0 + \beta_1 MCA_{it} + \beta_2 \%MCA_{it} + \beta_3 NMECA + \beta_4 NMDCA_{it} + \beta_5 NMICA_{it} + \beta_6 MPRES_{it}$$
$$+ \beta_7 NRCA_{it} + \beta_8 AC'SIZE_{it} + \beta_9 OPINAUDit + \beta_{10} LOSS_{it} + \beta_{11} LEV_{it} + \beta_{12} TAMEMPR_{it} +$$
$$\beta_{13} BIGFOUR_{it} + \beta_{14} INSOWN_{it} + \beta_{15} OWNCON_{it} + \beta_{16} FIRMAGE_{it} + \sum_j \alpha_j FIRM_j + \mu_{it}$$

where the dependent variable $IA^{[1]}$ takes a value of 1 if the audit report contains qualifications, and 0 if otherwise. Some other papers have used audit opinion as a proxy for financial reporting quality (Bartov et al., 2000; Carcello and Neal, 2000; Chen et al., 2001; Butler et al., 2004; Sánchez-Ballesta and García-Meca, 2005; Pucheta-Martínez and de Fuentes, 2007; Farihna and Viana, 2009). We also split the dependent variable into two to create Model 1 and Model 2. In Model 1, the dependent variable IA takes a value of 1 if the audit report contains qualifications related to errors and non-compliance with generally accepted accounting principles, including omission of information, and 0 if otherwise. In Model 2, the dependent variable IA takes a value of 1 if the audit report contains uncertainties, and 0 if otherwise.

Table 1 presents the independent and control variables included in the models, and their expected signs.

TABLE 1

Variables Description

Variable	Description	Model 1 * Expected Sign	Model 2 ** Expected Sign
INDEPENDENT VARIABLES			
MCA	Dummy value (1=presence of women in the AC; 0= otherwise)	-	+
%MCA	Total number of women in the AC/Total number of members in the AC	-	+
NMECA	Total number of executive women in the AC	-	+
NMDCA	Total number of institutional women in the AC	-	+
NMICA	Total number of independent women in the AC	-	+
MPRES	Dummy value (1= AC has a chairwoman; 0= otherwise)	-	+
CONTROL VARIABLES			
NRCA	Number of AC meetings per year	-	-
ACSIZE	Total number of members in the AC	+/-	+/-
OPINAUD	Dummy value (1=if the firm received the same qualification in the prior and the current year; 0= otherwise)	+	+
LOSS	Dummy value (1=if the company reported a loss in the prior year; 0= otherwise)	+	+
LEV	Total debt/ Total assets	+	+
TAMEMPR	Log of total assets (in thousands of Euros)	+/-	+/-
BIGFOUR	Dummy value (1=Big Four; 0= otherwise)	+	+
INSOWN	Proportion of shares held by the management	-	-
OWNCON	Percentage of shares held by large shareholder	-	-
FIRMAGE	Log of the difference between setting-up company and observation year	+/-	+/-

* Model 1: The dependent variable refers to qualifications for errors, non-compliance and omission of information.
** Model 2: The dependent variable refers to qualifications for uncertainties.

1.3.1.1. Independent Variables

Presence of Women in Audit Committees

This variable, denoted by "MCA", is calculated as a dummy variable that takes a value of 1 if women are present in the AC, and 0 if otherwise. MCA is expected to have a negative sign in Model 1 (i.e. the presence of women in AC's will reduce the likelihood that the firms will receive audit reports containing qualifications in relation to errors, non-compliance and omission of information) and a positive sign in Model 2, since the presence of women in the AC will increase the likelihood that a firm will disclose uncertainties through the audit report.

Percentage of Women in Audit Committees

This variable, denoted by "%MCA", is calculated as the ratio of the total number of women members in the AC to the total number of members in the AC. As for the variable presence of women in AC's, the expected sign for the %MCA variable is negative in Model 1 and positive in Model 2.

Number of Executive Women in Audit Committees

This variable is denoted by "NMECA" and is calculated as the total number of executive women in the AC. Also, the variable is expected to have a negative sign in Model 1 and a positive sign in Model 2.

Number of Institutional Women in Audit Committees

This variable is denoted by "NMDCA" and is calculated as the total number of institutional women in the AC. Also, the variable is expected to have a negative sign in Model 1 and a positive sign in Model 2.

Number of Independent Women in Audit Committees

This variable is denoted by "NMICA" and is calculated as the total number of independent women in the AC. Also, the variable is expected to have a negative sign in Model 1 and a positive sign in Model 2.

Audit Committee Chairwomen

This variable is denoted as "MPRES". It takes a value of 1 if the AC is chaired by a woman, and 0 if otherwise. Thus, as in previous variables, we expect a negative sign in Model 1 and a positive sign in Model 2.

1.3.1.2. Control Variables

We include certain control variables that could have an influence on the qualification of audit reports, in order to test the models.

Number of Audit Committee Meetings

Studies such as Abbott et al. (2000) have reported that the likelihood of receiving a qualified audit opinion is reduced when the AC holds at least two meetings per year, and similarly for the likelihood of fraudulent or misleading financial information being published. Archambeault and DeZoort (2001) examined AC efficiency and changes of auditor, and found that suspicious switches were more common in firms where the AC met only occasionally compared to those where the AC met more frequently. Meanwhile, Al-Mudhaki and Joshi (2004) recommended that AC's should meet at least three times per year, as frequent meetings enhance internal control and assessments of the firm's activities. Goodwin-Stewart and Kent (2006) found that the number of AC meetings was positively associated with the payment of higher fees to audit firms, as companies demanded higher quality work from their auditors. Other studies (Xie et al., 2003; Song and Windram, 2004; Lin et al., 2006) showed a positive relationship between the AC's meeting frequency and financial reporting quality. De Andrés et al. (2012) analysed a sample of Spanish listed companies from 1998 to 2007, and reported that the number of meetings by the AC was directly associated with improvements in financial reporting quality. It is expected that AC's that hold a larger number of meetings during the year would examine financial and management issues in more detail, enabling them to detect potential problems in the financial statements and to anticipate qualifications. As a result, the members of the AC would ensure the publication of quality financial information and, therefore, reduce the likelihood that the audit reports received will be qualified.

We denote the variable referring to the number of AC meetings by "NRCA", which is calculated by counting the total number of meetings held by the AC during the year. We predict that this variable will take a negative sign, as the likelihood of qualifications in audit reports would be lower with a greater number of AC meetings held during the year.

Audit Committee Size

Most Corporate Governance reports (Cadbury Report, 1992; Smith Report, 2003; CUBG, 2006) recommend a minimum of three members in the AC. Similarly, Carcello and Neal (2000) and Buchalter and Yokomoto (2003) indicated that an AC should have

between three and five members, although it would depend on the company size and type of business.

Previous research (e.g. Felo et al., 2003) has reported that AC size has an effect on financial reporting quality. To this effect, Lin et al. (2006) and Sierra et al. (2012) showed that the number of members in an AC was negatively related to earnings management and Yang and Krishnan (2005) regarding quarterly abnormal accruals. Pucheta-Martínez and De Fuentes (2007) documented a positive relationship between the size of an AC and the quality of financial reporting, which is consistent with the findings of Felo et al. (2003). Contrary to these results, Rahman and Ali (2006) reported that AC size positively impacts on earnings management. They concluded that large AC's are ineffective. Xie et al. (2003), Abbott et al. (2004), Bédard et al. (2004) and Davidson et al. (2005) reported insignificant associations between AC size and restatements or earnings management.

This variable is referred to as ACSIZE and is calculated as the total number of members in the AC. According to previous evidence, the direction of the influence of AC size on financial reporting quality and the receipt of a qualified audit report is not clear; therefore, we do not have an expected sign associated with it.

Prior Year's Audit Opinion

A further variable requiring analysis is the prior year's audit report, as it could influence the opinion issued in the current year if the circumstances have not changed. If a company receives a different qualification in the current year compared to the prior year, it is classified as an initial qualification, but if the same qualification is received in two or more consecutive years, it could be defined as recurring. For example, if the audit opinion contained an uncertainty in the prior year, it would be likely to have an uncertainty again in the current year, which would be a recurring qualification.

García and Sánchez (1999) concluded that a clean audit report was an effective mechanism to underscore the quality of the financial information published. Meanwhile, Carcello and Neal (2003) showed that firms presenting qualified audit opinions in their financial reports were more likely to encounter financial and management problems,

with the result that the auditors would be less optimistic in their decisions. Pucheta-Martinez and De Fuentes (2007) found that companies that received a recurring qualification in the previous year were more likely to receive the same qualification in the current year. The variable is denoted as "OPINAUD" and is a dummy variable that takes a value of 1 if the qualification contained in the current years' audit report is the same as in the previous year, and 0 if otherwise. We expect this variable to be positively associated with qualified audit reports.

Losses Reported by Firms

A further control variable consists of the losses reported by firms. We expect that a firm that reported a loss in the prior year would again incur a loss in the current year. Hayn (1995) confirmed that smaller firms are more likely to incur losses than medium-sized and large companies. According to Klein (1998), a firm that reports a loss in the current year, or reports continuous losses, should be reviewed against a range of indicators to improve control. Klein (2002) showed that the accuracy of the published financial statements declined in firms that had AC's containing independent members and had reported recurring losses. Meanwhile, Pucheta-Martínez and De Fuentes (2007) observed a positive association between the publication of losses in one or both of the two prior years and the issuance of audit reports containing qualifications for errors, non-compliance, omission of information and uncertainties.

We denote this dummy variable as "LOSS". It takes a value of 1 if the company reported a loss in the prior year, and 0 if otherwise. We expect the behaviour of this variable to be positive, as a firm that incurred a loss in the prior year would likely receive a qualified audit opinion.

Leverage

Leverage is the control variable used to control the agency costs of debt. According to Jensen and Meckling (1976), the agency costs inherent to leverage are directly associated with the level of indebtedness maintained by a firm. Bradbury (1990), Adams (1997) and Deli and Gillan (2000) showed that the greater a firm's leverage, the higher their level of risk assumed, which would require increased supervision of the financial statements. Meanwhile, Mateos et al. (2006) concluded that firms with higher

levels of leverage assume more risks than those with lower levels, which may, therefore, be considered as more risk averse.

The level of leverage or indebtedness is denoted as "LEV". This variable is calculated as the ratio of the firm's total debt to its total assets. Its expected sign is positive, as firms are more likely to receive qualified opinions with a higher level of leverage.

Company Size

Fama and Jensen (1983) found a positive relationship between the size of firms and the quality of the financial information published. Menon and Willams (1994), Klein (1998), Beasley and Salterio (2001) and Ruiz-Barbadillo et al. (2007), among others, reported that larger firms were more likely to have AC's with independent members in order to ensure that their financial information is error-free. Beasley et al. (2000) showed that small US firms were more likely to prepare financial information containing errors given looser internal controls, resulting in more qualified audit reports. Meanwhile, Pucheta-Martínez and De Fuentes (2007) reported that large firms were more likely to receive a qualified audit report when they deserved one, given that audit firms tend to be more independent when the firm audited is large. This variable is denoted as "TAMEMPR" and is calculated as the logarithm of the company's total assets. The expected sign is difficult to determine a priori, because a large size can have both a positive and a negative influence on the audit report received by the firm. Hence, we may expect both a positive and a negative sign for this variable.

Audit Firm

The choice of auditor is a key decision for the credibility and reliability of published financial information. Various studies, including DeAngelo (1981), have reported that the big auditing firms offer higher quality services and perform their functions better than smaller auditors. Meanwhile, Lennox (1999) found that the big audit firms provide higher quality services and enhance the credibility of corporate financial reporting. Carcello and Nagy (2004) showed that using one of the audit majors reduced the risk of qualified audit reports. DeFond and Jiambalvo, (1991) and Ruiz-Barbadillo et al. (2007)

also found that using one of the audit majors ensured the quality of a firm's financial reporting.

This variable, denoted as "BIGFOUR", is a dummy that takes a value of 1 if the company is audited by one of the Big Four audit firms, and 0 if otherwise. The expected sign of the variable is positive, as these auditors are highly competent and express pertinent opinions on the financial information examined in their audit reports (Lennox, 1999). Consequently, the auditor would issue a qualified opinion if the company deserves it and would not yield to pressure from management. This is because any failure of auditor independence would have a greater public impact for a large audited company.

Management Ownership

Jensen and Meckling (1976) as well as Jensen (1993) have used an agency framework to argue that higher inside ownership can reduce agency costs by aligning the interests of a firm's management with its shareholders, which would reduce the need to monitor the BD and provide better incentives for quality reporting. This is consistent with the convergence-of-interest theory, which implies that increased managerial ownership can reduce the mangers' exploitation of accounting numbers as the interest of inside and external shareholders are realigned, thus resulting in less conflict among the shareholders. In this sense, the Mustapha and Ahmad's paper (2011) supports the convergence-of-interest hypothesis since the results suggest that managerial ownership has a significantly negative relationship with monitoring costs as predicted by agency theory. Shwu-Jen et al. (2003) noted that managerial ownership acts as a constraining factor that limits the management's manipulation of accounting numbers. Furthermore, Warfield et al. (1995) and Shwu-Jen et al. (2003) described an inverse relationship between inside ownership and earnings management, suggesting an increase in financial reporting quality. Accordingly, management would take more care in preparing financial statements in order to avoid a qualified audit report, which could affect the share price and, consequently, the managers' own wealth. In Spain, Sánchez-Ballesta and García-Meca (2005) demonstrated that higher insider ownership leads to higher quality financial reporting and, therefore, less likelihood of receiving qualified audit reports.

Thus, we include management ownership as a control variable for the agency cost. This variable is denoted as INSOWN and calculated as the proportion of shares held by the management of the firm. We expect a negative relationship between the percentage of stock owned by management and the likelihood of receiving a qualified audit report.

Ownership Concentration

High ownership concentration (La Porta et al., 1999; Demirg¨u¸c-Kunt and Levine, 2001; Díaz and García Olalla, 2003) is one of the main differences between the Anglo-Saxon and Spanish financial markets. Large shareholders frequently enjoy the possibility of appointing the CEO and top executives in the management team, so that they can more effectively monitor management. Therefore, a realignment of interests between managers and large shareholders may be expected. As a result, the presence of a large shareholder may decrease the likelihood of receiving qualified audit reports because the CEO would be more likely to act in the interests of the firm and prepare financial statements that are less likely to attract audit qualifications (Gul et al., 2001; Sánchez-Ballesta and García-Meca, 2005). Thus, we expect a negative relationship between ownership concentration and the likelihood of receiving a qualified audit report. This variable is denoted as OWNCON and calculated as the percentage of shares held by large shareholder.

Firm's Age

The final control variable used is the age of the firm. The rationale for selecting this variable lies in the possibility that old firms might have improved their financial reporting practices over time, and consequently, may have better financial reporting quality. In this sense, Lang (1991) reported that uncertainty in the capital markets about firms' earnings decreases with their age. Pittman and Fortin (2004) showed that the information asymmetry between borrowers and lenders also decreases with firm age. Owusu-Ansah (2005) revealed that company age is the most critical factor for explaining the extent of mandatory disclosures practices of the firms. On the other hand, Tasios and Bekiaris (2012) reported that Greek auditors found factors like company age to be less important quality factors of financial reporting, while Chalaki et al. (2012) did not find evidence to support a significant relationship between firm age and financial reporting quality.

This variable is denoted as FIRMAGE and calculated as the log of the difference between setting-up the company and observation year. According to prior evidence, the direction of the influence of firm age on financial reporting quality and the receipt of a qualified audit report is not clear, and therefore, we do not have an expected sign for it.

Firm Fixed Effect

The firm fixed effect control variable, denoted by "FIRM", is intended to capture unobservable and fixed characteristics of firms that may potentially be correlated to the dependent variable. Specifically, we include industry indicator variables, and year indicator variables to control for industry and yearly differences.

1.3.2. Sample

The sample used for the study consisted of 175 companies listed on the Madrid Stock Exchange. The information was obtained from the Public Registers of the National Securities Market Commission (CNMV in its Spanish acronym), from the SABI database and from corporate websites. The sample has a time horizon of eight years from 2004 to 2011, inclusive. Table 2 contains a description of the sample.

TABLE 2

Sample Description

	2004	2005	2006	2007	2008	2009	2010	2011	TOTAL
Initial sample of companies	175	175	175	175	175	175	175	175	1400
Companies excluded	(72)	(66)	(61)	(50)	(54)	(53)	(53)	(55)	(464)
Industrial companies	58	52	47	36	40	39	39	41	352
Financial companies	14	14	14	14	14	14	14	14	112
Final sample of companies	103	109	114	125	121	122	122	120	936

As can be observed in Table 2, the sample consists of 175 firms for each year of the initial sample. We excluded financial companies both because they are under special scrutiny by financial authorities that constrain the role of their BD's, and because of their special accounting practices. Also, some industrial companies were excluded each

year because we lacked data on some of the variables needed to verify the model or because audit reports contained both qualifications for errors, non-compliance and omissions (Model 1) and for uncertainties (Model 2). The final sample comprised 936 observations per year.

Table 3 shows the percentage of unqualified and qualified audit reports received by the firms in the period of 2004-2011.

TABLE 3

Analysis of the Type of Audit Reports Received by the Sample Firms

Year	Number of firms	Unqualified audit reports		Qualified audit reports	
2004	103	90	87.38%	13	12.62%
2005	109	94	86.24%	15	13.76%
2006	114	101	88.60%	13	11.40%
2007	125	107	85.60%	18	14.40%
2008	121	100	82.64%	21	17.36%
2009	122	100	81.97%	22	18.03%
2010	122	120	98.36%	2	1.64%
2011	120	116	96.67%	4	3.33%
Total	936	828	88.46%	108	11.54%

As shown in Table 3, 87.38% of the analysed firms received a clean audit opinion in 2004, while 12.62% were qualified. In short, the table suggests that the number of qualified audit reports issued increased considerably until 2009.

TABLE 4

Analysis of the Type of Qualification Contained in the Audit Report

Year	Number of qualified audit reports	Errors, non-compliance and omission of information	Uncertainties
2004	13	5	8
2005	15	7	8
2006	13	4	9
2007	18	7	11
2008	21	2	19
2009	22	2	20
2010	2	1	1
2011	4	4	0
TOTAL	108	32	76

Table 4 shows the qualified audit reports for each year, indicating the types of qualifications we were interested in for the purposes of the study. In Model 1, where the dependent variable refers to qualifications for errors, non-compliance or the omission of information, we made 860 observations per year, compared to 904 observations per year in Model 2, where the dependent variable refers to uncertainties.

1.4. ANALYSIS OF RESULTS

1.4.1. Descriptive Statistics

Tables 5 and 6 present the descriptive statistics for the dummy and continuous variables in the final sample of companies for Models 1 and 2.

TABLE 5

Descriptive Statistics for Dummies and Continuous Variables in the Sample of Companies that Received Qualifications for Error, Non-Compliance and Omission of Information. Model 1 (N=860)

A) CONTINUOUS VARIABLES

Variables	N	Mean	Standard deviation	Percentile 25	Median	Percentile 75
%MCA	860	7.441	13.893	0.000	0.000	0.000
NMECA	860	0.004	0.060	0.000	0.000	0.000
NMDCA	860	0.108	0.325	0.000	0.000	0.000
NMICA	860	0.153	0.395	0.000	0.000	0.000
MPRES	860	0.061	0.240	0.000	0.000	0.000
NRCA	860	5.607	2.653	4.000	5.000	7.000
ACSIZE	860	3.581	0.953	3.000	3.000	4.000
LEV	860	52.029	90.207	26.238	50.504	68.222
TAMEMPR	860	13.039	1.873	11.741	12.881	14.338
INSOWN	860	10.392	26.624	0.001	0.173	11.639
OWNCON	860	24.773	22.243	8.880	18.045	35.016
FIRMAGE	860	3.588	1.030	3.000	4.000	4.000

B) DUMMIES VARIABLES

	% (1)
IA	3.72%
MCA	24.00%
OPINAUD	1.20%
LOSS	19.00%
BIGFOUR	87.00%

Mean, standard deviation and quartiles of the main variables. %MCA: Total number of women in the AC/Total number of members in the AC; NMECA: Total number of executive women in the AC; NMDCA: Total number of institutional women in the AC; NMICA: Total number of independent women in the AC; MPRES: dummy variable equal to 1 if the AC has a chairwoman; NRCA: Number of AC meetings per year; ACSIZE: Total number of members in the AC; LEV: Total debt divided by total assets; TAMEMPR: Natural logarithm of total assets; INSOWN: Proportion of shares held by the management; OWNCON: Percentage of shares held by large shareholder; FIRMAGE: Log of the difference between setting-up company and observation year.IA is a dummy variable equal to 1 if the audit report contains qualifications with errors, non-compliance and omission of information; MCA: dummy variable equal to 1 if women are present in the AC; OPINAUD: dummy variable equal to 1 if the firm received the same qualification in the prior and the current year; LOSS: dummy variable equal to 1 if the company reported a loss in the prior year; BIGFOUR: dummy variable equal to 1 if the company is audited by one of the big 4 audit firms.

Table 5 shows the statistics for the sample used to test Model 1, where the dependent variable refers to qualifications for errors, non-compliance or omission of information. As can be observed in Table 5, the percentage of women in AC's that involved women represented 7.44% of total members, while the number of executive, institutional and independent women in AC's, on average, was 0.004, 0.108 and 0.153, respectively. In addition, 6.10% of AC chairpersons were women. Further findings were that an average of 5.60 meetings were held per year; the AC size was, on average, 3.58 members; company leverage was 52.02% and firm size was 13.03 (natural log of total assets). Finally, the percentage of shares held by the management and by large shareholders was 10.39% and 24.77%, respectively, while the firm age, on average, was 3.58 (log of the difference between setting-up company and observation year). On the other hand, 3.72% of the companies in the sample used for Model 1 received a qualification for error, non-compliance or omission of information, with women being present in only 24% of AC's. We also noted that 87% of the companies in the sample were audited by one of the Big Four audit firms. Meanwhile, 1.20% of the sample firms received the same type of qualification in the current as in the prior year, and 19% reported losses.

TABLE 6

Descriptive Statistics for Dummies and Continuous Variables in the Sample of Companies that Received Qualifications for Uncertainties. Model 2 (N=904)

A) CONTINUOUS VARIABLES

Variables	N	Mean	Standard deviation	Percentile 25	Median	Percentile 75
%MCA	904	7.533	14.132	0.000	0.000	0.000
NMECA	904	0.003	0.058	0.000	0.000	0.000
NMDCA	904	0.107	0.324	0.000	0.000	0.000
NMICA	904	0.154	0.395	0.000	0.000	0.000
MPRES	904	0.064	0.245	0.000	0.000	0.000
NRCA	904	5.582	2.646	4.000	5.000	7.000
ACSIZE	904	3.569	0.946	3.000	3.000	4.000
LEV	904	52.986	88.181	26.800	51.457	69.344
TAMEMPR	904	13.046	1.868	11.742	12.854	14.375
INSOWN	904	10.736	26.572	0.002	0.194	12.160
OWNCON	904	24.779	22.184	8.894	18.045	35.016
FIRMAGE	904	3.593	1.017	3.000	4.000	4.000

B) DUMMIES VARIABLES

	% (1)
IA	8.40%
MCA	24.00%
OPINAUD	5.00%
LOSS	21.00%
BIGFOUR	86.00%

Mean, standard deviation and quartiles of the main variables. %MCA: Total number of women in the AC/Total number of members in the AC; NMECA: Total number of executive women in the AC; NMDCA: Total number of institutional women in the AC; NMICA: Total number of independent women in the AC; MPRES: dummy variable equal to 1 if the AC has a chairwoman; NRCA: Number of AC meetings per year; ACSIZE: Total number of members in the AC; LEV: Total debt divided by total assets; TAMEMPR: Natural logarithm of total assets; INSOWN: Proportion of shares held by the management; OWNCON: Percentage of shares held by large shareholder; FIRMAGE: Log of the difference between setting-up company and observation year.IA is a dummy variable equal to 1 if the audit report contains qualifications with errors, non-compliance and omission of information; MCA: dummy variable equal to 1 if women are present in the AC; OPINAUD: dummy variable equal to 1 if the firm received the same qualification in the prior and the current year; LOSS: dummy variable equal to 1 if the company reported a loss in the prior year; BIGFOUR: dummy variable equal to 1 if the company is audited by one of the big 4 audit firms.

Table 6 presents the descriptive statistics for Model 2, in which the dependent variable refers to qualifications for uncertainties. The audit report variable reflects uncertainties in the opinions issued on 8.40% of the sample firms. Meanwhile, 5% of the sample firms received the same type of qualification in the current as in the prior year, and 21% reported losses. The data for continuous variables did not vary significantly from Table 5.

1.4.2. Univariate Analysis

Tables 7 and 8 show the mean difference of the independent and control variables between firms with qualified and unqualified audit reports, as well as the results of the parametric t test for the continuous variables and Pearson's Chi-squared tests for the dummies to identify the presence of differences in means between the two groups of companies.

TABLE 7

Mean Difference for Independent and Control Variables Between Companies With Unqualified and Qualified Audit Reports for the Sample of Qualifications for Errors, Non Compliance and Omission of Information. Model 1 (N=860)

Variable	Unqualified audit reports (N=828) Mean	Qualified audit reports (N=32) Mean	Mean difference	Univariate test (Sig.)
MCA	0.250	0.130	0.120	-1.722† (0.097)
%MCA	7.538	4.167	3.371	-1.434 (0.164)
NMECA	0.004	0.000	0.004	-1.734† (0.083)
NMDCA	0.109	0.083	0.026	-0.428 (0.672)
NMICA	0.158	0.000	0.158	-11.228*** (0.000)
MPRES	0.062	0.042	0.020	-0.470 (0.642)
NRCA	5.655	4.000	1.655	-2.860** (0.009)
ACSIZE	3.597	3.042	0.555	-4.214*** (0.000)
OPINAUD	0.000	0.311	-0.311	4.387*** (0.000)
LOSS	0.185	0.208	-0.023	0.273 (0.788)
LEV	51.844	58.302	-6.458	0.580 (0.566)
TAMEMPR	13.077	11.726	1.351	-3.944*** (0.001
BIGFOUR	0.873	0.708	0.165	-1.724† (0.098)
INSOWN	10.324	12.69	-2.366	0.520 (0.608)
OWNCON	25.02	16.399	8.621	-2.741** (0.011)
FIRMAGE	3.586	3.667	-0.081	0.507 (0.616)

Means Comparison Test. The dependent variable is IA, a dummy variable equal to 1 if the audit report contains qualifications with errors, non-compliance and omission of information; MCA: dummy variable equal to 1 if women are present in the AC; %MCA: Total number of women in the AC/Total number of members in the AC; NMECA: Total number of executive women in the AC; NMDCA: Total number of institutional women in the AC; NMICA: Total number of independent women in the AC; MPRES: dummy variable equal to 1 if the AC has a chairwoman; NRCA: Number of AC meetings per year; ACSIZE: Total number of members in the AC; OPINAUD: dummy variable equal to 1 if the firm received the same qualification in the prior and the current year; LOSS: dummy variable equal to 1 if the company reported a loss in the prior year; LEV: Total debt divided by total assets; TAMEMPR: Natural logarithm of total assets; BIGFOUR: dummy variable equal to 1 if the company is audited by one of the big 4 audit firms; INSOWN: Proportion of shares held by the management; OWNCON: Percentage of shares held by large shareholder; FIRMAGE: Log of the difference between setting-up company and observation year. Significant at † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$.

As shown in Table 7, the differences in the mean for the variables denoting the presence of women in AC's (MCA) and the number of executive (NMECA) and independent (NMICA) women in AC's between firms with unqualified and qualified audit reports were positive and statistically significant at 0.1 or 10%, which indicates that the firms receiving unqualified audit reports are more likely to have female AC members and a higher number of executive and independent female members in AC's than those receiving qualifications for errors, non-compliance or the omission of information. These results are not consistent with the first, third and fifth hypotheses. The differences between unqualified and qualified audit opinions for the variables referring to the number of meetings held by the AC (NRCA), AC size, company size (TAMEMPR), the fact that the financial statements were audited by one of the Big Four audit firms (BIGFOUR) and the proportion of shares held by large shareholders (OWNCON) were positive and statistically significant at 0.1%, 1% and 10%. These findings suggest that large companies with a high proportion of shares held by large shareholders, that are audited by one of the Big Four firms and with big AC's that meet more often are more likely to receive unqualified than qualified audit reports. The difference in the means for the OPINAUD variable was negative and statistically significant at 0.1%. This result implies that firms receiving a qualification for errors, non-compliance or the omission of information in the prior year are more likely to receive qualifications in the current year than if the prior year's opinion had been unqualified. The rest of the variables were not statistically significant.

Table 8 shows the difference in means for the variables in Model 2, where the dependent variable refers to qualifications for uncertainties. The difference between unqualified and qualified audit reports for the variable number of executive women in AC's was positive and statistically significant. Hence, we can accept the third hypothesis. This result suggests that the presence of executive women in AC's increases the likelihood of disclosing qualified audit reports with uncertainties, which implies best financial reporting quality. This finding is consistent with earlier studies that reported the positive effect of executive women directors on financial reporting quality (Geiger and North, 2006; Jiang et al., 2008; Matsunaga and Yeung, 2008; Peni and Vahamaa, 2010). One possible explanation for these dissimilar results would be that, given the small number of women occupying the executive positions in AC's, it is likely that they

are dominated by executive men or have aligned with them. The empowerment of women at the executive level in Spain is a relatively new phenomenon and might have a limited role to play. Bernardi and Arnold (1997) and Qi and Tian (2012) showed that executive men in AC's are less conservative and have a lower ethical level than executive women, suggesting that male executives provide a worse financial reporting quality.

The differences in the means for the variables referring to the number of meetings held by the AC (NRCA), AC size (ACSIZE), firm size (TAMEMPR) and examination of the financial statements by one of the Big Four audit firms (BIGFOUR) were positive and statistically significant. Finally, the OPINAUD, LOSS, LEV and INSOWN variables displayed negative differences in means that were statistically significant. The remaining variables were not statistically significant.

TABLE 8

Mean Difference for Independent and Control Variables Between Companies With Unqualified and Qualified Audit Reports for the Sample of Qualifications for Uncertainties. Model 2 (N=904)

Variable	Unqualified audit reports (N=828) Mean	Qualified audit reports (N=76) Mean	Mean difference	Univariate test (Sig.)
MCA	0.246	0.222	0.024	-0.438 (0.662)
%MCA	7.529	7.593	-0.064	0.030 (0.976)
NMECA	0.004	0.000	0.004	-1.734† (0.083)
NMDCA	0.108	0.095	0.013	-0.337 (0.737)
NMICA	0.158	0.111	0.047	-1.100 (0.275)
MPRES	0.062	0.095	-0.033	0.881 (0.382)
NRCA	5.656	4.619	1.037	-3.016** (0.004)
ACSIZE	3.596	3.222	0.374	-3.826*** (0.000)
OPINAUD	0.000	0.537	-0.053	9.643*** (0.000)
LOSS	0.186	0.524	-0.338	5.207*** (0.000)
LEV	51.823	67.976	-16.153	3.231*** (0.001)
TAMEMPR	13.077	12.645	0.432	-1.759† (0.083)
BIGFOUR	0.872	0.746	0.126	-2.228* (0.029)
INSOWN	10.340	15.839	-5.499	1.751† (0.084)
OWNCON	25.045	21.342	3.703	-1.448 (0.152)
FIRMAGE	3.586	3.683	0.097	0.992 (0.324)

Means Comparison Test. The dependent variable is IA, a dummy variable equal to 1 if the audit report contains qualifications with uncertainties; MCA: dummy variable equal to 1 if women are present in the AC; %MCA: Total number of women in the AC/Total number of members in the AC; NMECA: Total number of executive women in the AC; NMDCA: Total number of institutional women in the AC; NMICA: Total number of independent women in the AC; MPRES: dummy variable equal to 1 if the AC has a chairwoman; NRCA: Number of AC meetings per year; ACSIZE: Total number of members in the AC; OPINAUD: dummy variable equal to 1 if the firm received the same qualification in the prior and the current year; LOSS: dummy variable equal to 1 if the company reported a loss in the prior year; LEV: Total debt divided by total assets; TAMEMPR: Natural logarithm of total assets; BIGFOUR: dummy variable equal to 1 if the company is audited by one of the big 4 audit firms; INSOWN: Proportion of shares held by the management; OWNCON: Percentage of shares held by large shareholder; FIRMAGE: Log of the difference between setting-up company and observation year. Significant at † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$.

1.4.3. Multivariate Analysis

The multivariate analysis looked at the results of the multicollinearity test and logistic regression. To test for multicollinearity, we calculated the Spearman correlation coefficients for all of the variables included in the model. Table 9 presents the correlation matrix for the sample of companies receiving qualifications for errors, non-compliance or the omission of information. These results show that the correlation between some pairs of variables formed by the characteristics of the AC was significant, which is consistent with existing studies of AC's (see Menon and Williams, 1994; Turpin and DeZoort, 1998; Carcello and Neal, 2000; Archambeault and DeZoort, 2001; Willekens et al., 2004; Pucheta-Martínez and De Fuentes, 2007). The correlation between most of the remaining pairs was not significant and was low, generally being below 0.3. None of the correlation coefficients were high enough (>0.80) to cause multicollinearity problems (see Archambeault and DeZoort, 2001), except for the pair MCA-%MCA, which was correlated by construction[2] (see Carcello and Neal, 2000; Archambeault and DeZoort, 2001; Lord and DeZoort, 2001; Pucheta-Martínez and De Fuentes, 2007). Our conclusions are similar for the results presented in Table 10, which shows the Spearman correlation coefficients for the sample of firms receiving qualifications for uncertainties. According to these results, we can conclude that the models are free from multicollinearity problems.

TABLE 9

Spearman Correlation Coefficients for the Sample of Companies with Qualifications for Errors, Non-Compliance and Omission of Information. Model 1 (N = 860)

	MCA	%MCA	NMECA	NMICA	NMDCA	MPRES	NRCA	ACSIZE	OPINAUD	LOSS	LEV	TAMEMPR	BIGFOUR	INSOWN	OWNCON
%MCA	0.976***														
NMECA	0.106**	0.115***													
NMICA	0.712***	0.687***	-0.024												
NMDCA	0.570***	0.610***	-0.020	-0.024											
MPRES	0.450***	0.451***	-0.015	0.561***	0.094**										
NRCA	0.128***	0.130***	-0.013	0.136***	0.055	0.110***									
ACSIZE	0.180***	0.131***	-0.043	0.225***	0.042	0.095**	0.202***								
OPINAUD	-0.026	-0.023	-0.008	-0.051	-0.011	0.049	-0.100**	-0.068							
LOSS	-0.019	-0.015	-0.029	-0.025	-0.010	0.007	-0.041	-0.099**	0.039						
LEV	-0.040	-0.053	-0.074	-0.108**	0.080	-0.095	0.049	0.150***	0.006	0.084					
TAMEMPR	0.041	0.025	-0.046	0.103**	-0.002	0.037	0.452***	0.357***	-0.107**	-0.133***	0.382***				
BIGFOUR	0.056	0.049	0.023	0.067†	0.016	-0.004	0.280***	0.183***	-0.037	-0.051	0.071*	0.334***			
INSOWN	-0.030	-0.019	0.029	-0.070*	-0.002	-0.063†	-0.068*	-0.041	-0.034	0.017	0.076*	-0.138***	-0.129***		
OWNCON	-0.057	-0.050	-0.035	-0.008	-0.029	-0.096**	-0.046	0.067†	-0.057†	-0.060†	0.053	0.174***	0.036	-0.227***	
FIRMAGE	-0.148***	-0.155***	-0.024	-0.146***	-0.040	-0.144***	-0.051	0.098**	0.060†	-0.005	0.184***	0.080*	-0.018	-0.053	0.170***

Spearman's correlation matrix. IA is a dummy variable equal to 1 if the audit report contains qualifications with errors, non-compliance and omission of information; MCA: dummy variable equal to 1 if women are present in the AC; %MCA: Total number of women in the AC/Total number of members in the AC; NMECA: Total number of executive women in the AC; NMDCA: Total number of institutional women in the AC; NMICA: Total number of independent women in the AC; MPRES: dummy variable equal to 1 if the AC has a chairwoman; NRCA: Number of AC meetings per year; ACSIZE: Total number of members in the AC; OPINAUD: dummy variable equal to 1 if the firm received the same qualification in the prior and the current year; LOSS: dummy variable equal to 1 if the company reported a loss in the prior year; LEV: Total debt divided by total assets; TAMEMPR: Natural logarithm of total assets; BIGFOUR: dummy variable equal to 1 if the company is audited by one of the big 4 audit firms; INSOWN: Proportion of shares held by the management; OWNCON: Percentage of shares held by large shareholder; FIRMAGE: Log of the difference between setting-up company and observation year. Significant at † p < 0 .10, * p < 0.05, ** p < 0.01 and *** p < 0 .001.

TABLE 10

Spearman Correlation Coefficients for the Sample of Companies with Qualifications for Uncertainties. Model 2 (N= 904)

	MCA	%MCA	NMECA	NMICA	NMDCA	MPRES	NRCA	ACSIZE	OPINAUD	LOSS	LEV	TAMEMPR	BIGFOUR	INSOWN	OWNCON
%MCA	0.973***														
NMECA	0.103**	0.112***													
NMICA	0.713***	0.685***	-0.024												
NMDCA	0.569***	0.609***	-0.020	-0.030											
MPRES	0.460***	0.467***	-0.015	0.551***	0.126***										
NRCA	0.121***	0.118***	-0.011	0.138***	0.040	0.089**									
ACSIZE	0.175***	0.122***	-0.042	0.213***	0.038	0.076*	0.186***								
OPINAUD	-0.013	-0.005	-0.013	-0.029	0.014	0.075	-0.119***	-0.067*							
LOSS	-0.026	-0.026	-0.030	-0.018	-0.037	0.003	-0.047	-0.116***	0.151***						
LEV	-0.042	-0.056	-0.073	-0.112***	0.075*	-0.088**	0.036	0.112***	0.086*	0.141***					
TAMEMPR	0.022	0.006	-0.045	0.079*	-0.013	0.015	0.440***	0.326***	-0.109***	-0.121***	0.366***				
BIGFOUR	0.034	0.022	0.023	0.058†	-0.017	-0.031	0.295***	0.189***	-0.100*	-0.071*	0.033	0.331***			
INSOWN	-0.025	-0.016	0.028	-0.058†	-0.009	-0.075*	-0.087**	-0.050	0.025	0.040	0.084*	-0.140***	-0.112***		
OWNCON	-0.054	-0.050	-0.034	-0.005	-0.028	-0.103**	-0.034	0.052	-0.013	-0.071*	0.047	0.178***	0.034	-0.202***	
FIRMAGE	-0.142***	-0.143***	-0.024	-0.151***	-0.025	-0.126***	-0.063†	0.083*	0.054	-0.012	0.171***	0.077*	-0.038	-0.068*	0.159***

Spearman's correlation matrix. IA is a dummy variable equal to 1 if the audit report contains qualifications with uncertainties; MCA: dummy variable equal to 1 if women are present in the AC; %MCA: Total number of women in the AC/Total number of members in the AC; NMECA: Total number of executive women in the AC; NMICA: Total number of independent women in the AC; NMDCA: Total number of nominee women in the AC; MPRES: dummy variable equal to 1 if the AC has a chairwoman; NRCA: Number of AC meetings per year; ACSIZE: Total number of members in the AC; OPINAUD: dummy variable equal to 1 if the firm received the same qualification in the prior and the current year; LOSS: dummy variable equal to 1 if the company reported a loss in the prior year; LEV: Total debt divided by total assets; TAMEMPR: Natural logarithm of total assets; BIGFOUR: dummy variable equal to 1 if the company is audited by one of the big 4 audit firms; INSOWN: Proportion of shares held by the management; OWNCON: Percentage of shares held by large shareholder; FIRMAGE: Log of the difference between setting-up company and observation year. Significant at † p < 0 .10. * p < 0.05. ** p < 0.01 and *** p < 0 .001.

Table 11 presents the results for the logistic regressions in Model 1 and two variants, Model 1.1 and Model 1.2, in which the dependent variable represents qualifications for errors, non-compliance or omission of information. Model 1 contains six independent variables, while the only independent variable in Model 1.1 is the presence of women in the AC (MCA), and excludes the variables that refer to the AC's characteristics (%MCA, NMECA, NMDCA, NMICA and MPRES). These are, in turn, the five independent variables included in Model 1.2, which excludes the presence of women in the AC (MCA). The goodness of fit was 55.10% for Model 1, 53.20% for Model 1.1 and 55% for Model 1.2. The Chi-squared test shows that the three models were statistically significant at 0.1%.

In Model 1, all independent variables were not statistically significant. Consequently, none of the six proposed hypotheses can be accepted. This leads to the conclusion that none of the six independent variables analysed jointly is associated with the likelihood of reducing the receipt of audit qualifications related to errors, non-compliance or the omission of information. With regard to the control variables, all were statistically insignificant.

In Model 1.1, which includes the presence of women in the AC as the only independent variable, and Model 1.2, where the only independent variables are those referring to the characteristics of the AC (%MCA, NMECA, NMDCA, NMICA and MPRES), neither the independent variables nor the control variables were statistically significant. Thus, these results suggest that gender diversity on AC's is not related to the likelihood of reducing the receipt of qualifications with errors, non-compliance or the omission of information. This conclusion is consistent with the findings from Sun et al. (2011), who showed no association between gender diversity on AC's and earnings management, suggesting that there is no relationship between gender diversity on AC's and financial reporting quality. Moreover, Khan (2010) did not find a significant relationship between gender diversity on boards and Corporate Social Responsibility reporting. However, the lack of significance may simply be related to the extremely low number of qualifications with errors, non-compliance or the omission of information in our sample.

TABLE 11

Results of the Logistic Regression for the Model in Which the Dependent Variable Refers to Qualifications for Errors, Non-Compliance and Omission of Information (N=860)

Variables	Expected sign	Model 1		Model 1.1		Model 1.2	
		Parameters estimated	Wald test (Sig.)	Parameters estimated	Wald test (Sig.)	Parameters estimated	Wald test (Sig.)
INDEPENDENT VARIABLES							
MCA	-	-1.749	0.164 (0.685)	-0.570	0.435 (0.510)	-	-
%MCA	-	0.046	0.150 (0.698)	-	-	0.008	0.017 (0.897)
NMECA	-	-16.946	0.000 (0.999)	-	-	-17.160	0.000 (0.999)
NMDCA	-	0.497	0.058 (0.810)	-	-	0.303	0.025 (0.873)
NMICA	-	-16.024	0.000 (0.995)	-	-	-16.213	0.000 (0.995)
MPRES	-	-16.944	0.000 (0.995)	-	-	-17.007	0.000 (0.995)
CONTROL VARIABLES							
NRCA	-	-0.091	0.423 (0.516)	-0.090	0.435 (0.509)	-0.087	0.391 (0.532)
ACSIZE	+/-	-0.416	0.867 (0.352)	-0.458	1.066 (0.302)	-0.388	0.824 (0.364)
OPINAUD	+	36.991	0.000 (0.992)	35.585	0.000 (0.992)	36.886	0.000 (0.992)
LOSS	+	-0.739	0.725 (0.394)	-0.694	0.638 (0.424)	-0.721	0.693 (0.405)
LEV	+	0.000	0.003 (0.955)	0.000	0.004 (0.950)	0.000	0.004 (0.948)
TAMEMPR	+/-	-0.220	1.142 (0.285)	-0.234	1.384 (0.239)	-0.219	1.146 (0.284)
BIGFOUR	+	-0.581	0.469 (0.493)	-0.655	0.631 (0.427)	-0.602	0.508 (0.476)
INSOWN	-	0.006	0.956 (0.328)	0.007	1.324 (0.250)	0.006	0.993 (0.319)
OWNCON	-	-0.014	0.701 (0.402)	-0.011	0.480 (0.489)	-0.013	0.685 (0.408)
FIRMAGE	+/-	-0.183	0.363 (0.547)	-0.186	0.363 (0.547)	-0.191	0.396 (0.529)
FIRM		Included		Included		Included	
		χ^2=112.916 (0.000)		χ^2=108.764 (0.000)		χ^2=112.763 (0.000)	
		Pseudo R^2= 55.10%		Pseudo R^2= 53.20%		Pseudo R^2= 55.00%	
		Classification=98.40%		Classification=98.40%		Classification=98.40%	

Estimated coefficients through the ordinary least square method. The dependent variable is IA, a dummy variable equal to 1 if the audit report contains qualifications with errors, non-compliance and omission of information; MCA: dummy variable equal to 1 if women are present in the AC; %MCA: Total number of women in the AC/Total number of members in the AC; NMECA: Total number of executive women in the AC; NMDCA: Total number of institutional women in the AC; NMICA: Total number of independent women in the AC; MPRES: dummy variable equal to 1 if the AC has a chairwoman; NRCA: Number of AC meetings per year; ACSIZE: Total number of members in the AC; OPINAUD: dummy variable equal to 1 if the firm received the same qualification in the prior and the current year; LOSS:

dummy variable equal to 1 if the company reported a loss in the prior year; LEV: Total debt divided by total assets; TAMEMPR: Natural logarithm of total assets; BIGFOUR: dummy variable equal to 1 if the company is audited by one of the big 4 audit firms; INSOWN: Proportion of shares held by the management; OWNCON: Percentage of shares held by large shareholder; FIRMAGE: Log of the difference between setting-up company and observation year. Significant at † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$.

Table 12 shows the results obtained for Model 2, where the dependent variable refers to qualifications for uncertainties, and its two variants, Model 2.1 and Model 2.2. The independent variables included in these three models are the same as the ones in Model 1, Model 1.1 and Model 1.2. As can be observed, the goodness of fit of Models 2, 2.1 and 2.2 was 67%, 65% and 66.50%, respectively, while the level of correct classification ranged from 97.10% to 97.30%. Meanwhile, the Chi-squared test shows that the models were statistically significant at 0.1%.

As can be observed in Table 12, the independent variable AC's chaired by a woman (MPRES) was statistically significant at 5% in Model 2 and at 1% in Model 2.2. In both models, the variables presented the expected sign. Consequently, we can accept only hypothesis 6 as the results did not support the remaining hypotheses. This evidence suggests that there is a positive association between firms whose AC's are chaired by a woman and the probability of disclosing audit reports containing qualifications for uncertainties. Thus, AC's chaired by women provide better financial reporting quality. Similar results have been reported by Schwartz-Ziv (2011), who found that boards of directors chaired by women exercised higher supervision of financial information.

Of the control variables, ACSIZE, OPINAUD, LOSS, TAMEMPR and OWNCON were statistically significant at 0.1%, 1% and 5% in the three models. All variables presented the expected signs. Thus, these results demonstrate that the likelihood of disclosing qualifications with uncertainties is negatively associated with companies that have large AC's and ownership concentration, and positively related to firms that are large, received the same qualification in the prior year as the current year and reported losses in the prior year.

TABLE 12

Results of the Logistic Regression for the Model in Which the Dependent Variable Refers to Qualifications for Uncertainties. Model 2(N=904)

Variables	Expected sign	Model 2		Model 2.1		Model 2.2	
		Parameters estimated	Wald test (Sig.)	Parameters estimated	Wald test (Sig.)	Parameters estimated	Wald test (Sig.)
INDEPENDENT VARIABLES							
MCA	+	2.254	2.035 (0.154)	0.399	0.526 (0.468)	-	-
%MCA	+	-0.020	0.198 (0.657)	-	-	0.025	0.433 (0.510)
NMECA	+	-19.602	0.000 (0.999)	-	-	-18.857	0.000 (0.999)
NMDCA	+	-1.252	0.784 (0.376)	-	-	-0.739	0.258 (0.611)
NMICA	+	0.413	0.107 (0.744)	-	-	1.122	0.898 (0.343)
MPRES	+	2.931	5.237* (0.022)	-	-	3.122	6.442** (0.011)
CONTROL VARIABLES							
NRCA	-	-0.088	0.771 (0.380)	-0.097	0.959 (0.327)	-0.083	0.699 (0.403)
ACSIZE	+/-	-0.633	5.039* (0.025)	-0.504	3.675† (0,055)	-0.536	3.825* 0,050
OPINAUD	+	6.845	56.583*** 0.000	6.308	56.225*** 0.000	6.835	55.947*** (0.000)
LOSS	+	1.905	15.778*** (0.000)	1.917	16.887*** (0.000)	1.914	15.926*** (0.000)
LEV	+	0.002	2.396 (0.122)	0.002	2.132 (0.144)	0.002	2.425 (0.119)
TAMEMPR	+/-	0.307	4.032* (0.045)	0.304	3.982* (0.046)	0.318	4.285* (0.038)
BIGFOUR	+	0.012	0.000 (0.986)	0.168	0.065 (0.799)	-0.006	0.000 (0.992)
INSOWN	-	0.002	0.059 (0.808)	0.002	0.176 (0.674)	0.001	0.027 (0.869)
OWNCON	-	-0.030	5.038* (0.025)	-0.020	2.723** (0.099)	-0.030	5.310* (0.021)
FIRMAGE	+/-	0.173	0.426 (0.514)	0.096	0.153 (0.696)	0.119	0.210 (0.647)
FIRM		Included		Included		Included	
		χ^2= 70.230 (0.000)		χ^2=261.157 (0.000)		χ^2=268.044 (0.000)	
		Pseudo R^2= 67.00%		Pseudo R^2= 65.00%		Pseudo R^2= 66.50%	
		Classification=97.30%		Classification=97.10%		Classification=97.00%	

Estimated coefficients through the ordinary least square method. The dependent variable is IA, a dummy variable equal to 1 if the audit report contains qualifications with uncertainties; MCA: dummy variable equal to 1 if women are present in the AC; %MCA: Total number of women in the AC/Total number of members in the AC; NMECA: Total number of executive women in the AC; NMDCA: Total number of institutional women in the AC; NMICA: Total number of independent women in the AC; MPRES: dummy variable equal to 1 if the AC has a chairwoman; NRCA: Number of AC meetings per year; ACSIZE: Total number of members in the AC; OPINAUD: dummy variable equal to 1 if the firm received the same qualification in the prior and the current year; LOSS: dummy variable equal to 1 if the company reported a loss in the prior year; LEV: Total debt divided by total assets; TAMEMPR: Natural logarithm of total assets; BIGFOUR: dummy variable equal to 1 if the company is audited by one of the big 4 audit firms; INSOWN: Proportion of shares held by the management; OWNCON: Percentage of shares held by large shareholder; FIRMAGE: Log of the difference between setting-up company and observation year. Significant at † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$.

1.5. CONCLUSIONS AND LIMITATIONS

Given the importance placed on gender diversity as a part of good corporate governance, this study provides an empirical analysis of the influence of female members of AC's on the financial information reported by the firms listed on the Madrid Stock Exchange. In order to measure the quality of the financial information published, we considered the type of audit reports that firms received, distinguishing between opinions containing qualifications for errors, non-compliance or the omission of information and those containing uncertainties.

We hypothesised that there is a negative relation between gender diversity in AC's and the likelihood of receiving a qualification with errors, non-compliance or the omission of information, and a positive association between gender diversity in AC's and the probability of disclosing qualifications with uncertainties. On the one hand, the results show no association between gender diversity in AC's (the presence of women in the AC; the percentage of women making up AC's; the number of executive, institutional and independent women in AC's and AC's chaired by women) and the likelihood of reducing the receipt of audit reports with qualifications with errors, non-compliance or the omission of information. On the other hand, the results report a positive relationship between AC's chaired by women and the likelihood of disclosing qualifications with uncertainties, suggesting an enhancement to financial reporting quality. The remaining variables of gender diversity in AC's (the presence of women in the AC; the percentage of women making up AC's and the number of executive,

institutional and independent women in AC's) were not associated with the disclosure of qualifications with uncertainties.

In sum, our conclusions support the view that women in AC's have an impact on the quality of information when they are in a position to exert significant influence, since the results show that AC's chaired by a woman are positively associated with the quality of financial information, increasing the disclosure of qualifications with uncertainties. The explanations for these results may include the following: firstly, the low number of qualifications with errors, non-compliance and the omission of information can justify the lack of significant results for these types of qualifications. Secondly, the vestiges of the Franco dictatorship, a traditionally male-dominated society, can also support these findings. Spanish society needs to remove any remainder of this era over time. To this effect, the presence of women in corporate governance bodies is a new phenomenon and might have a role in restricting their influence. It is possible that female AC members are more ethical than male AC members but are unable to influence the remainder of the AC. Therefore, their role in relation to financial reporting issues would either be limited or unattended to in most cases. Thirdly, it is possible that women are not uniform in their ability to influence other AC members. Individual differences in this ability may mask a gender difference in financial reporting quality beliefs and lead to the null results. Unfortunately, we cannot control for this effect in the study. Finally, the culture of corporate governance may not be fully developed yet in Spain, in particular with respect to AC's, as these mechanisms of corporate governance are imported from Anglo-Saxon countries.

Thus, these findings provide evidence for the necessity to continue researching on issues about women in corporate governance, especially in the international context, as comparison of our results with other legal, cultural, professional and regulatory environments would enrich the debate about gender diversity in corporate governance and could help correct inappropriate conduct and encourage the adoption of tougher measures.

Let us now mention key limitations to this study. In the first place, the number of qualifications with errors, non-compliance or the omission of information in our sample

was extremely low. With this caveat in mind, much caution should be exercised when interpreting the results. Finally, it is possible that there are unknown factors that could impact our dependent variable. While we have controlled for as many factors as possible based on theory and prior research, empirical and theoretical limitations prevent us from knowing whether all of the important influences have been controlled for and addressed.

This empirical study could give rise to future lines of research. It would be valuable to examine the criteria that firms employ to select candidates for membership to AC's, and the functions of the committee members. Additionally, it would be interesting to analyse the role that women can play in corporate governance in a post-crisis era since women's contribution to the corporate governance system may have been mitigated by the crisis.

CHAPTER 2

THE GENDER GAP IN PAY IN COMPANY BOARDS

2.1. INTRODUCTION

Men's compensation has remained higher than women's for decades, resulting in a gender salary gap in which female pay has consistently been lower than that of their male counterparts. Gosling and Lemieux (2001) observed the ongoing existence of this gender pay gap in the labour markets of the most advanced industrialised countries. Meanwhile, Chu Ng (2004) and Cho (2007) showed that Chinese and Korean women also earned less than men. Jolliffe (2002) obtained similar results for Bulgaria. Chevalier (2007) found that women in the United Kingdom earned 20% less than men, despite the country's long-standing anti-discrimination policies. Kulich et al. (2010) also examined the gender pay gap in senior posts at UK firms, finding that the salaries earned by male executives were higher than those of women at the same level of financial performance.

Previous studies focusing on analysing gender gap in pay (Blau and Kahn, 1992; Kunze, 2005; Miyoshi, 2008; Vitaliano, 2009) show that it is caused by occupational segregation (Bayard et al., 1999; De la Rica, 2007; Palacio and Simón, 2006) and other

factors which can be explained by human capital theory (Amarante and Espino, 2002; García et al., 2001, Rubery et al., 2005; Varela et al., 2010).

In this light, there is a clear need for further research into the factors underlying the gender gap in pay, an issue that has aroused considerable interest both in Spain (Hernández, 1995; Palacio and Simón, 2002; Simón, 2009) and internationally (Miyoshi, 2008; Olsen et al., 2009; Papapetrou, 2008; Vitaliano, 2009; Wood et al., 1993).

The aim of this study is to analyse whether there are differences in the pay earned by male and female directors serving on the boards of firms listed on the Madrid Stock Exchange, in the period 2004-2011, and if so, to examine the explanatory factors behind the gender gap in pay.

This study is particularly relevant in the Spanish context, as most analyses of the gender gap in pay refer to the English-speaking nations, or to Eastern European and some Asian countries. The contribution made by this study lies in its analysis of the gender gap in pay among the directors of firms listed on the Madrid Stock Exchange, since most existing studies (De la Rica, 2007; Del Rio et al, 2011; Simón, 2006) use data from the European Structure of Earnings Survey (ESES) and since most of the previous empirical literature on the gender wage gap is based on the labour market in general, but very little empirical evidence for the groups of boards of directors in listed private companies exists. The results reported are therefore particularly important, as they confirm that there is a gender gap in pay at the top of the corporate hierarchy in Spain, due basically to the presence of women on the Nomination and Compensation Committee.

The structure of this paper is as follows. This introduction is followed by a description of the institutional background in Spain. The third section describes the theoretical background and previous literature. The fourth section develops the hypotheses predicted. The fifth section describes the methodology and sample used in the study and the sixth section shows the results obtained. In the seventh and final

section we discuss our conclusions and explain the limitations inherent in this study, at the same time pointing to possible future lines of research.

2.2. INSTITUTIONAL BACKGROUND

In Spain, between the 1970s and the 1990s many changes in legislation governing the treatment of men and women were introduced. There has been a general belief that one of the fundamental characteristics of the Spanish labour market was, and maybe is, the persistent and strong wage discrimination due to gender for similar jobs: men are clearly paid more than women. The equality principle was highlighted in Article 14 of the Spanish Constitution of 1978, which clearly prohibited discrimination on grounds of gender. The Workers' Statute Act of 1980 (amended several times since then) established in Article 28 a wage equality for work of equal value. Moreover, the 3rd Plan for Equal Opportunities for Men and Women (1997–2000) recognised the persistence of unjustifiable wage inequalities for women already working. To palliate this unequal situation, a number of actions were taken under the Plan to provide women with real access to employment with full social and economic rights by encouraging structural changes and transformations that favoured this purpose. In total and to date, there are four Plans for Equal Opportunities, the Activity Plans for Employment (with a special emphasis on gender equality) of 1998 and the EU Strategy Plan for Gender Equality of June 7, 2000. The Act 3/2007 of 22 March, "The Equality Law", for effective equality between women and men (LOIMH), implemented in 2007, in Article 5 also highlights that wage equality has to prevail between men and women. This regulation has had a positive impact mainly on discrimination in the public sector where today, one can hardly find a pay-gap anymore in Spain (Aláez et al., 2011; Ullibarri, 2003).

Academic research into the pay earned by company directors in Spain was no easy task until only a few years ago, because the majority of listed firms did not publish information about board compensation. However, the Spanish Listed Companies Transparency Act (Law 26/2003), enacted in 2003 with the full backing of the National Securities Market Commission (CNMV), made it mandatory for listed firms to disclose details of directors' pay in their Annual Reports. As a consequence, data on the pay

earned by Spanish directors has become available since this legislation entered the statute book. In 2011, the Sustainable Economy Act 2/2011 was passed to strengthen the application of EU Directive CRD3 for the financial sector and provide similar regulations for all listed companies. Under part of the Act, listed companies have to submit director and senior executive remuneration policy to a non-binding vote at the general meeting of shareholders.

The Spanish Corporate Governance System has been subject to significant reforms since the first publication in 1998 of what is known as the Olivencia Report, whose recommendations focused on the performance of firms and the publication of public information. It was followed in 2002 by the Law on Measures to Reform the Financial System (LMRFS), and in 2003 by the Law on Transparency of Listed Firms (LTLF). In 2003, the Aldama Report was also published and replaced the Olivencia Report and finally, in 2006 the Unified Code of Corporate Governance (CUBG) report or Conthe Code, was published, which unifies the Olivencia and Aldama Codes. The purpose of the CUBG (2006) was to improve business management and return transparency to the Spanish system.

In this context, it is noteworthy that the continuous political and socio-economic changes in Spain in recent years have increased gender diversity in BD. This raise was enhanced by the publication of the Conthe Code (CUBG, 2006), whose recommendations are intended to support female presence in decision-making bodies and eliminate possible discrimination. According to Gonzáléz Menéndez and Martínez González (2012), after this recommendation and the debate of the Draft Equality Law, most of the improvements in women's representation on boards occurred between 2005 and 2006. In addition, Act 3/2007 of 22 March, "The Equality Law", in Article 75 frames the regulation of the appointment of women and men in BDs in an equitable form for a period of 8 years since the law came into force. Spanish law followed the pattern of Norway, the first country in the world to establish a gender quota of 40% in boards, and this law also forced companies to reach a gender quota of 40% by 2015. De Anca (2008) argues that this percentage is not a high target, given the high level of rotation among board members in Spanish listing firms. However, the progress made is still too slow to meet the government's 2015 target, and for this reason, González-

Menéndez and Martínez-González (2012) recommend that stronger government sanctions, combined with more effective equality plans within companies, are required for the quota to be met.

In this sense, González-Menéndez and Martínez-González (2012) analysed the Spanish Labour Force Survey and reported that the presence of women directors on the listed firms' corporate boards rose from 5'6% in 2004 to 10'40% in 2010. In the same vein, De Anca (2008) examined 127 listed companies in 2006, including the Ibex 35 firms, and documented that only 5'1% of the members of the Ibex 35 BD's were women directors, while the non-Ibex 35 companies had 6'7% women in BD's. The United Nations Report (2010) documented that the proportion of women increased from 6 per cent in 2007 to only 10 per cent on Spanish boards in 2009.

2.3. THEORETICAL BACKGROUND AND PREVIOUS LITERATURE

The salary structure of developed countries shows a gap in pay as a consequence of a higher influence in supply and the demand. For decades the remunerations received by males have been, and are, greater than those of females, giving rise to a gender gap in pay. De Pablos (2001) documented that the salary received by women was smaller than men's and in 40% of the cases, the women's compensation was below the minimum salary. Amarante and Espino (2001, 2002) observed that the Uruguayan job market exhibited an important gender gap in pay. The two most relevant economic approaches that explain male-female wage differences in the companies are the human capital theory (Terjesen et al., 2009) and occupational segregation.

In this sense, previous studies that have analysed gender gap in pay in developed countries (Blau and Kahn, 1992) have reported that most of the gender gap in pay is explained by human capital theory (Amarante and Espino, 2002; García et al., 2001; Varela et al., 2010) and occupational segregation theory (Bayard et al., 1999; De la Rica, 2007; Palacio and Simón, 2006).

Human capital theory posits that individuals invest in themselves, building up their own stock of knowledge, experience and skills over the years (Becker, 1964). Human

capital can be acquired either by years of educational attainment, or in the labour market, measured in terms of years of experience or seniority in a given job. For this reason, individuals can increase their productivity by learning work skills while they are on the job. However, women tend to invest less in human capital than men, mainly because they take on a greater share of domestic responsibilities and are less committed to their careers (Lips, 2003; Wood et al., 1993). Burke (2000) argues that board selectors held the assumption that women lack adequate human capital for board positions. This argument is empirically supported by Westphal and Milton (2000) and Singh et al. (2008), who reported that women directors are less likely to have top manager or focal director experience than men directors. In the same vein, Catalyst (1993) showed that CEOs were reluctant to appoint women as directors of BD's because they believe that females are unqualified. Carli (1990) and Heilman and Haynes (2005) documented that in a male dominated context, female with work experience can neutralize negative opinions about women's performance, but they are presumed to be less competent than men. Thus, women begin their careers with less human capital than men and reap less compensation than men (Tharenou et al., 1994).

Hillman et al. (2002) showed that groups such as women can compensate for the effects of discrimination and subjective bias in selection procedures if they gain post-graduate qualifications. However, Hernández (1995) demonstrated that graduate men earned much more than women with the same university training. Similar evidence was reported by Zelechowski and Bilimoria (2004). García et al. (2001) showed that the gender gap in pay in Spain is higher for more trained women. Palacio and Simón (2002) and Ullibarri (2003) provide similar evidence. According to CES (Consejo Económico and Social, 2011), the gender gap in pay was exhibited at all training levels and it was greater when women were more trained. Contrary to this evidence, Gardín and Del Río (2009), Gonzalo and Pons (2005) and Ullibarri (2003) reported that between graduate men and women, there was not a gender gap in pay, but it was exhibited among women with elementary education.

Singh et al. (2008) showed that women had minor board experience but not less business experience than men. Studies such as De la Rica and Ugidos (1995) and Hernández (1995) demonstrated that women obtained a higher salary as they gained

more experience in the company, and therefore, the gender gap in pay was reduced. In addition, Hernández (1995) demonstrated that when a woman's work contract lasted at least two years, their salary was increased, while that of men did not. Aláez and Ullibarri (1999) analysed whether all Spanish regions exhibited a gender gap in pay and reported that women's experience was less than men's experience in all regions. Moreover, the authors demonstrated that the difference in experience between males and females was caused because women retired from active working life in order to take care their children, which is one of the most important factors explaining the gender gap in pay. Simón et al. (2005) documented that the average salary earned by women was similar to men's salary when both had less experience in their jobs. According to Ortega (2007), experience was a key factor in establishing the pay of males and females.

Regarding women's seniority, it is expected that as women have more seniority, the gender gap exhibited in pay is smaller. The reason for the low seniority of women is the tardy incorporation of women into the labour market and their commitment to family life. In this sense, De la Rica and Ugidos (1995) showed that men with more seniority earned much more than women. The authors also reported that when women had the same education and seniority as men, the reduction of the gender gap in pay is 50%. According to CES (2011), the gender gap in pay between males and females was higher as the seniority between them increased.

The occupational segregation approach excludes women from certain kinds of work, so that they tend to be concentrated in low-paid occupations (Dolado et al., 2004; Leaker, 2008; Olsen et al., 2009). Segregation can arise as the result of employer discrimination in hiring and promotion, or from human capital differences in education levels. In addition, occupational segregation can be divided between horizontal and vertical: the first analyses how men and women are distributed according to their occupation, and the second examines the distribution of male and female according to the hierarchical level within the organisation. The existence of a gender gap in pay in some occupations may be due to women being discouraged from entering high-wage occupations by discriminatory barriers. Jurajda (2003) demonstrated that the segregation of women in low-paying occupations was one third of the total wage gap.

Simón (2006) reported that occupational segregation was a key factor in the gender gap in pay.

Authors such as Groshen (1991), Johnson and Solon (1986) and MacPherson and Hirsch (1995), among others, documented that men had higher wages than women, since women were employed in jobs where average remuneration was lower. Palacio and Simón (2002) concluded that the gender gap in pay in most of the cases is due to the way men and women are distributed within the labour market, since women are concentrated in jobs with low salaries. In the same vein, previous studies (Bayard et al., 1999; De la Rica, 2003) showed that women earned less than men because females were concentrated in low-paid occupations. Bell (2005) demonstrated that executive women with the same education and occupation earned less than executive men. Simón et al. (2005) concluded that the segregation of women increased in low-paid occupations and in those jobs where there were a high number of women. Ortega (2007) reported that the higher the occupational segregation, the higher the gender gap in pay. Thus, in those jobs with a high concentration of men, the gender gap in pay exhibited will be higher. Aláez and Ullibarri (1999) showed that women earned 19% less than men when both occupied the same job and had the same education.

Bell (2005), Bird et al. (2007) and Castaño et al. (2008) demonstrated that of men and women directors, females earned less than males. Tenjo et al. (2005) analysed the gender gap in pay in six Latin American countries and reported that the gender gap in pay per hour was reduced in Argentina, Brazil, Colombia, Honduras and Uruguay, but in Costa Rica it considerably increased. In addition, they demonstrated that in Argentina, Colombia and Honduras, the average wage per hour of women was higher than of men, except for housekeepers. Palacio and Simón (2006) showed that in the period 1995-2002, men earned higher salaries than women in the same hierarchical level and occupation, while Bird et al. (2007) documented that female accountants earned $24 per hour less than male accountants. In the same sense, Castaño et al. (2008) revealed that executive women received 42% less of the wage than men. Porto et al. (2010) demonstrated that women directors earned 16'5% less than male directors, and the gender gap in pay was lower when the hierarchical level was lower.

2.4. HYPOTHESES DEVELOPMENT

Board membership: percentage of female directors on the board and presence of women on the Nomination and Compensation Committee

Although women were scarcely represented on company boards until comparatively recently, their numbers have risen over the last decade or so as they have become progressively better qualified. Mateos et al. (2007) found that only 6.61% of directors in the 1.085 largest Spanish firms were women. Meanwhile, statistics published by the Spanish National Institute of Statistics (INE, 2012) show that women made up 10'3% of directors in IBEX 35 companies, which is still low but nonetheless a considerable improvement – in 2005 less than 2% were women.

The percentage of female directors on BD may be an important factor for the supervision and control of the board's activities (Adams and Ferreira, 2009; Schwartz-Ziv, 2011). In this sense, research has found that women on boards have an important influence on firm performance (Adler, 2001; Adam and Ferreira, 2003; Campbell and Mínguez, 2008; Carter et al., 2003; Catalyst, 2004; Farrel and Hersh, 2005; Shrader et al., 2007; Krishnan and Park, 2005), financial reporting quality or fostering good corporate practice (Burgess and Tharenou, 2002; Rogelberg and Rumery, 1996) and dividend policy (Van Pelt, 2013; Wellalage et al., 2012), among others. Given the importance of women on boards in allocating capital to corporations, as well as their role in firm governance, an understanding of how their presence in boards affects the gender pay gap is undoubtedly needed.

Most studies that focus on wage disparity between male and female report that men earn significantly more than women, although some researchers argue that men and women receive similar compensation at management levels (Bowlin and Renne, 2008). Blau and Khan (2001) demonstrated that the implementation of a gender quota in BDs could develop egalitarian wage structures, and reduce the gender gap in pay. Bilimoria (2006) found a positive association between female corporate board members and women among the top corporate earners, exhibiting a smaller gender gap in pay. Terjesen and Singh (2008) show that boards with a higher representation of women are

more likely to have women in senior management and smaller gender pay gaps. Smith et al. (2011) revealed that for the small and select group of CEOs the gender compensation gap decreased slightly. Jacobs (1992) demonstrated a narrowing of the gender pay gap among directors that is correlated with a substantial rise in the number of female directors. In the same vein, Cohen and Huffman (2007) demonstrated that as the representation of female directors increased, the gender wage gap narrowed. According to Jordan et al. (2007), for women who have reached a seat on the board, no gender pay gap exists, as females are paid virtually the same as their male counterparts.

Fondas and Sassalos (2000) indicated that women tend to have higher expectations regarding their responsibilities as directors, which may induce them to expend more effort on their tasks. Similarly, Huse and Solberg (2006) showed that women on corporate boards are better prepared for board meetings than men; thus, female representation may improve board behaviour and effectiveness. According to Ittonen et al. (2010), gender diversity may improve the efficiency of corporate boards simply because female directors, in general, are presumably highly competent and hardworking. In this sense, Ye et al. (2010) provide evidence that companies with a higher proportion of women directors perform better than those without gender diversity, and Nielsen and Huse (2010) illustrated that women's presence on a BD reduces conflicts between the members of the board, thus promoting best practices in the company. Thus, we presume that female directors may improve the monitoring activities of the BD and as a result, it is more likely that they can narrow the gender gap in pay. Hence, based on the arguments and evidence presented above, we hypothesize that a higher percentage of women directors on boards will decrease the gender wage gap:

Hypothesis 1: Firms with a greater percentage of female directors on their boards will be more likely to have a smaller gender pay gap among directors of the Board.

On the other hand, the pay of directors on the board can be a bone of contention between managers and shareholders. The Spanish Unified Code of Good Governance (CUBG, 2006) recommended the inclusion of women on a board and its committees,

assigning responsibility for selection processes to the Nomination Committee, which should seek to recruit candidates with the required professional profile while avoiding gender discrimination at all times. Meanwhile, responsibility for proposing directors' and executives' pay lies with the Compensation Committee.

According to Klein (2003), Compensation Committees should not confine themselves to moderating directors' pay, but should also take responsibility for the design of remuneration structures capable of incentivising behaviour in line with shareholders' interests and rewarding enhanced business performance. Among others, Arrondo et al. (2008), Conyon (1997), Klein (1998) and Kose and Lemma (1998) found that the presence of a Nomination and Compensation Committee did in fact rein in directors' pay. 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 executive compensation.

As shown above, the previous evidence about the relationship between the presence of women directors on the Compensation Committee and the gender wage gap is scarce. However, we predict that the presence of women on the Nomination and Compensation Committee will increase the gender pay gap among board members for two reasons. The first reason is because women are less likely to sit on Compensation Committees than men (Adams and Ferreira, 2009), and this means that women directors have less involvement in setting boards members pay and not as much influence over the design of board director's compensation as their male counterparts, and consequently, they cannot put pressure on their male counterparts in order to get equal salaries for all board members. Secondly, according to Kulich et al. (2010), members of the Compensation Committee, mainly men, may feel the need to offer male directors higher compensation compared to that offered to female directors, in order to attract and retain male directors on the board, since male directors on Compensation Committees perceive female leaders to be less instrumental in achieving particular corporate outcomes. In light of the above, we propose the following hypotheses:

Hypothesis 2: Firms with the presence of women on the Nomination and Compensation Committee will be more likely to have a greater gender pay gap among directors of the Board.

Educational level of female independent directors

As women have joined the labour market in increasing numbers in recent decades, they have become progressively better qualified, allowing them to rise above their historical situation, which confined them largely to basic education and domestic concerns. Education, a human capital variable that is positively related to the ability of the manager, has a clear effect on pay (Coelho et al., 2010). Education can potentially increase earning power, and women are specifically encouraged to use education where possible to increase their earning potential (Lips, 2008). If educational qualifications are important determinants of performance in a company, and if females have higher levels of qualifications (Blau and Kahn, 2007), then women will earn higher wages (Arulampalam et al., 2007). As a consequence, the gender wage gap can be reduced.

In this sense, Mukhopadhayay (2001) observed that rising female education in Singapore caused a reduction in the gender pay gap. Similarly, the education received by Canadian women in the period 1986-1991 was the determining factor in narrowing the gap between male and female compensation (Christie and Shannon, 2001). Gardín and Del Río (2009), Gonzalo and Pons (2005) and Ullibarri (2003) reported that between graduate men and women, there was no gender gap in pay, but it was seen for women with elementary education. Aláez and Ullibarri (1999) analysed the gender gap in pay in the different regions of Spain, finding the largest gender pay gaps were in those regions where both men and women were least educated and the education of women was similar to that of men (Murcia and Castile-La Mancha). Along the same lines, the Spanish Economic and Social Council (CES, 2011), Del Río et al. (2011) and Simón et al. (2008), among others, found that the gender-based salary gap narrows with the level of education. Coelho et al. (2010) also reported that the gender wage gap is narrower when women have more advanced degrees. Similar evidence was reported by other authors (Blau and Kahn, 2007; Chevalier, 2007; Izquierdo and Lacuesta, 2007),

who showed that improvements in the level of women's qualifications explain a substantial portion of the narrowing of the gender pay gap.

Contrary to this evidence, Böheim et al. (2007), De la Rica et al. (2005), García et al. (2001), Jurajda (2003), Mirta (2003), Ortega (2007), Palacio and Simón (2002), Plantenga and Remedy (2006) and Simón et al. (2005) reported that the gender pay gap is greater among better qualified workers, while Simón (2006) found that the gap in pay between the best educated male and female workers was greater in Spain than in any other European country, except Ireland, although the gap was smaller among less well-qualified workers. Palacio and Simón (2002) and Cho (2007) reported that male-female pay inequality was greater in both Spain and Korea not only when the women concerned lacked educational qualifications, but also among female graduates. De la Rica (2007), Hernández (1995) and Lauer (2000) showed that men earned higher pay than women even when they were educated to the same level.

Our aim was to investigate the qualifications of all women holding board level office in listed Spanish firms. However, published Corporate Governance reports only include information on the qualifications of independent directors, and we shall therefore confine ourselves to examining the qualifications of these women. Human capital theory argues that one of the explanations for the gender wage gap is the difference in human capital among individuals, such as education (Crossley et al., 1994; Lazear and Rosen, 1990; Mincer and Polachek, 1994). Tharenou et al. (1994) argue that females, compared to males, have traditionally made fewer investments in education and work experience and this is reflected in lower pay and promotion. Thus, based on this argument and previous evidence, we posit that the presence of qualified women directors on the BD will diminish the gender gap in pay, as qualified female directors may receive top salaries and positions as often as their male counterparts. Consequently, well-qualified female independent directors will help narrow the gender pay gap. Hence, we posit the following hypothesis:

Hypothesis 3: Firms with a presence of well-qualified female independent directors on boards will be more likely to have a smaller gender pay gap among directors of the Board.

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Firm sector

The sector in which a firm operates is an important factor, as the businesses in which they engage may influence gender gap in pay (Jurajda and Harmgart, 2007). Kulich et al. (2011) examined U.K. listed firms from 1998 to 2004 and demonstrated that there was a significant gender pay gap in executive positions when controlling for industry. Skalpe (2007) analysed 1.866 private firms from the tourism and manufacturing industries from 1999 to 2001 and showed that female CEOs were wage-discriminated in both sectors. Nonetheless, the gender gap in pay was greater in tourism companies because the female CEOs in this industry were employed in smaller firms than is the case in manufacturing. Bertrand and Hallock (2001) also found a considerable gender wage gap in top management, and most of the gender pay differential was explained by industry or occupational levels, among other reasons. Meanwhile, Renner et al. (2002) demonstrated that variations in annual compensation between female and male executive directors can be explained by the industrial sector.

Contrary to this evidence, Vieito and Khan (2012) reported that there was no gender wage gap between male and female executive directors of BD of technology firms. Similar evidence was reported by Smith et al. (2011) and Holst and Busch (2009), who after controlling for industry and other characteristics, showed that a gender wage gap among directors did not exist.

The existing evidence is not conclusive and therefore, it is not evident how the sector in which the company operates can explain the gender gap in pay that may exist between male and female directors of the BD. Consequently, we propose the following hypothesis:

Hypothesis 4: The sector in which the company operates can increase or narrow the gender wage gap among directors of the Board.

Geographical region

The compensation of male and female board members may vary depending on the geographical region of the company (Lago, 2002), mainly due to differences in the cost of living and non-monetary conditions of employment. Towns and cities are often more expensive than rural areas (Skalpe, 2007). Gomez-Mejia et al. (1987) proposed that geographical location might affect the executives' compensation level.

In this vein, Holst (2006) examined 80.000 German firms and demonstrated that women and men directors on the board both earned significantly less in East Germany (former GDR) than in West Germany, but the regional difference was larger for men. This result suggests that firm location influences the gender wage gap. In contrast with this finding, Skalpe (2007) examined Norwegian tourism and manufacturing companies and showed that the urban location of the company did not appear to influence the gender wage gap among executive directors.

Aláez and Ullibarri (1999) examined male-female compensation discrimination in the Spanish regions, finding the widest gender pay gaps in Catalonia and Murcia and the smallest in the Balearic Islands and La Rioja. Meanwhile, Palacio and Simón (2002) found a significant gender pay gap in large firms located in Catalonia and Madrid. Finally, the report of the Spanish National Statistics Institute entitled INE: Women and Men of Spain (2012) lists the Autonomous Communities with the smallest gender pay gaps as the Canary Islands (13.6%), Extremadura (15.8%), the Balearic Islands (20.2%) and Castile-La Mancha (21.9%). The gap was widest in Asturias (29.8%) and Aragon (31.1%).

Internationally, Chu Ng (2004) studied data obtained from the Chinese Office of Statistics for the period 1988-1992, arguing that the gender pay gap was widest in western China, away from the coast, where economic progress has been slower. In contrast, they showed that rapid growth along China's eastern seaboard and in the centre of the country reduced the pay gap. Leaker (2008) reported that women's compensation was lower throughout the United Kingdom, and that the gender pay gap was widest in the South-West and South-East of the country.

Like the firm sector variable, it is not easy to predict a priori whether a firm's geographical region will increase or decrease male-female compensation differences between directors, because the gender pay gap depends on the specific location of each firm, as the existing literature shows. In this light, we propose the following hypothesis:

Hypothesis 5: The geographical region in which the company is situated can increase or narrow the gender wage gap among directors of the Board.

2.5. Methodology and sample

2.5.1 Methodology

We shall use the following model to empirically test the hypotheses proposed above:

$$REMU_{it} = \beta_0 + \beta_1 PERCWBD_{it} + \beta_2 PWNCC_{it} + \beta_3 ELIWBD(1)_{it} + \beta_4 ELIWBD(2)_{it} + \beta_5 FSEC(1)_{it} + \beta_6 FSEC(2)_{it} + \beta_7 FSEC(3)_{it} + \beta_8 FSEC(4)_{it} + \beta_9 FSEC(5)_{it} + \beta_{10} GREG(1)_{it} + \beta_{11} GREG(2)_{it} + \beta_{12} GREG(3)_{it} + \beta_{13} GREG(4)_{it} + \beta_{14} GREG(5)_{it} + \beta_{15} SEN(1)_{it} + \beta_{16} SEN(2)_{it} + \beta_{17} SEN(3)_{it} + \beta_{18} FIRMSIZE_{it} + \beta_{19} PROD_{it} + \beta_{20} ROA_{it} + \beta_{21} BDSIZE_{it} + \sum_j \alpha_j FIRM_j + \mu_{it}$$

Where the dependent variable, $REMU_{it}$, is calculated as the logarithm of the difference between the compensation of male and female directors in firms listed on the Madrid Stock Exchange[3]. The calculation of this variable is based on annual rather than hourly pay, because that is how the data is presented in the Annual Corporate Governance Reports published by the firms analysed. The remuneration considered comprises fixed and variable pay, as well as allowances. The variables used in the model and the expected signs of each are shown in Table 13.

TABLE 13

Variables Description

Variable	Description	Expected sign
INDEPENDENT VARIABLES		
PERCWBD	Total number of women on the BD's/Total number of members on the BD's	-
PWNCC	Dummy Value (1=Presence of women on the Nomination and Compensation Committee; 0= Otherwise)	+
ELIWBD (1)	Dummy Value (1= Independent women graduate; 0 = Otherwise)	-
ELIWBD (2)	Dummy Value (1= Independent women PhD; 0 = Otherwise)	-
FSEC (1)	Dummy Value (1= Oil and energy; 0 = Otherwise)	+/-
FSEC (2)	Dummy Value (1= Commodities, industry and construction; 0 = Otherwise)	+/-
FSEC (3)	Dummy Value (1= Consumer goods; 0 = Otherwise)	+/-
FSEC (4)	Dummy Value (1= Consumer Services; 0 = Otherwise)	+/-
FSEC (5)	Dummy Value (1= Finance and property service; 0 = Otherwise)	+/-
GREG (1)	Dummy Value (1 = Northwest; 0 = Otherwise)	+/-
GREG (2)	Dummy Value(1 = Northeast; 0 = Otherwise)	+/-
GREG (3)	Dummy Value (1 = Madrid; 0 = Otherwise)	+/-
GREG (4)	Dummy Value (1 = Centre; 0 = Otherwise)	+/-
GREG (5)	Dummy Value (1 = East; 0 = Otherwise)	+/-
CONTROL VARIABLES		
SEN (1)	Dummy Value (1= one year of seniority; 0= Otherwise)	-
SEN (2)	Dummy Value (1= From two to four years of seniority; 0= Otherwise)	-
SEN (3)	Dummy Value (1= From five to eight years of seniority; 0= Otherwise)	-
FIRMSIZE	Log of total assets (in thousands of Euros)	+
PROD	Log (Turnover/ Number of employees)	+
ROA	Ordinary result/Average of total assets	+
BDSIZE	Total number of directors on the BD's	+

2.5.2 Independent and control variables

2.5.2.1 Independent variables

Percentage of female directors on the board

This variable is denoted by "PERCWBD" and it is calculated as the ratio between the total number of female directors on the board and the total number of directors on the board. It is expected to be negative, as we predict that the gender pay gap between directors will narrow given an increase in the percentage of female board members.

Presence of women on the Nomination and Compensation Committee

Female membership of the Nomination and Compensation Committee is approximated by the variable "PWNCC", defined as a dummy variable which takes a value of 1 if the members of the committee include any women and 0, otherwise. This variable is expected to be positive, as we predict that the presence of women on the Nomination and Compensation Committee will increase the gender pay gap between directors.

Educational level of female independent directors in the Board of Directors

"ELIWBD" represents the educational level of female independent directors on the board. As explained above, we have only considered the qualifications of female independent directors because this is the only data regarding the education of board members contained in Corporate Governance Reports. "ELIWBD" is calculated as a categorical variable, and we have therefore created C-1 dichotomous variables. Having created the dichotomous variables, the next step is to establish the reference category we wish to compare with the other categories. We have classified educational level as follows: ELIWBD (0) = no details of female independent director qualifications in the Corporate Governance Report; ELIWBD (1) = BA/BSc. degree; and ELIWBD (2) = Phd. The reference category is ELIWBD (0). The variable is expected to be negative, as the gender pay gap between directors will be narrower, the better qualified the female independents serving on a firm's board.

Firm Sector

The business sector variable was defined on the basis of the Madrid Stock Exchange classification: FSEC (1) = Oil and energy; FSEC (2) = Commodities, industry and construction; FSEC (3) = Consumer goods; FSEC (4) = Consumer services; FSEC (5) = Financial services and property (excluding banks, which do not form part of the sample); and FSEC (6) = Technology and telecommunications. The value of the dummy variables is 1 if the company belongs to the sector in question and 0 otherwise. The reference category is FSEC (6). We expect this variable to be both positive and negative, as the salary gap may increase or decrease depending on the sector to which the firm belongs. The sector classification is shown in Table 14.

TABLE 14

Classification of the sector

SECTOR 1	Oil and Energy	1. Oil 2. Energy and gas 3. Renewable energy
SECTOR 2	Commodities, industry and construction	1. Minerals, metals and transportation 2. Production equipment godos 3. Construction 4. Materials of construction 5. Chemical industry 6. Engineering and others 7. Aerospatiale
SECTOR 3	Consumer godos	1. Foods and drinks 2. Textile, dress and shoes 3. Paper and graph arts 4. Pharmaceutical products and 5. Others consumers godos
SECTOR 4	Consumer services	1. Leisure, tourism and hotel industry 2. Retailer trade 3. Media and advertising 4. Transport and distribution 5. Motorway and car park 6. Other services
SECTOR 5	Financial and property services	1. Bank and savings bank 2. Insurance 3. Portfolio and holding 4. SICAV 5. Real estate and others 6. Investment services
SECTOR 6	Technology and telecommunications	1. Telecommunications and others 2. Electronic and software

Geographical region

This variable is denoted by "GREG" and is based on the Autonomous Community (political region) in which the firm is located. Following Pagán (2007) and Arrazola and Hevia (2009), we have grouped the Autonomous Communities into seven macro-regions: Northwest, Northeast, Madrid, Central Spain, East, South and Canary Islands. Although we initially intended to follow this classification, we found that none of the firms in the sample is in fact registered in the Canary Islands. As a result, we included the Canaries in the South, leaving only 6 regions. The classification of the six regions is

therefore as follows: GREG (1) = Northwest; GREG (2) = Northeast; GREG (3) = Madrid; GREG (4) = Centre; GREG (5) = East and GREG (6) = South and Canary Islands. Table 15 details the six regions and the Autonomous Communities that form each. Like educational level and sector, region is a categorical variable. The reference category is GREG (6). This variable is again expected to be both positive and negative, as the salary gap may widen or narrow depending on the firm's geographical region.

TABLE 15

Classification of the Regions

Label	Area	Region
GREG (1)	NORTHWEST	Galicia, Asturias, Cantabria
GREG (2)	NORTHEAST	País Vasco, Navarra, La Rioja y Aragón
GREG (3)	MADRID	Madrid
GREG (4)	CENTRE	Castilla y León, Castilla la Mancha, Extremadura
GREG (5)	EAST	Cataluña, Comunidad Valenciana, Baleares
GREG (6)	SOUTH AND THE CANARY ISLANDS	Andalucía, Murcia, Ceuta, Melilla y Canarias

2.5.2.2 Control variables

To test the model, we have included five control variables which could influence male-female differences in compensation.

Seniority of women on the board

The first control variable considered is seniority, which is a key factor in the promotion of both men and women. It is therefore to be expected that a longer period of service in a firm will open the way to positions of responsibility and will also reduce the gender pay gap. Aláez and Ullibarri (1999) claim that the gender pay gap is greater in those regions where women's job seniority is shorter than men's. Barceinas et al. (2000), Lauer (2000), Mirta (2003), Simón (2006) and Simón (2009) found that women were likely to earn less than men where they had spent less time in their jobs. Likewise, De la Rica and Ugidos (1995), Miyoshi (2008), Monk and Turner (2004) and Olsen et al. (2009) concluded that men with longer service with their firms earned higher

salaries. According to CES (2011), the gender pay gap between men and women widened considerably as their job seniority increased.

This categorical variable is denoted by "SEN". The classification is as follows: SEN (0) = No period of seniority; SEN (1) = One year's seniority; SEN (2) = Two to four years' seniority and SEN (3) = Five to eight years' seniority. These variables take a value of 1 if female directors have the seniority indicated in the year considered and 0, otherwise. The reference category taken to measure this categorical variable is SEN (0). We expect this variable to be negative. Hence, the longer a female director's seniority, the greater the reduction in the gender pay gap should be because the inclusion of experienced female directors on the board will push firms to comply more strictly with the gender equality legislation applicable to listed companies, and to eliminate male-female compensation differences.

Firm size

The size of the firm is also used as a control variable. Size is sometimes associated with a firm's business and financial characteristics, and it may therefore affect the gender pay gap. In this regard, Gardín and del Río (2009), Mirta (2003), Monk and Turner (2004), Pagán (2007) and Palacio and Simón (2002) showed that male-female compensation differences were greater in large firms. Meanwhile, Gartner and Stephan (2004) concluded from an analysis of German companies that the gender pay gap grew wider, the larger the firm. Bell (2005) found that firm size and the disproportionately small number of female CEOs and company chairwomen were responsible for between 50 and 60% of the gender pay gap. Heinze and Wolf (2010) also reported that the gender pay gap was wider in large German concerns, at the same time showing that male-female compensation differences were smaller in family firms. However, CES (2011) observed that male-female compensation differences were greater in Spanish SMEs with less than ten employees. Similarly, Arrondo et al. (2008), Fernández Méndez et al. (2011) and Pucheta and Narro (2014) showed that a firm's size had a positive and significant influence on directors' pay. The variable is denoted by "FIRMSIZE" and is calculated as the logarithm of the firm's total assets. It is expected to be positive, as the gender pay gap among directors will be greater the larger the firm.

Employee productivity

The third control variable used to study the gender pay gap is employee productivity, which is denoted by "PROD" and is measured as the logarithm of the ratio of turnover to the firm's total number of employees, following Mateos et al. (2007). The flexibility and effectiveness of the labour market are essential to ensure that employees are assigned efficiently in the economy. Furthermore, firms need to draw on their employees' skills and training, and to incentivise performance, taking into account compensation equality between men and women. Examining a sample of companies in Mexico, Blomström (1985) showed that foreign firms were 79% more efficient in their use of labour than their local peers due to factors such as training and the level of business concentration. Haltiwanger et al. (1999), Iranzo et al. (2006) and Newell and Relly (1996) all found that the personal characteristics of employees contributed significantly to explaining differences in productivity between firms. Meanwhile, Doménech (2008) revealed that firms whose employees were better trained were more productive. Guisán and Aguayo (2008) observed that productivity per employee was very low in Spain compared with other developed economies. Fan and Lui (2003) showed that the gender pay gap narrowed when the productivity of female employees in Hong Kong rose compared to their productivity as perceived by their male peers. Likewise, Monk and Turner (2004) found that male-female compensation differences decreased as employee productivity increased in South Korea.

This variable is expected to be positive, as we understand that employee productivity gains will raise directors' pay, given their responsibility for management. However, the gender pay gap will also widen, as the positions of greatest responsibility on company boards are usually occupied by men, who are therefore likely to be credited with successfully raising productivity.

Return on assets

Return on assets is another of the control variables considered, reflecting the firm's profitability in terms of income generated for every euro invested in assets. This variable is denoted by "ROA" and is calculated as the ratio of ordinary income to average total assets, although some authors, such as Manzaque et al. (2008), calculate it as the ratio of the operating margin to total assets. We expect this variable to be

positive, because an increase in a firm's profitability will result in higher compensation for directors and a proportional widening of the gender pay gap. Arrondo et al. (2008) and Fernández Méndez et al. (2011) show that the return on assets has a positive and significant effect on directors' pay.

Board size

The last of the control variables considered is the size of the board, as the number of directors may affect control and management of the firm. The board is the body responsible for safeguarding the interests of the shareholders and controlling the management team (Salas, 2002). The Spanish Code of Good Governance (CUBG, 2006) recommended that boards should have not less than five members and not more than fifteen. However, Burke et al. (2001) and Al-Mudhaki and Joshi (2004) argue that boards should have between three and six members, and Merino et al. (2009) found evidence to support a size of between three and twenty-two directors. Some studies (e.g. Eisenberg et al., 1998) have shown that the number of board members can affect supervisory and control functions, and the presence of too many directors may therefore hinder coordination and decision-making. However, other authors (e.g. Sánchez et al., 2008) have claimed that a larger number of directors may permit more efficient control of the board's functions. Sánchez et al. (2008) also showed that the size of the board was positively related with executive pay, while Guest (2010) found a positive association between board size and directors' pay in the United Kingdom. Board size is denoted by "BDSIZE". This variable is calculated as the total number of board members. It is expected to be positive, as a larger board is likely to have more male members and, therefore, women will be in a minority and will be less well able to ensure compensation equality between male and female directors.

Firm Fixed Effect

The firm fixed effect control variable, denoted by "FIRM", is intended to capture unobservable and fixed characteristics of firms that may potentially be correlated with the dependent variable. Specifically, we include year indicator variables to control for yearly differences.

2.5.3 Sample

The initial sample comprised 1.392 firms/year listed on the Madrid Stock Exchange between 2004 and 2011, inclusive. The information was obtained from the public registries kept by the Spanish National Securities Market Commission (CNMV), from the SABI data base and from corporate websites. Table 16 contains a description of the sample.

TABLE 16

Sample Description

	2004	2005	2006	2007	2008	2009	2010	2011	TOTAL
Initial sample of companies	174	174	174	174	174	174	174	174	1392
Companies excluded	(109)	(106)	(115)	(105)	(104)	(111)	(110)	(117)	(877)
Industrial companies	93	90	99	89	88	95	94	101	749
Financial companies	16	16	16	16	16	16	16	16	128
Final sample of companies	65	68	59	69	70	63	64	57	515

As may be observed in Table 4, the initial sample of 1.392 firms/year did not include financial institutions because they are under special scrutiny by financial authorities that constrain the role of their board of directors and because of their special accounting practices. A further 749 industrial firms were excluded because not all the data necessary to test the model could be obtained, and the final sample thus comprised 515 observations. Most of the industrial firms were discarded because their Corporate Governance or Annual Reports did not contain details of directors' pay.

2.6. ANALYSIS OF RESULTS

2.6.1 Descriptive statistics

Table 17 shows the descriptive statistics for the dichotomous and continuous variables.

TABLE 17

Descriptive Statistics

Variable	Mean	Standard deviation
Panel A: Dummy variables		
PWNCC	0.107	0.309
ELIWBD (0)	0.860	0.307
ELIWBD (1)	0.082	0.274
ELIWBD (2)	0.058	0.234
FSEC (1)	0.097	0.296
FSEC (2)	0.301	0.459
FSEC (3)	0.295	0.457
FSEC (4)	0.091	0.288
FSEC (5)	0.155	0.363
FSEC (6)	0.060	0.238
GREG (1)	0.047	0.211
GREG (2)	0.157	0.364
GREG (3)	0.520	0.500
GREG (4)	0.025	0.157
GREG (5)	0.175	0.380
GREG (6)	0.076	0.265
SEN (0)	0.660	0.448
SEN (1)	0.097	0.296
SEN (2)	0.169	0.375
SEN (3)	0.074	0.262

Variable	Mean	Standard deviation	Percentile 25	Percentile 50	Percentile 75
Panel B: Continuous variables					
REMU	6.914	1.281	6.270	7.009	7.723
PERCWBD	0.030	0.067	0.000	0.000	0.000
FIRMSIZE	13.132	1.851	11.718	12.851	14.416
PROD	5.727	1.690	4.951	5.672	6.714
ROA	0.060	0.448	-0.006	0.021	0.071
BDSIZE	10.383	3.506	8.000	10.000	12.000

Mean, standard deviation and quartiles of the main variables. PWNCC: Variable presence of women on the Nomination and Compensation Committee, which is calculated as a dummy variable that takes the value 1 if there is presence of women on the Nomination and Compensation Committee and 0, otherwise; ELIWBD (0): Variable educational level of independent women on the Board of Directors, which is calculated as a dummy variable that takes the value 1 if independent female directors do not provide information about their educational level in the Corporate Governance Report and 0, otherwise; ELIWBD (1): Variable educational level of independent women on the Board of Directors, which is calculated as a dummy variable that takes the value 1 if independent female directors have a degree and 0, otherwise; ELIWBD (2): Variable educational level of independent women on the Board of Directors, which is calculated as a dummy variable that takes the value 1 if independent female directors have a doctorate and 0, otherwise; FSEC(1): Variable firm sector, which is a dummy variable that takes the value 1 if the

company operates in the oil and energy sector and 0, otherwise; FSEC(2): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the basic materials, industry and construction sector and 0, otherwise; FSEC(3): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the consumer goods sector and 0, otherwise; FSEC(4): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the consumer service sector and 0, otherwise; FSEC(5): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the finance and real estate sector and 0, otherwise; FSEC(6): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the technology and telecommunication sector and 0, otherwise; GREG (1): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the North-Western region and 0, otherwise; GREG (2): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the North-Eastern region and 0, otherwise; GREG (3): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the Madrid region and 0, otherwise; GREG (4): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the Centre region and 0, otherwise; GREG (5): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the East region and 0, otherwise; GREG (6): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the South and the Canary Islands region and 0, otherwise; SEN (0): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the Board of Directors do not have seniority and 0, otherwise; SEN (1): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the Board of Directors have one year of seniority and 0, otherwise; SEN (2): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the Board of Directors have from two to four years of seniority and 0, otherwise; SEN (3): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the Board of Directors have from five to eight years of seniority and 0, otherwise; REMU: Variable gap in pay between male and female directors on the Board of Directors and is calculated as the log of the difference between male and female director's compensation in the Board of Directors; PERCWBD: Variable percentage of women directors on the Board of Directors and is calculated as the ratio between the total number of female directors on the Board of Directors and the total number of directors on the Board of Directors; FIRMSIZE: Variable firm size and is calculated as the log of total assets (in thousands of Euros); PROD: Variable employee productivity and is calculated as the log of (Turnover/Number of employees); ROA: Variable Return on Assets and is calculated as the ratio between ordinary result and average of total assets; BDSIZE: Variable size of the board and it is calculated as the total number of directors on the Board of Directors.

Panel A of Table 17 shows that 11%, on average, of the Nomination and Compensation Committees have a female presence. In terms of educational level, an average 86% of female independent directors did not disclose their qualifications in the Corporate Governance Report, 8% were graduates and 6% held doctoral degrees. Meanwhile, 10% of the firms in the sample belonged to FSEC (1) (Oil and energy), 30% each to FSEC (2) (Commodities, industry and construction) and FSEC (3) (Consumer goods), 9% to FSEC (4) (Consumer services), 16% to FSEC (5) (Financial and property services), and 5% to FSEC (6) (Technology and telecommunications). 52% of the firms are located in the Madrid region (GREG (3)), 17% in the East of Spain (GREG (5)), 16% in the Northeast (GREG (2)), 8% in the South and Canary Islands (GREG (6)), 5% in the Northwest (GREG (1)) and 3% in the Centre (GREG (4)). 10% of female directors had one year's seniority, 17% had between two and four years' and

7% between five and eight years' seniority, while 66% had no previous experience as a board member.

As may be observed in Panel B of Table 17, the mean logarithm of compensation differences between male and female directors is 6'914, which is to say that the pay received by men is on average 6'914 times higher than the women's pay. Also, the average percentage of women by board is 3%, and the average company size is 13'130 (Ln of total assets), the productivity per employee is 5'730, the return on assets is 6% and boards have 10'38 members on average.

2.6.2 Univariate Analysis

Table 18 shows the mean values of the independent and control variables for the firms in the sample, as well as the results of the parametric t test for the continuous variables, and Pearson's Chi-squared for the dichotomous variables to test for the presence of differences in means. The median (7.01) of the difference in the logarithm of male and female directors' pay was used to create the two groups.

TABLE 18

Mean Difference for Independent and Control Variables

Variable	Median of the gender gap in pay in the Board of Directors >=7,01 (N = 259)	Median of the gender gap in pay in the Board of Directors <7,01 (N = 256)	Mean difference	Univariate Test (Sig.)
PERCWBD	0.032	0.028	0.004	0.819 (0.413)
PWNCC	0.127	0.086	0.041	1.524 (0.128)
ELIWBD (1)	0.093	0.070	0.023	0.926 (0.355)
ELIWBD (2)	0.097	0.020	0.077	3.774*** (0.000)
FSEC (1)	0.178	0.016	0.162	6.441*** (0.000)
FSEC (2)	0.301	0.301	0.000	0.009 (0.993)
FSEC (3)	0.208	0.383	-0.175	-4.409*** (0.000)
FSEC (4)	0.120	0.063	0.057	2.260** (0.024)
FSEC (5)	0.127	0.184	-0.057	-1.762* (0.079)
GREG (1)	0.046	0.047	-0.001	-0.029 (0.977)
GREG (2)	0.127	0.188	-0.061	-1.875* (0.061)
GREG (3)	0.672	0.367	0.305	7.250*** (0.000)
GREG (4)	0.004	0.047	-0.043	-3.135*** (0.002)
GREG (5)	0.116	0.234	-0.118	-3.579*** (0.000)
SEN (1)	0.104	0.090	0.014	0.551 (0.582)
SEN (2)	0.178	0.160	0.018	0.528 (0.598)
SEN (3)	0.097	0.051	0.046	1.989** (0.047)
FIRMSIZE	14.131	12.122	2.009	14.661*** (0.000)
PROD	6.003	5.448	0.555	3.776*** (0.000)
ROA	0.100	0.021	0.079	2.015** (0.044)
BDSIZE	12.008	8.738	3.270	11.950*** (0.000)

Means Comparison Test. PERCWBD: Variable percentage of women directors on the BD's and is calculated as the ratio between the total number of female directors on the BD's and the total number of directors on the BD's; PWNCC: Variable presence of women on the Nomination and Compensation Committee, which is calculated as a dummy variable that takes the value 1 if there is presence of women on the Nomination and Compensation Committee and 0, otherwise; ELIWBD (1): Variable educational level of independent women on the BD's, which is calculated as a dummy variable that takes the value 1 if independent female directors have a degree and 0, otherwise; ELIWBD (2): Variable educational level of independent women on the BD's, which is calculated as a dummy variable that takes the value 1 if independent female directors have a doctorate and 0, otherwise; FSEC(1): Variable firm sector, which is a

dummy variable that takes the value 1 if the company operates in the oil and energy sector and 0, otherwise; FSEC(2): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the basic materials, industry and construction sector and 0, otherwise; FSEC(3): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the consumer goods sector and 0, otherwise; FSEC(4): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the consumer service sector and 0, otherwise; FSEC(5): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the finance and real estate sector and 0, otherwise; GREG (1): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the North-Western region and 0, otherwise; GREG (2): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the North-Eastern region and 0, otherwise; GREG (3): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the Madrid region and 0, otherwise; GREG (4): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the Centre region and 0, otherwise; GREG (5): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the East region and 0, otherwise; SEN (1): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the BD's have one year of seniority and 0, otherwise; SEN (2): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the BD's have from two to four years of seniority and 0, otherwise; SEN (3): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the BD's have from five to eight years of seniority and 0, otherwise; FIRMSIZE: Variable firm size and is calculated as the log of total assets (in thousands of Euros); PROD: Variable employee productivity and is calculated as the log of (Turnover/Number of employees); ROA: Variable Return on Assets and is calculated as the ratio between ordinary result and average of total assets; BDSIZE: Variable size of the board and it is calculated as the total number of directors on the BD's. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

As shown in table 18, the difference in the means of the variable denoting the percentage of women on the board is positive, but not statistically significant, and the first hypothesis tested cannot therefore be accepted, since the gender pay gap between male and female directors is not affected by the percentage of women on the board. Thus, we cannot conclude that a greater percentage of female directors on the board will be more likely to result in a smaller gender pay gap among directors. Along the same lines, the variable denoting the presence of women on the Nomination and Compensation Committee reflects a positive difference in the means as predicted. However, this difference is not statistically significant, and the second hypothesis therefore cannot be accepted. The two variables ELIWBD (1) and ELIWBD (2), representing the educational level gained by female independent directors, displays a positive difference in the means, although this is only statistically significant at the 1% level in the case of ELIWBD (2). Consequently, it is likely that at least one woman will hold a doctoral degree in those firms where the gender pay gap between male and female directors is widest. This finding is in line with the evidence reported by Palacio and Simón (2002) and Simón (2006). Meanwhile, it may be observed that the sector variables FSEC (1), FSEC (2) and FSEC (4) display a positive difference in the mean,

although it is only statistically significant at the level of 1% in the case of FSEC (1) and 5% in FSEC (4). Thus, the male-female compensation difference between directors is greater on the boards of firms belonging to the oil and energy sector and the consumer services sector. The difference in means is negative in FSEC (3) and FSEC (5) and is statistically significant at the level of 1% and 10%, respectively. Therefore, we may conclude that the gender pay gap is smaller in the consumer goods sector and in financial services and property. Finally, we may observe that the geographical region variable GREG (3) presents a positive and statistically significant difference at 1%. Consequently, the gap between the pay of male and female directors is greater in firms located in Madrid. Meanwhile, GREG (1), GREG (2), GREG (4) and GREG (5) show negative differences, which are statistically significant at 1% and 10% in all cases, except GREG (1). Hence, the gender pay gap among directors is lowest in firms located in the North-East, Centre and East of Spain.

We may also observe that the difference in means of all of the control variables is positive and statistically significant, except in the case of SEN (1) and SEN (2). We may therefore conclude that the compensation difference between male and female directors will be greater in those firms larger where the board has more members and includes women with between five and eight years' seniority, and in firms displaying the highest return on assets and with the highest employee productivity.

2.6.3 Multivariate Analysis

The multivariate analysis looks at the results of the linear regression and the multicollinearity test.

TABLE 19

Results of the Lineal Regression

Variable	Expected sign	MODEL 1		MODEL 2		MODEL 3		MODEL 4		MODEL 5		MODEL 6		MODEL 7	
		Param. Estimated	Statistical Test (Sig.)	Param. Estimated	Statistical Test (Sig.)	Param. Estimated	Statistical Test (Sig.)	Param. Estimated	Statistical Test (Sig.)	Param. Estimated	Statistical Test (Sig.)	Param. Estimated	Statistical Test (Sig.)	Param. Estimated	Statistical Test (Sig.)
INDEPENDENT VARIABLES															
PERCWBD	-	-0.857	-0.870 (0.385)	-0.659	-0.640 (0.522)							-0.730	-0.743 (0.458)	-0.813	-0.790 (0.430)
PWNCC	+	0.413	2.365** (0.018)	0.567	3.141*** (0.002)							0.409	2.362** (0.019)	0.582	3.207*** (0.001)
ELIWBD (1)	-	-0.559	-2.798*** (0.007)	-0.519	-2.582** (0.010)							-0.562	-2.806*** (0.005)	-0.534	-2.587** (0.010)
ELIWBD (2)	-	-0.102	-0.421 (0.674)	-0.022	-0.095 (0.925)							-0.068	-0.290 (0.772)	-0.018	-0.075 (0.941)
FSEC (1)	+/-	-0.008	-0.035 (0.972)			0.029	0.136 (0.892)			0.101	0.473 (0.636)	-0.102	-0.461 (0.645)		
FSEC (2)	+/-	-0.138	-0.708 (0.479)			-0.043	-0.234 (0.815)			-0.027	-0.144 (0.885)	-0.173	-0.909 (0.364)		
FSEC (3)	+/-	-0.119	-0.598 (0.550)			-0.023	-0.122 (0.903)			0.000	-0.002 (0.999)	-0.145	-0.739 (0.460)		
FSEC (4)	+/-	0.080	0.363 (0.717)			0.151	0.701 (0.484)			0.184	0.858 (0.391)	0.041	0.183 (0.855)		
FSEC (5)	+/-	-0.968	-4.629*** (0.000)			-0.930	-4.641*** (0.000)			-0.887	-4.387*** (0.000)	-1.025	-4.921*** (0.000)		
GREG (1)	+/-	0.316	1.309 (0.191)					0.403	1.611 (0.108)	0.302	1.246 (0.213)			0.417	1.672 (0.102)

	Sign															
GREG (2)	+/-	-0.072	-0.390 (0.696)					0.153	0.817 (0.414)	-0.089	-0.479 (0.632)			0.158	0.846 (0.398)
GREG (3)	+/-	0.058	0.359 (0.720)					0.216	1.259 (0.209)	0.061	0.370 (0.711)			0.201	1.185 (0.237)
GREG (4)	+/-	0.110	0.338 (0.735)					0.522	1.643 (0.101)	0.372	1.190 (0.235)			0.254	0.766 (0.444)
GREG (5)	+/-	-0.237	-1.338 (0.181)					-0.142	-0.767 (0.433)	-0.204	-1.147 (0.252)			-0.187	-1.013 (0.312)
CONTROL VARIABLES																
SEN (1)	-	-0.099	-0.633 (0.527)	-0.139	-0.849 (0.396)	-0.204	-1.472 (0.142)	-0.177	-1.216 (0.224)	-0.208	-1.509 (0.132)	-0.109	-0.704 (0.482)	-0.116	-0.709 (0.479)
SEN (2)	-	-0.319	-2.022** (0.044)	-0.303	-1.932* (0.054)	-0.427	-3.723*** (0.000)	-0.382	-3.095*** (0.002)	-0.465	-3.928*** (0.000)	-0.323	-2.155** (0.032)	-0.303	-1.837** (0.067)
SEN (3)	-	-0.212	-0.952 (0.342)	-0.239	-1.037 (0.300)	-0.238	-1.393 (0.164)	-0.234	-1.303 (0.193)	-0.285	-1.653* (0.099)	-0.201	-0.916 (0.360)	-0.276	-1.818 (0.238)
FIRMSIZE	+	0.341	10.795*** (0.000)	0.341	11.314*** (0.000)	0.343	11.572*** (0.000)	0.323	10.298*** (0.000)	0.336	10.620*** (0.000)	0.353	11.830***(0.000)	0.328	10407*** (0.000)
PROD	+	0.037	1.414 (0.158)	-0.008	-0.299 (0.765)	0.044	1.669* (0.096)	-0.011	-0.413 (0.680)	0.039	1.496 (0.135)	0.042	1.609 (0.108)	-0.012	-0.443 (0.658)
ROA	+	0.354	3.784*** (0.000)	0.382	3.912*** (0.000)	0.340	3.603*** (0.000)	0.390	3.977*** (0.000)	0.345	3.658*** (0.000)	0.351	3.749*** (0.000)	0.396	4.079*** (0.000)
BDSIZE	+	0.079	5.309*** (0.000)	0.096	6.316*** (0.000)	0.081	5.421*** (0.000)	0.096	6.344*** (0.000)	0.081	5.433*** (0.000)	0.079	5.299*** (0.000)	0.095	6.264*** (0.000)
Fixed effect		Included		Included		Included		Included		Included		Included		Included		
		F = 19.906 (0.000)***		F =23.836(0.000)***		F = 27.341 (0.000)***		F = 22.475 (0.000)***		F = 22.345 (0.000)***		F = 23.525 (0.000)***		F = 19609 (0.000)***	
		Pseudo R^2 = 50.70%		Pseudo R^2 =44.40%		Pseudo R^2 = 49.30%		Pseudo R^2 = 44.30%		Pseudo R^2 = 49.90%		Pseudo R^2 = 50.20%		Pseudo R^2 = 45.40%	

Results of the Lineal Regression. PERCWBD: Variable percentage of women directors on the BD's and is calculated as the ratio between the total number of female directors on the BD's and the total number of directors on the BD's; PWNCC: Variable presence of women on the Nomination and Compensation Committee, which is calculated as a dummy variable that takes the value 1 if there is presence of women on the Nomination and Compensation Committee and 0, otherwise; ELIWBD (1): Variable educational level of independent women on the BD's, which is calculated as a dummy variable that takes the value 1 if independent female directors have a degree and 0, otherwise; ELIWBD (2): Variable educational level of independent women on the BD's, which is calculated as a dummy variable that takes the value 1 if independent female directors have a doctorate and 0, otherwise; FSEC(1): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the oil and energy sector and 0, otherwise; FSEC(2): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the basic materials, industry and construction sector and 0, otherwise; FSEC(3): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the consumer goods sector and 0, otherwise; FSEC(4): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the consumer service sector and 0, otherwise; FSEC(5): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the finance and real estate sector and 0, otherwise; GREG (1): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the North-Western region and 0, otherwise; GREG (2): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the North-Eastern region and 0, otherwise; GREG (3): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the Madrid region and 0, otherwise; GREG (4): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the Centre region and 0, otherwise; GREG (5): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the East region and 0, otherwise; SEN (1): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the BD's have one year of seniority and 0, otherwise; SEN (2): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the BD's have from two to four years of seniority and 0, otherwise; SEN (3): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the BD's have from five to eight years of seniority and 0, otherwise; FIRMSIZE: Variable firm size and is calculated as the log of total assets (in thousands of Euros); PROD: Variable employee productivity and is calculated as the log of (Turnover/Number of employees); ROA: Variable Return on Assets and is calculated as the ratio between ordinary result and average of total assets; BDSIZE: Variable size of the board and it is calculated as the total number of directors on BD's. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

Table 19 presents the results of the linear regression for the model proposed and for the six variants, where the dependent variable represents the logarithm of the gender pay gap among BD.

Model 1 includes all the independent variables included in the study, comprising the characteristics of the board (PERCWBD, PWNCC, ELIWBD (1) and ELIWBD (2)), the sector (FSEC (i)) and the region (GREG (i)), while Models 2, 3 and 4 examine the impact of each of the independent variables in isolation. Specifically, Model 2 analyses board characteristics, Model 3 the sector and Model 4 the geographical region. Model 5 includes both the sector and the geographical region where the firm is located, excluding the variables referring to the characteristics of the board. Meanwhile, Model 6 analyses the variables referring to the board's characteristics and the sector, excluding the geographical region, and Model 7 includes the board's characteristics and the geographical region, excluding the sector variable.

The results for Model 1 show goodness of fit of 50'70%, and the model is statistically significant at the 1% level. The variable denoting the percentage of female board members (PERCWBD) is negative, contrary to our expectations, but it is not statistically significant, and the hypothesis tested therefore cannot be accepted. Consequently, an increase in the percentage of women on the board has no effect on the gender pay gap between directors. According to this result, it cannot be confirmed that a higher percentage of women directors on the board will be more likely to result in a smaller gender wage gap among directors. Meanwhile, the variable denoting the presence of women on the Nomination and Compensation Committee (PWNCC) displays the expected sign and is statistically significant at the 5% level of significance. Hence, we can accept the second hypothesis proposed, concluding that the presence of women on the Nomination and Compensation Committee will increase the gender pay gap among board members. According to this result, we can confirm that the presence of female directors in the Nomination and Compensation Committee influences the gender wage gap, widening it. Both of the qualifications variables are negative, as expected, but only ELIWBD (1) is statistically significant at the 1% level. Thus, the third hypothesis can be accepted and we can conclude that the presence of well-qualified female independent directors on company boards will reduce the gender gap in

pay among directors. In this light, we concur with Gardín and del Río (2009) and with Mukhopadhayay (2001) in confirming that the presence of female independent directors holding degree level qualifications reduces the gender pay gap between the men and women serving on a firm's board.

The sector variable is negative for all sectors, except consumer services SEC (4), which is positive. However, only financial services and property (FSEC 5) is statistically significant at 1%. Hence, the fourth hypothesis is partially accepted, since only one of the five sectors analysed has an effect on gender wage pay, reducing it, and therefore, we may conclude that in financial services and the property sector the gender gap is lower than in the others. None of the variables denoting geographical region is statistically significant, and the fifth hypothesis therefore cannot be accepted. Thus, it cannot be confirmed that geographical region affects the gender gap in pay since none of the regions studied increased or narrowed the gender wage gap.

All the control variables offer the expected signs, but only the variables denoting the presence of female directors with between two and four years' seniority (SEN(2)), company size (FIRMSIZE), return on assets (ROA) and board size (BDSIZE) are statistically significant. We therefore concur with Aláez and Ullibarri (1999) and Lago (2002) that the presence of more experienced women (in terms of years of seniority) on company boards reduces male-female compensation difference between directors, and that the gender pay gap widens with company size, return on assets and board size.

The results for Models 2, 3 and 4 are statistically significant at the 1% level and present goodness of fit of 44'50%, 49'30% and 44'30%, respectively. Model 2 analyses the individual influence of board characteristics (proportion of female board members, qualifications of independent female directors and the presence of women on the Nomination and Compensation Committee) on the gender pay gap between directors. Model 2 confirms the results obtained from the analysis of all of the independent variables together, allowing the conclusion that the presence of women on the Nomination and Compensation Committee increases the gender pay gap between directors, while the presence of women graduates on company boards reduces male-female compensation differences. The control variables for Model 2 take the same signs

at the same significance levels as in Model 1, except for the productivity variable, which is negative in this model, but it is once again not statistically significant, and SEN (3), which was not statistically significant in Model 1 but is so at the 10% level in Model 2.

The results obtained from Models 3 and 4, which respectively analyse the influence of the sector and geographical region of the firm, are very similar to those of Model 1. Specifically, the only independent sector variable to change in Model 3 is FSEC (1), which is positive where it was negative in Model 1. Once again, only FSEC (5) is statistically significant. The results for the control variables are also the same, except for employee productivity, which is statistically significant at the 10% level in Model 3, although it was not so in Model 1. Thus, an increase in employee productivity entails a widening of the gender pay gap between directors. In this light, we may again conclude that compensation differences between male and female directors are reduced only in the financial services and property sector. The results of Model 4 are the same as in Model 1, except in the case of employee productivity, which was positive in the latter, but is negative in Model 4. However, this variable is not statistically significant in either model. In light of the results obtained in Model 4, we may conclude that the region where a firm is located has no effect on the gender pay gap between board directors.

Model 5 analyses the independent variables denoting the sector and geographical region together, while excluding board characteristics. The results obtained are the same as for Model 1. Only FSEC (5) is negative, and it is statistically significant at the 1% level. Hence, the gender pay gap between directors is smallest in the financial services and property sector. As in Model 1, the geographical region is not statistically significant. Meanwhile, there is practically no change in the control variables with the exception of SEN (3), which is statistically significant at the level of 10% in Model 5.

Model 6 presents a goodness of fit of 50'20% and is statistically significant at the level of 1%. The independent variables included in this model are the board characteristics (PERCWBD PWNCC, ELIWBD (1) and ELIWBD (2)) and the sector to which the firm belongs. As shown in Table 7, the results obtained from the independent and control variables included in Model 6 are the same as in Model 1, when all of the independent variables are examined together.

Finally, Model 7 analyses the independent variables consisting of board characteristics and the geographical region. It confirms the results revealed by Model 1, both for the independent and for the control variables. The only exception is the sign of GREG (2) and employee productivity, as the first of these variables is positive and the second is negative, contrary to the results found in Model 1. Neither is statistically significant however. In Model 7 the control variable SEN (3) is also statistically significant.

To test for multicollinearity, we calculated the Spearman correlation coefficients for all of the variables included in the model. Table 20 shows the correlation matrix. Analysis of this table reports that the correlation between certain pairs of variables is statistically significant at the level of 5% or 10%. These results are consistent with earlier studies of gender gap in pay (Gardín and Del Río, 2009; Ortega 2007). However, none of the correlation coefficients is sufficiently high (> .80) to cause any major multicollinearity problems (see Archambeault and De Zoort, 2001). We have also calculated the vector inflation factor (VIF) to corroborate that our results are not biased because of the multicollinearity.

TABLE 20

Spearman Correlation Coefficients

	REMU	PERCWBD	PWNCC	ELIWBD1	ELIWBD2	FSEC1	FSEC2	FSEC3	FSEC4	FSEC5	GREG1	GREG2	GREG3	GREG4	GREG5	SEN1	SEN2	SEN3	FIRMSIZE	PROD	ROA
PERCWBD	0.024																				
PWNCC	0.056	0.507***																			
ELIWBD1	0.000	0.562***	0.517***																		
ELIWBD2	0.172***	0.483***	0.424***	0.380***																	
FSEC1	0.311***	0.162***	0.205***	0.142***	0.394***																
FSEC2	0.027	-0.028	-0.021	-0.072	-0.001	-0.215***															
FSEC3	-0.228***	-0.121***	-0.058	-0.115***	-0.161***	-0.212***	-0.425***														
FSEC4	0.123***	0.021	-0.044	-0.045	-0.079*	-0.104**	-0.208**	-0.205**													
FSEC5	-0.137***	-0.068	-0.148***	-0.069	-0.107**	-0.141***	-0.281***	-0.278***	-0.136***												
GREG1	-0.002	0.009	-0.076*	-0.066	-0.055	-0.072*	-0.145***	0.241***	-0.070	0.032											
GREG2	-0.106*	-0.011	-0.063	-0.031	-0.062	-0.070	0.217***	0.071	-0.063	-0.185***	-0.096*										
GREG3	0.347***	0.061	0.055	0.130***	0.156***	0.105**	0.003	-0.205***	0.088**	-0.007	-0.230***	-0.450***									
GREG4	-0.123***	0.113**	0.185***	-0.048	-0.040	-0.053	0.218***	-0.077*	-0.051	-0.069	-0.036	-0.070	-0.168***								
GREG5	-0.168***	-0.150***	-0.060	-0.118***	-0.114***	0.056	-0.157***	0.083**	-0.004	0.127***	-0.102**	-0.199***	-0.479***	-0.074*							
SEN1	0.006	0.352***	0.226***	0.262***	0.254***	0.048	0.042	-0.068	-0.013	-0.032	-0.010	-0.052	0.013	0.031	-0.013						
SEN2	0.001	0.629***	0.398***	0.415***	0.441***	0.115***	0.054	-0.133***	0.019	-0.079*	-0.051	-0.010	-0.003	0.258***	-0.085	0.027					
SEN3	0.068	0.509***	0.504***	0.404***	0.437***	0.133***	-0.023	-0.036	-0.064	-0.060	0.008	0.021	0.003	0.144***	-0.091**	0.108***	0.230***				
FIRMSIZE	0.667***	0.185***	0.075*	0.136***	0.303***	0.289***	0.093**	-0.333***	-0.007	0.027	-0.073*	-0.140***	0.400***	-0.183***	-0.153***	0.083*	0.104**	0.112**			
PROD	0.287***	0.044	0.021	0.034	0.042	0.138***	-0.146***	-0.090**	-0.017	0.249***	0.025	-0.021	0.133***	-0.077*	-0.054	-0.034	0.057	0.030	0.333***		
ROA	0.152***	0.075*	0.101**	0.083*	0.123***	0.071	-0.050	0.022	0.167***	-0.148***	0.001	0.005	0.160***	-0.088**	-0.189***	0.012	0.100**	0.063	-0.002	0.230***	
BDSIZE	0.586***	0.115***	0.090**	0.133***	0.258***	0.262***	0.047	-0.295***	0.143***	-0.093**	-0.106**	-0.029	0.252***	-0.051	-0.142***	0.069	0.126***	0.083*	0.604***	0.240***	0.069

Spearman's correlation matrix. REMU: Variable gap in pay between male and female directors on the BD's and is calculated as the log of the difference between male and female director's compensation in the BD's; PERCWBD: Variable percentage of women directors on the BD's and is calculated as the ratio between the total number of female directors on the BD's and the total number of directors on the BD's; PWNCC: Variable presence of women on the Nomination and Compensation Committee, which is calculated as a dummy variable that takes the value 1 if there is presence of women on the Nomination and Compensation Committee and 0, otherwise; ELIWBD (0): Variable educational level of independent women on the BD's, which is calculated as a dummy variable that takes the value 1 if independent

female directors do not provide information about their educational level in the Corporate Governance Report and 0, otherwise; ELIWBD (1): Variable educational level of independent women on the BD's, which is calculated as a dummy variable that takes the value 1 if independent female directors have a degree and 0, otherwise; ELIWBD (2): Variable educational level of independent women on the BD's, which is calculated as a dummy variable that takes the value 1 if independent female directors have a doctorate and 0, otherwise; FSEC(1): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the oil and energy sector and 0, otherwise; FSEC(2): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the basic materials, industry and construction sector and 0, otherwise; FSEC(3): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the consumer goods sector and 0, otherwise; FSEC(4): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the consumer service sector and 0, otherwise; FSEC(5): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the finance and real estate sector and 0, otherwise; FSEC(6): Variable firm sector, which is a dummy variable that takes the value 1 if the company operates in the technology and telecommunication sector and 0, otherwise; GREG (1): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the North-Western region and 0, otherwise; GREG (2): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the North-Eastern region and 0, otherwise; GREG (3): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the Madrid region and 0, otherwise; GREG (4): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the Centre region and 0, otherwise; GREG (5): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the East region and 0, otherwise; GREG (6): Variable geographical region, which is a dummy variable that takes the value 1 if the company is located in the South and the Canary Islands region and 0, otherwise; SEN (0): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the BD's do not have seniority and 0, otherwise; SEN (1): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the BD's have one year of seniority and 0, otherwise; SEN (2): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the BD's have from two to four years of seniority and 0, otherwise; SEN (3): Variable seniority, which is a dummy variable that takes the value 1 if women directors on the BD's have from five to eight years of seniority and 0, otherwise; FIRMSIZE: Variable firm size and is calculated as the log of total assets (in thousands of Euros); PROD: Variable employee productivity and is calculated as the log of (Turnover/Number of employees); ROA: Variable Return on Assets and is calculated as the ratio between ordinary result and average of total assets; BDSIZE: Variable size of the board and it is calculated as the total number of directors on the BD's. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

2.7. CONCLUSIONS

Cultural, political and social changes in recent decades have seen women enter many jobs that were once reserved for men. However, the limited participation of women in the labour market has resulted in a gender pay gap. Numerous studies in Spain and internationally have investigated why such male-female compensation differences should exist (Campos et al., 2010; Mateos et al. 2010; Simón, 2009). To solve this problem, numerous regulations have been enacted to ensure that women are employed under equal conditions to men and to prevent male-female compensation discrimination.

The aim of this study was to determine whether there is a gender gap in pay among board directors of firms listed on the Madrid Stock Exchange, in the period 2004-2011, inclusive, and to throw light on the reason for any gender pay gap found.

To achieve this aim, we examined the effect of the percentage of female directors on the board, the presence of women on the Nomination and Compensation Committee, the educational level of female independent directors, the sector in which the firm operates and its geographical region, on the gender wage gap. The results obtained show that the percentage of female board members does not influence the gender pay gap among directors, while the presence of women on the Nomination and Compensation Committee actually widens the gap, as we predicted. The explanation for this may be that the opinion of women members on both the board and the Nomination and Compensation Committee is mitigated by their male colleagues. In particular, the few female members on Nomination and Compensation Committees are likely to come under considerable pressure in this regard, as these committees are small and are clearly dominated by men. Our results also report that the qualifications held by female independent directors influence board members' pay, as the presence of women graduates narrows the gender pay gap, but not for women who hold a PhD. It may be that better corporate governance implies full disclosure of the director's background and reduced gender gap, rather than a relationship between the latter and the educational level. The results also suggest that the male-female compensation difference between directors is smaller in the boards of financial services and property sector firms (FSEC (5)). The geographical region in which the firm is located is not a relevant factor, as it does not affect the gender pay gap among board members. We believe that the

explanation for these findings may be that the organisational culture of the firms listed on the Madrid Stock Exchange is influenced by the values of their directors rather than by the culture of a specific geographical region. This result may also be explained by the fact that the cost of living is similar in all the regions considered. With regard to the control variables used, we find that the presence of women with between two and four years' seniority on company boards reduces the gender pay gap between directors, but the gap increases in very large firms, where the return on assets is higher and where the board is larger. We have constructed different variations to validate and confirm the model originally proposed. The results obtained from these models basically confirm the findings from the original model, with some exceptions regarding the control variables.

The findings from this study reveal the existence of a gender gap in pay in the boards of firms listed on the Madrid Stock Exchange. Specifically, the study shows that female directors suffer pay discrimination when the Nomination and Compensation Committee has women members, in larger firms, in the most profitable firms (i.e. those with the highest return on assets) and in the firms with the largest boards. In contrast, the gender pay gap narrows when female independent directors are graduates, when the female board members have between two and four years' seniority and in firms operating in the financial services and property sector. Finally, we may observe that neither an increase in the proportion of female board members nor the geographical region of the firm have any particular influence on the gender pay gap. These findings, therefore, report that equality is still a long way off, and they should provide an incentive for regulators and politicians to press for changes to prevailing legislation to improve the situation and progress towards the elimination of male-female compensation discrimination at all levels. More effective laws are clearly needed to reduce the gender pay gap found and to oblige firms to comply on pain of sanctions.

The gender quota on boards, in our sample, rises from 1'04% in 2004 to 6'62% in 2011. This data suggests that the Spanish quota is growing but not as much as is expected, considering that in 2015 the quota in listed firms should legally be 40% (a more in-depth discussion about this issue can be found in Terjesen et al., 2014). Thus, even though the regulations have been introduced, the time permitted for reaching gender equality is long (8 years) and for this reason, it may be possible that companies

are not in a hurry to reach the gender quota of 40%. In any case, we agree with Grosvold et al. (2007), who argue that a compulsory gender quota (affirmative action programs) may have the potential to generate growth in female representation in the boardroom and report that no negative effects of this initiative are likely to arise in the shape of the appointment of inexperienced female directors.

This study is subject to certain limitations. In the first place, the study was carried out in Spain for the period from 2004 to 2011, and the results obtained should therefore not be extrapolated to other countries or periods. Secondly, the literature refers to the analysis of individual attributes (gender, educational level, seniority and experience), job attributes (type of contract, working hours and occupation) and attributes of the workplace (sector, collective bargaining agreements, region, firm size and compensation). Not all of this data (e.g. job attributes) could be obtained in this study; however, the database used contains information drawn from Corporate Governance Reports and Annual Reports, and from corporate websites. Thirdly, in this study we show association, not causation, between the presence of women on the Nomination and Compensation Committee, the educational level of independent women in the Board and the sector of the firm, and the difference between the compensation of male and female directors. Finally, it is likely that gender quotas law for Spanish boards has little effect because sanctions are weak in comparison to case from Norway, where the sanction if the company does not comply with the gender quota is extremely serve: the dissolution of the company. The only gender quota law similar to the Norwegian one in terms of effectiveness is the Italian one, introduced only in 2011.

This study may give rise to future lines of research. In the first place, an analysis of directors' pay, distinguishing between fixed and variable compensation, would be valuable in throwing light on the potential of incentives to narrow the gender pay gap. Second, it would be interesting to establish whether male-female compensation differences exist at all levels of an organisation or merely on the board, assessing the equality plans applied by firms in their recruitment and selection processes. Third, it would be relevant to examine employee pay taking into account the wages of immigrant workers to establish whether firms discriminate in this area. Finally, it would also be interesting to study the pay earned by both male and female directors in international

firms and to establish whether any gender-based compensation differences that may come to light are due to political, cultural or social factors.

CHAPTER 3

THE BOARD OF DIRECTORS AND THE APPOINTMENT OF SUB-COMMITTEES: THE EFFECT OF GENDER DIVERSITY

3.1. INTRODUCTION

The scale of the occurrence of financial fraud in recent years has led to the loss of credibility of the economic-financial information published by firms. To this must be added the agency problems in organizations resulting from the separation of ownership and control, because of the difficulty for the owner to assess the behaviour of managers. Therefore, firms have increased the demand for internal and external controls in order to reduce information asymmetry and agency costs.

Over time, regulatory bodies have developed a set of standards for the purpose of restoring transparency and confidence to the markets, firms and investors. Among these measures, which were developed in the late 20th Century, the Codes of Good Governance (hereinafter, CGG) were created and aimed at improving the business process governance, developing recommendations and principles of functioning of organisations.

Spain is familiar with CGG and published the first in 1998, known as the Olivencia Report or Code, whose recommendations focused on the performance of firms and the publication of public information. The Olivencia Report was followed in 2002 by the Law on Measures to Reform the Financial System (LMRFS) and in 2003 by the Law on Transparency of Listed Firms (LTLT). In 2003 the Aldama Report was also published and replaced the Olivencia, while in 2006 the Unified Code of Good Governance (CUBG) report was published, which unifies the Olivencia and Aldama Codes. The objective of the CUBG was implementing tools to improve business management. Over time, regulatory bodies have made adaptations to existing codes in order that the CGG's bring transparency, trust and shareholder value (Alonso, 2008).

One of the principal recommendations of the CGG highlights competencies of the BD, which is responsible for conducting the business of the firm in the interests of those who provide resources and support business risk. The BD is a management body composed of internal (executives) and external (mostly independent and representatives of large shareholders) members that is configured as a system of internal control of the firm (Jensen, 1993) in order to oversee and approve the most important corporate decisions (Fama, 1980; Mizruchi, 1983; Zahra and Pearce, 1989; Bainbridge, 1993 and Johnson et al., 1996). Authors such as Baysinger and Butler (1985), Miller (1993), Johnson et al. (1996) and Chatterjee and Harrison (2001) note that the BD aims at, among other things, guiding the affairs of the organisation and ensuring the interests of shareholders through the control of senior management, acting as an intermediate body between shareholders and management teams (Salas, 2002). As the main internal mechanism for resolving agency conflicts within the firm (Jensen, 1993), this body focuses its work in monitoring management team behaviour (Baysinger and Bulter, 1985 and Hermalin and Weisbach, 1991). Among its main functions it can highlighted the approval of the firm's strategy and organisation; appointment, remuneration and dismissal of any of the senior members of the company, if and where appropriate; determining the information and communication policies with stakeholders; identification of the principal risks of the firm, and implementation and monitoring of internal control policies, among others (Olivencia Code, 1998).

The Spanish CGG recommended the establishment of support commissions to perform complementary tasks of the BD. However, it is noteworthy that the LMRSF of 2002 obliged listed firms to establish AC's, with the objective of reviewing the financial statements of the firms before forwarding them to the BD and, therefore, ceased to be a recommendation for listed firms and became an obligation. The Aldama Report (2003) recommended the creation of an Executive Committee, a Nomination and Compensation Committee and a Strategy and Investment Committee, also emphasising the creation of the AC, which is mandatory for listed firms. However, the CUBG (2006) omitted the Strategy and Investment Committee that drove the Aldama Report (2003), as the skills developed by this committee were typical of the BD. It recognised the usefulness that the Corporate Governance Committee has for some firms, but generally, did not consider the need to recommend its creation.

The formation of Board Sub-Committees can differ, both domestically and internationally, depending on the time of the issuance of the CGG. Adams and Ferreira (2003) analysed a sample of Fortune 500 firms, and showed that they had, on average, 4.4 commissions. They also concluded that the Audit and Remuneration Committees were the most recommended commissions by the CGG to listed firms, while 92% of firms in the sample had more than two Oversight Committees. Carson (2002) analysed 361 Top 500 Australian firms, documenting that 84% of them set up AC's, 57% set up Compensation Committees and 17% set up Nomination Committees. Groff and Valentincic (2011) analysed non-financial firms in Slovenia, showing that only 17% had voluntarily created an AC. In Spain, Garcia-Osma and Gill de Albornoz (2004) revealed that 45% of the BD's had an Executive Committee. They also noted that 74% of firms in the sample had an AC, 68% had a Nomination Committee and 67% had both of these committees. Banegas et al. (2006) analysed the IBEX 35 firms and concluded that only 14 firms had a Nomination and Compensation Committee, acting the two committees as one, and only five firms included independently a Nomination Committee and a Compensation Committee. Furthermore, only two firms created a Strategy and Investment Committee.

Moreover, it is noteworthy that the sustained socio-economic changes in Spain in recent years have increased gender diversity in BD's. This increase was enhanced by the

implementation of Conthe Code (CUBG, 2006), and that its proposals are intended to support the female presence. But it was with the implementation of Act 3/2007 of 22 March, for Effective Equality between Women and Men (LOIMH[4]), Article 75, which frames the regulation of the appointment of men and women on BD's in an equitable form. The paper of Gómez (2005) documented that the presence of women in Spanish BD's was in lower positions compared to other European Union countries.

In terms of the benefits of incorporating women into the governing bodies of firms, Robinson and Dechant (1997), Zahra and Garvis (2000) and Del Brío and Del Brío (2009) observed that the presence of women on BD's contributed to an innovative firm. Erhardt et al. (2003) concluded that the presence of women on BD's provided greater creativity, increased the quality of proposals, better prospects and more information search for firms. Carter et al. (2003) noted that the presence of women on BD's favoured obtaining corporate value for the firm.

Thus, the aim of this chapter is to study whether gender diversity in BD's of the firms listed on the Madrid Stock Exchange influences the voluntary formation of Board Sub-Committees. Spain is a good context in which to examine the effect of Board's gender diversity in the voluntary creation of Board Sub-committees (also known as Board Committees) due to being one of the European countries where gender diversity in the Boards is increasing more slowly, in spite of publishing a law that forces BD's to have a minimum percentage of women. Differences in the corporate governance systems of Spanish firms highlight the futility of extrapolating from studies of the Anglo-Saxon markets to include Spain (Fernández and Arrondo, 2007). Unlike the Anglo-Saxon capital markets, the ownership concentration and the lack of liquid capital markets in Spain have resulted in BD's being the prevalent mechanism of control. Indeed, ownership concentration is one of the features that makes Spanish corporate governance different from countries such as the US, UK, Germany and Japan, as well as the low level of legal protection for investors and pyramidal groups and underdeveloped capital markets that focus largely on financial institutions and banks. According to De Miguel et al. (2005), the last two characteristics explain why the ownership structure is so concentrated in Spain in comparison to common law countries and even to some French-origin civil law countries such as Germany. Consequently, this high ownership

concentration acts as a legal control influencing Spanish corporate governance (Grant and Kierchmaier, 2004).

The institutional, legal and corporate governance peculiarities that make Spain so different from the circumstances of the Anglo-Saxon countries and the USA, to which most of the existing Board Sub-committee literature refers, may affect Board's gender diversity and its impact on the voluntary creation of Board Sub-committees. Consequently, this research may offer new insights into the relationship between corporate governance, and Board Sub-committees in particular, and Board's gender diversity in the Spanish context, which explains the interest of analysing this association.

Most of the previous evidence is based on the analysis of the voluntary creation of AC's (Collier and Zaman, 2005), paying less attention to the examination of the formation of the remainder Board Sub-committees. In addition, little research has been performed combining Board's gender diversity and Board-Subcommittees. Therefore, we contribute to the literature of Corporate Governance by demonstrating that the demand of internal control mechanisms such as Board Sub-committees can vary depending on the structure of Board's gender diversity. Further, we find evidence of substitutive effects between Executive Committee and the percentage of women executive directors on BD's and between Board Sub-committees and the percentage of female representatives of large shareholders directors on BD's, which suggests that Board Sub-committees in general, and Executive Committee in particular, should not be considered in isolation. In sum, these results suggest that a one-size fits all solution for the creation of Board Sub-committees might not be optimal as different firms face different incentives in composing their BD's.

The structure of the paper is as follows. After this introduction, we review the existing literature and posit the hypotheses to be tested. The third section describes the methodology, variables and the sample used in this study. The fourth section discusses the results and finally, the fifth and final section presents the findings and limitations inherent in this study, in addition to describing potential future research.

3.2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

3.2.1. Literature Review

According to agency theory, the separation between ownership (principal) and control of the firm (agent) generates information asymmetries between the parties (Jensen and Meckling, 1976; Rutherford and Buchholtz, 2007). This gives rise to a conflict of interest between the principal and the agent and, thus, becomes an agency problem. A firm can mitigate the agency problem by setting up control mechanisms such as Board Sub-committees. The Securities and Exchange Commission (SEC) considers such committees as important tools for monitoring corporate activities. Previous evidence supports that the existence of independent Board Sub-committees is positively related to effective decision-making (Vafeas 1999, Anderson and Reeb 2004).

Among the Board Sub-committees is included the formation of an AC and the Nomination and Compensation Committee (Pincus et al., 1989, Menon and Williams, 1994, Beasley and Salteiro, 2001, DeZoort et al., 2002), among others. Several previous studies have examined the voluntary formation of AC (Chau and Leung, 2006; Piot, 2004 and Pucheta-Martínez and de Fuentes, 2007), of Nomination Committees (Carson, 2002; Vafeas, 1999; Ruigrok et al., 2006) and of Remuneration Committees (Liao and Hsu, 2013). Bich and Hutchinson (2012) reported that the use of the Audit and Control Committee and Nomination and Compensation Committees reduced informational asymmetries, as when the directors were the same on both committees they were able to monitor the risk exposure of the firm. Firms also may have other control mechanisms such as the external and internal auditors, the BD and institutional investors. In this respect, Fama and Jensen (1983) showed the need for control mechanisms in decisions where managers do not directly bear the economic cost for those decisions.

Hence, in order to reduce agency costs and information asymmetries, firms demand control mechanisms other than the BD, such as the Board Sub-committees, as well as helping it to carry out its activities efficiently and independently (Harrison, 1987). In this vein, authors such as Kesner (1988), Andrews (1997) and Sherman et al. (1998), among others, found that major decisions being taken by BD's came from Board Sub-

committees. The firm director of Roebuck and Firm noted in 1999 that firms are run primarily by their committees. Harrison (1987) demonstrated that the control commissions were important management mechanisms for BD's to independently perform oversight functions. Boone and Mulherin (2012) analysed the Delegated Committees of 845 firms listed on the New York Stock Exchange, the American Stock Exchange, the Nasdaq and Small Market Prices, showing that the creation of Board Sub-committees increased oversight functions, thus, reducing agency problems. Wolnizer (1995) demonstrated that the principal operations performed by Board Sub-committees were the controlling and monitoring of the development and subsequent disclosure of accounting information. In a similar manner, Vance (1983) and Ruigrok et al. (2006) showed that the delegation of functions by the BD to Sub-Committees increased the quality of the activities of the BD. Laux and Laux (2009) revealed that the Delegate Committees, at times, were working independently in order to achieve the objectives set by the CGG. However, sometimes a single committee performed the combined functions of various committees.

Previous evidence shows that the formation of Board Sub-committees implies an increase in the delegation of functions by the BD (Vafeas, 1999) and increased monitoring and control (Vafeas, 1999, Klein, 2002 and Walker, 2009), impacting positively on the firm value or reducing earnings management, among other issues. In this sense, Reeb and Upadhyay (2010) documented a positive relationship between the number of Board Sub-committees and firm performance. Bich and Hutchinson (2012) also demonstrated a positive relationship between the risk and firm performance, mainly due to the creation of Supervision and Control Committees. DeFond and Jiambalvo (1991) concluded that those firms having AC's had not overstated annual earnings, thus reducing the manipulation of accounting information. Conyon (1997) noted that the presence of Compensation Committees in British firms caused a wage restraint in director compensation. In addition, Klein (1998) showed that Remuneration Committees were in charge of pay structure design, in order to encourage shareholders to generate higher business returns. Frankforet et al. (2012) analysed 166 firms from the Wall Street Journal and showed that the presence and structure of a Compensation Committee increased the effectiveness of control and monitoring functions. Garcia-Osma and Gill de Albornoz (2007) demonstrated that the inclusion of a Nomination and

Remuneration Committee guaranteed that firms would achieve good business performance.

3.2.2. Hypotheses

Number of Women Directors on Boards of Directors

The incorporation of women into BD's has been slow and gradual. Although in recent decades women have increased their levels of training and qualifications, there are still jobs with high barriers to direct access to the labour market, such as BD's and the decision-making and control bodies in firms (Sarrió et al. 2002).

In terms of female representation in BD's, Carnicer et al. (2007) reported that the presence of women in senior management and the BD was greater in those firms that had the highest percentage of women in the workforce. In a similar manner, Porto et al. (2010) concluded that Spain was the country with the lowest number of firms having female directors, after the UK and the US. Moreover, Ramos (2005) revealed that the presence of women in the BD's of IBEX 35 firms was only 3.6% and also documented that 63% of firms did not have any women in their BD's. The publication of the National Institute of Statistics (2012) showed that the presence of women in the BD's of IBEX 35 firms was 10.3%, which is insufficient, but higher than in previous years, as in 2005 this figure did not exceed 2%.

Previous research addresses the relationship between gender diversity in BD's and the creation of firm value. Adler (2001), Adams and Ferreira (2003), Carter et al. (2003), Jimeno and Redondo (2008) and Campbell and Minguez-Vera (2008) documented that the presence of women in decision-making positions with high responsibility increased the value of the firm. In contrast, Burke (1997), Robinson and Dechant (1997), and Campbell and Minguez-Vera (2008) concluded that gender diversity in BD's could become a competitive advantage and a source of value for the firm. Similar results from Erhardt et al. (2003), Krishnan and Park (2005), Jimeno and Redono (2008) and Castaño et al. (2009) demonstrated that the degree of gender diversity in BD composition can lead to increased firm performance. Burgess and

Tharenou (2002) showed that firms with heterogeneous BD's reduced the likelihood of poor performance as a result of decisions taken. Similarly, Watson and Robinson (2003) reported that women in BD's were more risk averse in making important decisions.

Vance (1983) and Waldo (1985), among others, highlight that the Delegate Committees facilitate the effectiveness of BD's and contribute to a more skilled use of it, which will permit greater flexibility and efficiency. Therefore, Board Sub-committees have become an integral part of Corporate Governance mechanisms. Previous studies seem to support the benefits derived from Board Sub-committees, as they may exercise their functions more independent and efficiently (Vance, 1983; Ruigrok et al., 2006; Laux and Laux, 2009), and the firm will permit greater value creation and reduce the manipulation of information (Vafeas, 1999; Klein, 2002; Walker, 2009), among other aspects.

Authors such as Carter et al. (2003) and Adler (2001), among others, show that the presence of women in BD's increases business performance, and ultimately, the value of the firm, because women exercise better the control function, and therefore, agency costs arising from the separation of ownership and management can be reduced. In the same sense, previous studies (Adams and Ferreira, 2009 and Schwartz-Ziv, 2011) also documented that women in BD's are better able to develop monitoring activities. Nielsen and Huse (2010) examined Norwegian firms which had from 50 to 5.000 employees, and showed that gender diversity in BD's increased strategic control of them, providing advantages in the strategic decision making of BD's.

Therefore, and taking into account previous evidence, it is expected that as the number of women increases in BD's, the greater will be the likelihood of creating Delegated Committees, as female directors on BD's will demand more control mechanisms with which to exercise greater supervision and monitoring of both, the management team and other members of BD's, making better decisions that positively impact shareholders. Hence, we posit the following hypothesis:

Hypothesis 1: The number of women directors on the Board of Directors is positively associated with the voluntary creation of Board Sub-Committees.

Percentage of Female Independents Directors on Boards of Directors

The presence of independent members of BD's is essential for them to adequately perform the functions of control and supervision. Independent directors are those members of recognised prestige who bring experience and expertise to Corporate Governance, who are not linked with the management team and cannot be considered as executives or representatives of large shareholders. That is why the CGG recommend that the presence of independent members in BD's is, at least, one third of all directors, in order to produce effective management (CUBG, 2006).

A large number of previous studies (Abbott et al., 2000; Deli and Gillan, 2000; Carcello and Neal, 2003; Felo et al., 2003, Bradbury et al., 2006; Song and Windram, 2004; Karamanou and Vafeas, 2005; Pucheta-Martínez and De Fuentes, 2007; Bédard and Gendron, 2010) analyse the impact of the independence of the Board Sub-committees, particularly the AC, documenting that independent AC's provided higher quality financial reported in the process. Similarly, Klein (2002) and Xie et al. (2003) demonstrated that the existence of an AC was associated with increased control and monitoring, suggesting an increase in the quality and transparency of financial information. Moreover, Vafeas (1999) documented that the inclusion of independent and representatives of large shareholders directors on the Nomination Committee aided in improving the quality of BD's. Beasley (1996) showed that financial fraud in companies reduced by the existence of independent members on the AC. Researchers such as Abbott et al. (2000), García-Osma and Gill de Albornoz (2005), and Song and Windram (2004) reported that the presence of independent members on AC's reduced accounting manipulations, since they represented the interests of shareholders.

However, the functions of control and supervision of BD's may lose effectiveness by information asymmetries between external and internal directors, as internal directors have more financial information than external directors. Chen and Jaggi (2000), and Cheng and Courtenay (2006) documented that firms that have independent directors on BD's were more likely to disclosure more detailed and complete financial information, thereby, reducing information asymmetries between ownership and management. Cormier et al. (2010) revealed that the independence of BD's was positively associated

with greater disclosure of information concerning the management and ownership of the firm. Similarly, Kumar and Singh (2012) investigated 157 non-financial firms in India, showing that the presence of independent directors on BD's increases firm performance.

The independent members of BD's will support the creation of Board Sub-Committees, as such Commissions may reduce information asymmetries between directors and enhance the confidence of the owners and investors of firms. Pincus et al. (1989), Menon and Williams (1994), and Pucheta-Martínez and De Fuentes (2008) showed that the increase of independent directors of BD's was associated with the voluntary formation of AC's. Cotter and Silvester (2003) demonstrated a positive relationship between the presence of independent members on BD's and Oversight Committees. In the same vein, Chau and Leung (2006), Firth and Rui (2006), and Chen and Kilgore (2007) concluded that the presence of external members on BD's affected the voluntary creation of AC's. Haung et al. (2009) demonstrated that the percentage of independent members on BD's increased the formation of Board Sub-committees. Furthermore, Yatim (2010) analysed a sample of firms in Malaysia and showed that BD's more independent tended to create Risk Management Committees, in order to maintain their reputation. However, Subramanian et al. (2009) analysed 200 firms on the Stock Exchange of Australia (NSX) and documented that the presence of external members in BD's did not influence the creation of Risk Management Committees.

Previous evidence does not directly address the relationship between independent women on BD's and voluntary formation of Board Sub-committees. Notwithstanding, we predict that as the percentage of independent women directors on BD's increases, the greater is the likelihood of establishing Board Sub-committees, as this will allow them to conduct a more comprehensive control over the management of the firm. In this sense, Francoeur et al. (2008) also suggest that incorporating gender diversity and independence in BD's will allow better exercise of supervision and control functions. Hence, we posit our hypothesis in the following manner:

Hypothesis 2: The percentage of independent women directors on the Board of Directors is positively associated with the voluntary creation of Board Sub-Committees.

Percentage of Female Executives Directors on Boards of Directors

The executive or internal BD members are those who possess executive or management functions in the firm or in one of the participating firms, and can sometimes maintain with the firm a contractual, commercial or otherwise relationship, other than the position of director (CUBG, 2006). Castaño et al. (2009) noted that in 2006 the IBEX 35 firms had 2.2% of female executive directors on BD's.

When the chairman of the BD and the Chief Executive Officer (CEO) are the same person, the BD usually has more executive members, since the work between the chairman and these members is more direct, because they have common knowledge concerning the firm, and also the executive directors will be less willing to question their views. The inclusion of executive members on BD's can provide knowledge about the inner workings of the firm, because of their relationships within the company. Baysinger and Hoskisson (1990) proposed that the executive directors of the BD had more information and knowledge with which to evaluate strategic decisions. Cheng and Courtenay (2006) examined 115 firms and demonstrated that those BD's having a greater number of executive members reduced the financial disclosures and, therefore, did not provide the desired level of control. In the same vein, Huang et al. (2009) reported that the executive directors of BD's were negatively related to the composition of Delegated Committees.

Other studies link executive directors with financial performance. Cochran et al. (1985) and Vance (1983) reported that the executive members of BD's were positively related to the financial performance of the firm. Fernandes (2008), after analysing a sample of Portuguese firms, demonstrated that the remuneration of executive directors is positively associated with the value of the firm, but only when the BD is comprised solely of executive directors. Furthermore, the study also documents that the presence of executive directors on the BD aligns the interests of shareholders and managers. However, Cho and Kim (2007) showed that the firm performance of the companies was reduced when the BD had executive directors, due to agency costs arising from internal directors and minority shareholders. Hsu and Wu (2010) analysed 101 London Stock Exchange firms, and demonstrated that a higher percentage of internal directors in BD's

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increased the likelihood of business failure. In the same vein, Ruíz-Barbadillo et al. (2007) examined 75 Spanish firms, which voluntarily formed an AC from 1998 to 2001, and demonstrated that the presence of executive directors in BD's increased their capacity to influence the decision-making of the BD's, thus, reducing the effectiveness of AC's.

Although previous evidence is inconclusive, we predict that the higher percentage of women executives on BD's, the lower the probability of voluntary creation of Board Sub-Committees, as these committees involve more supervision and control on executive functions and, therefore, they will be reluctant to demand internal control mechanisms. Hence, we posit our hypothesis in the following manner:

Hypothesis 3: The percentage of female executives directors on the Board of Directors is negatively associated with the voluntary creation of Board Sub-Committees.

Percentage of Female institutional Directors on Boards of Directors

The institutional directors are those who hold a percentage of shares greater or equal than to what is considered legally significant, or who have been appointed in their capacity of shareholders, although their shareholding does not reach that amount, and who represent the aforementioned shareholders (CUBG, 2006).

Gómez (2005) and Mateos et al. (2010) demonstrated that the majority of women who were part of the BD of Spanish firms were institutional directors. Olcese et al. (2005) showed that only 4% of BD members were women, of whom 70% were nominated institutional directors. Castaño et al. (2009) concluded that in 2006, 5.15% of IBEX 35 firms had female institutional directors.

An important range of studies have analysed the relationship between the institutional directors on BD's and financial reporting quality. Garcia-Osma and Gill de Albornoz (2005) reported that the presence of institutional directors on BD's decreased the number of fraudulent accounting practices. Wan-Hussin (2009) analysed Malaysia

Stock Exchange firms for 2001 and 2002, and demonstrated that the presence of institutional directors on BD's increased corporate transparency. Hsu and Wu (2010) observed the London Stock Exchange (LSE) for the period 1997 to 2005, and showed that institutional directors had greater ability to report and monitor corporate management than internal directors. Colpan and Yoshikawa (2012) investigated Japanese firms during the period from 1997 to 2007, and concluded that external directors of BD's promoted the interests of the firms and banks they represented which, consequently, improved control-specific interests of shareholders.

Board Sub-Committees are more likely to pay attention to the interests of shareholders, ensuring that new members of the BD are external members who possess skills necessary to perform their duties. Vicknair et al. (1993), after analysing 100 U.S. firms during the period 1980-1987, demonstrated that institutional directors on the AC's mitigated the independence of the committees, as they had direct information of the firm that can be used with financial interest. Wright (1996) analysed 151 non-financial firms in the U.S., demonstrating that when there was a large number of institutional directors on the AC, this reduced the quality of financial information, thus, hampering supervisory functions of the firm. In the same context, Yammeersi and Herath (2010), and Kumar and Singh (2012) reported that the presence of institutional directors in BD's influenced negatively the firm performance. Furthermore, Grossman Hart (1980), and Shleifer and Vishny (1997) showed that institutional directors of BD's reduced agency costs, since they have strong incentives to monitor managers.

Previous evidence regarding the impact on a firm of institutional directors on BD's is inconclusive. For this reason, we do not predict any direction for the percentage of female institutional directors on BD's, since they may demand more control mechanisms for the voluntary creation of Board Sub-Committees, as this may exert more direct control over the management team, thus, reducing information asymmetries and, as a consequence, agency costs (Shleifer and Vishny, 1986; Bahalba and Rao, 1995). But the opposite may be also expected, according to prior literature. Hence, we posit our hypothesis in the following manner:

Hypothesis 4: The percentage of female institutional directors on the Board of Directors is positively or negatively associated with the voluntary creation of Board Sub-Committees.

Percentage of Ownership Held by Female Directors on Boards of Directors

Ownership of the firm by the managers is another key factor in reducing agency costs. Agency theory considers that the BD should ensure the interests of the firm owners and also reduce agency problems arising from information asymmetries. Previous studies (Jensen and Mecking, 1976; Jensen, 1993; Chen and Steiner, 1999; Crutchley et al., 1999; Ang et al., 2000; Salas, 2002; Fleming et al., 2005; Lasfer 2006) showed that management ownership caused a greater alignment of interests between owners and managers, as reducing agency costs. Chung and Pruitt (1996) demonstrated that as management ownership increased, agency costs decreased, but when ownership reached a certain high point, then agency costs increased. In contrast, Barnes et al. (2005) analysed a sample of recently established, but small and fast growing U.S. firms, revealing that increased ownership by managers increased agency costs. Pincus et al. (1989) found that firms with low ownership management encouraged the voluntary formation of AC's. In the same vein, Groff and Valentincic (2011) showed that the ownership structure of Slovenian firms negatively influenced the voluntary formation of AC's. Pucheta-Martínez and De Fuentes (2008) demonstrated that there is no relationship between ownership by members of BD's and the voluntary creation of an AC.

Furthermore, there are other members in the BD structure that could influence agency costs, such as banks and owners with a high concentration of ownership, which can provide control and reduce agency costs. The presence of a large shareholder, able to control and fire managers, can help mitigate agency problems and influence the BD, either via their integration or through a representative, thus, influencing decision making and mitigating potential opportunistic behaviour (Craswell et al., 1997; Cuervo-Cazurra, 1998).

In Spain, unlike in Anglo-Saxon countries, there is a high ownership concentration. Hence, problems between owners and managers are minimal and highlight problems between large and minority shareholders, as the former try to expropriate the wealth of the latter. In this sense, Reyes (2002) analysed a sample of Spanish listed non-financial firms for the period from 1996 to 1998, with the result that, for the year 1998, 82.98% of firms had ownership concentration (considered to be when shareholder participation exceeded 10%). Consequently, in this context we predict that the lack of incentives of minority shareholders, as well as the control exercised by the large shareholder on BD's diminishes the interest in the voluntary creation of Board Sub-Committees. Hence, we posit our hypothesis in the following manner:

Hypothesis 5: The percentage of shares held by female directors on the Board of Directors is negatively associated with the voluntary creation of Board Sub-Committees.

Remuneration of Female Directors on Boards of Directors

In Spain there has been a wave of financial scandals in recent decades and the world economic and financial situations have questioned multi-million euro remunerations and indemnities received by executives and directors of firms. As firms have been reluctant to disclosure the remuneration of directors and senior management, Spanish legislators have drafted regulations in order to make firms more transparent and to publish the remunerations of directors. Thus, the LTLT (2003) forced listed firms to publish the compensation of their directors in their annual reports, together with a breakdown of the elements that form them. Despite legislation, some Spanish firms do not disclosure details of the remuneration of directors and senior management, as corroborated by Merino et al. (2009), who reported that that 74.39% of Spanish firms did not include information on the remuneration of senior positions in the annual reports.

Remuneration of directors is an important element in reducing problems associated with the separation of ownership and control. The Remuneration Committee is responsible for proposing the remuneration of directors and senior management, although ultimately BD's are responsible for approving remunerations.

Notwithstanding, there may be conflicts of interest between shareholders and managers (agency theory), mainly due to the existence of information asymmetries (Arrow, 1991).

Jensen and Murphy (1990) showed that the system of director's compensation is an alignment and monitoring mechanism, which supervises the management behaviour about firm performance. In this context, Jeppson et al. (2009) demonstrated a positive relationship between the remuneration of directors and business performance. However, Alshimmiri (2004) reported that there was a negative relationship between the remuneration of senior management and firm performance. Furthermore, Brick et al. (2006) also concluded that excessive remuneration of senior management and the Chief Executive Officer (CEO) was associated with a lower financial performance of firms, while that Lippert and Rahman (1999), after analysing 1,000 firms in the Stock Exchange, observed that CEO's incentive contracts for multi-national firms were not related to firm's financial performance.

Moreover, Johnson et al. (2003) investigated 2.504 S&P firms for the period from 1992 to 2001, pronouncing that the best measures of Good Governance of the firms relied on incentives received by senior management. Barontini and Bozzi (2011), after analysing a sample of firms from the Milan Stock Exchange for the period from 1995 to 2002, concluded that the remuneration of BD's was related to the characteristics of Corporate Governance of the firm. On the contrary, the authors documented that excessive compensation was not related to future business performance. Eckles et al. (2011) revealed that the remuneration of directors was associated with the presence of certain governmental structures, while the results also showed that incentives received were inciting managers to manipulate their earnings.

Previous evidence on the effects of remuneration systems for directors in firms is mixed, but it is undeniable that the compensation system is not a neutral mechanism. Thus, we predict that the remuneration of female directors in BD's is positively associated with the voluntary creation of Board Sub-Committees, as this will increase the need to exercise greater supervision and control of the performance management, and therefore, the greater the demand will be for control mechanisms. Hence, we posit our hypothesis in the following manner:

Hypothesis 6: The remuneration of female directors on the Board of Directors is positively associated with the voluntary creation of a Board Sub-Committee.

3.3. METHODOLOGY AND SAMPLE

3.3.1 Methodology

In order to test empirically the hypotheses, we use the following logistic regression:

$$CDCA_{it} = \beta_0 + \beta_1 \, NUMCA_{it} + \beta_2 \, \%MICA_{it} + \beta_3 \, \%MECA_{it} + \beta_4 \, \%MDCA_{it} + \beta_5 \, \%ACCWOM_{it} + \beta_6 \, REMUCA_{it} + \beta_7 \, TAMCA_{it} + \beta_8 \, REUNCA_{it} + \beta_9 \, TAMEMPR_{it} + \beta_{10} \, ANTEMPR_{it} + \beta_{11} DPC_{it} + \beta_{12} BIGFOUR_{it} + \beta_{13} \, LEV_{it} + \sum_j \alpha_j \, FIRM_j + \mu_{it}$$

Where variable CDCA will take the value 1 if the BD has constituted voluntarily all or some of the Committees recommended by the Codes of GCG (Executive Committee and Oversight and Control Committee: Nomination and Remuneration Committee and/or Compliance Commissions or Corporate Governance) and 0, otherwise. The AC is not studied in this work because it is a Board Sub-Committee mandatory rather than voluntary. Moreover, we also study how gender diversity in BD's can influence the voluntary creation of an Executive Committee, on the one hand, and some or all of the Committees for Oversight and Control, on the other. Thus, this paper tests three models. In Model 1, the dependent variable CDCA analyses all Committees recommended by the CGG, taking the value 1 if the BD has voluntarily created all or some of the Board Sub-Committees and 0, otherwise. In Model 2, the dependent variable CDCA (named CDCA1) takes the value 1 if the BD has voluntarily established an Executive Committee and 0, otherwise. Finally, in Model 3, the dependent variable CDCA (named CDCA2) takes the value 1 if the BD has voluntarily established a Committee for Oversight and Control: a Nomination and Remuneration Committees and/or the Compliance Committee or Corporate Governance and 0, otherwise. Table 21 provides a description of the variables.

TABLE 21

Variable Description

Variable	Description	Expected Sign in the three models
INDEPENDENT VARIABLES		
NUMCA	Number of women in BD	+
%MICA	Number of independent women in BD/ Total number of independent members in BD	+
%MECA	Number of insiders women in BD/ Total number of insiders members in BD	-
%MDCA	Number of grey women in BD/ Total number of grey members in BD	+/-
%ACCWOM	Shares held by women of BD	-
REMUCA	Log of woman compensation of BD	+
CONTROL VARIABLES		
TAMCA	Total number of directors in BD	+
REUNCA	Number of times BD meets per year	+
TAMEMPR	Log of total assets (in thousands of Euros)	+
ANTEMPR	Log of the difference between setting-up firm and observation year	-
DPC	Dummy variable equals to 1 if the same person serves simultaneously as CEO and President of the BD	-
BIGFOUR	Dummy variable equals to 1 if the firm is audited by one of the big auditing firms	+
LEV	Ratio of book value of debt over total assets	-

3.3.1.1. Independent Variables

Number of Women on Boards of Directors

The variable number of women in BD's is defined as "NUMCA", and is calculated as the total number of women who make up the BD. The expected sign for this variable is positive for all models, since the higher the number of women in BD's, the greater the likelihood of creating voluntarily Board Sub-Committees.

Percentage of Independent Women on Boards of Directors

The variable "%MICA" is calculated as the ratio between the total numbers of independent women and independent members who make up the BD. The expected sign is positive for all three models, because in increasing the percentage of independent women on BD's, the greater the likelihood of creating voluntarily Board Sub-Committees.

Percentage of Executives Women on the Board of Directors

This variable is defined as "%MECA" and is calculated as the ratio between the total number of women executive directors in BD's and the total number of executive directors in BD's. For this variable, a negative sign is expected for the three models, as it will reduce the likelihood of creating voluntarily Board Sub-Committees.

Percentage of Institutional Female Directors on the Board of Directors

This variable is defined as "%MDCA" and is calculated as the ratio between the total number of institutional female directors in BD's and the total number of institutional directors in BD's. The expected sign is positive or negative for all three models, as it may increase or reduce the likelihood of creating voluntarily Board Sub-Committees.

Percentage of Shares Held by Women Directors on Boards of Directors

The ownership of women directors on BD's is defined as "%ACCWOM", and it is calculated as the percentage of shares held by women directors on BD's. The expected sign is negative for all three models, since the greater the ownership of the firm held by women directors on BD's, decreases the likelihood of creating voluntarily Board Sub-Committees.

Remuneration of Women Directors on Boards of Directors

As compensation approximation for women directors on BD's, we have defined the variable "REMUCA", measured as the logarithm of total compensation women directors on BD's. We expect a positive sign for the three models, since the higher the remuneration for women directors on BD's, the greater the likelihood of creating voluntarily Board Sub-Committees.

3.3.1.2. Control Variables

To test the proposed models we include control variables that could influence the voluntary establishment of Board Sub-Committees.

Boards Directors Size

In Spain, the Olivencia Code (1998) as the Cadbury Report (1992) in the UK, recommended that the BD should be made up, on average, by three Directors. A few years later, the CUBG (2006) indicated that the recommended percentage of members for BD should be not less than five nor should it be more than fifteen. Jensen (1993) stated that the optimal size of the BD was from seven to eight members. Kang et al. (2007) analysed 100 Australian firms in 2003, demonstrating that the optimal size of the BD was from eight to nine members.

Previous studies show a relationship between BD size and the formation of its Board Sub-Committees. In this context, Bradbury (1990), Pearce and Zahra (1992), Menon and Williams (1994), Piot (2004), Chen and Kilgore (2007), Pucheta-Martínez and De Fuentes (2008), and Groff and Valentincic (2011), among others, show that the number of directors on BD's is positively associated with the voluntary creation of AC's. This can be justified by the fact that a large number of members in the BD has more financial information to make highly responsible decisions (Van de Berghe and Levrau, 2004), and at the same time, they have more skills to coordinate the functions of BD (Agrawal and Knoeber, 1999) and to create its Board Sub-Committees. Carson (2002) demonstrated that Australian firms with more members on the BD's increased the formation of Nomination Committees. Haung et al. (2009) analysed 1500 S & P firms during the period from 1996 to 2002 and concluded that a large number of members on the BD increased, positively, the voluntary formation of Board Sub-Committees. In the same context, Subramanian et al. (2009) documented that the creation of a Risk Management Committees was more prevalent in those firms with a larger BD.

We define BD size as "TAMCA". This variable is calculated as the total number of members of the BD. The expected sign for this variable is positive, since the larger the

BD, the greater the probability of creating voluntarily Board Sub-Committees, as the need to create commissions increases in order to delegate certain functions of the BD.

Board Directors Activity

Another control variable that we consider is BD activity. It is hoped that an increased number of BD meetings would provide greater control over the management and, thus, reduce financial irregularities and increase quality control functions. Banegas et al. (2006) showed that the BD's of IBEX 35 firms met, approximately, 10 times a year, which was about once a month. According to their study, BD activity improved operation and participation of the directors in the same. Moreover, the authors also showed that those BD's which do not meet quite often promote absenteeism, which might impair the functions of supervision and control of BD's and Board Sub-Committees.

Vafeas (1999) documented that augmenting the number meetings of the BD increased the demand for control mechanisms, thus streamlining the BD. Lipton and Lorch (1992) documented that a higher frequency of BD meetings was more likely to increase financial performance. Moreover, if a BD increases the frequency of meetings, firms are more likely to recover from bad results (Vafeas, 1999). Abbott et al. (2000) documented that firms with AC's composed of independent directors and who met, at least, twice a year, were less likely to suffer from fraudulent financial reporting. Xie et al. (2003) concluded that those BD's which met more often were less likely to suffer from earnings management.

This variable is defined as "REUNCA" and is calculated as the total number of meetings of the BD. The predicted sign for this variable is positive, as the higher the BD activity, the greater the likelihood of creating voluntarily Board Sub-Committees, as this will increase the number of control mechanisms. Authors such as Haung et al. (2009) documented that BD activity was positively related to the voluntary creation of Government Committees.

Firm Size

The firm size is another control variable used in this study. The implementation of control mechanisms implies that firms can incur elevated costs. Jensen and Meckling (1976) concluded that larger firms had more agency costs; hence, they needed more control mechanisms. Previous studies (Pathan, 2009; Sun et al., 2009) demonstrated that large firms will require increased oversight functions and, therefore, require a larger number of control mechanisms such as Risk and the Compensation Committees.

Some authors, such as Devers et al. (2008), Pathan (2009) and Sun et al. (2009) concluded that a larger-sized firm increased the need to incorporate control mechanisms; hence, it is necessary to increase Board Sub-Committees in order to perform control functions. Rodríguez (2005), and Chizema and Shinozawa (2012) documented that larger-sized firms tended to create Board Sub-Committees. Haung et al. (2009) concluded that larger firms were positively related to the formation of Government Committees. Subramanian et al. (2009) and Yatim (2010) concluded that larger-sized firms increased the formation of Risk Management Committees. In the same context, Pincus et al. (1989), Piot (2004), Firth and Rui (2006), Pucheta-Martínez and De Fuentes (2008), Chen et al. (2009), and Groff and Valentincic (2011) demonstrated that there is a positive relationship between firm size and voluntary formation of AC's.

The variable firm size has been defined as "TAMEMPR" and is calculated as the natural logarithm of total firm assets. The expected sign for this variable is positive, since the larger the firm, the greater the need for control mechanisms and, therefore, firms will demand the voluntary creation of Board Sub-Committees.

Firm age

The setting-up of the firm is a key element for the adoption of Board Sub-Committees, as it is expected that older organisations are resistant to change, unless changes are required. Baum and Shiplov (2006) showed that firm age could be indicative of the experience, adaptability and market credibility. Chizema and Shinozawa (2012) reported that firms with greater professional experience adopted a commission system based on the creation of Audit, Nomination and Remuneration

Committees. However, Sherer and Lee (2002) demonstrated that older firms were reluctant to change and, therefore, were more resistant to the implementation of Board Sub-Committees.

Hence, this variable is defined as "ANTEMPR" and is calculated as the logarithm of the difference between the year of establishment of the firm and the observation year. The expected sign for this variable is negative, as we predict that the older the firm, the lower the probability of creating voluntarily Board Sub-Committees.

Duality in the Position of Chairman of the Board of Directors and Chief Executive Officer (CEO) of the Firm

When the positions of Chairman of a BD and Chief Executive Officer (CEO) fall on the same person (CEO duality), this may cause both advantages and disadvantages. The accumulation of responsibilities influences the acquisition of internal and external leadership; hence, it reduces the cost of information and coordination. Moreover, CEO duality sometimes increases the concentration of power in one person, leading to opportunistic behaviour, contrary to the interests of shareholders (Jensen, 1993).

Laux and Laux (2006) reported that CEOs tended to manipulate earnings, which explains the necessity for BD's to demand control mechanisms. Pi and Timme (1993) and Dehaene et al. (2001) show that CEO duality produces a poor quality of financial information. Haung et al. (2009) studied a sample of 1500 S & P firms for the period from 1996 to 2002 and reported that the separation of the positions of Chairman of the BD and CEO was positively related to the formation of Board Sub-Committees. Yatim (2010) examined 690 firms in Malaysia in 2009 and concluded that the separation of Chairman of the BD and CEO positions increased the formation of Risk Management Committees. However, Collier (1993), and Pucheta-Martínez and De Fuentes (2008) demonstrated that CEO duality did not influence the voluntary formation of AC's.

Hence, another control variable that we will use is when one person simultaneously holds the position of chairman of the BD and CEO and defines it as "DPC". The variable is calculated as a dummy variable that takes the value 1 if one person is holding both positions as chairman of the BD and CEO and 0, otherwise. For this variable, we

expect a negative sign for the three models, as CEO duality may hinder the work of the BD in performing supervision of the management team and, therefore, the demand for control mechanisms as Board Sub-Committees will diminish.

Auditing Firm

Auditors are external control mechanisms of organisations, although in recent decades their work has been questioned, due to the global financial and economic crises. Auditing firms influence the internal control of the organisation in order for firms to comply with the recommendations of the CGG. The use of big audit firms is linked to the quality of financial reporting (De Angelo, 1981).

Previous studies (Pinkus et al., 1989; Bradbury, 1990, Collier, 1993; Menon and Williams, 1994; Collier and Gregory, 1999; Carson, 2002) showed a positive relationship between large firms and the voluntary formation of AC's. Moreover, small audit firms promote, to a lesser extent, the establishment of AC's (Pincus et al. 1989; Collier, 1993). However, authors such as Piot (2004), Willekens et al. (2004), Firth and Rui (2006), Pucheta-Martínez and De Fuentes (2007), and Groff and Valentincic (2011) demonstrated that the use of a large auditing firm did not influence the voluntary adoption of AC's. Yatim (2010) examined firms from Malaysia in 2009 and documented that those firms which were audited by one of the four audit firms increased the incorporation of Risk Management Committees. In contrast, Subramanian et al. (2009) showed that the use of a big auditing firm did not influence the formation of a Risk Management Committee.

We define the variable auditing firm as "BIGFOUR" and calculate it as a dummy variable that takes the value 1 if the firm is audited by a major accounting firm (Ernst & Young, PriceWaterHouseCoopers, Deloitte and KPMG) and 0, otherwise. A positive sign is expected for this variable, because if the company is audited by one of the big auditing firm it is more likely to create voluntarily Board Sub-Committees, since a large auditing firm can promote an increase of control mechanisms within the firms.

Leverage

The level of financial leverage measures the proportion of debt that the firm supports relative to its total assets. With increase in financial leverage, a priori, agency costs increase; hence, loss of trust increases between owners and managers. When financial debt levels are high, control mechanisms are increased in order to reduce agency costs (Agrawal and Knober, 1996). Previous studies (Jensen and Meckling, 1976; Pincus et al., 1989; Piot, 2004) demonstrate that high financial leverage increases the formation of control mechanisms, which would increase the creation of Board Sub-Committees (Bradbury, 1990; Deli and Gillan, 2000).

Ang et al. (2000) demonstrated that there is an inverse relationship between leverage and agency costs. Carson (2002) analysed Australian firms and demonstrated that debt level was positively associated with the formation of the Nomination Committee. Cotter and Silvester (2003), Chen and Kilgore (2007) and Chen et al. (2009) showed that increased debt-level incentives for organisations in the voluntary creation of AC's. Conversely, Groff and Valentincic (2011), and Bich and Hutchinson (2012) reported that firms with higher debt levels were less likely to voluntarily create AC's.

The level of debt or leverage is defined as "LEV" and measured as the ratio of total debt and total assets firm. The expected sign for this variable is positive, since the higher the debt, the greater the demand for control mechanisms and, therefore, the more likelihood of formation of Board Sub-Committees.

Firm Fixed Effect

The firm fixed effect control variable, denoted by "FIRM", is intended to capture unobservable and fixed characteristics of firms that may potentially be correlated with the dependent variable. Specifically, we include year indicator variables to control for yearly differences.

3.3.2. Sample

The initial sample of this study consists of all non-financial firms listed on the Madrid Stock Exchange during 2004-2011. We exclude financial companies both

because they are under special scrutiny by financial authorities that constrain the role of their BD's and because of their special accounting practices. The information used for this analysis was obtained from the public records of the Spanish Securities Market Commission (CNMV), the SABI database and the official websites of firms, while corporate governance information is collected from the annual corporate governance reports that all the listed companies have had to publish since 2003.

We build an unbalanced panel of 910 firm-year observations from 175 firms. The panel is unbalanced because during this time period some firms became public, and other firms delisted as a consequence of mergers and acquisitions. Nevertheless, the estimations based on unbalanced panels are as reliable as those based on balanced panels (Arellano, 2003).

3.4. ANALYSIS OF RESULTS

3.4.1 Descriptive Statistics for the Sample Firms

Table 22 presents mean value, median, standard error, and quartiles 25 and 75 of the main variables.

TABLE 22

Descriptive Statistics

A) CONTINUOUS VARIABLES

Variables	N	Mean	Median	Std. Dev.	Q25	Q75
NUMCA	910	0.723	0.000	0.973	0.000	1.000
%MICA	910	0.067	0.000	0.152	0.000	0.000
%MECA	910	0.019	0.000	0.084	0.000	0.000
%MDCA	910	0.084	0.000	0.198	0.000	0.111
%ACCWOM	910	2.268	0.000	8.927	0.000	0.006
REMUCA	910	0.611	0.000	1.596	0.000	0.000
TAMCA	910	10.349	10.00	3.814	8.000	12.000
REUNCA	910	9.546	9.000	5.067	7.000	12.000
TAMEMPR	910	13.007	12.812	1.880	11.697	14.342
ANTEMPR	910	3.554	3.689	0.953	2.944	4.174
LEV	910	0.539	0.511	0.953	2.944	0.693

B) DUMMY VARIABLES

	0	% (0)	1	% (1)
CDCA	144	16%	766	84%
CDCA1	586	64%	324	36%
CDCA2	154	17%	756	83%
DPC	682	75%	228	25%
BIGFOUR	127	14%	783	86%

Mean, median, standard deviation and quartiles of the main variables. NUMCA: Number of women in BD's; %MICA: Percentage of female independent directors on BD's; %MECA: Percentage of female executive directors on BD's; %MDCA: Percentage of female representatives of large shareholders directors on BD's; %ACCWOM: Percentage of shares held by women directors on BD's; REMUCA: Log of the compensation of women directors on BD's; TAMCA: BD size measured as the total number of directors in BD's; REUNCA: BD activity measured as the number of times that the BD meets per year; TAMEMPR: Firm size measured as the log of the total assets of the firm (in thousands of Euros); ANTEMPR: Firm age measured as the log of the difference between setting-up of the firm and observation year; LEV: Leverage measured as book value of debt over total assets; CDCA: dummy variable equal to 1 if the BD has established all or some of the Committees recommended by the Good Governance Code (CGG); CDCA1: dummy variable equal to 1 if the BD has established an Executive Committee; CDCA2: dummy variable equal to 1 if the BD has established a Supervision and Control Committee: a Nomination and Compensation Committee and/or a Compliance or Corporate Governance Committee; DPC: Dummy variable equal to 1 if the same person serves simultaneously as CEO and Chairman on BD's; BIGFOUR: dummy variable equal to 1 if the company is audited by one of the big auditing firms. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

As shown in Table 22, the average number of women on BD's is .72. Moreover, it is observed that of all women who make up the BD, 6.700% are independent directors, 1.900% are executive directors and 8.400% are institutional directors. The ownership of the firm held by women directors on BD's is 2.268%, while the logarithm of the remuneration of women on the BD's is .61. Also, it can be seen that the BD, on average, is formed of 10.349 members and meets 9.546 times a year. The average size of firms in

the sample is 13.007 (logarithm of total assets), the average age of firms is 3.554 years and finally, the level of leverage is 53.900%. Moreover, the statistics reveal that 84% of companies have voluntarily constituted all or some of the Board Sub-Committees, 36% created an Executive Committee and 83% voluntarily formed a Commission for Supervision and Control. Furthermore, in 25% of the firms of the sample the chairman of the BD is also the CEO and 86% of firms are audited by one of the big auditing firms.

3.4.2 Univariate Analysis

Tables 23, 24 and 25 give the mean of the independent variables of firms in the sample for the three models, respectively, and the results of the parametric t-test for continuous variables and the Pearson Chi-squared test for dichotomous variables, in order to analyse differences in the means.

TABLE 23

Means Comparison Test. Model 1.

Variables	CDCA (=1) (N=766) Mean	CDCA (=0) (N=144) Mean	Mean Difference	Univariate test (p.value.)
NUMCA	0.803	0.299	0.504	5.809*** (0.000)
%MICA	0.078	0.010	0.068	4.941*** (0.000)
%MECA	0.020	0.009	0.011	1.552 (0.121)
%MDCA	0.082	0.096	-0.014	-0.776 (0.438)
%ACCWOM	2.431	1.406	1.025	1.264 (0.207)
REMUCA	0.702	0.130	0.572	3.981*** (0.000)

Means Comparison Test. CDCA: dummy variable equals to 1 if the BD has established all or some of the committees recommended by the Code of Good Governance (CGG); NUMCA: Number of women in BD's; %MICA: Percentage of female independent directors on BD's; %MECA: Percentage of female executive directors on BD's; %MDCA: Percentage of female representatives of large shareholders directors on BD's; %ACCWOM: Percentage of shares held by women directors on BD's; REMUCA: Log of the compensation of women directors on BD's. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

Table 23 presents the mean differences of the independent variables of Model 1, where the dependent variable represents the voluntary creation of all or some of the Board Sub-Committees. The results in Table 23 show that the mean difference of the variables number of women on BD's, percentage of female independents directors on BD's and remuneration of women directors on BD's are positive and statistically significant at the 1% level of significance. Therefore, we can accept the hypotheses one, two and six. Thus, with increases in the number of women, the percentage of independent women and the remuneration of women directors on BD's, the greater the likelihood of voluntarily forming all or some of the Board Sub-Committees. With respect to the remainder of independent variables, the mean difference is not statistically significant.

TABLE 24

Means Comparison Test. Model 2.

Variables	CDCA1 (=1) (N=324) Mean	CDCA1 (=0) (N=586) Mean	Mean Difference	Univariate test (p.value.)
NUMCA	1.037	0.549	0.488	7.453*** (0.000)
%MICA	0.089	0.055	0.034	3.309*** (0.000)
%MECA	0.012	0.022	-0.010	-1.885* (0.060)
%MDCA	0.099	0.075	0.024	1.739* (0.082)
%ACCWOM	3.640	1.510	2.130	3.467*** (0.001)
REMUCA	0.977	0.409	0.568	5.208*** (0.000)

Means Comparison Test. CDCA1 is a dummy variable equal to 1 if BD has established an executive committee; NUMCA: Number of women in BD's; %MICA: Percentage of female independent directors on BD's; %MECA: Percentage of female executive directors on BD's; %MDCA: Percentage of female representatives of large shareholders directors on BD's; %ACCWOM: Percentage of shares held by women directors on BD's; REMUCA: Log of the compensation of women directors on BD's. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

In Table 24 we provide the mean difference for the independent variables of Model 2, where the dependent variable represents the voluntary formation of an Executive

Committee by the BD. This analysis reveals that all differences are statistically significant at 1% or 10% and positive, except for the variable percentage of female executive's directors on BD's, which casts a negative difference. Therefore, we can accept all hypotheses, except the fifth. Thus, according to these results, we conclude that BD's of large size, with independent women and female institutional directors are more likely to voluntarily create an Executive Committee, as well as those firms whose women directors receive higher compensation and have shareholdings in the firm. Moreover, the results also show that the percentage of female executive directors on BD's are less likely to voluntarily establish an Executive Committee, as predicted.

TABLE 25

Means Comparison Test. Model 3.

Variables	CDCA2 (=1) (N=756) Mean	CDCA2 (=0) (N=154) Mean	Mean Difference	Univariate test (p.value.)
NUMCA	0.812	0.286	0.562	6.248*** (0.000)
%MICA	0.078	0.010	0.068	5.145*** (0.000)
%MECA	0.021	0.008	0.013	1.708* (0.088)
%MDCA	0.083	0.089	-0.006	-0.306 (0.760)
%ACCWOM	2.463	1.315	1.148	1.455 (0.146)
REMUCA	0.711	0.121	0.590	4.221*** (0.000)

Means Comparison Test. CDCA2 is a dummy variable equal to 1 if BD has established a supervision and control committee: a nomination and compensation committee and/or a compliance or corporate governance committee; NUMCA: Number of women in BD's; %MICA: Percentage of female independent directors on BD's; %MECA: Percentage of female executive directors on BD's; %MDCA: Percentage of female representatives of large shareholders directors on BD's; %ACCWOM: Percentage of shares held by women directors on BD's; REMUCA: Log of the compensation of women directors on BD's. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

In Table 25 is presented the mean difference for the independent variables of Model 3, where the dependent variable represents the voluntary formation by the BD of a Commission for Supervision and Control. The results show that the mean difference of the variables number of women directors on BD's, the percentage of independent

women directors on BD's and the compensation of the women directors on BD's are positive and statistically significant at the 1% level, as in Models 1 and 2. Hence, we can accept the hypotheses one, two and six. Thus, there is a high likelihood of creating a voluntary Supervision and Control Commission as the BD size, the percentage of independent and compensation of women directors on BD's increase. With respect to the mean difference of the variable percentage of female executive directors on BD's is positive, contrary to our predictions, and statistically significant at the 10% level. Therefore, an increase in the percentage of female executive directors on BD's will increase the probability of establishing voluntary Committees for Supervision and Control by the BD. The other independent variables are not statistically significant.

3.4.3. Regression Results

In Table 26 we show the results of the logistic regression. As can be observed, we have built three models. In Model 1, we examined whether the BD has voluntarily formed all or some of Board Sub-Committees. In Model 2, we examine whether the BD has voluntarily established an Executive Committee, and in Model 3 we observed whether the BD has voluntarily created a Committee for Supervision and Control, that is, if they have formed Appointments and Remuneration and/or Compliance or Corporate Governance Committees. The Chi-square test shows that all three models are statistically significant at the 1% level.

TABLE 26

Results of Logistic Regression for Board of Directors

	Exp. Sign	Model 1		Model 2		Model 3	
		Parameters estim.	Wald test (p.value.)	Parameters estim.	Wald test (p.value)	Parameters estim.	Wald test (p.value.)
NUMCA	+	0.384	1.439 (0.230)	0.372	5.594** (0.018)	0.424	1.743 (0.187)
%MICA	+	4.393	4.994** (0.025)	-0.422	0.370 (0.543)	4.051	4.378** (0.036)
%MECA	-	1.794	0.978 (0.323)	-3.039	5.192** (0.023)	1.802	0.975 (0.323)
%MDCA	+/-	-1.335	3.082* (0.079)	-0.289	0.243 (0.622)	-1.215	2.490 (0.115)
%ACCWOM	-	0.014	0.627 (0.428)	0.031	5.752** (0.016)	0.016	0.733 (0.392)
REMUCA	+	0.025	0.023 (0.881)	0.007	0.013 (0.910)	0.030	0.031 (0.861)
TAMCA	+	0.190	12.695*** (0.000)	0.098	12.521*** (0.000)	0.197	14.373*** (0.000)
REUNCA	+	0.180	22.435*** (0.000)	0.013	0.685 (0.408)	0.129	13.210*** (0.000)
TAMEMPR	+	0.347	12.267*** (0.000)	0.493	62.090*** (0.000)	0.409	17.285*** (0.000)
ANTEMPR	-	-0.113	0.654 (0.419)	-0.218	6.895*** (0.009)	-0.186	1.898 (0.168)
DPC	-	0.814	5.823** (0.016)	-0.390	3.646* (0.056)	0.767	5.637** (0.018)
BIGFOUR	+	0.846	8.871*** (0.003)	0.111	0.156 (0.693)	0.699	6.012*** (0.014)
LEV	-	-0.202	1.710 (0.191)	-0.311	2.171 (0.141)	-0.212	2.173 (0.140)
Firm Fix Effects		Included		Included		Included	
Observations		910		910		910	
Classification		88.132%		74.286%		87.692%	
χ^2		303.771***		261.284***		317.996***	

Estimated coefficients through logistic regression. In Model 1, dependent variable is CDCA, which is a dummy variable equal to 1 if the BD has established all or some of the Committees recommended by the Code of Good Governance (CGG); in Model 2, dependent variable is CDCA1, which is a dummy variable equal to 1 if the BD has established an Executive Committee; in Model 3, dependent variable is CDCA2, which is a dummy variable equal to 1 if the BD has established a Supervision and Control Committee: a Nomination and Compensation Committee and/or a Compliance or Corporate Governance Committee; NUMCA: Number of women in BD's; %MICA: Percentage of female independent directors on BD's; %MECA: Percentage of female executive directors on BD's; %MDCA: Percentage of female representatives of large shareholders directors on BD's; %ACCWOM: Percentage of shares held by women directors on BD's; REMUCA: Log of the compensation of women directors on BD's; TAMCA: BD size measured as the total number of directors in BD's; REUNCA: BD activity measured as the number of times that the BD meets per year; TAMEMPR: Firm size measured as the log of the total assets of the firm (in thousands of Euros); ANTEMPR: Firm age measured as the log of the difference between setting-up of the firm and observation year; DPC: Dummy variable equal to 1 if the same person serves simultaneously as CEO and Chairman on BD's; BIGFOUR: dummy variable equal to 1 if the company is audited by one of the big auditing firms; LEV: Leverage measured as book value of debt over total assets. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

The results in Table 26 show that, for Model 1, the variable number of women directors on the BD (NUMCA) has a positive sign, as expected, but is not statistically significant; hence, we cannot accept the first hypothesis. Thus, we conclude that the number of women directors in BD's has no impact on the formation of all or some of the Board Sub-Committees. This result could be explained by the fact that the number of female directors in BD's is not an essential feature for the firms listed in the Madrid Stock Exchange, as evidenced by Merino et al. (2009), so that the number of female directors in BD's is not a relevant factor in the establishment of all or some of the Board Sub-Committees. With respect to the independent variable the percentage of women independent directors in BD's (%MICA), it has a positive sign, as predicted, and is statistically significant at the 5% level. Hence, we can accept the second hypothesis. This permits us to conclude that the presence of independent women directors on BD's increases the probability of forming voluntarily all or some of the Board Sub-Committees. Furthermore, the variable percentage of women executive directors on BD's (%MECA) is not statistically significant. Thus, we cannot accept the third hypothesis. As for the variable percentage of female institutional directors on the BD (%MDCA), it shows a negative sign and is statistically significant at the 10% level. Therefore, we can accept the fourth hypothesis. These results are in line with those reported by Wan-Hussin (2009), and Hsu and Wu (2010), who show that the presence of female institutional directors on BD's brings transparency and a greater ability to report and monitor the management team and, therefore, it is not necessary the creation of Board Sub-Committees. These findings suggest that there is a substitution effect between the percentage of female institutional directors on BD's and the voluntary creation of Board Sub-Committees. With respect to the variables percentage of shares held by women directors (%ACCWOM) and remuneration of women on BD's (REMUCA) are not statistically significant. Thus, the fifth and sixth hypotheses cannot be accepted.

Regarding the control variables, we note that the variables BD size (TAMCA), BD activity (REUNCA), firm size (TAMEMPR) and audit firm (BIGFOUR) have a positive sign, as predicted, and are statistically significant. Hence, we can confirm, as did many authors such as Pucheta-Martínez and De Fuentes (2008), Haung et al. (2009) and Sun et al. (2009), that the probability of voluntarily forming Board Sub-Committees in BD's

will increase when the size and activity of BD's increase and the company is audited by one of the big four auditing firms. In addition, the variable duality of Chairman and CEO has a positive sign, contrary to the expected, and is statistically significant. In the same context, Collier and Gregory (1999) demonstrated that the CEO duality encouraged the need for stricter control mechanisms, such as Board Sub-Committees, to control the functions of the BD.

The results of Model 2 demonstrate that the variables number of women on BD's and the percentage of women executive directors on BD's present a positive and negative sign, respectively, as expected, and are statistically significant. Hence, we accept the first and third hypotheses. Therefore, we can conclude that as the number of women in BD's increases, the greater the probability of creating an Executive Committee on the BD, while a higher percentage of female executive directors on the BD reduces that likelihood. Moreover, the variable ownership held by women directors on BD's is positive, contrary to our predictions, and statistically significant at a 5% level, which does not allow us to accept the fifth hypothesis. Thus, this result suggests that the percentage of shares held by women directors on BD's is positively associated with the voluntary creation of an Executive Committee. Carson (2002) obtained similar results, demonstrating the positive relationship between the shareholdings of directors and the formation of a Remuneration Committee. Jensen (1993) and Monks and Minow (2004) argue that high equity ownership by directors is an important factor in increasing the willingness of directors to monitor. The remainder of independent variables are not statistically significant.

With respect to the control variables, BD size, firm size, firm age, and CEO duality show the expected signs and are statistically significant. Thus, we can conclude that the probability of creating an Executive Committee on the BD will increase in larger and older firms, whose BD's are numerous, while this probability is reduced with CEO duality. The other control variables are not significant.

Model 3 shows that the only statistically significant independent variable is the percentage of independent women directors on BD's, offering the expected sign. Hence, we can accept the second hypothesis. Therefore, according to these results, we can

assume that the percentage of independent women directors on BD's increases voluntary establishment of a Committee for Supervision and Control. With respect to the control variables, we obtained similar results as in Model 1. BD size and activity, firm size and auditing firms are statistically significant and show a positive sign, as predicted. Thus, we can conclude that there is a greater likelihood of creating a voluntary Supervision and Control Committee as it increases BD size and activity, firm size and when a firm is audited by one of the big audit firm. Moreover, the variable CEO duality has a positive sign, contrary to our expectations, but is statistically significant. Accordingly, this result suggests that CEO duality encourages the voluntary creation of Commissions for Supervision and Control. In the same vein, Chau and Leung (2006) also documented that CEO duality increases the likelihood of creating a Commission for Supervision and Control. The other control variables are not statistically significant.

To test for multicollinearity, we calculated the Spearman correlation coefficients for all of the variables included in the model. Table 27 presents the results for the correlation matrix. Analysis of this table shows that the correlation between some pairs of variables is statistically significant at 1%, 5% or 10% levels. These results are consistent with previous studies concerning the voluntary formation of Board Sub-Committees (Pucheta-Martínez and De Fuentes, 2008). However, none of the correlation coefficients are high enough (> 80) to cause significant problems of multicollinearity (see Archambeault and DeZoort, 2001). According to these results, we can conclude that these models do not have significant multicollinearity problems.

TABLE 27

Spearman Correlation Coefficients

	CDCA	CDCA1	CDCA2	NUMCA	PMICA	PMECA	PMDCA	PACCWOM	REMUCA	TAMCA	REUNCA	TAMEMPR	ANTEMPR	DPC	BIGFOUR
CDCA1	0.322***														
CDCA2	0.961***	0.281***													
NUMCA	0.206***	0.205***	0.222***												
PMICA	0.191***	0.164***	0.195***	0.560***											
PMECA	0.050	-0.075**	0.056*	0.243***	-0.099**										
PMDCA	0.023	0.076**	0.040	0.626***	-0.044	0.088*									
PACCWOM	0.066**	0.047	0.078**	0.652***	0.194***	0.324***	0.556***								
REMUCA	0.136***	0.151***	0.144***	0.434***	0.376***	0.022	0.154***	0.224***							
TAMCA	0.336***	0.381***	0.346***	0.206***	0.176***	-0.127***	0.085**	0.024	0.094**						
REUNCA	0.301***	0.187***	0.269***	0.045	0.116***	-0.110***	-0.065*	-0.015	0.112***	0.322***					
TAMEMPR	0.385***	0.433***	0.401***	0.188***	0.174***	-0.055*	0.070**	-0.009	0.229***	0.609***	0.296***				
ANTEMPR	-0.024	-0.043	-0.036	-0.131***	-0.158***	-0.161***	0.062*	0.000	-0.003	0.079**	0.026	0.119***			
DPC	0.135***	-0.050	0.134***	0.031	-0.055*	0.079**	-0.009	0.032	-0.025	-0.039	0.054	0.022	0.007		
BIGFOUR	0.345***	0.161***	0.324***	0.118***	0.069**	0.070**	0.037	0.143***	0.130***	0.285***	0.248***	0.343***	0.021	0.168***	
LEV	0.078**	0.054	0.080**	0.046	-0.093**	0.013	0.120***	0.073**	-0.003	0.195***	0.176***	0.357***	0.216***	0.035	0.050

Spearman's correlation matrix. CDCA is a dummy variable equal to 1 if the BD has established all or some of the Committees recommended by the Code of Good Governance (CGG); CDCA1 is a dummy variable equal to 1 if the BD has established an Executive Committee; CDCA2 is a dummy variable equal to 1 if the BD has established a Supervision and Control Committee: a Nomination and Compensation Committee and/or a Compliance or Corporate Governance Committee; NUMCA: Number of women in BD's; %MICA: Percentage of female independent directors on BD's; %MECA: Percentage of female executive directors on BD's; %MDCA: Percentage of female representatives of large shareholders directors on BD's; %ACCWOM: Percentage of shares held by women directors on BD's; REMUCA: Log of the compensation of women directors on BD's; TAMCA: BD size measured as the total number of directors in BD's; REUNCA: BD activity measured as the number of times that the BD meets per year; TAMEMPR: Firm size measured as the log of the total assets of the firm (in thousands of Euros); ANTEMPR: Firm age measured as the log of the difference between setting-up of the firm and observation year; DPC: Dummy variable equal to 1 if the same person serves simultaneously as CEO and Chairman on BD's; BIGFOUR: dummy variable equal to 1 if the company is audited by one of the big auditing firms; LEV: Leverage measured as book value of debt over total assets. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

3.5. CONCLUSIONS

The succession of financial scandals in recent years and the global financial and economic crises have led to a distrust of the capital markets. To avoid this situation, regulatory bodies published the CGG's in order to improve transparency of information and firm governance. On the other hand, companies are affected by agency problems arising from the separation of ownership and control, thus, demanding internal and external mechanisms in order to increase monitoring and control functions.

The aim of this study is to determine whether gender diversity in BD's of firms listed on the Madrid Stock Exchange influences the voluntary formation of Board Sub-Committees. To achieve our goal, we propose three models in which we study the number of women on BD's, the percentage of female independent, executive and institutional directors on BD's, the percentage of shares held by women directors on BD's and the remuneration of women directors on BD's. The results demonstrate that the number of women on BD's only encourages the voluntary creation of an Executive Committee, which depends on the BD, while the percentage of independent women on BD's increases the voluntary creation of all or some of the Board Sub-Committees and Committees for Supervision and Control, as evidenced by Cotter and Silvester (1993). The percentage of female executive directors on BD's reduces the likelihood of creating an Executive Committee. This result suggests that a high percentage of women executive directors on BD's could be seen as a substitute for an Executive Committee, and to avoid duplication of functions, they would be more reluctant to create this Commission. Furthermore, the percentage of female institutional directors on BD's is more likely to reduce the formation of all or some of the Board Sub-Committees. Similar evidence was obtained by Wan-Hussin (2009) and Hsu and Wu (2010), who concluded that BD's dominated by institutional directors reduced the demand for control mechanisms, as these directors provided transparency and greater oversight capacity in business management. The ownership held by women directors on BD's has a positive effect, contrary to our predictions, in the voluntary formation of an Executive Committee. Finally, the results reveal that the remuneration of female directors on BD's does not contribute to the voluntary creation of all or some of the Boards Sub-

Committees, nor the formation of an Executive, and Supervision and Control Committees.

With respect to the control variables, we can conclude that BD size and firm size increase the likelihood of forming voluntarily all or some of the Board Sub-Committees, an Executive Committee and a Committee on Oversight and Control. BD activity and auditing firm also encourage the formation of all or some of the Board of Sub-Committees and a Commission for Supervision and Control, but do not influence the creation of an Executive Committee. Finally, we can affirm that firm age and CEO duality discourage the voluntary creation of an Executive Committee, while the probability of creating all or some of the Board of Sub-Committees and Supervisory Control Commission increases when the chairman of the BD and CEO are the same person.

The results show that the voluntary creation of Boards Sub-Committees depends on the female independent directors on BD's, the number of women directors and the ownership held by women directors. These findings suggest that the presence of women in decision-making bodies of firms has increased BD delegation of functions to Board Sub-Committees. Hence, given that gender diversity in BD's of listed firms increases internal control mechanisms, such as Boards of Sub-Committees, legislation should encourage more participation of women in governance bodies of firms as well as the presence of independent and shareholders women directors on BD's, because although in recent years the role of women in BD's has increased, this has not yet advanced enough. Our evidence supports the legislative initiative to establish quotas for women in corporate governance bodies of firms (e.g., as set by the European Union Justice Commissioner and the Financial Reporting Council at the end of 2010), based on the premise that gender diversity in BD's encourages voluntary creation of Board Sub-Committees. This point of view is supported by Nekhili and Gatfaoui (2012) and Scapin et al. (2013).

This chapter may promote future line of research. Firstly, it would add extra value to analyse the impact of gender diversity in BD's in the voluntary formation of Board Sub-Committees by comparing companies of the Madrid Stock Exchange and a country of

traditional culture, such as the oriental, where the role of women in firm decision-making is reduced. Furthermore, it would also be interesting to analyse whether gender diversity in BD's can influence the demand for external control mechanisms or diversification of the firm's business.

CHAPTER 4

BOARD OF DIRECTORS AND DIVIDEND POLICY: THE EFFECT OF GENDER DIVERSITY

4.1. INTRODUCTION

Previous studies have examined the relationship between gender diversity on BD's and dividend policy. In this sense, Knyazeva et al. (2009) demonstrated that heterogeneous boards were associated with lower cash holdings, higher dividends and higher leverage. Wellalage et al. (2012) documented that the presence of female directors and CEO duality could pay higher dividends to shareholders. Byoun et al. (2013) documented that gender diversity on BD's increased the payment of dividends when firms have greater agency problems regarding free cash flow, suggesting that females on BD's helped mitigate the free cash flow problem. In addition, Van Pelt (2013) reported that the percentage of women on BD's increased payout dividends. However, Francis et al. (2009) demonstrated that female CFOs (Chief Financial Officer) were more likely to reduce dividend payouts due to an increase in accounting conservatism. Thus, the aim of this study is to analyse whether gender diversity on Spanish firms' BD's has an effect on the dividend policy of the companies.

Spain is a good context in which to examine the effect of gender diversity on BD's on dividend policies, since most of the studies about dividend policy refer to non-European countries (Bathala and Rao, 1985; Zhou and Ruland, 2006; Rakotomavo, 2010; Gupta and Parua, 2012; Said, 2013). On the other hand, the business context in which Spanish listed firms operate is characterized by a less developed capital market and significant ownership concentration, among others. Most of the previous evidence analyses the influence on dividend payout of ownership concentration (Chen et al., 2005; Erol and Tirtiroglu, 2011), outside directors (Al-Najjar and Hussainey, 2009; Setia-Atmaja, 2010), taxes on dividends (Amihud and Murgia, 1997), future earnings (Flint et al., 2010; Lee, 2010; Vermeulen, 2011) and investor protection (La Porta et al., 2000). However, little research has been performed combining gender diversity on BD's and dividend payouts (Wellalage et al., 2012; Byoun et al., 2013).

This study contributes to the literature by showing that gender diversity on BD's influences the dividend policy of firms, concretely the percentage of women directors, the percentage of institutional women directors and the percentage of shares held by women directors. Our evidence supports the Spanish Law (Act 3/2007 of 22 March, for Effective Equality between Women and Men), which is based on the premise that corporate boards' female quote should be 40%. The Spanish legislator allows listing companies to achieve this gender quota by 2015, so the current legislation should encourage more participation by women in governing bodies. However, the progress made is still too slow to meet the government's 2015 target, and for this reason we recommend that stronger government sanctions, combined with more effective equality plans within companies, are required for the quota to be met. Secondly, our study provides evidence that gender diversity on BD's can alleviate the agency problem of free cash flow by monitoring and resolving the manager–shareholder conflict in an effective way; this is particularly true in the Spanish context, where two important agency problems are currently weak, namely shareholder rights and low management ownership. Finally, our findings suggest that a diverse board yields benefits to shareholders through its effect on dividend policy, and further contributes to the literature on the factors that influence dividend payout policy. This may be useful for current and potential shareholders of listing firms to know more deeply the dividends policies of the companies in which they invest.

The structure of this paper is as follows. After this introduction, the second section focuses on the theoretical background. The third section describes the institutional background, while in the fourth section we review the previous literature and develop the hypotheses. The fifth section describes the sample, methodology and variables used in the study; the sixth section shows the obtained results. In the final section, we discuss our conclusions, explain the limitations inherent to this study and the future lines of research.

4.2. THEORETICAL BACKGROUND

According to agency theory, the separation between the ownership and control of the firm generates information asymmetries between the parties, because the owners of a firm have delegated to managers to act on their behalf. This informational disadvantage between both parties includes information about the firm's prospects, earnings and risk aversion, among others. Jensen and Meckling (1976) explained that information asymmetry between managers and shareholders might lead to agency costs. This gives rise to a conflict of interest between ownership (principal) and the control of the firm (agent), and therefore becomes an agency problem. Managers take daily decisions about the firm's earnings, although they do not always adopt dividend policies which benefit the shareholders' interests. From time to time, they may choose a dividend policy that maximizes their own private benefits. Grossman and Hart (1980) documented how dividend payout mitigated agency conflicts by reducing the amount of free cash flow available to managers. In the same vein, Jensen (1986) showed that the distribution dividend reduces free cash flow at managers' disposal, prevents unprofitable projects and alleviates agency costs. Hwang et al. (2013) demonstrated that dividend payments reduced the amount of free cash flow, thus reducing minority shareholder rights.

Given that it has an effect on both of their interests, dividend policy is the most important economic and financial policy for managers and investors. Furthermore, it affects the value and financial and economic capacity of the firm. Dividend payouts reduce the total amount of retained profit and reduce financing with private capital. For this reason, dividend policy depends on companies' profit distribution priorities and investment financing decisions.

The payment of dividends, managerial equity ownership and debt financing are considered effective mechanisms in mitigating agency conflicts of interest within the firm (Bathala and Rao, 1995; Díez and Esteban, 2001). Rozeff (1982) analysed 1000 firms on the Value Line Investment Survey, and evidenced that dividend payments could be part of a corporate monitoring tool. In a similar manner, Easterbrook (1984) argued that dividends help alleviate agency conflicts by exposing firms to more frequent monitoring by primary capital markets, as paying dividends increased the probability that new common stock had to be issued. De Angelo et al. (2004) showed that firms with high cash and low debt capital structures paid dividends to mitigate agency costs. Sedzro (2010) examined repurchases and regular and special dividends, and concluded that firms with agency problems increased their regular dividends. However, Chay and Suh (2009) analysed 5000 firms from Australia, Canada, France, Germany, Japan, the UK and the US, and found weak association between payout policy and agency conflicts.

4.3. INSTITUTIONAL BACKGROUND

The context in which this study is framed is crucial, and for this reason a brief overview of some important issues concerning Spanish dividend policy is provided. In this sense, we deal with the financial situation, corporate governance system and gender diversity.

The recent worldwide financial crisis has led to the international financial system losing its credibility. In addition, firms have problems in getting funding because banks do not provide financing to them. Many Spanish firms have difficulty in getting financing. Firstly, Spanish banks have cut their financing to clients and firms. On the other hand, firms cannot use internal financing because they cannot attend to their debts. Companies are going bankrupt because they cannot pay their debt, consequently leading to increasing unemployment.

The Spanish corporate governance system is characterized by the presence of few large shareholders or independence on their boards, under-developed capital markets, no active market control, high ownership concentration and a one-tier board system (all

directors, executives and non-executives form one board). In this sense, De Miguel et al. (2004) showed that ownership concentration is higher in Spain than in countries such as the US, the UK, Japan and Germany. In these countries, important institutions, such as the government and large banks, have become controlling shareholders. As in other continental European corporate governance systems (Faccio and Lang, 2002), most of these institutions attain an important position on boards as they represent the interests of large shareholders and institutional investors (Kirchmaier and Grant, 2005). Most of these institutional investors are banks, investment funds and insurance companies. Institutional investors directly influence the management's activities through their ownership, and indirectly by trading their shares. In this vein, Delgado-García et al. (2010) documented that ownership concentration in the hands of the largest shareholder erodes the corporate reputation of Spanish firms. Continental European countries' financial systems contrast with Anglo-American ones because the latter do not consider institutional investors as significant members of the board.

Spain has undergone significant legal and institutional changes in order to increase the transparency of the stock markets and to protect minority shareholders. One of the consequences has been the issue of several codes of Corporate Governance: Olivencia in 1998, Aldama in 2003, and finally, the Conthe Code in 2006 which are characterized by a "comply or explain" principle in the enforcement of corporate governance regulations.

Moreover, it is noteworthy that the continuous socio-economic changes in Spain in recent years have increased gender diversity on BD's. This increase was enhanced by the implementation of Conthe Code (CUBG, 2006), whose proposals are intended to support female presence in decisions bodies; while the implementation of Act 3/2007 of 22 March, for Effective Equality between Women and Men (LOIMH), Article 75, frames the regulation of the appointment of men and women in BD's in an equitable way. Furthermore, the presence of women on BD's should increase over a period of eight years since the issue of the law.

4.4. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

4.4.1. Hypothesis

Percentage of female directors on Boards of Directors

Gender diversity on BD's can help to mitigate agency problems by monitoring and resolving conflicts of interests between managers and shareholders (Jurkus et al., 2011). Authors such as Page (2008), Anderson et al. (2011) and Byoun et al. (2013), among others, argue that gender diversity on BD's could decrease the conflicts between the principal and the agent.

Previous evidence focuses on the analysis between women on BD's and dividend payout. In this sense, Knyazeva et al. (2009) examined the Compustat database, CDA Spectrum and Corporate Library's Board Analyst data for the period 2001–2006, and found that board heterogeneity is associated with higher dividends. Wellalage et al. (2012) observed the Shenzhen Stock Exchange (SZSE) from 2001 to 2005, and documented how the presence of female directors could mean higher dividends paid to shareholders. Byoun et al. (2013) consider 2,234 firms of Investor Responsibility Research Center (IRRC) database, and showed that firms with more gender diverse BD's are more likely to pay larger dividends than firms without diversity on their BD when firms perform large free cash flows and cause agency problems. In particular, firms with gender diversity on their BD are associated with a roughly 15% higher probability of paying dividends than firms without gender diversity. Van Pelt (2013) analysed a total number of 1,350 firm-year observations, and considered that gender diversity on BD's increased payout dividends. Nevertheless, Lückerath-Rovers (2013) examined 116 Dutch companies listed on the Amsterdam Euronext Stock Exchange, and found that firms with female directors paid lower dividends than companies without female directors. Similar evidence was provided by Jurkus et al. (2011).

In sum, the previous literature seems to support the hypothesis that women's presence on BD's has positive impacts on dividend payout. Therefore, we predict that the percentage of female on BD's may have a positive effect on dividend payout. Ye et

al. (2010) provide evidence that companies with a higher proportion of women directors perform better than those without gender diversity, and this could increase the dividend payout. Hence, we posit the following hypothesis:

Hypothesis 1: The percentage of female directors on the Board of Directors is positively associated with the dividend policy.

Percentage of female independent directors on Boards of Directors

The presence of independent members on BD's is essential to perform the functions of monitoring and supervision. Independent directors can constrain the management's opportunistic dividend policies, which often benefit them and other stakeholders at the expense of shareholders. In recent years, the proportion of independent directors on BD's has increased because of the need to protect shareholders from managerial abuse and to maximize firm value (Linck et al., 2009). Independent directors have strong incentives to issue independent and free judgment relating to management influence (Fama and Jensen, 1983; Weisbach, 1988; Linck et al., 2009).

Previous studies have examined the relationship between the presence of independent directors on BD's and dividend payout. In this sense, Belden et al. (2005) examined 524 companies listed in the Forbes 500 list of the largest American companies, and showed that firms with more outside directors paid higher dividends. Setia-Atmaja (2010) concluded that the presence of independent members on the BD's listed on the Australian Stock Exchange increased the dividend payout ratio. Sharma (2011) examined 944 firms of S&P 1500, and evidenced that greater independent director representation on the BD has a positive and significant influence on the propensity to pay dividends. In the same vein, Al Shabibi and Ramesh (2011) studied the Forecasting Analysis and Modelling Environment (FAME) database in 2007, and reported that the increment of independent directors on the BD positively influenced the dividends paid to shareholders. Furthermore, Wellalage et al. (2012) documented a positive relationship between the proportion of independent directors and the payment of high dividends; while Byoun et al. (2013) reported that the existence of more independent board members tends to pay higher dividends. O'Connor (2013) analysed

220 companies from 21 countries, and demonstrated that dividend payout increased in firms where board independence was higher. Contrary to this evidence, other studies (e.g. Bathala and Rao, 1995; Borokhovich, et al., 2005; Ruiz et al., 2008; Al-Najjar and Hussainey, 2009; Tseng et al., 2012) showed that there was a negative relationship between independent directors and dividend payout.

Previous evidence does not directly address the relationship between independent women on BD's and dividend policy. Notwithstanding, we predict a positive association between the proportion of independent female directors and dividend payout, as this will allow them to possess more comprehensive control over members of the board (Erhardt et al., 2003), which could also reduce conflicts of interests between directors and shareholders (Jurkus et al., 2011). Hence, we posit our second hypothesis in the following manner:

Hypothesis 2: The percentage of female independent directors on the Board of Directors is positively associated with the dividend policy.

Percentage of female institutional directors on Boards of Directors

Institutional directors are those who hold a percentage of shares greater than or equal to what is considered legally significant, or who have been appointed in their capacity as shareholders despite their shareholding not reaching that amount and who thus represent the aforementioned shareholders (CUBG, 2006). For this reason, institutional investors have been the most important controlling shareholders in cases where the principal agency conflict has been based on the expropriation of minority shareholders' wealth by controlling shareholders. Therefore, institutional owners can monitor the company and influence the amount of dividends paid. In this sense, Chen et al. (2005) suggested that dividend payout has been used by controlling shareholders in smaller Hong Kong companies as a way of extracting resources from the firms they control.

Previous works have examined the relationship between institutional investors and dividend payout. Faccio and Lasfer (2000) analysed the monitoring role of pension funds in 289 firms in 1996, and found that firms with high levels of pension fund

ownership were less likely to be efficient or to pay higher dividends than their industry counterparts. Gugler (2003) investigated Austrian firms over the 1991–1999 period, and documented that state-controlled firms exhibit a higher dividend payout than family-controlled firms. Khan (2006) examined the UK Stock Exchange, and showed a positive relationship between the level of insurance company shareholding and dividends payout, while a negative relationship was found for shareholding by individual investors. Al-Kuwari (2012) observed 37 non-financial firms listed on the Kuwait Stock Exchange in an emerging market between 1999 and 2003, and found that the government ownership increased the probability of paying dividends, consequently resulting in reduced agency problems. Similar evidence was reported by He et al. (2012).

A large number of previous studies provide evidence that institutional ownership contributes to increased dividend payout (e.g. Han et al., 1999; Short et al., 2002; Farinha, 2003; Abdelsalam et al., 2008; Hovakimian and Li, 2010; Van Pelt, 2013). Nevertheless, Kania and Bacon (2005), Amidu and Abor (2006), Azzam (2010) and Ferreira et al. (2010), among others, found that institutional ownership was negatively associated with dividend payout

These studies do not directly examine the relationship between female institutional directors and dividend payout. In addition, previous evidence regarding the relationship between institutional directors and dividend payout is inconclusive. For this reason, we predict that the percentage of female institutional directors can either positively or negatively affect the dividend payout. Hence, we pose the following hypothesis:

Hypothesis 3: The percentage of female institutional directors on the Board of Directors is positively and negatively associated with the dividend policy.

Percentage of female Executive Directors on Boards of Directors

The presence of executive directors on BD's reduces firm performance due to agency costs arising between internal directors and minority shareholders (Cho and Kim, 2007).

Dividend payout has been used by companies to reduce agency problems between owners and managers (Easterbrook, 1984; Jensen, 1986; La Porta et al., 2000).

According to Jensen (1986), CEO duality on BD's increased the concentration of power in one person, leading to opportunistic behaviour that was contrary to the interests of shareholders. Maury and Pajuste (2002) examined the Helsinki Stock Exchange from 1999 to 2000, and showed firms paid lower dividends when the CEO was a large shareholder. Zhang (2008) compared the cash dividend policy of Chinese firms listed in Hong Kong and those on the Mainland, and showed that Mainland-listed firms with combined CEO and chairman titles on their BD tended to pay lower cash dividends; however, there was no such evidence about Hong Kong-listed firms. Francis et al. (2009) studied the ExecuComp database, and documented that female CFOs reduced dividend payouts. Deshmukh et al. (2010) used panel data from large US companies over the period 1980–1994, and documented that firms managed by overconfident CEOs had lower levels of dividend payout. In this sense, Banerjee et al. (2013) studied 3,492 observations from the Compustat database, and evidenced that overconfident CEOs tended to prefer not to pay dividends, preferring instead to substitute dividends for stock. Wellalage et al. (2012) analysed the Shenzhen Stock Exchange, and showed that CEO duality on boards resulted in higher dividends. Meanwhile, Van Pelt (2013) found a negative association between the percentage of inside directors on BD's and dividend payout. However, Mansourinia et al. (2013) examined a sample of companies listed on the Tehran Stock Exchange during the period 2006–2010, and found that there was not a significant relationship between CEO duality and dividend policy.

Other studies concluded that CEO duality was positively associated with dividend payout (Cheung et al., 2005; John and Knyazeva, 2006; Feng et al., 2007; Obradovich and Gill, 2013; Wellalage et al., 2012). Abor and Fiador (2013) observed a sample of listed firms on the Johannesburg Stock Exchange, the Nigerian Stock Exchange, the Nairobi Stock Exchange and the Ghana Stock Exchange during the period 1997–2006, and showed that Nigerian firms which separated the roles of CEO and chairman on the corporate board had higher dividend payouts.

Previous literature focuses on the impact that executive directors on BD's have on dividend payout; however, the effect that female executives on BD's have on dividend policy has not been previously analysed. Despite this, we predict that the presence of female executive directors on BD's is negatively associated with dividend payout, since a lower payout of dividends will allow firms to reduce agency costs. Thus, we posit the following hypothesis:

Hypothesis 4: The percentage of female executive directors on the Board of Directors is negatively associated with the dividend policy.

Percentage of shares held by female directors on Boards of Directors

Agency theory argues that when shareholders have greater rights (voting power), they can use this power to influence dividend policy. A strong legal system helps to protect minority shareholders from majority shareholders' opportunistic behaviour, such as wealth expropriation and excessive compensation. La Porta et al. (2000) and Wellalage et al. (2012) evidenced that countries with weak legal protection for minority shareholders paid lower dividends.

Most of previous studies analyse the relationship between shareholders' rights – by means of voting – and dividend payout. Nielsen (2005) studied the Compustat Industrial Annual Database from 1987–2003, and demonstrated that companies with weaker shareholders were more likely to pay dividends. Jiraporn and Ning (2006) examined 3,732 firm-year observations, and evidenced that firms where shareholder rights were weak paid out higher dividends. However, Kowalewski et al. (2007) observed 110 non-financial listed companies on the Warsaw Stock Exchange, and showed that companies with strong shareholder rights paid more dividends than firms with low corporate governance standards. Adjaoud and Ben-Amar (2010) observed 714 firm-year observations, and evidenced that when shareholder rights were strong, the dividend payout increased, as shareholders could use their powers to pressure managers to pay higher dividends. Hwang et al. (2013) studied a sample of Korean companies during the period 2003–2010, and evidenced that firms with weaker shareholder rights paid lower dividends.

Other studies (Pérez-González, 2003; Troung and Heaney, 2007; Ramli, 2011) evidenced that the largest shareholder often increased dividend payout. Nevertheless, authors such as Maury and Pajuste (2002), Gugler and Yurtoglu (2003) and Mancinelli and Ozkan (2006), among others, found that the largest shareholders reduced dividend payout levels. Moreover, Zeckhauser and Pound (1990) studied 287 firms in the Value Line Investment Survey, and concluded that there was no significant difference among dividend payouts with or without large shareholders.

Previous evidence about the impact of shares held by directors (shareholders vote rights) on dividend policy does not deal with the relationship between shares held by female directors and dividend policy. Regardless, we predict that the shares held by female directors on BD's may have a positive effect on dividend payout, since shareholders could use their power by means of their voting rights to pressure managers to pay higher dividends (Adjaoud and Ben-Amar, 2010), and therefore female directors could increase their personal benefits. Hence, we posit the following hypothesis:

Hypothesis 5: The percentage of shares held by female directors on the Board of Directors is positively associated with the dividend policy.

4.5. METHODOLOGY AND SAMPLE

4.5.1. Sample

The sample is drawn from the population of Spanish non-financial firms listed on the Spanish Stock Exchange during 2004-2012. We exclude financial companies both because they are under special scrutiny by financial authorities that constrain the role of their BD's, and due to their special accounting practices. Spanish data is obtained from the "Sistema de Análisis de Balances Ibéricos" (SABI) database, from the annual corporate governance reports that all listed companies have been required to publish since 2003 and from the companies' Web pages.

We build an unbalanced panel of 910 firm-year observations from 175 firms. Our sample roughly accounts for more than 95% of the capitalization of Spanish non-

financial firms. The panel is unbalanced because some firms became public during this time period, while other firms delisted as a consequence of mergers and acquisitions. Nevertheless, the estimations based on unbalanced panels are as reliable as those based on balanced panels (Arellano, 2003).

4.5.2. Variables

The dependent variable (DPY) is calculated in three ways: (1) as a dummy variable that takes the value of 1 if the company pays dividends, and 0 otherwise (Al-Malkawi, 2008; Al-Najjar and Hussainey, 2009; Byoun et al., 2013); (2) as cash dividends on common stock divided by the market value of common stock of firms listed on the Madrid Stock Exchange (Fenn and Liang, 2001); (3) as the logarithm of the total amount of dividend paid per share in the accounting year (Kumar, 2006).

As independent variables, we define the percentage of female directors on the BD as PERWDBD; it is calculated as the ratio between the total number of women on the BD and the total members of the BD. The PERIWDBD variable represents the percentage of independent women directors on the BD; this is calculated as the ratio between the total number of independent female directors on the BD and the total number of directors on the BD. The PERINSWDBD defines the percentage of institutional female directors; it is calculated as the ratio between the total number of institutional women directors on the BD and the total number of directors on the BD. The percentage of executive female directors on the BD is defined as PEREWDBD; it is calculated as the ratio between the total executive women directors on the BD and the total number of directors on the BD. Finally, the variable OWNWOMBD represents the percentage of shares held by female directors on the BD; it is calculated as the proportion of shares held by women directors.

We control for a number of factors supported by previous evidence (see Rozeff, 1982) that can potentially affect dividend payout. OWNCON measures ownership concentration and is calculated as the percentage of shares held by shareholders holding at least 10% of the firm's stock (Sedzro, 2010). Rozeff (1982), Jensen et al. (1992), Gugler and Yurtoglu (2003) and Kumar (2006), among others, showed a negative

relationship between the ownership concentration and dividend payout. Another control variable used is investment opportunities; in line with Ruiz et al. (2008), and we define it as IO, which is calculated as the rate of assets growth. Authors such as Rozeff (1982), Díez and Esteban (2001), Fama and French (2001), Mitton (2004), Denis and Osobov (2008), Ruiz et al. (2008), Al-Najjar and Hussainey (2009), Setia-Atmaja (2010), Sharma (2011) and O'Connor (2013) demonstrated a negative relationship between growth opportunities and dividend payout. The ownership of managers is also considered as control variable; it is defined as OWNMANG and calculated as the percentage of stocks owned by directors. Previous studies (Rozeff, 1982; Fama and French, 2001; Short et al., 2002; Hu and Kumar, 2004; Azzam, 2010) reported a negative relationship between the percentage of shares held by managers and dividend policy.

LEV is calculated as the ratio of book value of debt over total assets, and represents the leverage level of the firm. Previous literature (e.g. Díez and Esteban, 2001; Fama and French, 2001; Fenn and Liang, 2001; DeAngelo et al., 2004; Ruiz et al., 2008; Setia-Atmaja, 2010; Jiraporn et al., 2011; Sharma, 2011, Byoun et al., 2013) has shown that high financial leverage was negatively related to dividend payout. We also control for profitability, which is defined as ROA, and calculated as the ratio of earnings before interest and taxation (EBIT) over book assets (O'Connor, 2013). Díez and Esteban (2001), Fama and French (2001), Kania and Bacon (2005), Amidu and Abor (2006), Denis and Osobov (2008), Abdelsalam et al. (2008), Al-Najjar and Hussainey (2009), Jiraporn et al. (2011), Al Shabibi and Ramesh (2011) and O'Connor (2013) demonstrated that firms with a high return on assets ratio had a greater potential to pay dividends. ROE represents the profitability of stockholders' investments and, in line with Diez and Esteban (2001), is calculated as the net income divided by stockholders' equity. Previous evidence documented that there was a negative relationship between returns on equity and the dividend payout (e.g. Díez and Esteban, 2001; Azofra and López-de-Fornoda, 2007; Ali Shah et al., 2011; Metha, 2012).

Previous literature shows a positive association between firm size and the dividend payout (e.g. Fama and French, 2001; DeAngelo et al., 2004; Denis and Osobov, 2008; Ruiz et al., 2008; Al-Najjar and Hussainey, 2009; Adjaoud and Ben-Amar, 2010; Setia-

Atmaja, 2010; Al Shabibi and Ramesh, 2011; Jiraporn et al., 2011; Byoun et al., 2013; O'Connor, 2013). Thus, we define firm size as FIRMSIZE; it is calculated as the natural logarithm of total assets of the firm. Finally, various studies (e.g. Mansourinia et al., 2013; Obradovich and Gill, 2013) reported that board size had a positive impact on pay dividends. We therefore define board size as BDSIZE and calculate it as the total number of directors serving on the board (Obradovich and Gill, 2013). The variables used in the model and the expected signs of each are shown in table 28.

TABLE 28

Variable Description

Variables	Description	Expected Sign
INDEPENDENT VARIABLES		
PERWDBD	Total number of women in BD/Total members of BD	+
PERIWDBD	Total number of independent women in BD/Total number of members of BD	+
PERINSWDBD	Total number of institutional women in BD/Total number of members of BD	+/-
PEREWDBD	Total number of insider women in BD/Total number of members of BD	-
OWNWOMBD	Percentage of shares held by women directors on BD	+
CONTROL VARIABLES		
OWNCON	Percentage of shares held by shareholders holding at least 10% of the firm's stock	-
IO	Rate of assets growth	-
OWNMANG	Percentage of stocks owned by directors	-
LEV	Ratio of book value of debt over total assets	-
ROA	Ratio of earnings before interest and taxation (EBIT)/Total book assets	+
ROE	Ratio of net income/stockholder's equity	-
FIRMSIZE	Total assets (log)	+
BDSIZE	Total number of directors serving on board	+

4.6. ANALYSIS OF RESULTS

4.6.1. Descriptive Statistics

Table 29 presents the mean value, the standard error and the 25th, 50th and 75th percentiles of all the variables. As can be seen, 56% of the Spanish firms decide to pay

dividends. In addition, the average ratio between cash dividends on common stock and the market value of common stock of firms is 38'579, with firms paying 5'777€ on average (logarithm of total amount of dividends paid per share in the accounting year). Furthermore, the statistics reveal that 7'8% of BD's members are women, being 2'9% female independent directors, 3'8% female institutional directors and 0'8% are female executive directors.

The ownership of the firms held by women on BD's is 2'40%, the ownership concentration of the companies is 54'20%, the investment opportunities are 20'90% and the management ownership is 26'81%. Also, it can be seen that the level of leverage is 60'20%; the return on assets is, on average, -2'20%, while the return on equity is -9'20%. Finally, the firm size is 13'30 (log of the total assets), while the board size, on average, is 10'78 members.

TABLE 29

Descriptive Statistics

a) Continuos Variables

Variables	N	Mean	Std. Dev.	Perc. 25	Perc. 50	Perc. 75
DPY2	910	38.579	221.611	0.000	7.139	26.328
DPY3	910	5.777	5.408	0.000	7.653	10.831
PERWDBD	910	7.800	0.093	0.000	0.059	0.125
PERIWDBD	910	2.900	0.057	0.000	0.000	0.000
PERINSWDBD	910	3.800	0.071	0.000	0.000	0.071
PEREWDBD	910	0.800	0.033	0.000	0.000	0.000
OWNWOMBD	910	2.400	9.339	0.000	0.000	0.007
OWNCON	910	54.200	40.751	20.689	51.104	79.063
IO	910	20.900	1.293	-0.040	0.034	0.155
OWNMANG	910	26.800	26.664	1.384	18.535	49.932
LEV	910	60.200	1.209	0.349	0.562	0.713
ROA	910	-2.200	2.112	-0.009	0.032	0.084
ROE	910	-9.200	2.454	-0.001	0.084	0.185
FIRMSIZE	910	13.295	1.839	11.953	13.162	14.497
BDSIZE	910	10.778	3.755	8.000	10.000	13.000

b) Dummies Variables

		0	% (0)	1	% (1)
DPY1		397	44%	513	56%

Mean, standard deviation and percentiles of the main variables. DPY2 is cash dividends on common stock divided by the market value of common stock of firms; DPY3 is the logarithm of the total amount of dividends paid per share in the accounting year; PERWDBD is the percentage of female directors on the BD; PERIWDBD is the percentage of independent female directors on the BD; PERINSWDBD is the percentage of institutional directors; PEREWDBD is the percentage of executive directors on the BD; OWNWOMBD is the percentage of shares held by female directors on the BD; OWNCON is the percentage of shares held by shareholders holding at least 10% of the firm's stock; IO is the rate of assets growth; OWNMANG is the percentage of stocks owned by directors; LEV is the ratio of book value of debt over total book assets; ROA is the ratio of earnings before interest and taxation (EBIT) over total book assets; ROE is the net income divided by stockholder's equity; FIRMSIZE is the natural logarithm of total assets; BDSIZE is calculated as the total number of directors on the board; DPY1 is equal to 1 if the company pays dividends, and 0 otherwise.

Table 30 presents the mean differences of the independent variables of Model 1, where the dependent variable DPY1 is a dummy variable which takes the value 1 if the company pays dividends, and 0 otherwise. Two groups have been made up in order to analyse mean differences among independent variables in relation to whether the company pays dividends or not. The results in Table 30 show that the mean difference of the variable percentage of independent female directors on BD's is positive and statistically significant at a level of 1%. Therefore, we can accept the second hypothesis.

Thus, these findings show that there is a positive association between the percentage of independent women directors and the dividend payout. Concerning the remainder of independent variables, each present the expected sign, but none are statistically significant. Thus, the first, third, fourth and fifth hypotheses cannot be accepted.

TABLE 30

Means Comparison Test. Model 1

Variables	DPY1 (=1) (N=513) Mean	DPY1 (=0) (N=397) Mean	Mean Difference	Univariate Test (p. value)
PERWDBD	0.078	0.077	0.001	0.246 (0.806)
PERIWDBD	0.034	0.022	0.012	3.119*** (0.002)
PERINSWDBD	0.037	0.040	-0.003	-0.682 (0.495)
PEREWDBD	0.006	0.009	-0.003	-1.435 (0.152)
OWNWOMBD	2.760	2.047	0.713	1.143 (0.253)

Means Comparison Test. DPY1 is equal to 1 if the company pays dividends, and 0 otherwise; PERWDBD is the percentage of female directors on the BD; PERIWDBD is the percentage of independent female directors on the BD; PERINSWDBD is the percentage of institutional directors; PEREWDBD is the percentage of executive directors on the BD; OWNWOMBD is the percentage of shares held by female directors on the BD. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

In Table 31 we provide the mean differences for the independent variables of Model 2, where the dependent variable DPY2 represents the dividend payment in relation to the capitalization. Two groups have been created according to the median of the dependent variables (which is 7'14). This analysis reveals that, as in Model 1, the percentage of independent women directors on BD's is positive and statistically significant at a 1% level. Hence, we can accept the second hypothesis. Therefore, the percentage of independent female directors is positively associated with the ratio between cash dividends paid per share and firm capitalization. The remainder of independent variables offers the predicted sign, but they are not statistically significant.

TABLE 31

Means Comparison Test. Model 2

Variables	DPY2 (>=7,14) (N=455) Mean	DPY2(<7,14) (N=455) Mean	Mean Difference	Univariate Test (p. value)
PERWDBD	0.080	0.075	0.005	0.915 (0.360)
PERIWDBD	0.035	0.022	0.013	0.3562*** (0.000)
PERINSWDBD	0.037	0.039	-0.002	-0.503 (0615)
PEREWDBD	0.007	0.009	-0.002	-9.975 (0.330)
OWNWOMBD	2.956	1.942	1.014	1.639 (0.102)

Means Comparison Test. DPY2 is cash dividends on common stock divided by the market value of common stock of firms; PERWDBD is the percentage of female directors on the BD; PERIWDBD is the percentage of independent female directors on the BD; PERINSWDBD is the percentage of institutional directors; PEREWDBD is the percentage of executive directors on the BD; OWNWOMBD is the percentage of shares held by female directors on the BD. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

Table 32 shows the mean difference for the independent variables of Model 3, where the dependent variable DPY3 represents the dividend payment per share in the accounting year. The median of the dependent variable to create the two groups is 7'65. The analysis of the results reveals that the percentage of independent women directors and the percentage of institutional female directors on BD's present the expected sign and are statistically significant at a level of 1% and 5%, respectively. Hence, we can accept the second and third hypotheses. Thus, according to these results, we can conclude that a higher percentage of independent female directors on BD's makes them more likely to pay dividends, while the percentage of institutional female directors on BD's means they are less likely to pay dividends. The rest of independent variables are not statistically significant.

TABLE 32

Means Comparison Test. Model 3

Variables	DPY3 (>=7,65) (N=455) Mean	DPY3 (<7,65) (N=455) Mean	Mean Difference	Univariate Test (p. value)
PERWDBD	0.077	0.079	-0.002	-0.290 (0.772)
PERIWDBD	0.036	0.021	0.015	4.014*** (0,000)
PERINSWDBD	0.033	0.044	-0.011	-2.379** (0.018)
PEREWDBD	0.006	0.009	-0.003	-1.385 (0.166)
OWNWOMBD	2.668	2.230	0.438	0.709 (0.479)

Means Comparison Test. DPY3 is the logarithm of the total amount of dividends paid per share in the accounting year; PERWDBD is the percentage of female directors on the BD; PERIWDBD is the percentage of independent female directors on the BD; PERINSWDBD is the percentage of institutional directors; PEREWDBD is the percentage of executive directors on the BD; OWNWOMBD is the percentage of shares held by female directors on the BD. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

4.6.2. Regression Results

In Table 33 we present the results for the Spearman correlation matrix in order to test for multicollinearity. The correlation between most of the pairs is not significant and is low (generally below 0'5). Further, none of the correlation coefficients are high enough (>0.80) to cause multicollinearity problems (see Archambeault and DeZoort, 2001). According to these results, we can conclude that these models do not have significant multicollinearity problems. In any case, we also calculate the vector inflation factor (VIF) to corroborate that our results are not biased because of the multicollinearity.

TABLE 33

Spearman Correlation Coefficients

	DPY1	DPY2	DPY3	PERWDBD	PERIWDBD	PERINSWDBD	PEREWDBD	OWNWOMBD	OWNCON	IO	OWNMANG	LEV	ROA	ROE	FIRMSIZE
DPY2	0.794***														
DPY3	0.782***	0.709***													
PERWDBD	-0.001	0.034	0.021												
PERIWDBD	0.091***	0.140***	0.173***	0.442***											
PERINSWDBD	-0.002	-0.010	-0.031	0.563***	-0.060*										
PEREWDBD	-0.033	-0.036	-0.093***	0.286***	-0.117***	0.058*									
OWNWOMBD	0.062*	0.061*	0.032	0.644***	0.113***	0.525***	0.289***								
OWNCON	-0.064*	-0.036	-0.023	0.069**	-0.095***	0.104***	0.170***	-0.019							
IO	0.218***	0.155***	0.176***	-0.061*	0.005	0.003	-0.049	0.002	0.003						
OWNMANG	-0.168***	-0.192***	-0.269***	0.170***	-0.209***	0.248***	0.211***	0.307***	0.270***	-0.005					
LEV	-0.103***	-0.041	-0.002	-0.008	-0.087***	0.075**	0.003	0.052	0.165***	-0.015	0.157***				
ROA	0.568***	0.566***	0.523***	-0.052	0.109***	-0.066**	-0.041	-0.002	-0.067**	0.261***	-0.167***	-0.236***			
ROE	0.551***	0.566***	0.531***	-0.025	0.089***	-0.027	0.003	0.042	0.005	0.235***	-0.084**	0.059*	0.759***		
FIRMSIZE	0.329***	0.403***	0.528***	0.033	0.186***	0.013	-0.081**	-0.037	0.109***	0.151***	-0.258***	0.296***	0.092***	0.229***	
BDSIZE	0.298***	0.341***	0.402***	-0.037	0.119***	0.046	-0.160***	-0.011	-0.078**	0.126***	-0.178***	0.082**	0.108***	0.169***	0.614***

Spearman's correlation matrix. DPY1 is equal to 1 if the company pays dividends, and 0 otherwise; DPY2 is cash dividends on common stock divided by the market value of common stock of firms; DPY3 is the logarithm of the total amount of dividends paid per share in the accounting year; PERWDBD is the percentage of female directors on the BD; PERIWDBD is the percentage of independent female directors on the BD; PERINSWDBD is the percentage of institutional directors; PEREWDBD is the percentage of executive directors on the BD; OWNWOMBD is the percentage of shares held by female directors on the BD; OWNCON is the percentage of shares held by shareholders holding at least 10% of the firm's stock; IO is the rate of assets growth; OWNMANG is the percentage of stocks owned by directors; LEV is the ratio of book value of debt over total book assets; ROA is the ratio of earnings before interest and taxation (EBIT) over total book assets; ROE is the net income divided by stockholder's equity; FIRMSIZE is the natural logarithm of total assets; BDSIZE is calculated as the total number of directors on the board. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent

In Table 34 we show the results of the regression for women directors on BD's. As can be observed, we have built three models. In Model 1 we examined whether firms pay or do not pay dividends; in Model 2 we examine the dividend payment in relation to capitalization; while in Model 3 we analyse the of the total amount of dividend payout per share in the accounting year. The statistic tests show that the three models are statistically significant at 1%.

TABLE 34

Results of the Regression for Women Directors on Board of Directors

Variables	Expected Sign	Model 1 DPY1 Estimated coefficient (p-value)	Model 2 DPY2 Estimated coefficient (p-value)	Model 3 DPY3 Estimated coefficient (p-value)
PERWDBD	+	4.809*** (0.004)	6.788*** (0.008)	0.017** (0.023)
PERIWDBD	+	0.642 (0.748)	190.990 (0.282)	0.040 (0.303)
PERINSWDBD	+/-	-1.224** (0.048)	-7.589* (0.090)	-0.102** (0.022)
PEREWDBD	-	-1.324 (0.644)	-25.609 (0.923)	-0.034 (0.310)
OWNWOMBD	+	0.009 (0.392)	0.051** (0.020)	0.061* (0.083)
OWNCON	-	-0.003 (0.198)	0.360* (0.073)	0.001 (0.982)
IO	-	-0.289** (0.017)	-2.247 (0.696)	-0.109*** (0.000)
OWNMANG	-	-0.003 (0.400)	-0.330 (0.298)	-0.118*** (0.000)
LEV	-	-1.901*** (0.000)	1.907 (0.811)	0.072* (0.053)
ROA	+	0.894 (0.198)	2.126 (0.640)	0.066* (0.074)
ROE	-	1.219*** (0.000)	1.175 (0.240)	0.092*** (0.001)
FIRMSIZE	+	0.495*** (0.000)	-8.680 (0.100)	0.379*** (0.000)
BDSIZE	+	0.073** (0.017)	13.911*** (0.000)	0.099*** (0.007)
Firm Fix Effects		Included	Included	Included
Test Statistic		313.625***	2.296***	19.354***
Pseudo R^2		39'10%	2,91%	29,80%

Estimated coefficients. In Model 1, the dependent variable is DPY1, which is a dummy variable equal to 1 if the company pays dividends and 0, otherwise; in Model 2, the dependent variable is DPY2, which is calculated as the ratio between cash dividends on common stock ant the market value of common stock of firms; in Model 3, the dependent variable is DPY3, which is the logarithm of the total amount of dividend paid per share in the accounting year; PERWDBD is the percentage of female directors on the BD; PERIWDBD is the percentage of independent female directors on the BD; PERINSWDBD is the percentage of institutional directors; PEREWDBD is the percentage of executive directors on the BD; OWNWOMBD is the percentage of shares held by female directors on the BD; OWNCON is the percentage of shares held by shareholders holding at least 10% of the firm's stock; IO is the rate of assets growth; OWNMANG is the percentage of stocks owned by directors; LEV is the ratio of book value of debt over total book assets; ROA is the ratio of earnings before interest and taxation (EBIT) over total book assets; ROE is the net income divided by stockholder's equity; FIRMSIZE is the natural logarithm of total assets; BDSIZE is calculated as the total number of directors on the board. Significant at *** for 99 percent confidence level, ** for 95 percent and * for 90 percent.

According to our predictions – and as can be appreciated in Model 1, where the dependent variable takes the value 1 if the company pays dividends, and 0 otherwise – the percentage of female directors on BD's (PERWDBD) presents the expected sign and is statistically

significant at 1%. Thus, we can accept the first hypothesis: the percentage of women directors on BD's increases the probability of dividend payout. Authors such as Knyazeva et al. (2009), Byoun et al. (2013) and Van Pelt (2013) also provide evidence of the positive relationship between the percentage of women on BD's and dividend payout. As predicted, the variable percentage of institutional female directors on BD's (PERINSWDBD) offers a negative sign and is statistically significant at 5%. Thus, the third hypothesis can also be accepted. Therefore, we can conclude that the percentage of institutional women directors on BD's negatively influence decisions regarding paying dividends. Similar evidence was reported by Kania and Bacon (2005), Amidu and Abor (2006), Azzam (2010) and Ferreira et al. (2010), among others. The remainder of independent variables, the percentage of independent female directors (PERIWDBD), the percentage of executive women directors (PEREWDBD) and the percentage of shares held by female directors on BD's (OWNWOMBD) offers the expected sign, but they are not statistically significant. Hence, we cannot accept the second, fourth and fifth hypotheses, and therefore we cannot provide evidence that the percentage of independent and executive women directors and the percentage of shares held by female directors on BD's have an impact on dividend payout. In this sense, Cotter and Sylvester (2003), Chen et al. (2005), Abdelsalam et al. (2008) and Mansourinia et al. (2013), among others, documented that no significant association was found between independent directors and dividend payout. Concerning the non-relationship between executive directors and the decision of paying dividends, Abor and Fiador (2013) and Mansourinia et al. (2013) provide similar findings, while Zeckhauser and Pound (1990) and Al-Kuwari (2012) also evidenced that large shareholders did not affect dividend payout decisions, which is in line with our findings.

Regarding the control variables, it can be observed that the variables investment opportunities (IO), leverage (LEV), firm size (FIRMSIZE) and board size (BDSIZE) present the expected sign and are statistically significant. In addition, the return on equity (ROE) offers a positive sign – contrary to that expected – and is statistically significant. In the same vein, Aivazan et al. (2003), Abdelsalam et al. (2008) and Malik et al. (2013) documented that there was a positive relationship between returns on equity and dividend payout. Thus, these findings report that high investment opportunities and levels of leverage are negatively associated with decisions relating to paying dividends, whereas a company is more likely to

pay dividends when returns on equity (ROE), firm size and board size increase. The rest of control variables provide the expected sign, but they are not statistically significant.

In Model 2, where the dependent variable is the ratio between cash dividends on common stock and the market value of firms' common stock, the independent variables for the percentage of female directors (PERWDBD) and the percentage of shares held by female directors on BD's (OWNWOMBD) present a positive sign and are statistically significant at 1% and 5%, respectively. Thus, the first and fifth hypotheses can be accepted, and we can conclude that the percentage of women directors and the percentage of shares held by women on BD's increase the ratio between cash dividends and capitalization. On the other hand, the variable percentage of institutional directors on BD's (PERINSWDBD) presents a negative sign and is statistically significant as expected. As a result, we can accept the third hypothesis. Therefore, this result implies that as the percentage of institutional female directors increases, it is more likely that the ratio between cash dividends and capitalization will decrease.

In addition, the percentage of independent female directors on BD's (PERIWDBD) and the percentage of female executive directors (PEREWDBD) provide the predicted sign; however, they are not statistically significant. Hence, we cannot accept the second and fourth hypotheses. As a result, we conclude that, as reported in Model 1, the percentage of female independent and executive directors on BD's has no impact on the ratio of dividend policy.

Contrary to our predictions with respect to the control variables, the ownership concentration (OWNCON) shows a positive sign and is statistically significant at a level of 1%. In the same vein, Ahmed and Javid (2008) and Chen et al. (2009) documented that listed companies in Pakistan and China paid more dividends, respectively, as ownership became more concentrated. In addition, the board size (BDSIZE) presents the expected sign and is significant at 1%. According to these findings, we can conclude that companies whose ownership is concentrated and whose BD's are large are more likely to pay dividends. The rest of the control variables are not statistically significant.

In Model 3, where the dependent variable is the logarithm of the total amount of dividends paid per share in the accounting year, the results reveal that the percentage of female directors

(PERWDBD) and the percentage of shares held by female directors on BD's (OWNWOMBD) present the expected sign and are statistically significant at 5% and 10%, respectively. Thus, we can accept the first and fifth hypothesis, and can therefore reach the conclusion that the dividend payment will increase when the percentage of women directors and the percentage of shares held by women directors on BD's also increases. As predicted, the variable percentage of institutional female directors on BD's (PERINSWDBD) offers a negative sign and is statistically significant at the 5% level, which allows us to accept the third hypothesis. Thus, these findings show that the percentage of female institutional directors on BD's will reduce the probability of paying dividends. In same vein, Kania and Bacon (2005) and Amidu and Abor (2006) found that institutional ownership was negatively associated with dividend payout. Moreover, as can be seen in Models 1 and 2, the other independent variables (PERIWDBD and PEREWDBD) present the expected sign, but they are not statistically significant.

With regards to the control variables, we can observe that investment opportunities (IO), manager ownership (OWNMANG), return on assets (ROA), firm size (FIRMSIZE) and board size (BDSIZE) present the expected signs and are statistically significant. Therefore, these results provide evidence that investment opportunities and management ownership are negatively associated with dividend payout, while those relating to a high return on assets, firm size and board size will increase the likelihood of paying dividends. Contrary to our expectations, the variables leverage (LEV) and return on equity (ROE) present a positive sign and are statistically significant at 1% and 10%, respectively. In line with these findings, Chang and Rhee (1990), Maury and Pajuste (2002), Kania and Bacon (2005) and Kahn (2006) reported that there was a positive relationship between leverage and dividend payout. In relation to the positive relationship between return on equity (ROE) and the payment of dividends, Al -Kuwari (2012) and Ehsan et al. (2013) showed similar conclusions. Thus, we can conclude that there is a greater likelihood to pay dividends when the leverage and ROE increases. Finally, the variable ownership concentration is not statistically significant.

4.7. CONCLUSIONS

Previous studies have examined the effect of gender diversity on BD's on dividend policy. Thus, this study provides insight into the relationship between gender diversity on BD's and dividend policies of firms listed on the Madrid Stock Exchange. Dividend policy is measured in three ways. In Model 1, the dependent variable is a dummy variable which takes the value 1 if the company pays dividends, and 0 otherwise; in Model 2, the dependent variable is the ratio between cash dividends on common stock and the market value of common stock of firms; and in Model 3, the dependent variable is the logarithm of the total amount of dividend payout per share in the accounting year. We hypothesized that the percentage of female directors on BD's, the percentage of independent, institutional and executive directors on BD's, and the shares held by female directors on BD's would affect dividend policy.

Our results demonstrate that the percentage of female directors on BD's positively influences dividend policy, as the percentage of women directors increases the probability of affecting the decision of paying dividends, the ratio between cash dividends and capitalization, and the payment of dividends per share in the accounting year. This finding is supported by Ye et al. (2010), who showed that the percentage of women directors on BD's increases dividend payout. The fact that the percentage of female directors on BD's increases the dividend payout can be due to that women are more risk averse than men and consequently, female directors prefer to distribute the earnings instead of invest the cash in future inversions. The percentage of independent female directors on BD's has no impact on the dividend policy analysed in the three models. The percentage of institutional female directors on BD's negatively impacts on dividend policy, since there is a negative association between institutional female directors and the decision of paying dividends, as well as the ratio between cash dividends and capitalization and the payment of dividends per share in the accounting year. This result suggests that institutional female directors on BD's prefer to pay lower dividends, thereby retaining and investing more of their earnings, resulting in agency costs being lower. These results support the relevant role of institutional directors on boards and the lack of influence of independent directors in European countries, as suggested in the literature (e.g. Vafeas, 2000; García-Osma and Gill de Albornoz, 2007; Lorca et al., 2011; García-Meca and Sánchez-Ballesta, 2013). The lack of significance of independent female

directors on BD's may be related to the measure of independence, particularly in communitarian studies, where there are many concerns that board members are not independent of those who nominate them. Other explanations could be the substitution effect between independent female and institutional female directors, or as Abdelasam et al. (2008) and Mansourinia et al. (2013) reported, because the presence of independent female directors on BD's cannot influence the dividend policy decisions of executive directors and managers.

The percentage of executive female directors on boards has no effect on the dividend payout. This result suggests that executive women directors have more firm-specific information, and that rather than paying dividends, prefer instead to have higher control of cash to invest in their firm's projects, leading to higher returns. This argument is supported by Jensen (1986) and Crifo and Forget (2013), who argue that managers in firms with excess cash flows have an incentive to waste organizational resources on personal ends, rather than pay out the excess cash to shareholders through dividends. The percentage of shares held by female directors on BD's has no effect on the decision of paying dividends or not, but it raises the ratio between cash dividends and capitalization and the amount of dividends paid by share in the accounting year. The results suggest that shareholders whose rights are stronger can use their power to pressure managers to pay higher dividends (La Porta, et al., 2000; Brockman and Unlu, 2009; Adjaoud and Ben-Amar, 2010).

The limitations of this study are as follows. Firstly, it is possible that there are unknown factors that could impact our dependent variables. While we have controlled for as many factors as possible based on theory and prior research, empirical and theoretical limitations prevent us from knowing whether all of the important influences have been controlled for and addressed. Finally, the study is based on the Madrid Stock Exchange for the period 2004–2012, so the results obtained should not to be extrapolated to other countries or periods.

This study could give rise to future lines of research. Firstly, it would add value to analyse the impact of gender diversity on BD's on the shares repurchased. Secondly, it would be interesting to examine the relationship between gender diversity on BD's and dividends tax advantages.

DISCUSSION

The main goal of this thesis is to analyse the repercussions of gender diversity for the decision-making bodies of Spanish listed companies. In this section, we describe the findings reported in the four chapters.

The aim of the first chapter was to analyse whether AC diversity has an effect on financial reporting quality, measured by means of the type of opinion issued by external auditors in their audit reports. The results evidenced that after controlling for other audit report qualifications-related factors, no negative association was found between AC diversity and the probability of receiving qualifications with errors, non-compliance and the omission of information, but we did find a significant and positive relationship between the number of AC's chaired by women and the likelihood of disclosing qualifications with uncertainties, suggesting that having chairwomen on AC's would enhance the quality of financial reporting.

In our opinion, these results could be caused by various factors. Firstly, the low number of qualifications with errors, non-compliance and the omission of information can justify the lack of significant results for these types of qualifications. Secondly, the vestiges of the Franco dictatorship, a traditionally male-dominated society, can also support these findings. Spanish society needs to remove any remainder of this era over time. To this effect, the presence of women on corporate governance bodies is a new phenomenon, which might play a role in restricting their influence. It is possible that female AC members are more ethical than male AC members but are unable to influence the remainder of the AC. Therefore, their

role in relation to financial reporting issues would be either limited or unattended to in most cases. Thirdly, it is possible that women are not uniform in their ability to influence other AC members. Individual differences in this ability may mask a gender difference in financial reporting quality beliefs and lead to the null results. Unfortunately, we cannot control for this effect in the study. Finally, the culture of corporate governance may not yet be fully developed in Spain, in particular with respect to AC's, as these mechanisms of corporate governance were imported from Anglo-Saxon countries.

The goal of the second chapter of this thesis was to examine whether a gender wage gap exists among the BD's of Spanish listed companies. The remuneration of male–female directors was calculated as the logarithm of the difference between male and female directors' compensation of firms. The results showed that the percentage of female directors and the geographical region have no effect on the gender wage gap, while women's presence on the Nomination and Compensation Committee increases the gender gap in pay, which is reduced when there are independent female directors who had gained degree on the BD and the company operates in the finance and real estate services sector.

In our opinion, the results reported may be due to the following reasons. Firstly, the lack of significance of the geographical region for the gender wage gap on BD's can be justified because the organizational culture of the firms listed on the Madrid Stock Exchange is influenced by the values of their directors. Secondly, the facts that the percentage of females on the board has no effect on the gender pay gap and the presence of women on the Nomination and Compensation Committee increases the gender gap in pay can be explained because there are few women on BD's and Nomination and Compensation Committees and they cannot influence the opinion of the men who make up the BD and the Nomination and Compensation Committee. Thirdly, our results also reported that the presence of graduate independent female directors narrows the gender pay gap, which could be due to the fact that female directors with high educational qualifications obtain similar compensation to male directors.

The objective of the third chapter was to examine whether gender diversity on BD's influences the voluntary formation of their board sub-committees. The results showed that the

voluntary creation of board sub-committees depends on the female independent directors on BD's, the number of female directors on BD's and the ownership held by female directors. In addition, the percentage of executive and institutional directors on BD's reduces the probability of creating an Executive Committee and all or some of the board sub-committees, respectively. Nevertheless, the remuneration of female directors on BD's has no impact on the voluntary formation of board sub-committees.

In our opinion, these findings may be due to the following reasons. Firstly, a high percentage of executive female directors on BD's could be seen as a substitute for an Executive Committee, which can explain the reduction of all or some of the board sub-committees and the Committee for Supervision in order to avoid duplicating functions. Secondly, the percentage of institutional female directors on BD's reduces the formation of all or some of the board sub-committees. This implies that those BD's dominated by institutional directors provide transparency and greater oversight capacity in business management; therefore, the demand for control mechanisms is reduced. Thirdly, the remuneration of female directors on BD's does not contribute to the voluntary creation of board sub-committees. This finding could be due to the fact that there are some Spanish firms that do not include information on the remuneration of senior positions in their annual reports, although this has been obligatory since the publication of the Spanish Listed Companies Transparency Act (Law 26/2003).

The main idea of the last chapter was to study the impact of board diversity on the dividend policy. To achieve this objective, we calculated the dependent variable in three ways: (1) as a dummy variable that takes the value of 1 if the company pays dividends and 0 otherwise; (2) as cash dividends on common stock divided by the market value of common stock of listed firms; (3) as the logarithm of the total amount of dividends paid per share in the accounting year. Our results showed that the percentage of female directors and the percentage of shares held by female directors on BD's are positively associated with the dividend payout, while the percentage of institutional female directors on BD's has a negative impact on the dividend payment. The percentage of independent and executive female directors on BD's has no effect on the dividend payout.

These findings can be explained in the following points. Firstly, the fact that the percentage of female directors on BD's increases the dividend payout could be due to women being more risk-averse than men; consequently, female directors prefer to distribute the earnings instead of investing the cash in future investments. Secondly, the female shareholders whose rights are stronger can use their power to pressure managers to pay higher dividends. Thirdly, institutional female directors prefer to pay lower dividends, thereby retaining and investing more of their earnings, resulting in the agency costs being lower. Fourthly, the lack of significance of independent female directors on BD's for the dividend policy may be because in communitarian studies there are many concerns that board members are not independent from those who nominate them. Other explications may be that the presence of independent female directors on BD's cannot influence the dividend policy decisions of executive directors and managers. Finally, executive female directors have more firm-specific information, so rather than paying dividends, they prefer to have a higher level of control over cash to invest in their firm's projects, leading to higher returns.

CONCLUSION

The cultural, political, social and economic changes in recent years in Spain have increased the gender diversity on companies' decision-making bodies. This increase has been enhanced by the implementation of the Unified Code of Corporate Governance (2006), the proposals of which are intended to support the female presence on decision bodies. However, the implementation of Act 3/2007 of 22 March, for Effective Equality between Women and Men (LOIMH), Article 75, framed the regulation of the appointment of men and women on BD's in an equitable way. This law establishes that listed companies have to achieve a quota of 40% of women on decision-making bodies by 2015. Thus, the Spanish law allowed 8 years to reach this percentage.

The results have shown that gender diversity plays an important role in positions of responsibility in Spanish companies. Our evidence supports Act 3/2007 of 22 March based on the premises that the number of AC's chaired by women increases the likelihood of disclosing qualifications with uncertainties, gender diversity on BD's has an impact on the gender gap in pay, gender diversity increases the board sub-committees and gender diversity has an impact on the dividend policy. However, we can observe in our results that the percentage of females on decision-making bodies is too low to achieve the objective by 2015. In our opinion, the legislation should encourage greater participation of women in governing bodies. However, it is necessary to introduce some changes into the Spanish laws in order to increase women's presence on the decision-making bodies of firms.

For this reason, we would like to recommend some actions regarding gender diversity in decision-making bodies, which should be taken to improve the presence of women on these bodies. Firstly, we recommend that the legislative bodies should establish stronger government sanctions for non-compliance with the law (Law 3/2007) since the results have shown that the progress made is still too slow to meet the government's 2015 target. Secondly, it would also be advisable to introduce a wide range of laws and tools to address the underrepresentation of women in senior leadership positions in medium-sized and small firms, considering that in these firms there can be few women on the board. Finally, it would be interesting to establish some methods for monitoring the equality plans followed by firms in their recruitment and selection processes in order to assess whether firms discriminate between workers.

The results have significant implications for Spanish supervisors and regulators. In the first place, the findings suggest that the composition of gender diversity on AC's has an effect on the audit opinion. Specifically, this evidence could help regulators and legislative bodies to improve some aspects of the structure of the board of directors and its sub-committees. In the second place, this study reveals the existence of a gender gap in pay on BD's, so these results should stimulate regulators and politicians to improve the present situation and eliminate male–female salary discrimination at all levels of companies. In the third place, the results confirm that gender diversity on BD's has a significant influence on the voluntary creation of board sub-committees and the dividend payout, so the existing legislation should encourage greater participation of women in governing bodies. This thesis provides evidence of the positive impact of female directors on BD's and AC's; therefore, all companies, especially listed companies, should be motivated to achieve the gender quota of 40% of women on their decision-making bodies by 2015. In addition, legislators should establish stronger sanctions in the case of failure to follow the law, combined with more effective equality plans.

We propose the following future research lines related to this thesis:

- Examining the impact of women in corporate governance, especially in the international context, as a comparison of our results with other legal, cultural, professional and regulatory environments would enrich the debate about gender diversity in corporate governance.

- Analysing the gender wage gap between female and male directors, distinguishing between fixed and variable compensations, would be valuable to shed light on the potential of incentives to narrow the gender gap in pay.

- To investigate whether male–female compensation differences exist at all levels of an organization or merely on the board, assessing the equality plans applied by firms in their recruitment and selection processes.

- To examine employees' pay taking into account the wages of immigrant workers to establish whether firms discriminate in this area.

- To study the pay earned by both male and female directors in international firms and establish whether any gender-based compensation differences that may come to light are due to political, cultural or social factors.

- To describe the impact of gender diversity on BD's in the voluntary formation of board sub-committees by comparing companies of the Madrid Stock Exchange with companies from a country of a traditional culture, such as an oriental country, where the role of women in firm decision-making bodies is reduced.

- To study whether gender diversity on BBD's can influence the demand for external control mechanisms or diversification of the firm's business.

- To explore the impact of gender diversity on BD's on the shares' repurchase.

- To identify the relationship between gender diversity on BD's and dividends' tax advantages.

CONCLUSIÓN

Los cambios culturales, políticos, sociales y económicos ocurridos en los últimos años en España han incrementado la diversidad de género en los órganos de decisión de las compañías. Este incremento se vio reforzado por la aplicación del Código Unificado de Buen Gobierno (2006), cuyas recomendaciones apoyaban la presencia femenina en los órganos de decisión de las empresas. Pero fue con la aplicación de la Ley 3/2007, de 22 de Marzo, para la igualdad efectiva entre mujeres y hombres (LOIMH), el artículo 75, la que establece la regulación de forma equitativa de hombres y mujeres en los BD's. Esta ley establece que las empresas cotizadas tienen que alcanzar una cuota del 40% de mujeres en los órganos de toma de decisiones de las empresas hasta 2015. Por lo tanto, la ley española tiene ocho años para llegar a este porcentaje.

Los resultados han demostrado que la diversidad de género tiene un importante papel en las posiciones de responsabilidad de las compañías españolas. Nuestra evidencia apoya a la Ley 3/2007 del 22 de Marzo basada en la premisa que el número de mujeres presidentas en el AC incrementa la probabilidad de divulgar salvedades con incertidumbres, la diversidad de género en los BD's tiene un importante impacto en la brecha salarial por razón de género, la diversidad de género incrementa la constitución de Comisiones Delegadas del consejo y la diversidad de género tiene un impacto en la política de dividendos. Pero observamos en nuestros resultados que el porcentaje de mujeres en los órganos de decisión es demasiado lento para conseguir el objetivo en 2015. En nuestra opinión la legislación debería fomentar una mayor participación de mujeres en los órganos de gobierno. Sin embargo, es necesario

introducir algunos cambios en las leyes españolas con el fin de aumentar la presencia de mujeres en los órganos de decisión de las empresas.

Por esta razón, nos gustaría recomendar algunas acciones relativas a la diversidad de género en los órganos de decisión y control, que deben adoptarse para mejorar la presencia de mujeres en estos órganos. En primer lugar, recomendamos que los órganos legislativos deberían establecer fuertes sanciones gubernamentales al incumplimiento de la ley (Ley 3/2007) ya que los resultados han demostrado que los avances son todavía demasiado lentos para alcanzar el objetivo de gobierno en 2015. En segundo lugar, sería conveniente introducir una amplia gama de leyes y herramientas desarrolladas para hacer frente a la escasa representación de las mujeres en altos cargos directivos en las pequeñas y medianas empresas teniendo en cuenta que en estas empresas pueden haber pocas mujeres en los consejos. Finalmente, sería interesante establecer algunos métodos para controlar los planes de igualdad aplicados por las empresas en sus procesos de reclutamiento y selección de empleados con la finalidad de conocer si las empresas discriminan a los trabajadores.

Los resultados tienen implicaciones importantes para los supervisores y reguladores españoles. En primer lugar, los hallazgos sugieren que la inclusión de la diversidad de género en los AC's tiene efectos sobre la opinión del auditor. Específicamente, esta evidencia puede ayudar a los órganos reguladores y legisladores a mejorar algunos aspectos de la estructura de los BD's y de las Comisiones Delegadas. En segundo lugar, este estudio revela la existencia de una brecha salarial por razón de género en los BD's, por eso estos resultados deberían estimular a los reguladores y políticos a mejorar la situación actual y eliminar la discriminación salarial entre hombres y mujeres en todos los niveles de las compañías. En tercer lugar, los resultados confirman que la diversidad de género en los BD's tiene una influencia significativa en la creación voluntaria de Comisiones Delegadas y en la política de dividendos, por eso la legislación actual debe fomentar la participación de mujeres en los órganos de gobierno. Esta tesis proporciona evidencia del impacto positivo de las mujeres en los BD's y los AC's y por lo tanto, todas las empresas, especialmente las empresas cotizadas, deben estar motivadas para alcanzar la cuota de género del 40% de mujeres en los órganos de toma de decisiones para 2015. Además, los legisladores deberían establecer sanciones más

severas en caso de incumplimiento de la ley, combinado con planes de igualdad más efectivos.

A continuación, proponemos las siguientes líneas de investigación futuras relacionadas con esta tesis:

- Examinar el impacto de las mujeres en el gobierno corporativo, especialmente en el contexto internacional, como la comparación de nuestros resultados con otros entornos jurídicos, culturales, profesionales y reglamentarios que enriquecerían el debate sobre la diversidad de género en el gobierno corporativo.

- Analizar el salario de los directivos distinguiendo entre el salario fijo y variable ya que sería valioso arrojar luz sobre el potencial de los incentivos en la reducción de la brecha salarial por razón de género.

- Investigar si existen diferencias salariales entre los hombres y las mujeres de todos los niveles de las organizaciones o simplemente en los Consejos de Administración, evaluando que planes de igualdad utilizan las empresas para contratar a sus trabajadores.

- Examinar las remuneraciones de los empleados de las empresas, teniendo en cuenta los salarios percibidos por los inmigrantes, y analizar si las empresas realizan algún tipo de discriminación salarial

- Estudiar las retribuciones de los hombres y mujeres que forman los CA de empresas internacionales, y observar, en el caso que se pongan de manifiesto diferencias salariales por razón de género, si éstas son debidas a cambios políticos, culturales y sociales.

- Describir el impacto de la diversidad de género en CA en la creación voluntaria de Comisiones Delgadas comparando las empresas de la Bolsa de Madrid y otros países con una cultura más tradicional, como puede ser la oriental, donde se reduce el papel de las mujeres en los puestos de toma de decisiones de las empresas.

- Estudiar si la diversidad de género puede influir en la demanda de mecanismos externos o en la diversificación de los negocios de la empresa.

- Explorar el impacto de la diversidad de género en el CA y la recompra de acciones.

- Buscar la relación entre la diversidad de género en los CA y las ventajas fiscales de los dividendos.

NOTES

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[1] Financial statements are the representations of management, and individual investors use them to make decisions but rely on the auditor to verify their credibility (Chen et al., 2000; Chow and Rice, 1982; Dopuch et al., 1986; Firth, 1978). As an audit can effectively reduce and mitigate information asymmetry, auditing is an integral part of the modern financial reporting system. When we evaluate an accounting system in a capital market, we should adequately consider the auditor's opinion and assurance on financial reports. An auditor may issue an unqualified or qualified opinion based on his/her examination. A qualified audit opinion is prima facie evidence of low financial reporting quality.

[2] Given the high correlation between MCA and %MCA in both models, a new analysis (logistic regression) was done by dropping the variable percentage of women in ACs (%MCA). The results referring to the hypotheses, not provided, were unaffected.

[3] The logarithm of the difference between mean values of male and female directors' compensation of firms listed on the Madrid Stock Exchange has been also used as a dependent variable. The mean value of compensation is calculated as the ratio between the total remuneration of the director and the total number of directors of the BD. The results, not provided, are unaffected.

[4] Spanish acronym for Igualdad Efectiva entre Mujeres y Hombres.

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