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**Universidad de Valladolid**



**PROGRAMA DE DOCTORADO EN ECONOMÍA DE LA EMPRESA**

**TESIS DOCTORAL:**

**Cuatro ensayos sobre la comisión de auditoría  
en el nuevo marco legal europeo**

Presentada por César Zarza Herranz para optar al  
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Dirigida por:  
Félix Javier López Iturriaga

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# 1. Introducción

Durante los primeros años del presente siglo el mundo empresarial fue testigo de sonados casos de fraude como los ocurridos en las empresas Enron (2001), WorldCom (2002) o Parmalat (2003) que evidenciaban debilidades en los sistemas de gobierno y las dudas sobre la fiabilidad de la información financiera de las grandes compañías<sup>1</sup>. Y, a pesar de los esfuerzos regulatorios con que se reaccionó, nuevos escándalos subrayaron la necesidad de seguir mejorando el sistema de gobierno corporativo de las empresas. Casos como el de Lehman Brothers (2008), Bankia (2012) o Volkswagen (2015) continuaban evidenciando problemas en los sistemas de control interno de las corporaciones, cuyo denominador común a todos ellos residía en las debilidades existentes en el seno de sus órganos de gobierno.

El papel del auditor, figura clave en la salvaguarda de la información financiera de las empresas, también ha sufrido las consecuencias de estos episodios al atribuírsele buena parte de la responsabilidad de los fraudes mencionados. Cabe destacar la desaparición a nivel mundial de la auditora Arthur Andersen como consecuencia del caso Enron, o la multa impuesta en España a Deloitte por el caso Bankia<sup>2</sup>.

Existe un amplio acuerdo entre los profesionales de empresa, los reguladores y los investigadores acerca de la relevancia tanto del auditor legal como de los órganos de gobierno, y concretamente de su comisión de auditoría, de cara a ofrecer una información financiera fiable. La sucesión de estos escándalos no ha hecho sino confirmar esa relevancia e impulsar un esfuerzo

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<sup>1</sup> Enron, principal distribuidor energético mundial, WorldCom importante empresa de telecomunicaciones estadounidense y Parmalat, grupo alimentario italiano, se declararon insolventes por diferentes prácticas de manipulación contable.

<sup>2</sup> En el año 2014 el Instituto de Contabilidad y Auditoría de Cuentas de España, órgano dependiente del Ministerio de Economía y Hacienda, impuso una multa de más de diez millones de euros a la firma Deloitte por su actuación en la salida a Bolsa de Bankia.



regulatorio encaminado a garantizar el adecuado funcionamiento e independencia de la profesión de auditoría, ya sea a través de la figura del auditor o censor jurado de cuentas, o a través de la comisión de auditoría de las empresas.

Así lo ha entendido el legislador tanto en España como en otros países, pues el marco legal de la función de auditoría se ha modificado radicalmente en los últimos años. Algunos ejemplos de esta reforma son la *Sarbanes–Oxley Act* (SOX) promulgada en 2002, el nuevo marco europeo de auditoría (concretado en la Recomendación 2005/162/CE, la Directiva 2014/56/UE y el Reglamento UE 537/2014) y la Ley española 22/2015 de Auditoría de Cuentas.

La necesidad de reforzar la independencia del auditor y potenciar el funcionamiento de la comisión de auditoría garantizando su independencia y cualificación es un elemento clave en todas ellas, y así lo entiende la Directiva 2014/56/UE en su párrafo 4 de la exposición de motivos cuando indica que las comisiones de auditoría *“desempeñan un papel decisivo”* en la calidad del proceso de auditoría, siendo necesario *“reforzar la independencia y capacidad técnica de la comisión de auditoría, exigiendo que la mayoría de sus miembros sean independientes, y que al menos uno de ellos posea competencias en materia de auditoría y/o contabilidad”*.

De igual forma se pronuncia el Reglamento UE 537/2014 indicando en su párrafo 5 que *“un planteamiento regulador común permitiría mejorar la integridad, independencia, objetividad, responsabilidad, transparencia y fiabilidad de los auditores legales”*, o en el párrafo 21 refiriéndose al establecimiento de una duración máxima del encargo del auditor con el fin de *“reducir la amenaza de familiaridad, reforzando con ello la independencia de los auditores legales y sociedades de auditoría”*.

El objetivo último que hemos perseguido al realizar esta tesis doctoral por compendio de artículos ha sido contribuir a la mejora del gobierno corporativo de las empresas mediante el análisis

de determinados elementos del proceso de auditoría a fin de diagnosticar y aportar sugerencias para robustecer los sistemas de gobierno y control de las grandes corporaciones.

Concretamente hemos analizado la independencia del auditor a través del papel que ha desempeñado el consejo de administración y su comisión de auditoría en la decisión del cambio de auditor de las empresas españolas en un momento previo a la entrada en vigor de la normativa que regula la rotación obligatoria. Además, hemos comprobado la importancia que desempeña la cualificación de los miembros de la comisión de auditoría de las grandes empresas europeas en el gobierno corporativo y en la calidad de la información financiera.

Por tanto, se definen dos grandes ejes sobre los que se vertebran los diferentes artículos de investigación presentados en esta tesis. El primer eje se desarrolla a través de la publicación de un único artículo, y que comprende el estudio de la independencia del auditor a través de la rotación de la firma auditora encargada de revisar la información financiera de las empresas españolas. El segundo eje lo completan tres artículos que analizan el funcionamiento de la comisión de auditoría de las grandes empresas europeas a través de la cualificación, perfil y dedicación de los consejeros que forman parte de ella. El ámbito de estos dos grandes ejes han sido las grandes sociedades cotizadas que forman parte de los principales índices bursátiles europeos dada la escasa evidencia científica existente en este ámbito si se compara con Estados Unidos.

Además, se debe destacar el interés suscitado por los temas que se presentan en esta tesis, habiendo recibido el reconocimiento de diferentes instituciones y organismos españoles de contabilidad como son la Asociación Española de Contabilidad y Administración de Empresas (AECA) con el Premio AECA de artículos de contabilidad en 2010, la Asociación Española de Profesores Universitarios de Contabilidad (ASEPUC) y el Instituto de Contabilidad y Auditoría de Cuentas (ICAC) a través del Premio de Proyectos de Investigación Contable “José María Fernández Pirla” en 2015, y el Centro de Estudios Financieros (CEF) con la obtención del Premio Estudios Financieros en 2017.

En cuanto al primer eje de investigación, relacionado con la rotación de la firma auditora, a pesar de su actual obligatoriedad en la totalidad del espacio empresarial europeo, el estudio se llevó a cabo en un periodo previo a la entrada en vigor de la normativa que regula dicha obligatoriedad, y el alcance se limitó al mercado español puesto que su entorno regulatorio, en el momento de estudio, permitía a las empresas mantener una relación prolongada con el auditor.

En principio, todas las auditoras reúnen los requisitos necesarios para ejercer una labor de revisión y control con la suficiente diligencia, de modo que, las meras exigencias legales que implica esta profesión, ya garantizan la fiabilidad de la información por ellas avalada. Cumpliéndose esta premisa, cabría preguntarse los motivos por los que se propicia la rotación de firma auditora en un entorno normativo donde las meras exigencias legales ya presuponen la actuación lícita y eficiente del auditor. De hecho, en España había firmas de auditoría revisando durante más de veinte años seguidos los estados financieros de las empresas<sup>3</sup> del IBEX-35.

Aunque no de modo unánime, la investigación académica parece sugerir que el cambio de auditor tiene consecuencias negativas en la calidad de información, ya sea por la existencia de una curva de aprendizaje que exige el transcurso de varios años hasta adquirir un conocimiento cabal de la empresa auditada, o ya sea por un posible problema de compra de opinión resultante de la dependencia económica del auditor. Desde una perspectiva más política, el legislador español parece tener una visión divergente y considera que el mantenimiento de una relación prolongada con el auditor puede conducir a una relajación de este último en el cumplimiento de su cometido. Así ha parecido darlo a entender en múltiples normas como la Ley de Auditoría de Cuentas o la denominada Ley Financiera, por poner únicamente dos ejemplos.

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<sup>3</sup> Sirvan como ejemplo los casos de Banco Popular, Banco Sabadell o Mapfre que llevaban más de veinte años seguidos siendo auditadas por la misma firma auditora.

La comparación de estos dos enfoques, uno más político y otro más académico, y las divergentes conclusiones a que cada uno de ellos conduce, plantea la pregunta acerca del eventual papel que el buen gobierno corporativo puede desempeñar a la hora de explicar la decisión de cambio de auditor. Nuestros principales códigos de buen gobierno (Olivencia, Aldama, el Código Unificado de Buen Gobierno y el Código de Buen Gobierno de las Sociedades Cotizadas) y la mayoría de los códigos promulgados en otros países presentan como denominador común la concepción del consejo de administración como piedra angular del gobierno corporativo y el empeño por impulsar su adecuado funcionamiento e independencia.

Esa visión coincide con la perspectiva académica que, en palabras de Jensen (1993), considera al consejo de administración como la “cúspide de los mecanismos internos de control directivo”. De acuerdo con esa investigación científica, una adecuada actuación del consejo de administración se estructuraría en torno a cuatro características: su tamaño, independencia, actividad y estructura de comisiones. La adecuada combinación de estas cuatro dimensiones permitiría reforzar la efectividad del consejo e impulsar su función supervisora.

Por tanto, a tenor de las recomendaciones de buen gobierno, se configura un consejo de administración que podríamos calificar de ajustado o, en otros términos, “políticamente correcto”, caracterizado por un tamaño intermedio (posiblemente no inferior a cinco y no superior a quince miembros), con una significativa presencia de consejeros independientes y un ritmo periódico de reuniones (en torno a una reunión mensual). En esta misma línea, la comisión de auditoría asume un notable protagonismo, siendo también rasgos claves su adecuado tamaño, la presencia mayoritaria de consejeros independientes y un número oportuno de reuniones.

El artículo de investigación que presentamos en este eje constituye el primer capítulo de esta tesis, fue publicado en 2010 en el volumen 39 (137) de la Revista Española de Financiación y Contabilidad y confronta este perfil ideal de consejo de administración que recomiendan los códigos

de buen gobierno con los cambios de auditor llevados a cabo por las grandes empresas españolas entre 2004 y 2007, revelando ciertas regularidades muy ilustrativas. Entre los aspectos más significativos hay que destacar que los cambios de auditor tuvieron como destino firmas auditoras con un nivel de calidad análogo al de la auditora de origen, es decir, la rotación se producía entre las cuatro grandes firmas auditoras (*Big Four*<sup>4</sup>).

Asimismo, se observó una mayor rotación del auditor en empresas con consejos de tamaño intermedio (en torno a los doce o trece consejeros). Se constató, también, una relación positiva entre la decisión de cambiar de auditor y la presencia de consejeros independientes, tanto en el consejo de administración como en la comisión de auditoría. Además, el nivel de actividad de ambos órganos es un elemento a tener en cuenta, adoptándose tal decisión en aquellos consejos y comisiones más activos, con más reuniones.

En consecuencia, nuestro trabajo sugiere que son precisamente aquellos consejos de administración y comisiones de auditoría más acordes con las recomendaciones de buen gobierno los más proclives a tomar la decisión del cambio de auditor. En esta misma línea debió entenderlo la Unión Europea cuando emitió, cuatro años después de esta investigación, la Directiva 2014/56/UE y el Reglamento UE 537/2014 que recogen la obligación de rotar de firma auditora como garantía de la independencia de la profesión.

Una vez solventada la homogeneización europea en torno al cambio de auditor, los hallazgos obtenidos en este artículo nos motivaron a continuar explorando los diferentes factores de gobierno corporativo que podrían afectar al proceso de auditoría. Como mencionábamos anteriormente, a través de diferentes normas, el regulador europeo se ha focalizado en la necesidad de reforzar las funciones e independencia de la profesión de la auditoría de cuentas, así como de la comisión de

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<sup>4</sup> Término utilizado para referirse a las cuatro grandes firmas auditoras: PricewaterhouseCoopers (PWC), Deloitte (DTT), Ernst & Young (E&Y) y KPMG.

auditoría de las empresas, por lo que parece razonable que nuestro segundo eje de la tesis gire en torno a este último órgano.

El estudio de la comisión de auditoría tiene una dilatada trayectoria en la investigación contable. Cabe distinguir una primera generación de estudios centrados en el efecto de la mera existencia de dicha comisión, y que fue seguida por una segunda generación que abordaba su independencia. Esta literatura muestra reiteradamente el positivo efecto que ambos aspectos tienen en la calidad de la información financiera. Posteriormente surgió una nueva generación de investigaciones centradas en un aspecto más difícilmente cuantificable como es la cualificación de los componentes de dicha comisión. En este sentido no faltan trabajos que verifican que las comisiones de auditoría que cuentan con más expertos reducen la gestión del resultado y logran mejores previsiones de los analistas financieros.

De la misma forma, el nuevo marco legal de auditoría también ha hecho suya esta perspectiva y ha apostado claramente por asegurar una cualificación de esta comisión. Así, la *Sarbanes–Oxley Act* (2002) exige explícitamente que al menos uno de sus integrantes posea experiencia y cualificación como experto financiero, adquiridas estas a través de su formación o trayectoria profesional. En el caso europeo, la Recomendación 2005/162/EC exige que los integrantes de la comisión han de poseer formación y experiencia reciente y pertinente sobre temas financieros y contabilidad de empresas que cotizan en bolsa (art. 11). En esta misma línea, la Directiva 2014/56/EU impone el requisito de una comisión de auditoría compuesta por una mayoría de independientes y en la que al menos uno de sus miembros posea competencias en materia de auditoría y/o contabilidad (art. 24). Esta dualidad de conjunciones y/o no debe pasar desapercibida pues demostraremos que, precisamente, es la experiencia auditora uno de los rasgos más influyentes.

Incluso de manera más específica, el sector financiero ha querido reforzar la importancia de la cualificación de los consejeros, recogiendo en sendas guías de la *European Banking Association* (2018)

y del Banco Central Europeo (2018) las competencias mínimas de los componentes de los órganos de administración de las entidades financieras.

La trasposición nacional que se ha realizado de esta normativa tampoco ha dejado al margen este aspecto y se han establecido requisitos diversos de cualificación. A modo de ejemplo en Alemania, se exigen conocimientos y experiencia en contabilidad y auditoría, en Gran Bretaña se requiere una experiencia financiera reciente y relevante, o en España se deben poseer conocimientos y experiencia en contabilidad, auditoría o gestión de riesgos.

Esta reforma normativa europea constituye el punto de partida de nuestra investigación ya que, mientras los estudios relativos a EE.UU. han puesto de manifiesto una inequívoca relación entre la cualificación de la comisión de auditoría y la calidad de la información financiera de las empresas, la investigación procedente de otros países es más escasa y menos concluyente.

Esta falta de evidencia empírica podría estar motivada por una mayor dificultad para medir de manera objetiva la cualificación de los consejeros. En este sentido, el Reglamento 537/2014 del Parlamento Europeo califica como experto a la persona física que posee conocimientos específicos sobre mercados financieros, información financiera, auditorías u otros ámbitos de interés para las inspecciones, incluidos los auditores legales en ejercicio (art. 26). A la luz de esta definición, la noción de experto resulta un tanto imprecisa, pudiéndose adquirir esa cualificación a través de una amplia gama de actividades tales como titulaciones académicas, experiencia profesional en el sector privado, servicio en la Administración Pública u organismos reguladores de los mercados financieros, etc. Más aún, si bien la normativa es taxativa en cuanto a la necesidad de que la comisión de auditoría esté formada por consejeros independientes, el grado de cumplimiento del requisito de cualificación es variado, dado que se exige que las empresas cuenten con, al menos, un experto en este campo.

Esta idea tan amplia de cualificación nos ha llevado a estructurar la investigación en tres artículos. En el primero de ellos analizamos, para un entorno europeo, las implicaciones que conlleva el nivel de cualificación en el proceso de auditoría. Además, proporcionamos una medida más precisa del nivel de cualificación de la comisión de auditoría que incorpora la experiencia profesional y las competencias educativas. El segundo artículo analiza las implicaciones de la cualificación de esta comisión en el funcionamiento del proceso de auditoría, y examina el efecto que provoca determinados tipos de cualificación en la capacidad de la comisión para atenuar la gestión del resultado o manipulación contable. En el último artículo se examinan las características personales de los consejeros de la comisión de auditoría en su labor de detección de la manipulación contable.

El primer artículo que conforma el eje de la cualificación de los consejeros ha sido aceptado para su publicación en próximos números de *Managerial Auditing Journal*, y en él hemos examinado el nivel general de experiencia de la comisión de auditoría a través de una variable continua que mide las diferentes habilidades o antecedentes de todos los consejeros (es decir, antecedentes académicos, conocimientos financieros o contables especializados, conocimientos económicos generales, experiencia previa como auditor, experiencia como director ejecutivo y experiencia internacional), mejorando de esta forma la variable dicotómica de cualificación que utiliza la mayor parte de la investigación previa.

Para ello, analizamos las comisiones de auditoría de las grandes empresas que cotizan en los principales índices europeos durante los años 2005-2014. En total se revisaron las comisiones de auditoría de 296 empresas de Alemania, Bélgica, Francia, España, Holanda, Italia, Portugal y Reino Unido.

Además, teniendo en cuenta las dos dimensiones que integran la cualificación de un consejero (competencias educativas y experiencia profesional), verificamos que ambos tipos de experiencia se complementan y deben fomentarse conjuntamente. En este mismo artículo analizamos los efectos



que la experiencia de la comisión de auditoría tiene en el proceso de auditoría, en términos de la actividad de la comisión, la dedicación de sus miembros, la rotación del auditor externo y los honorarios de auditoría.

El segundo artículo que compone este eje ha sido aceptado para su publicación en la Revista de Contabilidad/*Spanish Accounting Review*, también comprende un entorno europeo y analiza las diferentes competencias de la comisión de auditoría que aseguran la calidad de la información financiera. Este trabajo parte del hecho de que la mayoría de la investigación existente se centra en el mercado estadounidense y constata una asociación positiva entre la competencia de la comisión de auditoría (en términos de independencia, actividad y experiencia de los consejeros) y la calidad de la información financiera. Sin embargo, la evidencia fuera de los EE.UU. no es tan consistente, surgiendo así la oportunidad de abordar este aspecto.

En línea con el regulador europeo, nos planteamos que la competencia de los miembros de la comisión de auditoría dependería de dos rasgos: la dedicación y su perfil o conocimiento experto (que, en adelante, denominaremos *expertise*). Por tanto, en este segundo artículo analizamos la relación que la dedicación y el *expertise* de los miembros de la comisión de auditoría mantiene con la calidad de la información financiera (medida mediante la gestión del resultado o *earning management*).

Esta investigación se centró en una muestra de 142 empresas europeas cotizadas en los principales índices bursátiles de los cinco países más grandes de la Unión Europea en términos de PIB y capitalización bursátil: Francia, Alemania, Italia, España y Reino Unido entre los años 2006-2013. Específicamente examinamos el currículum vitae de 1.054 consejeros, lo que permitió construir una base de datos de 3.649 observaciones de consejeros en todo el periodo. De esa población de consejeros recopilamos información para evaluar cuatro tipos de conocimiento o *expertise*: auditoría, conocimientos contables distintos de la auditoría, supervisión y finanzas.

El tercer y último artículo que compone el segundo eje de la tesis analiza, específicamente para el caso español, las características personales de los miembros de la comisión de auditoría en el aseguramiento de la calidad de la información financiera. Este artículo se publicó en 2018 en el número 58 de *Universia Business Review*.

En este trabajo retomamos el espíritu del legislador cuando establece que los consejeros deben poseer una experiencia y dedicación suficiente para desarrollar sus funciones. Por ese motivo definimos una serie de parámetros que pueden determinar la experiencia y dedicación de estos consejeros: antigüedad, número de cargos directivos, estudios académicos y perfil profesional (definimos cuatro grandes perfiles: política, economía o negocios, administración pública y universidad) como elementos mitigadores de la gestión del resultado o manipulación contable. Además, ofrecemos una descripción sobre la evolución del perfil de este tipo de consejero a lo largo del tiempo. Para ello, al igual que en el resto de artículos, hemos recopilado la cualificación recogida en el currículum vitae de los miembros que componen la comisión de auditoría de una muestra de 102 empresas no financieras cotizadas en el Mercado Continuo de la Bolsa de Valores española. El horizonte temporal abarcó los años de 2009 a 2013, lo que permitió la conformación de una muestra de 1.228 observaciones.

En resumen, los dos ejes de investigación que vertebran esta tesis corroboran la relevancia otorgada a la independencia del auditor y a un correcto funcionamiento de la comisión de auditoría, poniendo de manifiesto el efecto en la reputación que adquiere el cambio de firma auditora en las empresas españolas, y la importancia de continuar reforzando el funcionamiento de la comisión de auditoría a través de una mayor concreción de las competencias necesarias que deben cumplir los miembros de dicha comisión para mitigar eficientemente la gestión del resultado.

Conforme a la normativa de la Universidad de Valladolid relativa a las tesis doctorales conformadas por compendio de publicaciones, nuestra tesis se estructura en cuatro capítulos,

correspondientes cada uno de ellos a los artículos anteriormente presentados. Se entiende así la yuxtaposición de capítulos en español y en inglés ya que reproducen literalmente los artículos publicados. Siguen a dichos capítulos una sección de conclusiones y la relación de referencias bibliográficas utilizadas. Finalizamos con un anexo documental donde se ofrecen los indicadores bibliométricos de las revistas científicas donde se han publicado cada una de las investigaciones.

## **2. Gobierno corporativo y factores determinantes del cambio de firma auditora en la gran empresa española.**

### **2.1. Introducción**

En los últimos años legisladores, profesionales y académicos han prestado una especial atención a la tarea de auditoría y a los factores que condicionan su eficacia (García y Vico, 2003; Gonzalo, 2004). No ha de extrañar, en consecuencia, que esa inquietud se haya canalizado a través de una perspectiva basada en el gobierno corporativo y en el análisis de los mecanismos que garantizan la adecuada gestión de los conflictos de agencia que surgen dentro de las empresas (Monterrey, 2004; Monterrey y Sánchez, 2008a). El auditor tiene una importancia clave en la reducción de los costes de agencia, si bien el cabal cumplimiento de su función exige que reúna ciertos requisitos de competencia e independencia (De Angelo, 1981).

Referida la cuestión al ámbito cronológico de prestación del servicio de auditoría, caben dos interpretaciones de la duración de dicho contrato. Por un lado, una prolongada relación puede menoscabar la independencia del auditor (Francis, 2004; Mautz y Sharaf, 1961), aumentar su rutina e, incluso, favorecer la compra de opinión (Gómez y Ruiz, 2003; Ruiz et al., 2006). Por otra parte, el cambio de auditor genera unos costes de aprendizaje y experiencia, destruye activos específicos de esa relación y plantea la duda en torno a la posible contratación ineficiente del próximo auditor (Arruñada y Paz, 1997; Wang y Tuttle, 2009). A ese debate, principalmente académico, hay que añadir una visión más *política* del cambio de auditor que recomienda proceder a su renovación para evitar una eventual connivencia con la empresa auditada, colisionando con –al menos una parte– de la evidencia empírica de origen académico.

La cuestión que surge, por tanto, es la referente a por qué es importante que el auditor rote y, en su caso, con qué frecuencia debe hacerlo. El buen gobierno tratará de contribuir a esta decisión estableciendo las condiciones para promover una rotación eficiente. Este es el punto de engarce de nuestro trabajo con la literatura, pues abordamos el análisis de los determinantes del cambio de auditor en conjunción con el funcionamiento de dos de los mecanismos internos de gobierno corporativo más relevantes: el consejo de administración y el comité de auditoría. Tratamos de ampliar y complementar evidencia ya existente y, como explícitamente aconsejan Ruiz y Gómez (2008), aplicar los argumentos de gobierno corporativo a “muestras de empresas que cambian de auditor” (pág. 154).

Para ello hemos analizado una muestra de 396 observaciones que recoge información de las 113 empresas no financieras que cotizan en el mercado continuo español entre 2004 y 2007. La contribución de nuestro trabajo puede estructurarse en una doble vertiente. En primer lugar, encontramos que tanto el consejo de administración como el comité de auditoría desempeñan una función destacada en la rotación del auditor. Más en concreto, el tamaño, la independencia y la actividad de dichos órganos constituyen elementos que permiten explicar la decisión de cambio de auditor. En segundo lugar, nuestros resultados apuntan a la rotación del auditor como una decisión influida por una cierta presión social o política y no tanto por el afán de mejorar la calidad de la información financiera. Son precisamente las empresas cuyos órganos de gobierno corporativo más se adecuan a las recomendaciones de buen gobierno las que se hallan más inclinadas a cambiar de auditor. Esto implica que el funcionamiento del consejo de administración y del comité de auditoría, en consonancia con las sugerencias del legislador, parece fomentar la rotación del auditor pero sin que dicho cambio modifique la calidad de la información contable. La rotación del auditor se concibe, más bien, como una señal de que la credibilidad de la información financiera no se encuentra condicionada por la identidad de la firma auditora.

Es importante aclarar que detrás de nuestro análisis no subyace un estudio de demanda de calidad de auditoría ni de elección de auditor. Podríamos decir que los estudios de cambio de auditor pueden clasificarse en tres categorías según la orientación del cambio: la primera categoría analizaría el cambio generalizado, sin plantearse si dicha rotación se dirige hacia una mejor o peor calidad del auditor; la segunda categoría abarcaría los cambios a un auditor de mejor calidad y la tercera categoría los cambios a auditores de peor calidad. Tal distinción no es baladí, pues obedece a motivaciones variadas. Mientras que el cambio generalizado pretende señalar que la calidad de la información contable es independiente del tipo de auditor, en el segundo caso se busca señalar una mejora en la calidad de la información contable y en la tercera se trata de aumentar la capacidad de ocultar la falta de calidad de dicha información.

Nuestro trabajo se sitúa dentro del primer grupo en cuanto que admitimos que el mero cambio de auditor, en sí mismo considerado, no es ni bueno ni malo. En tales condiciones, los mecanismos de gobierno conciben el cambio generalizado como un modo de transmitir el cumplimiento de las recomendaciones de buen gobierno ignorando las posibles ventajas del mantenimiento de una relación prolongada con el auditor.

El trabajo se estructura en cinco epígrafes. Tras la introducción, en el segundo de ellos realizamos un repaso de la literatura más relevante, al hilo del cual formularemos las hipótesis susceptibles de contraste. La descripción de la muestra objeto de estudio así como la presentación de la metodología y de las variables utilizadas para el análisis constituyen el contenido del tercer epígrafe, mientras que en el cuarto expondremos los resultados obtenidos. El trabajo finaliza con un apartado en el que se exponen las conclusiones alcanzadas y se apuntan algunas líneas futuras de investigación.

## 2.2. Revisión teórica e hipótesis

### 2.2.1. Revisión teórica

Como ha sido reiteradas veces puesto de manifiesto, un rasgo clave del trabajo del auditor es su independencia (Gonzalo, 1995). Se entiende así que una parte considerable de la literatura sobre auditoría se haya centrado en el análisis de su independencia y que dicho análisis haya discurrido en una doble dirección: la elección y la decisión de cambio de firma auditora (García et al., 2000).

La literatura científica que ha estudiado la rotación del auditor ha proporcionado tres tipos de explicaciones. La primera de ellas enfatiza los honorarios de auditoría (Butterworth y Houghton, 1995; Gregory y Collier, 1996; Johnson y Lys, 1990; Simon y Francis, 1988; Turpen, 1990), la segunda destaca el tipo de opinión recogida en el informe de auditoría (Citron y Taffler, 1992; Chow y Rice, 1982; Craswell, 1988; Gómez y Ruiz, 2000 y 2007; Lennox, 2000) y la tercera vincula el cambio de empresa auditora con los costes de agencia (DeFond, 1992; Haskins y Williams, 1990; Kluger y Shields, 1989; Menon y Williams, 1991; Ruiz y Gómez, 2003; Schwartz y Menon, 1985; Wilson *et al.*, 1995).

Esta literatura ha mostrado que el mantenimiento de una relación de auditoría prolongada no menoscaba la credibilidad de la información financiera. Así lo defienden Arruñada y Paz (1997), quienes aluden al ahorro de costes de arranque, a la curva de aprendizaje y a una artificial división del mercado a que conduciría la rotación obligatoria. Esto ha quedado ratificado empíricamente por Myers *et al.* (2003), Carcello y Nagy (2004), Ghosh y Moon (2005), Kaplan y Mauldin (2008), Monterrey y Sánchez (2007), Ruiz *et al.* (2006) y Wang y Tuttle (2009), autores cuya investigación confirma que la duración en el cargo de auditor favorece la calidad contable. Dichos investigadores alegan razones basadas tanto en la empresa auditada (costes asociados a la búsqueda de nuevo auditor, cambios que comportaría en los procesos internos de auditoría, etc.) como en la firma auditora (la continuidad como fuente de poder del auditor y de mejor capacidad de negociación, el conocimiento del cliente, etc.). Asimismo, la rotación destruye activos críticos en el proceso de auditoría como es la confianza y

el conocimiento, y plantea el interrogante acerca de, en el hipotético caso de que se tuviera a un especialista cualificado, por qué rotar o, en otras palabras, la inquietud sobre la contratación ineficiente de un nuevo auditor menos eficiente que el anterior. Sin embargo, es preciso reconocer que no faltan autores con una postura divergente acerca de los perjudiciales efectos del cambio de auditor sobre la calidad de la información contable (Carey y Simnett, 2006), quienes ponen de manifiesto un mayor conservadurismo contable tras el cambio de auditor y una mayor inclinación de los nuevos auditores hacia la emisión de opiniones calificadas.

Desde una perspectiva socio-política, la decisión de cambio de firma auditora ha sido alentada por el legislador español desde los primeros momentos aunque sin llegar a imponerla forzosamente. La tardía incorporación de nuestro país al proceso de regulación legal de la auditoría hace que tal aspecto aparezca tratado fragmentariamente en diversas normas. Así, el art. 8.4 de la Ley 19/1988 de Auditoría de Cuentas<sup>5</sup> establece que *“Los auditores serán contratados por un periodo inicial que no podrá ser inferior a tres años ni superior a nueve (...), pudiendo ser contratados por periodos máximos de tres años una vez que haya finalizado el periodo inicial”*. En esta misma línea, el art. 40 del RD 1636/1990 ratifica que *“las personas o Sociedades que deban ejercer la auditoría de las cuentas anuales serán contratadas por un período de tiempo determinado, que no podrá ser inferior a tres años ni superior a nueve (...). No podrán ser reelegidas por la misma empresa o entidad hasta que hayan transcurrido tres ejercicios desde la terminación del período de duración que haya tenido el contrato de auditoría”*. En términos parecidos hay que entender el art. 51.4<sup>6</sup> de la Ley 44/02, según el cual *“Los auditores serán contratados por un período de tiempo determinado inicial que no podrá ser inferior a tres años ni superior a nueve (...), pudiendo ser contratados anualmente una vez haya finalizado el*

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<sup>5</sup> Aunque este artículo fue derogado por la Ley 2/1995 de Sociedades de Responsabilidad Limitada, su espíritu e incluso su tenor literal se repiten en otras normas.

<sup>6</sup> La propia denominación de este artículo resulta bastante ilustrativa de la finalidad perseguida por el legislador pues su nombre oficial es *“Introducción de nuevas incompatibilidades para los auditores de cuentas y de medidas para su rotación”*.



*período inicial*". Más recientemente, la quinta disposición adicional de la Ley 16/07 determina que *"Los auditores serán contratados por un periodo inicial que no podrá ser inferior a tres años ni superior a nueve (...), pudiendo ser contratados por periodos máximos de tres años"*.

No se trata de un movimiento legal limitado a España pues el art. 42.2 de la Directiva Europea 2006/43 relativa a la auditoría legal de las cuentas anuales y de las cuentas consolidadas hace constar que *"Los Estados miembros se asegurarán de que el o los principales socios auditores responsables de realizar una auditoría legal tengan una rotación del contrato de auditoría legal en el plazo de un período máximo de siete años a partir de la fecha de designación y sólo sean autorizados a volver a participar en la auditoría de la entidad auditada una vez transcurrido un período de al menos dos años"*. Asimismo, la sección 207 de *Sarbanes-Oxley Act* (2002) propone estudiar la posibilidad de imponer la obligatoriedad en la rotación de la firma auditora.<sup>7</sup>

El intento de facilitar la rotación de firma auditora no se limita únicamente al ámbito legislativo, pues también los códigos de buen gobierno se han hecho eco de ello. En nuestro país el Epígrafe V.1. del Informe Aldama (2003) afirma que *"La Ley 44/2002 recoge una serie de limitaciones que deben cumplir los auditores con las que esta Comisión Especial manifiesta su acuerdo"*. Tal espíritu ha calado en las grandes empresas españolas y les ha llevado a expresar en sus informes de gobierno corporativo su compromiso de cambiar de auditor como mecanismo para preservar la independencia del mismo<sup>8</sup>.

Dada la falta de unanimidad al respecto entre los autores y, especialmente, la brecha existente entre los resultados empíricos de gran parte de la investigación académica y la tendencia aconsejada

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<sup>7</sup> Carey y Simnett (2006) ofrecen una interesante revisión de las normas que, en distintos países, tratan de fomentar la rotación del auditor.

<sup>8</sup> Véase, a modo de ejemplo, el apartado relativo a "los mecanismos establecidos por la sociedad para preservar la independencia del auditor" de los informes de gobierno corporativo de 2005 y 2006 de Telefónica e Iberdrola, respectivamente.

por las autoridades legisladoras, cabe preguntarse por los motivos de tal discrepancia. En otros términos -y en paralelo a Monterrey y Sánchez (2008b)-, nos planteamos tratar de aportar explicaciones al cambio de firma auditora de las empresas españolas basándonos en el funcionamiento del consejo de administración y del comité de auditoría delegado del mencionado consejo. Pero, a diferencia de estos autores, centraremos nuestro análisis en la decisión de cambio y no en los motivos determinantes para elegir una empresa de auditoría incluida entre las de mayor tamaño.

La comparación de las explicaciones aportadas a la cuestión sobre la selección del auditor y sobre la decisión de cambio del mismo muestra que hay todavía un campo que cubrir en lo referente al efecto de los mecanismos internos de gobierno corporativo sobre la rotación de auditor. La intuición subyacente a este planteamiento es que la presión social y política a que pueden verse sometidos el consejo de administración y el comité de auditoría puede desembocar en la toma de ciertas decisiones ateniéndose a esas recomendaciones de buen gobierno y no necesariamente motivadas por la calidad de la información contable.

Obviamente, el alcance de esta tarea se encuentra limitado por las peculiaridades del entorno español. La relativa importancia de los mercados de capitales en comparación con la financiación procedente de intermediarios en nuestro país hace que el mercado de auditoría esté dominado principalmente por empresas no cotizadas y, en consecuencia, reduce la población objeto de estudio.

Esa tarea exige una reflexión previa sobre el estado del conocimiento acerca de los rasgos más destacados de ambos órganos de gobierno corporativo, así como su influencia sobre la eficiencia de la empresa y sobre la calidad de su información financiera. Dicha reflexión parte de la idea del consejo de administración como elemento situado en la cúspide de los mecanismos internos de control directivo (Jensen, 1993). La mayor parte del trabajo empírico realizado hasta la fecha aborda el análisis de cuatro características del consejo de administración: su tamaño, su independencia, su actividad y su estructura de comisiones. En consonancia con estos antecedentes, estructuraremos nuestro análisis

de la configuración del consejo de administración y de la comisión de auditoría en tres aspectos: su tamaño, su independencia y su actividad. Hemos de aclarar que no es nuestro objetivo valorar la conveniencia de la decisión de cambio de auditor sino analizar hasta qué punto ambos mecanismos de gobierno corporativo incentivan la mencionada rotación. La duda que late de fondo es si el consejo de administración concibe la mayor frecuencia de cambio de auditor como una señal de independencia o, por el contrario, asume el perjuicio que tal rotación puede provocar en la credibilidad de la información financiera, ya sea por un intento de compra de opinión o por la pérdida de conocimiento de la empresa auditada por parte del auditor.

Dada la separación que parece existir entre las recomendaciones de buen gobierno y las conclusiones de parte de la investigación académica, es oportuno en este momento recordar cuáles son las sugerencias que el Código Olivencia (1998), el Informe Aldama (2003) y el Código Unificado de Buen Gobierno de las Sociedades Cotizadas (2006) hacen al respecto. En cuanto al tamaño del consejo de administración, existe una preocupación por evitar tanto consejos sobredimensionados como consejos de un tamaño excesivamente reducidos. Así se pronuncian el Código Olivencia, al recomendar que *“parece prudente indicar como mínimo y máximo del número de consejeros una franja (...) entre los cinco y los quince”* y el Código Unificado al establecer *“que el Consejo tenga la dimensión precisa para lograr un funcionamiento eficaz y participativo, lo que hace aconsejable que su tamaño no sea inferior a cinco ni superior a quince miembros”*.

En lo tocante a la composición del consejo, hay en todos los textos una clara apuesta por reforzar la independencia del mismo con la inclusión de consejeros independientes. Expresiones como *“Nuestra principal recomendación en este punto se basa en la figura del consejero independiente”* (Código Olivencia), *“una mayoría amplia de consejeros externos en el consejo y, dentro de éstos, una participación muy significativa de consejeros independientes”* (Informe Aldama), *“que los consejeros*

*externos dominicales e independientes constituyan una amplia mayoría del Consejo y que el número de consejeros ejecutivos sea el mínimo necesario” (Código Unificado) así lo atestiguan.*

El número de reuniones es también otra cuestión abordada en estos textos y, aunque se han eliminado las referencias al número mínimo de reuniones, persiste la inquietud por garantizar una cierta periodicidad que podría situarse en torno a una reunión mensual. De resultados de todo lo anterior, podríamos decir que los códigos de buen gobierno tratan de caracterizar el perfil ideal del consejo de administración con un número equilibrado de miembros, un creciente protagonismo de los consejeros externos y un número apropiado de reuniones.

### **2.2.2. Hipótesis**

La literatura ha proporcionado argumentos para justificar dos efectos opuestos del tamaño del consejo de administración. Por una parte, es obvio que un mayor número de consejeros facilita la realización de funciones de supervisión y control al poder contar con más personas dedicadas a esas tareas. Sin embargo, un excesivo tamaño del consejo dificulta la coordinación y comunicación en su seno y limita su agilidad operativa, existiendo evidencia de una pérdida de eficiencia en las empresas con consejos de administración sobredimensionados (Lipton y Lorsch, 1992; Goodstein *et al.*, 1994; Yermack, 1996; Eisenberg *et al.*, 1998; Mínguez y Martín, 2005). La investigación ha demostrado la coexistencia de estos dos efectos, mostrando una relación no lineal entre la eficiencia del consejo de administración y su tamaño (Fernández *et al.*, 1998; Andrés y Vallelado, 2008), de modo que la incorporación de nuevos miembros mejora la eficiencia del consejo de administración cuando este tiene un tamaño relativamente reducido, y redundando en una pérdida de eficiencia en consejos ya de por sí excesivamente grandes. Aplicando *mutatis mutandis* el mismo razonamiento a la capacidad del consejo para tomar la decisión de cambio de auditor, podríamos formular nuestra primera hipótesis en los siguientes términos:

*H1: Existirá una relación no lineal entre la decisión de cambio de auditor y el tamaño del consejo de administración, coexistiendo una relación inicial positiva con una relación negativa una vez que se alcanza un tamaño crítico.*

En lo tocante al efecto del tamaño del comité de auditoría cabría aportar los mismos argumentos. Sin embargo, dado el menor número de integrantes de dicho comité, el riesgo de sobredimensionamiento se reduce sensiblemente, por lo que hay motivos para pensar que un mayor número de miembros de ese comité (siempre que ese tamaño se mantenga dentro de unos valores reducidos) facilitará la decisión de cambiar de auditor. Esto permite enunciar la siguiente hipótesis:

*H2: El cambio de auditor estará positivamente relacionado con el tamaño de la comisión de auditoría.*

Respecto de la independencia tanto del consejo de administración como del comité de auditoría, es frecuente identificar dicha independencia con la presencia en tales órganos de consejeros externos no ejecutivos. La investigación ha demostrado el positivo influjo que, en la eficiencia del consejo, posee la participación de consejeros independientes (Zahra y Pearce, 1989; Daily y Dalton, 1994). Asimismo, existe evidencia que avala la independencia del comité de auditoría como medio para el adecuado desempeño de la función para la que fue creada (Fama y Jensen, 1983; McMullen y Raghunandan, 1996; Abbot y Parker, 2000; Carcello y Neal, 2000; Cadbury Committee 1992; Sarbanes-Oxley, 2002; Rodríguez, 2005 y 2006). Hay razones, por tanto, para formular nuestra tercera y cuarta hipótesis en los siguientes términos:

*H3: El cambio de auditor estará positivamente relacionado con la independencia del consejo de administración.*

*H4: El cambio de auditor estará positivamente relacionado con la independencia de la comisión de auditoría.*

El tercer rasgo de estos mecanismos de gobierno es el ritmo de actividad de los mismos, caracterizado por el número de reuniones al año. En este punto también hay dos explicaciones de la

posible relación entre el cambio de auditor y la actividad de esos órganos. Por una parte, una mayor frecuencia en las reuniones denota una mayor implicación del consejo de administración o del comité de auditoría en la realización de sus funciones. Sin embargo, esos encuentros no son siempre sinónimo de mayor eficiencia y cabe la posibilidad de que la dirección de la empresa seleccione los temas a tratar en función de sus intereses particulares o recargue la agenda de las reuniones con tareas rutinarias. Por lo tanto, podría decirse que la influencia del número de reuniones es una cuestión abierta, respecto de la cual cabe esperar tanto una relación positiva o negativa. Más aún, sería posible encontrar una relación no lineal que combinase ambos tipos de influencia. Por lo tanto, formularemos nuestras dos últimas hipótesis de la siguiente manera:

*H5: Existirá una relación no lineal entre la decisión de cambio de auditor y el número de reuniones del consejo de administración.*

*H6: Existirá una relación no lineal entre la decisión de cambio de auditor y el número de reuniones del comité de auditoría.*

## **2.3. Método, variables y muestra**

### **2.3.1. Método**

Nuestro análisis empírico combina una vertiente descriptiva con otra explicativa y trata de encontrar respuesta a la pregunta relativa al motivo por el que las empresas que cotizan en el mercado continuo de la Bolsa española toman la decisión de cambiar de auditor. Por esa razón, comenzamos el análisis con una exposición descriptiva de dicha decisión durante el periodo de estudio, así como de las principales características financieras, de auditoría y de los mecanismos de gobierno corporativo de las empresas que han acometido tal cambio para, en una segunda fase, proceder al contraste del modelo explicativo.

Partimos de una clasificación dicotómica de las observaciones en función de que la empresa haya cambiado de auditor o, por el contrario, haya mantenido la misma firma auditora durante todo

el periodo de estudio. En este punto se hace preciso aclarar que, puesto que comparamos empresas que han cambiado de firma auditora frente a empresas que no han tomado esa decisión entre 2004 y 2007, todas las observaciones de la misma empresa se incluyen en uno u otro grupo, independientemente del momento en que se produjo el cambio de auditor. Esa taxonomía nos permite practicar un análisis de comparación de medias con el fin de detectar si las empresas presentan características diferenciadas entre uno y otro grupo.

Por lo que se refiere a la segunda fase, el análisis explicativo propiamente dicho, hemos optado por el método de regresión. Dada la naturaleza dicotómica de la variable, el tipo de análisis más apropiado es el análisis *logit* o regresión logística. En esta decisión ha pesado el hecho de que dicho tipo de análisis no exige el cumplimiento estricto de los supuestos de normalidad multivariante y la igualdad de matrices de varianzas-covarianzas entre los grupos (Hair *et al.*, 1999). Además, al tratarse de un método de regresión, permite incorporar efectos no lineales y realizar contrastes estadísticos directos.

La bondad del ajuste en este tipo de técnicas se valora mediante tres indicadores. En primer lugar, el medio más habitual para cuantificar la capacidad explicativa del modelo es el porcentaje de observaciones adecuadamente clasificadas. Asimismo, dado que la técnica de regresión logística maximiza la verosimilitud de que la situación descrita por la variable dependiente tenga lugar, es conveniente analizar los valores del ratio de verosimilitud. Dicho ratio se distribuye como una función  $\chi^2$  con tantos grados de libertad como coeficientes estimados. En tercer lugar, se utilizará un valor *pseudo-R<sup>2</sup>* obtenido a partir de la comparación de dos funciones de verosimilitud y cuya interpretación es análoga al coeficiente de determinación de la regresión clásica.

A la vista del objetivo de nuestro trabajo, consistente en analizar el efecto de los mecanismos de gobierno corporativo en el cambio de auditor, definiremos un modelo básico que incluye el efecto del tamaño de la empresa, el endeudamiento, su rentabilidad, la existencia de informes previos no

favorables, la relación previa al cambio con una *Big Four*<sup>9</sup> y los honorarios por auditoría y por otros conceptos. El modelo empleado utiliza como variable dependiente la variable dicotómica CAMBIO y las demás variables propuestas como variables explicativas según el siguiente esquema, donde el subíndice i identifica el individuo y el subíndice t indica el periodo.  $\varepsilon_i$  es la perturbación aleatoria de cada observación.

$$\text{CAMBIO}_{it} = \alpha + \beta_1 \cdot \text{ACTIVO}_{it} + \beta_2 \cdot \text{DEUDA}_{it} + \beta_3 \cdot \text{ROE}_{it} + \beta_4 \cdot \text{BIGANTES}_{it} + \beta_5 \cdot \text{NOFAV}_{it} + \beta_6 \cdot \text{HONAUD}_{it} + \beta_7 \cdot \text{HONOTR}_{it} + \varepsilon_{it}$$

A dicho modelo iremos incorporando las variables de gobierno corporativo TAMCONSR, TAMCOMTR, EXTCONS, EXTCOMT, REUCONS y REUCOMT.

### 2.3.2. Variables

En consonancia con el triple ámbito de la información utilizada, dividiremos también nuestra exposición de las variables en tres tipos: variables económico-financieras, variables de auditoría y variables de gobierno corporativo. La variable con la que tipificamos el cambio de auditor es una variable dicotómica (CAMBIO) que toma el valor 1 si la empresa ha procedido a modificar la firma auditora durante el periodo de estudio y 0 en caso contrario.

El tamaño de la empresa se mide a través del logaritmo del valor del activo en millones de euros (ACTIVO). El nivel de endeudamiento (DEUDA) lo cuantificamos mediante el cociente entre la deuda con coste y el total del activo. La rentabilidad de la empresa se incorpora mediante el cociente entre el beneficio neto y el valor contable de los capitales propios (ROE).

En relación con las variables de auditoría, definimos una variable dicotómica NOFAV que recoge si la empresa ha recibido entre 2000 y 2007 al menos una opinión no favorable en su informe

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<sup>9</sup> Es habitual utilizar esta expresión para referirse a las cuatro firmas de mayor tamaño y presencia en el mercado de auditoría: *Deloitte & Touche, Ernst & Young, KPMG* y *PricewaterhouseCoopers*.



de auditoría. Hemos definido otras dos variables dicotómicas BIGDP y BIGANTES que indican, respectivamente, si la empresa auditora después y antes del cambio pertenecía a una de las cuatro grandes (Navarro y Martínez, 2004). También hemos utilizado HONAUD y HONOTR para designar los horarios satisfechos en concepto de auditoría y en concepto de prestación otros servicios (en miles de euros), respectivamente. Un elemento clave vinculado a la relación de auditoría es la duración del contrato del auditor (DURAC), variable que nos indica el número de años que lleva el auditor en la empresa y que, de algún modo, informa si se aproxima a los plazos sugeridos por la ley.

Las variables de gobierno corporativo recogen tres aspectos del consejo de administración y del comité de auditoría. El tamaño (TAMCONSR y TAMCOMTR, respectivamente) viene medido por el número de miembros de cada uno de los órganos relativizado por el valor total del activo de la empresa. Puesto que se hará un análisis adicional en torno al número óptimo de consejeros, hemos trabajado también con el tamaño del consejo de administración ambos órganos de gobierno definido como el número total de miembros (TAMCONS y TAMCOMT). La independencia (EXTCONS y EXTCOMT) se define como la proporción de consejeros externos no ejecutivos (tanto independientes como dominicales). Para medir la actividad de ambos órganos hemos definido dos variables (REUCONS y REUCOMT) que indican el número de reuniones anuales mantenidas. Cuando ha sido preciso introducir una especificación cuadrática de las variables, hemos construido las variables TAMCONS<sup>2</sup>, REUCONS<sup>2</sup> y REUCOMT<sup>2</sup>.

### **2.3.3. Muestra**

La muestra inicial está formada por las 136 empresas no financieras que cotizaban en el mercado continuo español a 31 de diciembre de 2008. Hemos excluido las 19 empresas que pertenecen al sector financiero puesto que, dada la regulación específica de dicho sector, la información por ellas proporcionada queda sometida a la supervisión del Banco de España u otras autoridades monetarias. Se han excluido otras cuatro entidades debido a que la auditoría de cuentas

del grupo consolidado y la compilación de la memoria, de los informes anuales y de los informes de gobierno corporativo han sido realizadas en otro país, por auditores locales y bajo los criterios legales del país en cuestión.

Por lo tanto, la muestra final está formada por 396 observaciones procedentes de 113 empresas correspondientes a los sectores de Bienes de consumo; Materiales básicos, industria y construcción; Petróleo y energía; Tecnología y comunicaciones; Servicios inmobiliarios y Servicios de consumo. Se trata de un número comparable al de otros estudios de auditoría en el mercado español (Monterrey y Sánchez, 2008a). Es de resaltar la representatividad de la muestra, pues incluye todas las empresas no financieras que forman el mercado continuo español y, desde esa perspectiva, en este trabajo se analizan los mejores datos disponibles para estudiar la decisión de cambio de empresa auditora.

La información corporativa con la que hemos trabajado puede dividirse en tres campos: información económico-financiera, información sobre auditoría e información sobre gobierno corporativo. La información económico-financiera procede del balance de situación y de la cuenta de resultados de cada empresa entre 2004 y 2007. Dicha información se ha obtenido a través de los datos proporcionados por la agencia de información financiera *Bloomberg*.

La información sobre auditoría se ha recopilado de los documentos de trabajo, informes y memorias públicamente disponibles en la página web de la Comisión Nacional del Mercado de Valores (CNMV). Se ha consultado información sobre la firma auditora encargada de la revisión contable, habiéndose por lo tanto identificado cuándo –en caso de que haya tenido lugar– se ha producido el cambio de auditor, cuál ha sido la firma auditora hasta la fecha de la decisión, durante cuánto tiempo había prestado sus servicios y cuál ha sido la auditora elegida para continuar con esa tarea. También se ha obtenido información sobre el tipo de opinión (favorable o no) del informe de auditoría, los honorarios relativos a los trabajos de auditoría y los correspondientes a otros servicios.

La información sobre gobierno corporativo hace referencia al funcionamiento del consejo de administración y del comité de auditoría. Partiendo de los informes de gobierno corporativo publicados por la CNMV hemos recabado información sobre el número de miembros que componen ambos órganos, su tipología (independientes, dominicales o ejecutivos) y el número de reuniones. La publicación de esta información se hace obligatoria a partir de 2004, por lo que ese año será el punto de partida de la muestra.

La tabla 1 detalla la distribución cronológica de los 27 cambios de firma auditora (correspondientes a 25 empresas) durante el periodo objeto de estudio.

**Tabla 1: Cambios efectivos de firma auditora de 2001 a 2007**

	2004	2005	2006	2007	Total
Cambios de auditor	8	7	7	5	<b>27</b>

La Tabla 2 proporciona la media, desviación típica y los tres cuartiles intermedios de las variables objeto de estudio. A fin de profundizar en la relación entre las variables, recogemos en la Tabla 3 los coeficientes de correlación entre las distintas variables empleadas. Aunque dichos coeficientes se encuentran dentro de lo que podríamos calificar como valores razonables, es conveniente resaltar la correlación existente entre el tamaño de la empresa y el importe de los honorarios de auditoría o entre el tamaño de sus órganos de gobierno. La posible multicolinealidad en las estimaciones derivada de este hecho aconsejan realizar también un análisis del factor de inflación de varianza (VIF) para asegurar que nuestros resultados no se hallan sesgados por la correlación entre las variables explicativas (Marquardt, 1970)<sup>10</sup>.

<sup>10</sup> El factor de inflación de varianza (*variance inflation factor*) es un test de multicolinealidad. Aunque Kutner et al. (2005) aconsejan que ha de tomar valores inferiores a 10, Belsley et al. (2004) advierten de falta de fiabilidad de los resultados cuando su valor es superior a 2.

**Tabla 2: Estadística descriptiva de la muestra**

Media, desviación típica y cuartiles de las variables explicativas. ACTIVO mide el logaritmo del total de activo, en millones de euros; DEUDA representa la relación, en términos porcentuales, del total de deudas contraídas por la sociedad entre su activo; ROE mide la rentabilidad financiera de la empresa (beneficio/fondos propios); BIGANTES y BIGDP son variables dicotómicas que toman el valor 1 si antes o después del cambio de auditor la sociedad era auditada por una *Big Four*, respectivamente; NOFAV es otra variable dicotómica que toma el valor 1 si la sociedad ha poseído al menos un informe desfavorable; HONAUDIT son los honorarios satisfechos por el trabajo de la auditoría; HONOTR los honorarios satisfechos por otros servicios de auditoría; TAMCONS y TAMCOMT son el número de miembros del consejo de administración y del comité de auditoría; TAMCONSR y TAMCOMTR el número de miembros de cada uno de los órganos relativizado por el valor total del activo; EXTCONS y EXTCOM la proporción de consejeros independientes y dominicales en ambos órganos; REUCONS y REUCOMT es el número de reuniones anuales mantenidas por el consejo y el comité de auditoría. DURAC nos indica la duración de la relación con el auditor externo.

Variable	Nº obs.	Media	Desv. típica	Q1	Mediana	Q3
ACTIVO	396	6.743	1.883	5.336	6.608	8.124
DEUDA	396	29.299	20.505	12.315	29.740	41.838
ROE	396	0.199	0.254	0.075	0.142	0.208
BIGANTES	396	0.885	0.319	1	1	1
BIGDP	396	0.912	0.284	1	1	1
NOFAV	396	0.460	0.499	0	0	1
HONAUDIT	396	624.82	1422.41	63	170.5	579.5
HONOTR	396	246.06	450.36	0	51	272.75
DURAC	396	6.511	3.153	5	6	8
TAMCONS	396	10.837	3.772	8	10	12
TAMCONSR	396	3.439	5.894	0.336	1.293	4.268
TAMCOMT	396	3.514	0.936	3	3	4
TAMCOMTR	396	1.364	2.445	0.109	0.466	1.680
EXTCONS	396	0.784	0.132	0.7	0.8	0.8889
EXTCOMT	396	0.871	0.194	0.667	1	1
REUCONS	396	9.660	3.965	7	9	12
REUCOMT	396	5.586	2.883	4	5	7

**Tabla 3: Matriz de correlaciones**

	ACTIVO	DEUDA	ROE	BIGANTES	NOFAV	HONAUDIT	HONOTR	TAMCONSR	TAMCOMTR	EXTCONS	EXTCOMT	REUCONS	REUCOMT
ACTIVO	1.000												
DEUDA	0.330	1.000											
ROE	-0.056	-0.001	1.000										
BIGANTES	0.210	-0.037	0.054	1.000									
NOFAV	-0.127	0.091	-0.104	-0.101	1.000								
HONAUDIT	0.564	0.060	-0.038	0.130	-0.022	1.000							
HONOTR	0.589	0.135	-0.026	0.115	0.065	0.609	1.000						
TAMCONSR	-0.663	-0.085	0.173	-0.238	0.094	-0.222	-0.263	1.000					
TAMCOMTR	-0.657	-0.102	0.206	-0.244	0.118	-0.215	-0.257	0.963	1.000				
EXTCONS	0.198	-0.010	0.023	0.070	-0.052	0.053	0.072	-0.044	0.026	1.000			
EXTCOMT	0.113	-0.035	0.087	0.165	-0.104	0.058	0.037	0.020	0.005	0.344	1.000		
REUCONS	0.256	0.195	0.068	-0.005	-0.059	0.321	0.228	-0.071	0.075	0.169	0.139	1.000	
REUCOMT	0.489	0.116	0.073	0.135	-0.076	0.329	0.316	-0.266	0.273	0.163	0.069	0.367	1.000
DURAC	0.008	-0.004	-0.027	0.208	0.001	0.068	0.043	-0.033	0.049	-0.024	0.107	-0.010	0.108

## **2.4. Resultados**

Como ha quedado dicho, estructuramos la parte empírica de nuestra investigación en un doble análisis: análisis descriptivo y análisis explicativo. El primero de ellos trata de proporcionar una visión global de las principales características de la muestra y una orientación básica sobre el posible cumplimiento de las hipótesis propuestas. Tal análisis tiene su prolongación en el análisis explicativo con el cual realizaremos el contraste propiamente dicho de las hipótesis.

### **2.4.1. Análisis descriptivo**

La tabla 4 proporciona el valor medio de las principales variables objeto de estudio, habiéndose calculado dicho valor en función de la variable CAMBIO. También se presenta el valor del test de comparación de medias y el nivel de significación asociado. Refrendando las conclusiones de anteriores trabajos (Schwartz y Menon, 1985; Kluger y Shields, 1989; Haskins y Willians, 1990; Ruiz y Gómez, 2003), se observa que las empresas que cambian de firma auditora están sometidas a más presión financiera en términos de mayor endeudamiento y ofrecen menor rentabilidad, siendo ambas diferencias estadísticamente significativas. Asimismo, estas empresas tienen un tamaño medio significativamente superior (Ruiz y Gómez, 2003).

En relación con las variables de auditoría, y también de modo consistente con anteriores investigaciones (Chow y Rice, 1982; García Benau *et al.*, 2000; Gómez y Ruiz, 2000; Gregory y Collier, 1996; Ruiz y Gómez, 2003; Lennox, 2000), se observa que las empresas que rotan de auditor tienen auditores de menor tamaño antes del cambio, tienden a cambiar hacia auditores incluidos entre los *Big Four*, presentan más informes de auditoría no limpios, y guardan una relación menos estrecha con el auditor en el sentido de satisfacer menores importes tanto por auditoría como por otros servicios. Es interesante consignar que esas empresas han mantenido el contrato de auditoría durante un periodo más prolongado. Todas estas diferencias son estadísticamente significativas.

**Tabla 4: Resultados del contraste de igualdad de medias**

Comparación del valor medio de las variables explicativas en función de la existencia de cambio de auditor. ACTIVO mide el total de activo, en millones de euros; DEUDA representa la relación, en términos porcentuales, del total de deudas contraídas por la sociedad entre su activo; ROE mide la rentabilidad financiera de la empresa (beneficio/fondos propios); BIGANTES y BIGDP son variables dicotómicas que toman el valor 1 si antes o después del cambio de auditor la sociedad era auditada por una *Big Four*, respectivamente; NOFAV es otra variable dicotómica que toma el valor 1 si la sociedad ha poseído al menos un informe desfavorable; HONAUD son los honorarios satisfechos por el trabajo de la auditoría; HONOTR los honorarios satisfechos por otros servicios de auditoría; TAMCONS y TAMCOMT son el número de miembros del consejo de administración y del comité de auditoría; TAMCONSR y TAMCOMTR el número de miembros de cada uno de los órganos relativizado por el valor total del activo; EXTCONS y EXTCOM la proporción de consejeros independientes y dominicales en ambos órganos; REUCONS y REUCOMT es el número de reuniones anuales mantenidas por el consejo y el comité de auditoría. DURAC nos indica la duración de la relación con el auditor externo. El t-test permite la comparación de las medias, y el p-valor es el valor umbral para rechazar la hipótesis nula de igualdad de medias entre los grupos.

Variable	Nº observac.	Media cambio	Nº observac.	Media no cambio	t-test	Valor-p
LOGACT	149	6.841	247	6.688	1.789	0.074
DEUDA	149	37.137	247	25.028	6.218	0.000
ROE	149	0.163	247	0.219	2.217	0.027
BIGANTES	149	0.775	247	0.945	5.596	0.000
BIGDP	149	0.850	247	0.945	3.445	0.000
NOFAV	149	0.550	247	0.411	2.855	0.005
HONAUDIT	149	324.20	247	786.535	3.310	0.001
HONOTR	149	144.04	247	302.345	3.617	0.000
DURAC	149	6.852	247	6.589	7.695	0.000
TAMCONS	149	10.490	247	11.043	1.429	0.153
TAMCONSR	149	3.617	247	3.336	0.485	0.646
TAMCOMT	149	3.516	247	3.383	1.648	0.100
TAMCOMTR	149	1.499	247	1.276	1.787	0.070
EXTCONS	149	79.809	247	76.540	1.783	0.075
EXTCOMT	149	89.336	247	85.713	1.828	0.068
REUCONS	149	9.688	247	9.643	0.111	0.911
REUCOMT	149	5.251	247	5.783	1.777	0.076

Pasando ahora a las variables de gobierno corporativo, en primer lugar, no se observan diferencias significativas en cuanto al tamaño del consejo (TAMCONSR y TAMCONS) entre ambos grupos. Esta ausencia de diferencias no ha de interpretarse como prueba de la irrelevancia del tamaño del consejo pues, como ya quedó indicado en la primera hipótesis, cabría esperar una relación no lineal entre el tamaño del consejo y el cambio de auditor. Por su parte, tanto el valor absoluto como el relativo del tamaño del comité de auditoría (TAMCOMTR y TAMCOMT) mantienen una relación

positiva con la rotación del auditor, evidenciando la mayor capacidad para adoptar este tipo de decisiones por parte de las comisiones de mayor tamaño, como se sugiere en la segunda hipótesis.

Asimismo, las empresas que cambian de auditor poseen tanto consejos de administración (EXTCONS) como comités de auditoría (EXTCOMT) significativamente más independientes, en consonancia con las hipótesis tercera y cuarta. En relación con la actividad de ambos órganos, mientras que no se detectan diferencias significativas en el número de reuniones del consejo (REUCONS), sí que se observa que las empresas que cambian de auditor presentan comités de auditoría menos activos (REUCOMT). Este resultado, aunque poco intuitivo en apariencia, tiene su justificación en los resultados del análisis explicativo.

#### **2.4.2. Análisis explicativo: Rotación del auditor y gobierno corporativo**

Los principales resultados del análisis logit se recogen en las tablas 5-8. Como ha quedado indicado, nuestro modelo incluye las variables financieras y de auditoría utilizadas en investigaciones anteriores, a las que se añaden las variables de gobierno corporativo. Así, la Tabla 5 presenta los resultados del modelo básico, resultados que son plenamente coherentes con lo apuntado por el análisis descriptivo: mientras que el tamaño de la empresa, su nivel de endeudamiento, la existencia de salvedades en el informe de auditoría y la duración de la vinculación con el auditor facilitan la sustitución de este último, la relación con un auditor de los cuatro grandes y el volumen de honorarios tanto por auditoría como por otros servicios se relacionan negativamente con dicho cambio. Todas estas relaciones son estadísticamente significativas. El ajuste del modelo es muy aceptable como pone de manifiesto el porcentaje de observaciones correctamente clasificado<sup>11</sup>. El factor de inflación de varianza permite rechazar que nuestros resultados se hallen sesgados por la multicolinealidad.

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<sup>11</sup> Aunque en las estimaciones logit el principal criterio para valorar la bondad del ajuste es el porcentaje de observaciones correctamente clasificadas, ofrecemos también en las tablas de resultados la razón de verosimilitud y el coeficiente pseudo-R<sup>2</sup>.

**Tabla 5: Determinantes del cambio de auditor**

Se muestra para cada variable su coeficiente estimado y su (error standard). \*\*\* 99% nivel de confianza; \*\* 95% nivel de confianza; \* 90% nivel de confianza.

ACTIVO	0.2870 (0.107)	***
DEUDA	0.0345 (0.007)	***
ROE	-1.0349 (0.674)	
BIGANTES	-1.3791 (0.395)	***
NOFAV	0.5625 (0.253)	**
HONAUD	-0.0005 (0.0002)	**
HONOTR	-0.0014 (0.0004)	***
DURAC	0.0832 (0.036)	**
Porcentaje correctamente clasificado	77.27	
Nº observaciones	396	
Ratio verosimilitud	100.84	***
Pseudo R <sup>2</sup>	0.1947	
VIF	1.42	

La Tabla 6 ofrece los resultados correspondientes al contraste de las dos primeras hipótesis. En consonancia con la hipótesis H1, la columna (1) muestra una relación no lineal entre el cambio de auditor y el tamaño del consejo de administración (TAMCONSR), combinándose un efecto inicialmente positivo con una influencia negativa una vez que se traspasa un umbral crítico. De este modo, en consejos demasiado pequeños un aumento del tamaño mejora el funcionamiento del consejo y se relaciona positivamente con el cambio de auditor. Por el contrario, en consejos excesivamente grandes, con problemas de comunicación y coordinación más agudos, el aumento del número de consejeros reduce la posibilidad de cambio de auditora. Para un análisis adicional del efecto del tamaño, nos remitimos a la subsección 4.4.



**Tabla 6: Determinantes del cambio de auditor: tamaño**

Se muestra para cada variable su coeficiente estimado y su (error standard). \*\*\* 99% nivel de confianza; \*\* 95% nivel de confianza; \* 90% nivel de confianza.

	(1)	(2)	(3)
ACTIVO	0.6006 *** (0.164)	0.5292 *** (0.142)	0.6107 *** (0.167)
DEUDA	0.0348 *** (0.008)	0.0349 *** (0.008)	0.0352 *** (0.008)
ROE	-1.3042 ** (0.655)	-1.4959 ** (0.693)	-1.6018 ** (0.726)
BIGANTES	-1.1664 *** (0.392)	-1.1329 *** (0.388)	-1.1355 *** (0.394)
NOFAV	0.6530 ** (0.257)	0.6247 ** (0.257)	0.6022 ** (0.261)
HONAUD	-0.0006 *** (0.0002)	-0.0007 *** (0.0002)	-0.0006 *** (0.0002)
HONOTR	-0.0014 *** (0.0004)	-0.0016 *** (0.0004)	-0.0015 *** (0.0004)
DURAC	0.0836 ** (0.0366)	0.0829 ** (0.036)	-0.0877 ** (0.036)
TAMCONSR	0.0835 ** (0.033)		-0.0576 (0.081)
TAMCONSR <sup>2</sup>	-0.0033 * (0.001)		-0.0027 (0.001)
TAMCOMTR		0.2170 *** (0.077)	0.3676 * (0.199)
Porcentaje correctamente clasificado	76.20	76.52	75.70
Nº observaciones	395	396	395
Ratio Verosimilitud	107.75 ***	109.27 ***	111.77 ***
Pseudo R <sup>2</sup>	0.2084	0.2109	0.2161
VIF	1.96	1.70	4.31

La columna (2) de esa misma Tabla 6 muestra una relación positiva entre el número de integrantes del comité de auditoría y la rotación del auditor. Es de resaltar que, como pone de manifiesto el análisis descriptivo, el tamaño medio de estos comités se sitúa entre 3 y 4 miembros, lejos de los problemas de sobredimensionamiento anteriormente aludidos. Se trata, en consecuencia, de una confirmación de la hipótesis H2, ratificando la idea de que un mayor tamaño del comité de auditoría permite una ejecución más eficaz de sus tareas y facilita el cambio de firma auditora. La

proporción de observaciones adecuadamente clasificadas es bastante alta, superando en todos los casos el 75%.

Ante una eventual pregunta sobre el efecto conjunto del tamaño de ambos órganos, hemos realizado la estimación contenida en la columna (3). La elevada correlación existente entre TAMCONSR y TAMCOMTR que ya habíamos adelantado conduce a unos valores excesivamente elevados del test VIF y, por tanto, reduce la fiabilidad de esa estimación.

Pasando ahora al efecto de la independencia de ambos órganos, los resultados de las columnas (1) y (2) de la Tabla 7 no dejan lugar a dudas, existiendo una positiva y significativa relación entre la independencia del consejo de administración (EXTCONS) o del comité de auditoría (EXTCOMT) y la rotación de la firma auditora. Dichos resultados ratifican las hipótesis H3 y H4 respectivamente y sugieren que el cambio de auditor puede constituir una manifestación del intento de la empresa por transmitir una señal al mercado de que la credibilidad de su información no se halla condicionada por la firma auditora que desempeñe esa tarea. No obstante, como muestra la columna (3), el consejo de administración y el comité de auditoría no actúan como mecanismos complementarios en este sentido, sino como mecanismos sustitutivos, bastando el segundo de ellos para explicar el efecto de la independencia. A diferencia de los resultados relativos al tamaño de ambos órganos, la correlación entre EXTCONS y EXTCOMT es menor, pudiéndose incorporar ambas variables conjuntamente en una única estimación sin incurrir en multicolinealidad. El modelo posee un elevado poder explicativo como pone de manifiesto el hecho de que porcentaje de observaciones correctamente clasificadas se sitúa en todos los casos por encima del 75%.

**Tabla 7: Determinantes del cambio de auditor: independencia**

Coefficientes estimados y (error standard). \*\* 99% nivel de confianza; \* 95% nivel de confianza; \* 90% nivel de confianza.

	(1)	(2)	(3)
ACTIVO	0.2439 ** (0.108)	0.2203 ** (0.110)	0.2050 * (0.110)
DEUDA	0.0372 *** (0.008)	0.0374 *** (0.008)	0.0388 *** (0.008)
ROE	-1.0854 * (0.650)	-1.0799 * (0.662)	-1.0953 * (0.648)
BIGANTES	-1.4882 *** (0.446)	-1.4316 *** (0.400)	-1.5032 *** (0.405)
NOFAV	0.5784 ** (0.255)	0.5558 ** (0.255)	0.6240 ** (0.255)
HONAUD	-0.0005 ** (0.0002)	-0.0005 ** (0.0002)	-0.0005 ** (0.0002)
HONOTR	-0.0014 *** (0.0004)	-0.0013 *** (0.0004)	-0.0013 *** (0.0004)
DURAC	0.0743 ** (0.0367)	0.0882 ** (0.036)	0.0816 ** (0.037)
EXTCONS	0.0231 ** (0.009)		0.0158 (0.010)
EXTCOMT		0.0190 *** (0.007)	0.0148 ** (0.007)
Porcentaje correctamente clasificado	77.22	77.97	76.96
Nº observaciones	395	395	395
Ratio Verosimilitud	106.25 ***	107.88 ***	110.25 ***
Pseudo R <sup>2</sup>	0.2055	0.2086	0.2132
VIF	1.39	1.39	1.39

El contraste de las hipótesis H5 y H6 se realiza a partir de los resultados recogidos en la Tabla 8. En lo tocante al efecto de la actividad del consejo de administración, las columnas (1) y (3) evidencian una relación lineal y positiva. Eso nos lleva a pensar que una mayor actividad del consejo (REUCONS) comporta un mayor compromiso con el cumplimiento de sus funciones y, por tanto, se relaciona positivamente con el cambio de auditor. En auxilio de esta explicación se halla la preocupación de los códigos de buen gobierno por garantizar un número mínimo de reuniones y el hecho de que la decisión

de cambio de auditor implica la ruptura con ciertas rutinas organizativas y, en consecuencia, es probable que el consejo de administración deba reunirse con mayor frecuencia para tomar tal decisión.

**Tabla 8: Determinantes del cambio de auditora: actividad**

Coefficiente estimado y (error standard) estimado. \*\*\* 99% nivel de confianza; \*\* 95% nivel de confianza; \* 90% nivel de confianza.

	(1)	(2)	(3)
ACTIVO	0.2707 ** (0.108)	0.4183 *** (0.121)	0.4611 *** (0.120)
DEUDA	0.0340 *** (0.007)	0.0386 *** (0.008)	0.0343 *** (0.007)
ROE	-0.9513 (0.679)	-1.4248 * (0.832)	-1.4094 * (0.839)
BIGANTES	-1.3634 ** (0.426)	-1.9951 *** (0.459)	-2.0316 *** (0.458)
NOFAV	0.5500 ** (0.254)	0.5503 ** (0.268)	0.6120 ** (0.269)
HONAUD	-0.0005 ** (0.0002)	-0.0007 *** (0.0002)	-0.0007 *** (0.0002)
HONOTR	-0.0014 *** (0.0004)	-0.0016 *** (0.0005)	0.0017 *** (0.0005)
DURAC	0.0797 ** (0.046)	0.1158 *** (0.038)	0.1148 *** (0.038)
REUCONS	0.3426 * (0.205)		0.4232 ** (0.225)
REUCONS <sup>2</sup>	-0.0152 (0.010)		-0.0189 (0.011)
REUCOMT		-0.4289 *** (0.124)	-0.4644 *** (0.125)
REUCOMT <sup>2</sup>		0.0244 *** (0.007)	0.0250 *** (0.008)
Porcentaje correctamente clasificado	77.47	79.48	79.48
Nº observaciones	395	395	395
Ratio Verosimilitud	104.41 ***	124.19 ***	128.92 ***
Pseudo R <sup>2</sup>	0.2019	0.2466	0.2560
VIF	1.40	1.46	1.47

En cuanto al efecto de la actividad del comité de auditoría (REUCOMT), los resultados de las columnas (2) y (3) evidencia una relación cuadrática, con un efecto inicialmente negativo que pasa a

transformarse en positivo a partir de una cierta frecuencia de reuniones del comité<sup>12</sup>. De una parte, cabe la posibilidad de que el aumento en el número de reuniones vaya acompañado de una pérdida de eficiencia, atención a asuntos poco relevantes o rutinarios y ausencia de decisiones sobre cuestiones de mayor calado. Se explicaría así el coeficiente inicialmente negativo de REUCOMT. De otra parte, el cambio de firma auditora es una decisión exigente, que requiere una profunda discusión dentro del comité y, como consecuencia de ello, el efecto de la frecuencia de reuniones se torna positivo una vez alcanzado un cierto umbral<sup>13</sup>. Aun a pesar de ser reiterativo, se constata una vez más el elevado grado de bondad del modelo.

A modo de resumen parcial de los resultados hasta aquí expuestos podríamos decir que existen unas características del consejo de administración y del comité de auditoría que fomentan el cambio de auditor. Dichas características hacen referencia al tamaño, nivel de independencia y número de reuniones de ambos órganos y se encuentran en consonancia con ese perfil ideal sugerido con las recomendaciones de buen gobierno.

#### **2.4.3. Análisis explicativo: Rotación del auditor y calidad de la información**

Hemos de recordar que uno de los objetivos de nuestro trabajo era el análisis de hasta qué punto la rotación de auditor está vinculada a la mejora de la información. Para ello utilizaremos como aproximación a la calidad de la información contable la existencia de opiniones no favorables en el informe de auditoría, pues tal hecho denotaría cierta independencia del auditor externo. Por lo tanto, hemos multiplicado las variables de gobierno corporativo (TAMCONSR, TAMCOMTR, EXTCONS, EXTCOMT, REUCONS y REUCOMT) por esa variable, creando seis variables interactuadas que denominaremos TAMCONSRI, TAMCOMTRI, EXTCONSI, EXTCOMTI, REUCONSI y REUCOMTI. Si el adecuado funcionamiento de los mecanismos de gobierno corporativo condujera a reforzar la

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<sup>12</sup> En este caso el valor crítico del número de reuniones se halla en torno a los nueve encuentros anuales.

<sup>13</sup> De hecho, es habitual encontrar un número elevado de reuniones de este comité en las empresas en situación de dificultades financieras.

independencia del auditor, sería de esperar que el coeficiente de NOFAV fuese positivo, pero el de esas variables interactuadas fuese negativo, lo cual indicaría que en las empresas con un mejor gobierno corporativo se reduce la probabilidad de cambiar arbitrariamente de auditor por la emisión de una opinión con salvedades. Los resultados se presentan en las tablas 9 y 10.

**Tabla 9: Rotación del auditor y calidad contable**

Coeficiente estimado y (error standard) estimado. \*\*\* 99% nivel de confianza; \*\* 95% nivel de confianza; \* 90% nivel de confianza.

	(1)	(2)	(3)	(4)
ACTIVO	0.2599 ** (0.113)	0.2602 ** (0.108)	0.2614 * (0.108)	0.2577 ** (0.108)
DEUDA	0.0350 *** (0.007)	0.0355 *** (0.007)	0.0350 *** (0.007)	0.0348 *** (0.007)
ROE	-1.0452 (0.668)	-1.1216 * (0.673)	-1.0966 * (0.666)	-1.1615 * (0.688)
BIGANTES	-1.3911 ** (0.398)	-1.4410 *** (0.394)	-1.3911 ** (0.398)	-1.3262 *** (0.399)
NOFAV	-1.4905 (1.314)	-0.7031 (0.793)	-1.2305 (1.050)	-1.1496 (0.901)
HONAUD	-0.0005 ** (0.0002)	-0.0005 ** (0.0002)	-0.0005 ** (0.0002)	-0.0005 ** (0.0002)
HONOTR	-0.0013 *** (0.0004)	-0.0014 *** (0.0004)	-0.0013 *** (0.0004)	-0.0013 *** (0.0004)
DURAC	0.0805 ** (0.036)	0.0754 ** (0.036)	0.0789 ** (0.036)	0.0808 ** (0.036)
TAMCONSRI	0.3954 * (0.235)			
TAMCONSRI <sup>2</sup>	-0.0168 * (0.010)			
TAMCOMTI		0.3552 * (0.021)		
EXTCONSI			0.0228 ** (0.012)	
EXTCOMTI				0.0195 ** (0.009)
Porcentaje correctamente clasificado	77.47	78.03	78.73	77.22
Nº observaciones	395	395	395	395
Ratio Verosimilitud	103.42 ***	103.79 ***	103.62 ***	104.78 ***
Pseudo R <sup>2</sup>	0.2000	0.2004	0.2004	0.2026
VIF	1.41	1.40	1.87	1.88

Como puede observarse en estas tablas, las variables representativas de los mecanismos de gobierno corporativo mantienen, con la excepción de la actividad del consejo de administración (columna 1 de la Tabla 10), la influencia y el nivel de significación de las estimaciones iniciales. Y, por el contrario, la variable NOFAV pierde la significación anterior. Podemos inferir, por tanto, que las variables interactuadas capturan gran parte del efecto que anteriormente tenía NOFAV. En otros términos, no parece que la rotación del auditor venga asociada a mejoras en su independencia, sino simplemente al intento de transmitir al mercado el cumplimiento formal de las recomendaciones de buen gobierno.

**Tabla 10: Rotación del auditor y calidad contable**

Coefficiente estimado y (error standard) estimado. \*\*\* 99% nivel de confianza; \*\* 95% nivel de confianza; \* 90% nivel de confianza.

	(1)	(2)
ACTIVO	0.2892 *** (0.106)	0.3765 *** (0.117)
DEUDA	0.0345 *** (0.007)	0.0367 *** (0.008)
ROE	-0.9654 (0.691)	-1.4757 * (0.817)
BIGANTES	-1.3262 *** (0.399)	-1.8985 *** (0.449)
ACTIVO	0.2892 *** (0.106)	0.3765 *** (0.117)
DEUDA	0.0345 *** (0.007)	0.0367 *** (0.008)
ROE	-0.9654 (0.691)	-1.4757 * (0.817)
BIGANTES	-1.3262 *** (0.399)	-1.8985 *** (0.449)
NOFAV	-1.4996 (0.901)	2.0060 *** (0.638)
HONAUD	-0.0005 ** (0.0002)	-0.0006 ** (0.0002)
HONOTR	-0.0013 *** (0.0004)	-0.0014 *** (0.0004)

(Continúa pág. sig.)

**Tabla 10: Rotación del auditor y calidad contable**

Coficiente estimado y (error standard) estimado. \*\*\* 99% nivel de confianza;  
 \*\* 95% nivel de confianza; \* 90% nivel de confianza.

	(1)	(2)
DURAC	0.0808 ** (0.036)	0.1079 *** (0.038)
REUCONSI	-0.0508 (0.119)	
REUCONSI <sup>2</sup>	-0.0001 (0.004)	
REUCOMTI		-0.3927 ** (0.158)
REUCOMTI <sup>2</sup>		0.0191 ** (0.009)
Porcentaje correctamente clasificado	77.72	80.52
Nº observaciones	395	395
Ratio Verosimilitud	101.48 ***	119.28 ***
Pseudo R <sup>2</sup>	0.1962	0.2369
VIF	1.45	1.48

#### 2.4.4. Análisis adicionales

También nos hemos planteado ahondar en el efecto del tamaño del consejo de administración en un intento de identificar la dimensión que provoca una inflexión en el efecto. Para ello hemos estimado nuevamente el modelo incorporando el número de consejeros en valor absoluto (TAMCONS), sin relativizar por el tamaño de la empresa. Los resultados recogidos en la Tabla 11 son plenamente coherentes con los obtenidos anteriormente y sugieren un número de consejeros comprendido entre los 12 y los 13 como valor crítico que conduce a la mayor frecuencia en la rotación del auditor. Ese valor concuerda con las sugerencias de buen gobierno en nuestro país y con números semejantes apuntados por Fernández *et al.*, (1998), Yermack (1996), Rosenstein y Wyatt (1997), Klein (1998) y Vafeas (1999).



**Tabla 11: Determinantes del cambio de auditor: tamaño del consejo**

Coefficiente estimado y (error estándar) estimado. \*\*\* 99% nivel de confianza; \*\* 95% nivel de confianza; \* 90% nivel de confianza.

	(1)	
ACTIVO	0.6006 (0.164)	***
DEUDA	0.0348 (0.008)	***
ROE	-1.3042 (0.655)	**
BIGANTES	-1.1664 (0.392)	***
NOFAV	0.6530 (0.257)	**
HONAUD	-0.0006 (0.0002)	***
HONOTR	-0.0014 (0.0004)	***
VIDA	0.0836 (0.036)	**
TAMCONS	0.0835 (0.033)	**
TAMCONS <sup>2</sup>	-0.0033 (0.001)	*
Porcentaje correctamente clasificado	76.02	
Nº observaciones	395	
Ratio verosimilitud	107.75	***
Pseudo R <sup>2</sup>	0.2084	
VIF	1.96	

Hemos realizado otros análisis para contrastar la robustez de nuestro modelo y cuyos resultados no se presentan en aras de la brevedad. Así, por ejemplo, se ha modificado la variable indicadora del tamaño, utilizando el valor absoluto en millones de euros. Asimismo, se han empleado especificaciones alternativas del nivel de endeudamiento. Dichos análisis han proporcionado resultados plenamente coherentes con los presentados hasta este punto, motivo por el cual no se han recogido en las tablas.

## 2.5. Conclusiones

Las recientes reformas legales llevadas a cabo tanto en España como en los países de nuestro entorno y las repetidas recomendaciones de los códigos de buen gobierno han subrayado la importancia de la auditoría como medio de asegurar una adecuada transmisión de información fidedigna al mercado.

Un elemento que desempeña un papel clave en este proceso es la independencia del auditor. La investigación se ha hecho eco de tal inquietud, habiendo acometido el estudio de los factores que condicionan la elección de un tipo de auditor, así como los motivos que empujan a las empresas a cambiar de auditor. En este punto surge una discrepancia entre los resultados de un cuerpo sustancial de investigaciones académicas y la opinión del legislador. Mientras que no poca literatura ha desmentido un presumible efecto perjudicial de una relación de auditoría prolongada sobre la calidad de la información financiera, la presión social y política de ciertas recomendaciones e informes de buen gobierno así como algunos textos legales parecen estimular la rotación del auditor. Dichos códigos, asimismo, aconsejan la formación de consejos con un número equilibrado de miembros, apuestan por la presencia de consejeros independientes y sugieren la conveniencia de mantener un cierto número de reuniones.

Nuestro trabajo trata de ahondar en esta divergencia y estudia, por primera vez para el mercado español, cómo el funcionamiento del consejo de administración y de la comisión de auditoría influyen en la decisión de cambio de auditor. Con este fin hemos construido una base de datos formada por 396 observaciones procedentes de 113 empresas cotizadas en el mercado continuo español. Es de resaltar la representatividad de nuestra muestra, pues incluye todos los cambios de auditor realizados por las empresas no financieras del mercado continuo entre 2004 y 2007.

En consonancia con investigaciones anteriores, nuestros resultados muestran que la presión financiera soportada por la empresa, la existencia previa de informes de auditoría cualificados o la baja rentabilidad facilitan el cambio de auditor. En la misma línea, cuanto mayor sea el tiempo durante el cual el auditor ha prestado sus servicios, más probable resulta proceder a su renovación. Por el contrario, el hecho de contar con un auditor incluido entre las cuatro grandes firmas o un vínculo más fuerte en términos de mayores honorarios satisfechos (ya sea por trabajos de auditoría u otros servicios) llevan a una menor rotación del auditor.

Por lo que se refiere al funcionamiento de los mecanismos de gobierno corporativo, hemos analizado el tamaño, la independencia y la actividad del consejo de administración y de su comité de auditoría. Nuestros resultados muestran que el tamaño del consejo de administración mantiene una relación no lineal con el cambio de auditor. Dicha relación es consecuencia de dos efectos opuestos. Por una parte, un mayor número de miembros puede permitir un nivel más pormenorizado de supervisión del consejo de administración. Pero, por otra parte, cuanto mayor sea el número de miembros, más agudos resultan los problemas de comunicación y coordinación entre ellos. Así parece deducirse de nuestros resultados, mostrando una relación inicialmente positiva entre el tamaño del consejo y el cambio de auditor, para pasar a una relación negativa alcanzado un cierto tamaño crítico. Por su parte, el tamaño del comité se relaciona positivamente con el cambio de auditor, pudiéndose atribuir este hecho a que el menor tamaño habitual de estos comités evita los eventuales problemas de sobredimensionamiento del consejo.

En relación con la independencia de ambos órganos, se observa una relación positiva entre la presencia de consejeros externos y el cambio de auditor. Esta relación se verifica tanto para el consejo de administración como para el comité de auditoría.

También hemos analizado la actividad de ambos órganos, medida en términos de reuniones por año. Mientras que la actividad del consejo fomenta el cambio de auditor, se observa una relación

no lineal entre las reuniones del comité y el cambio de firma auditora. En los niveles bajos el número de reuniones del comité se relaciona negativamente con la rotación pero, una vez superado un umbral, una mayor actividad del comité de auditoría influye positivamente en el cambio de auditor. Este resultado se explica como consecuencia de dos posibles efectos derivados conjuntamente de la eventualidad de recargar innecesariamente el calendario de reuniones para cumplir ciertos estándares y de la necesidad de una profunda discusión que la decisión de cambio de auditor suele requerir.

Más allá de las características de los órganos de gobierno corporativo, el presente trabajo pone de manifiesto que el cambio de auditor no se halla asociado a una mejora de la calidad de la información contable. Nuestros resultados apuntan a la rotación del auditor como una decisión influida por una cierta presión social o política y no tanto por el afán de mejorar la calidad de la información financiera. Son precisamente las empresas cuyos órganos de gobierno corporativo más se adecuan a las recomendaciones de buen gobierno las que se hallan más inclinadas a cambiar de auditor. Esto implica que el funcionamiento del consejo de administración y del comité de auditoría parece fomentar la rotación del auditor en consonancia con las sugerencias del legislador, pero sin que dicho cambio modifique la calidad de la información contable. La rotación del auditor se concibe, más bien, como una señal de que la credibilidad de la información financiera no se encuentra condicionada por la identidad de la firma auditora.

Apoyados en tales resultados podemos afirmar que el tamaño, independencia y actividad de ambos mecanismos de gobierno corporativo influyen efectivamente en la decisión de cambio de auditor. Si, como algunos autores aseguran, el mantenimiento del auditor no compromete su independencia, ha de colegirse que el consejo de administración y su comité de auditoría parecen actuar en consonancia con la perspectiva del legislador y entienden la rotación del auditor como una señal enviada al mercado acerca de su compromiso con los principios del buen gobierno.

Son varias las líneas de investigación que se abren a partir de nuestro trabajo. Por una parte sería interesante ampliar el periodo estudiado para poder incorporar medidas más sofisticadas de la calidad de la información financiera (Leuz et al., 2003). En segundo lugar, se podría incorporar el efecto conjunto de otros mecanismos como, a modo de ejemplo, la estructura de propiedad y la participación de consejeros y directivos en la propiedad de la empresa. Asimismo, una descripción más detallada de las capacidades e incentivos de cada consejero podría aportar nuevas orientaciones al debate.

### 3. Audit committee expertise in large European firms

#### 3.1. Introduction

Audit committees have been at the core of both recent academic research and financial market authority attention (Martinov-Bennie *et al.* 2015). One aim of policymakers has been to create revitalised audit committees, which has led to a new and more stringent legal framework for auditing (Ghafran & O'Sullivan 2013). One key point of the new legal framework is audit committee composition in terms of independence and member expertise.

In the United States, the Sarbanes–Oxley Act (SOX) of 2002 requires every public company's audit committee to be composed of independent directors, with at least one member possessing financial expert qualifications, either through education or experience. In Europe, a number of laws, guides, and recommendations<sup>14</sup> have been enacted with an objective analogous to that of SOX. Directive 2014/56/EU of the European Parliament (and the transpositions into each member state's laws) attempts to reinforce the independence and technical competence of audit committees by requiring a majority of committee members to be independent and at least one member to be competent in auditing and/or accounting. Similarly, EU Recommendation 2005/162/EC mandates that audit committee members should, collectively, have a recent and relevant background as well as experience in finance and accounting for listed companies appropriate to the company's activities. This regulatory concern is even more pertinent in such an important industry as the financial sector, in which specific guidelines on the independence and necessary expertise of directors have been issued by the European Central Bank (2018) and the European Banking Authority (2018).

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<sup>14</sup> Recommendation 2005/162/CE, Directive 2014/56/EU, Green paper on audit policy, Regulation 537/2014, and Recommendation 2014/208/UE, together with several national codes of good governance.

Both audit committee independence and competence have a longstanding tradition in auditing research (Zaman *et al.* 2011; Alderman & Jollineau 2019). The literature shows that more independent audit committees, as well as those with greater expertise, are more likely to choose a *Big Four* external auditor (Chen & Zhou 2007), pay higher audit fees (Muniandy 2007; Gul & Goodwin 2010; Ghafran & O'Sullivan 2017), reduce the likelihood of fraud (Lary & Taylor 2012), and improve the quality of financial statements (Ika & Mohd Ghazali 2012; Habib & Bhuiyan 2016). Other studies find that audit committees which have greater expertise are associated to more accurate analyst earnings forecasts (Abernathy *et al.* 2013), reduce aggressive earnings management (Bedard *et al.* 2004; Sharma & Kuang 2014), increase accruals quality (Dhaliwal *et al.* 2010), and exhibit lower management expectations in an effort to avoid negative earnings surprises (Liu *et al.* 2014).

Although both independence and expertise seem to have similar effects, the concept of independence is subject to less discussion whereas the notion of expertise is not without controversy (Bédard & Gendron 2010).<sup>15</sup> In the list of requirements regarding statutory audit of public-interest entities, Regulation 537/2014 of the European Parliament defines an expert as a natural person who has specific expertise in financial markets, financial reporting, auditing, or other fields relevant to inspection, including practising statutory auditors. Thus, at least in the European framework, the notion of expertise is quite wide and can be gained in a variety of ways such as through academic degrees, professional experience in the private sector, service in the public administration or capital markets authorities, and so on. In addition, another important element related to expertise is how it can be measured. The difficulty inherent in identifying and quantifying expertise has led most of the research to operationalize expertise as a dichotomous variable; for example, in terms of whether at

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<sup>15</sup> One example of such criticism is the definition of expertise provided by SOX. This definition initially came in for so much criticism as a result of being too restrictive that one year later the Securities and Exchange Commission (2003) amended the ways in which expertise could be gained.

least one audit committee member has some specific knowledge, without considering the full knowledge of all committee members (Bilal *et al.* 2018).

Jointly based on the agency theory and resource dependence theory, the present paper focuses on this multifaceted notion of expertise and explores how the qualifications of audit committee members as experts affects the audit function. This approach stems from the new audit framework. Since both committee independence and expertise have become almost mandatory, the focus of research has shifted. Whereas early studies examined the impact of audit committee features, more recent literature has examined whether and how committee composition and expertise is related to other elements of corporate governance. We join this stream of literature and analyse the corporate governance motivations underlying audit committee qualifications. More specifically, the paper examines certain characteristics of the audit committee and the audit process which may be affected by audit committee member expertise.

The paper makes a threefold contribution. First, a more precise measurement of the level of audit committee expertise is provided, including the experience and qualifications of each member, quantifying the level of expertise in committees of European listed companies as a whole. To date, most studies which have explored board expertise have used dichotomous variables indicating whether at least one member is a financial/accounting expert or similar (Xie *et al.* 2003; Abbott *et al.* 2004; Bedard *et al.* 2004; Carcello *et al.* 2006; Badolato *et al.* 2014). This paper, however, examines the overall level of audit committee expertise through a continuous variable that measures the different skills or background (i.e., academic background, specialized financial or accounting knowledge, general economic knowledge, previous experience as auditor, experience as CEO, and international experience) of all the directors. Second, given the different ways in which audit expertise may be gained (namely, by both educational as well as professional experience), we show that both types are complementary and should be jointly fostered. By way of a third contribution, the paper



looks at what effects audit committee expertise has on the audit process, exploring the relationship between committee expertise as a whole and the committee's activity, its members' dedication, external auditor rotation, and audit fees.

The sample includes 296 companies listed in the main stock indexes of France, Germany, Italy, Spain, Belgium, the Netherlands, Portugal, and the United Kingdom for the 2005-2014 period. Results point to an improvement in committee expertise over this period. Findings show that committees displaying greater expertise are more active in terms of meetings, that their directors have less dedication (in terms of fewer directors with full-time dedication and with more outside directorships), and that they pay lower audit fees. However, no relationship is found with external audit firm rotation, which might be related to mandatory auditor rotation. Taken together, these results support the view that committee expertise is complementary to other characteristics of good corporate governance and also that it enhances the audit process (Magrane 2010; Eulerich 2017).

The remainder of the paper is organized as follows. Section 2 provides the literature review and hypothesis development. Section 3 describes the data collection process, the sample, and the research method. Section 4 discusses the results of the empirical analysis. Section 5 summarizes the study's main contributions.

### **3.2. Theoretical background**

Recent reforms of the audit legal framework in many European countries have substantially altered the requirements concerning audit committee expertise. The EU Recommendation 2005/162/EC and the Directive 2014/56/EU mandate that directors who belong to the audit committee should possess expertise, and their dedication to the committee has to be enough to develop their functions. The underlying idea is that the board of directors (and the board committees) are a cornerstone of firms' decision making.

Directors are supposed to bring three types of input: ability to monitor managers, strategical guidance, and critical resources (van Ees *et al.* 2009; Adams *et al.* 2010). Since the monitoring ability of audit committee members seems to dominate, a large stream of literature tends to adopt an agency approach (Sánchez Ballesta & García Meca 2005; Sarens & Abdolmohammadi 2011; Ghafran & Yasmin 2018; Zalata *et al.* 2018). The separation between ownership and management raises the demand for control mechanisms to mitigate the agency costs associated with asymmetric information (Piot 2004). From an agency perspective, stakeholders (mainly shareholders) engage the audit committee to oversee managers and to protect shareholders' interests (Puat Nelson & Devi 2013). The existing literature agrees that the monitoring function of directors increases audit committee effectiveness and improves the quality of the financial information about the firm (DeZoort *et al.* 2002; Fajembola *et al.* 2018; Norziaton & Hafizah 2019).

In order to gain a better knowledge of directors' influence it is necessary to consider the specific resources they bring. The resource dependence theory proposes a theoretical framework to understand the role of directors in the audit committee (Dalziel *et al.* 2011). In accordance with this theory, directors with human and social capital may be able to provide firms with such information, resources and experience, thereby ensuring the development of the audit committee's functions and improving its effectiveness (Dhaliwal *et al.* 2010). Thus, directors' specific expertise is crucial vis-à-vis understanding what contribution they make to firms (Kassinis & Vafeas 2002; Kor & Misangyi 2008). In fact, as explained by Puat Nelson and Devi (2013), audit committees provide expertise and experience so that firms can gain a competitive advantage, especially in financial reporting quality.

Under both the agency and the resource dependence theoretical lens, the question arises as to what impact director expertise has on the audit process. Indeed, little is known about such implications. This paper reviews the theoretical foundations for four issues related to the audit process: committee activity, director dedication, audit firm rotation, and audit fees.

The frequency of audit committee meetings<sup>16</sup> is an important indicator of a committee's effectiveness and affects certain issues that are relevant to users of financial information. Frequent meetings can enable the committee to perform better the duty of managerial oversight and the provision of resources. In fact, Bedard *et al.* (2004) report that the level of income-increasing abnormal accruals is negatively related to the frequency of audit committee meetings. Beasley *et al.* (2000) show that, in some industries, firms involved in instances of fraud held fewer audit committee meetings. Alzahrani and Aljaaidi (2015), Stewart and Munro (2007), and Fajembola *et al.* (2018) show that holding meetings more frequently can improve risk management and enhance financial stability.

Despite the relevance of the frequency of audit committee meetings, the literature says little about the underlying determinants of meeting frequency (Sharma *et al.* 2009; Al-Najjar 2011; Khelil *et al.* 2016; Prihartantiningtyas & Juliarto 2016). Intuitively, directors' qualifications affect their availability for committee meetings since said qualifications are related to their effectiveness (Chou *et al.* 2013). Greco (2011) finds that Italian audit committees which are more independent meet more frequently. Abbott *et al.* (2004), Goodwin-Stewart and Kent (2006), Hoitash *et al.* (2009), and Hosseinnikani (2014) report that the most active audit committees are the most efficient. Sharma *et al.* (2009) find that directors with greater expertise attend U.S. audit committee meetings more often when the risk of financial misreporting is higher. Similarly, Maraghni and Nekhili (2014) find that directors' individual competence in France (i.e., educational level and experience gained in other committees) enhances diligence through the number of audit committee meetings. However, Yin *et al.* (2012) fail to find any evidence in China of an association between the frequency of committee meetings and the proportion of directors who are accounting experts. Given the parallelism between audit committee independence and expertise, and the literature findings concerning the relation

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<sup>16</sup> This study only deals with formal committee meetings. Zaman and Sarens (2013) and Qamhan *et al.* (2018), and Oussii *et al.* (2019) study informal meetings.

between the qualifications of audit committee members and committees' activity, our first hypothesis posits a positive relation between audit committee expertise and committee activity.

*H1: Audit committee activity is positively related to committee member expertise.*

Directors' dedication can also prove to be influential with regard to certain issues that are relevant to users of financial information. On the one hand, multiple-directorships and part-time dedication could be a signal of directors' abilities and connections. On the other hand, belonging to too many boards might harm directors' dedication and negatively affect their work. Prior research has not yet reached any concluding evidence in this regard. While Yang and Krishnan (2005) and Dhaliwal *et al.* (2010) find that multiple directorships reduce earnings management, Garven (2015) and Sun *et al.* (2014) report just the opposite. Baccouche and Omri (2014) find that audit committee members accumulating several outside directorships leads to a higher degree of earnings management in French firms. In contrast, De Vlamincq and Sarens (2015) report a positive association between the proportion of audit committee members holding more than three directorships and financial statement quality in Belgium firms.

In their study on the multiple directorships of audit committee members, Sharma and Iselin (2012) report no significant relation between the percentage of audit committee members serving on at least three other boards and the percentage of members with financial or accounting expertise. Alternatively, Tanyi and Smith (2015) report that higher busyness of audit committee experts relates to other non-audit committee experts. This result is consistent with the fact that financial experts in the audit committee hold significantly more directorships in other firms than non-experts do (Iyer *et al.* 2013; Jaafar *et al.* 2016). Because the legal framework attaches so much importance to the expertise of audit committee members, directors who have a background in auditing, financial reporting, financial markets, and similar fields have become key actors. However, the availability of directors with such profiles is not unlimited. Furthermore, given the increasing demand for committee members who

can boast such expertise, directors with accounting or financial skills may find professional opportunities by serving on several boards. The following hypothesis concerning the dedication of experts in the audit committee is thus formulated:

*H2: The dedication of audit committee directors is negatively related to member expertise.*

One of the most important decisions taken by the audit committee concerns the selection of external audit firms. Although whether or not external auditor rotation improves audit quality remains a controversial issue (Ruiz Barbadillo *et al.* 2009; Casterella & Johnston 2013), the change in the external auditor is a key topic in the political agenda. Recently, European regulation EU 537/2014 on the specific requirements regarding statutory audit of public-interest entities dramatically changed the legal framework. From 2016, the regulation places a ten-year limit of audit firm tenure for listed firms in the European Union. Regardless of the debate surrounding the relation between audit quality and audit tenure, European authorities implicitly support audit firm independence by mandatory rotation.

Nevertheless, the question of whether more highly qualified audit committees are more prone to switch audit firms is still an unexplored issue. Krishnan and Ye (2005) find that the financial expertise of audit committees is positively associated with the likelihood of firms seeking ratification on auditor selection from shareholders. In the aftermath of the Arthur Andersen scandal, audit committees with greater financial expertise dismissed this audit firm (Chen & Zhou 2007). Albring *et al.* (2014) find that broad financial expertise on the audit committee is related to the switch decision from permissible auditor-provided tax services. In this vein, we analyse whether audit committee member qualifications support the notion of auditor rotation as an enhancer of audit quality. Consequently, the third hypothesis reads as follows:

*H3: Audit firm rotation is positively related to audit committee member expertise.*

This study also examines the relation between audit committee expertise and audit fees. Higher audit fees are supposed to increase audit testing and to lead to higher audit quality (Goodwin-Stewart & Kent 2006). Nevertheless, the existing literature shows varied results concerning whether or not higher fees actually increase audit quality. While Eshleman and Guo (2013) find a positive relationship between (abnormal) audit fees and audit quality, the results of Ettredge *et al.* (2014) and Krauß *et al.* (2015) indicate that such audit fees are negatively associated with audit quality.

As far as the relationship between audit fees and committee member expertise is concerned, two different theoretical explanations can be posited. On the one hand, the relation can be negative because more qualified directors, when fulfilling their duties, might negotiate more affordable fees and perhaps collaborate to a greater extent with the audit firm. Krishnan and Visvanathan (2009) and Farooq *et al.* (2018) provide empirical support for a negative relation between audit pricing and accounting financial expertise. This result may suggest that a better qualified audit committee leads to more reliable financial reporting and less external auditor efforts, which results in lower audit fees. Another possible explanation is that of Ittonen *et al.* (2019), whose results suggest that audit firms might consider other firms using their former employees as audit committee members so as to be easier to audit, thus requiring relatively less effort from the auditors.

On the other hand, audit committee expertise may mean higher quality standards and a greater effort by the audit firm. Furthermore, better corporate governance through an expert audit committee may complement external auditors when monitoring management. In this case, directors' qualifications may imply higher audit fees. Consistent with this second approach, and despite the legal difference for audit fees with Europe during our sample period, Abbott *et al.* (2003), Vafeas and Waagelein (2007) and Ghafran and O'Sullivan (2017) report that audit committee expertise is positively associated with audit fees in U.S. and UK firms. Thus, audit committee expertise is likely to affect audit

fees of European firms, although the direction of influence, whether positive or negative, is an empirical question. Consequently, the final hypothesis is stated in a dual manner:

*H4a: Audit fees are positively related to audit committee member expertise.*

*H4b: Audit fees are negatively related to audit committee member expertise.*

### **3.3. Empirical design**

#### **3.3.1. Sample**

The initial sample was made up of all 310 listed firms included in the most representative stock exchange indexes in France, Germany, Italy, Spain, Belgium, the Netherlands, Portugal, and the United Kingdom in December 2014.<sup>17</sup> A similar selection procedure was followed by Böhm *et al.* (2016) and covers the vast majority of financially significant European companies. After dropping cross-listed firms in several markets, the sample is short-listed to 296 firms.<sup>18</sup> The curricula vitae for all audit committee members of these companies between 2005 and 2014 are then identified and compiled. The year 2005 was chosen because this was when the IFRS and Recommendation 2005/162/EC on good governance requirements in companies' boards of directors came into effect in Europe. Following this, information is compiled from 2,350 firm-year audit committees and 2,477 different directors.

This information is hand-collected from firms' annual reports and, where necessary, by looking at other public sources such as *Bloomberg Business Week* and the official websites of other companies where these directors served. The audit report was also reviewed to identify issues related to the audit firm such as the name of the firm, audit fees, and so on. Director-level information is completed with firm-level financial information from the Bloomberg database.

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<sup>17</sup> These indexes are the IBEX-35 (35 Spanish firms), DAX (30 German firms), CAC-40 (40 French firms), FTSE MIB (40 Italian firms), FTSE-100 (100 U.K. firms), BEL-20 (20 Belgian firms), AEX (25 Dutch firms), and PSI-20 (20 Portuguese firms).

<sup>18</sup> For cross-listed firms, the country of the parent firm has been considered.

The final sample was built by aggregating the information on audit committee members. To ensure data reliability, for a given firm to be included in a given year, comprehensive information must be available for all audit committee members in that year. Due to mergers, acquisitions, and delisting and because not all curricula vitae provide the required data, the number of firm-year audit committees with available information is reduced to 2,350 committees, which means a coverage of 79.4% of the 2,960 all firm-year audit committees. The sample breakdown can be expressed as follows:

A	Composition of the stock indices	310
B	Repeated firms in stock indices	14
C=A-B	Total firms	296
D	Period (2005-2014)	10
E= C x D	Original firm-year sample	2,960
F	Incomplete information firm-year	-610
G= E - F	Final firm-year sample	2,350

To assess the comprehensiveness of the sample, it was compared with the samples of other studies addressing audit committee expertise, such as the 2,484 firm-year observations in Abernathy *et al.* (2013), the 203 firms in Albring *et al.* (2014), the 217 firms in Bajra and Čadež (2018), the 3,451 firm-year observations in Bedard *et al.* (2004), the 702 directors in DeFond *et al.* (2005), the 246 firm-year observations in Ahmed Haji and Anifowose (2016), the 370 firm-year observations in Qamhan *et al.* (2018), the 770 firm-year observations in Dhaliwal *et al.* (2010), the 3,590 firm-year observations in Erkens and Bonner (2013), the 3,218 audit committee members in Krishnan and Lee (2009), the 633 firm-year observations in Krishnan and Visvanathan (2008), the 423 firm-year observations in Kusnadi *et al.* (2016), the 612 firm-year observations in Ittonen *et al.* (2018), and the 98 firms in Sun *et al.* (2012). Table 1 reports the distribution of the audit committees of our sample by country and year.



**Table 1. Sample (number of audit committees) distribution by country and year**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Germany	22	23	26	26	26	29	30	30	29	30	271
Belgium	7	7	6	5	5	5	6	5	4	3	53
Spain	22	26	23	24	28	29	32	30	31	31	276
France	24	28	32	34	34	35	37	37	38	37	336
Netherlands	16	17	16	17	19	19	18	18	20	20	180
Italy	21	23	26	29	29	30	32	32	35	35	292
Portugal	6	10	13	13	14	15	16	12	14	17	130
UK	61	71	76	84	84	83	86	88	88	91	812
Total	179	205	218	232	239	245	257	252	259	264	2,350

Two difficulties were encountered when quantifying the expertise and qualifications of audit committee members. First, each country's laws and codes of good practices impose different requirements (Böhm *et al.* 2013). Given the international scope of the present research and the focus on the EU level legal framework, the different national criteria were harmonized in order to assess expertise. Table 2 provides a synopsis of these criteria.

**Table 2. Expertise requirements by country**

Country	Qualification	Source
Germany	Knowledge and experience in accounting and auditing.	Stock Corporation Act
Belgium	Knowledge in accounting, auditing and finance.	Belgian Code on Corporate Governance
Spain	Knowledge and experience in accounting, auditing or risk management	Good Governance Code of Listed Companies
France	Competence in accounting or finance	Corporate Governance Code of Listed Corporations
Netherlands	Financial expertise	Dutch Corporate Governance Code
Italy	Auditor, accounting professor or member of an Italian professional college	Codice Civile
Portugal	Knowledge suited to the duties in hand	Código do Governo das Sociedades
UK	Recent and relevant finance experience	UK Corporate Governance Code
European Union	Technical knowledge in accounting and/or auditing. Education and relevant and pertinent background in finance and accounting.	Commission Recommendation 2005/162/CE

Note: this table reports how the required expertise of audit committee members is defined in each country and in the European Union.

Second, the concept of qualification entails multiple dimensions. Early research identifies audit committee expertise with directors who have a corporate or investment banking background (Xie *et al.* 2003), who serve on other audit committees (Karamanou & Vafeas 2005), or who hold multiple directorships (Baccouche *et al.* 2013). Several studies subsequent to the SOX measured the expertise of audit committee members more precisely. Bedard *et al.* (2004) differentiate expertise by type, such as financial expertise and governance expertise. In a similar vein, Albring *et al.* (2014), DeFond *et al.* (2005), and Zhang *et al.* (2007) separate financial expertise into accounting and non-accounting expertise. Krishnan and Visvanathan (2008), Hoitash *et al.* (2009), Sun *et al.* (2012), Dhaliwal *et al.* (2010), and Abernathy *et al.* (2013) go one step further by categorizing nonfinancial expertise in addition to financial accounting and non-accounting expertise.

### **3.3.2. Variables**

The literature provides no universally comprehensive metric of financial expertise. Furthermore, many of the previously used metrics are dichotomous variables that measure whether a director is an expert or whether the audit committee includes at least one expert (Salleh & Stewart 2012; Alzeban 2015; Hassan *et al.* 2017).<sup>19</sup> To the best of our knowledge, this is the first study to go one step further by proposing a continuous metric of director expertise<sup>20</sup>.

Our metric of expertise is a sophistication of other metrics such as Wang *et al.* (2017), who assign to each director an education index that ranges from one (if the highest level of education is elementary school) to six (if the highest level is a PhD). Our measure is more stringent with regard to the level of studies since we include only higher levels of education (post-secondary, post-graduate, or courses taken at prestigious business schools), but is more comprehensive, since we capture director

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<sup>19</sup> Audit committee expertise has occasionally been measured through a continuous variable such as the proportion of directors with financial expertise (Ahmed Haji 2015).

<sup>20</sup> It is worth mentioning Lin (2018), who use incentive-based compensation as a measure of audit committee quality.

knowledge gained through international experience, CEO experience or audit and accounting experience (Dhaliwal *et al.* 2010; Habbash *et al.* 2013).

This measure is based on eight characteristics: (i) a post-secondary degree in corporate business or related fields; (ii) post-graduate studies in corporate business or related fields; (iii) post-graduate studies at a prestigious business school;<sup>21</sup> (iv) experience as a CEO; (v) experience as an auditor or consultant; (vi) international professional experience; (vii) understanding of accounting principles gained as a controller, chief financial officer, chief accounting officer, etc.; and (viii) knowledge of economics acquired through professional experience in economics, finance, or investment banking, or through a university degree in economics.

In order to build a more detailed measure of expertise, a review is first carried out of the experience and knowledge described in all the audit committee members' *curricula vitae*. Screening of these files provided eight root-causes or dimensions as the most important characteristics: "University education", "Master or PhD", "Prestigious and internationally renowned studies", "CEO experience", "Auditor or consultant experience", "International experience", "Accounting knowledge" and "Economic knowledge". Subsequently, each *curriculum vitae* was assessed to check which dimensions a given director fulfilled. We thus define eight dummy sub-variables that equal one if a given dimension was fulfilled, and zero otherwise. In order to obtain a director's individual qualification, all the dummy sub-variables were aggregated, with the result that this qualification is an integer number from zero to eight. This work is even more complex due to the internationality of our data set, given that *curricula vitae* are written in German, Spanish, French, English, Italian, or Portuguese. The appendix provides more information on the technicalities of the definition.

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<sup>21</sup> The category of prestigious business schools is based on the Forbes magazine in 2015: INSEAD, London Business School, IESE, IE Business School, IMD, SDA Bocconi, Cranfield, Saïd, Warwick, Lancaster University, and SP Jain.

For each audit committee and year, the QUALIF variable was computed as the average value of the qualification of all committee members. Five variables were defined concerning the structure or functioning of the audit committee: size (COMSIZE), activity (ACTIV), dedication (DEDIC), multiple directorships of committee members (DIRECTORSHIPS), and internationalization (INTERNAT). COMSIZE is the number of directors on the committee, ACTIV is the number of meetings held by the committee each year, DEDIC is the proportion of members with full-time dedication to the committee (i.e., with no other duty in another large European firm), DIRECTORSHIPS is the average number of outside boards on which the directors of a given committee sit in the same year, and INTERNAT is the proportion of foreign members<sup>22</sup>.

Two variables related to the external audit are defined: the rotation of the audit firm (ROTAT) and the fees for the independent audit report (FEE). ROTAT is a dummy variable that equals 1 when the audit committee decides to change the audit firm in a given year, and zero otherwise. FEE is the amount of audit fees relative to total assets.

In order to enhance the comparability of our results with analogous research (Liu *et al.* 2014) and to avoid some omission bias, there is control for firm size, financial leverage, profitability, litigation risk, and company complexity. ASSETS is defined as the log of total assets, LEV as the debt-to-total assets ratio, and ROA as the return on assets (i.e., earnings before interests and taxes relative to total assets). As for auditor litigation risk, Carcello and Palmrose (1994), Krishnan and Krishnan (1997), and Stice (1991) show that such a risk is affected by the client firm size, the variability of firms' returns, receivables, and inventory, among others<sup>23</sup>. The variability of a firm's returns (VARIAB) is

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<sup>22</sup> There is no control for committee independence given that European laws require audit committees to be made up of non-executive and independent directors.

<sup>23</sup> The aforementioned authors consider that the receivables and inventory accounts represent an important part of the firm's financial statements, and that there is a high risk for the auditor in this valuation. They also consider that companies which have very variable returns will have a higher probability of losses and, therefore, of legal action against the auditor.

operationalized using the variance of residuals obtained from regressing daily firm stock returns against a market index for a six-month period<sup>24</sup>. The underlying reason is that the higher the variability of a firm's returns, the higher the probability of large decreases and increases in stock price, and the greater the perceived benefit of legal action against the auditor. RECEIV is the ratio of accounts receivable to total assets, and INVENT is the ratio of inventory to total assets ratio. The complexity of the firm has been measured using two variables: the number of segments (DIVISIONS) and a Herfindahl-Hirschman index of concentration taking into account the five main segments (HH5)<sup>25</sup>. In analogous research, it is usual to control for the size of the external audit firm. Given the overwhelming majority of firms audited by the *Big Four* audit firms,<sup>26</sup> an alternative control variable (AUDITOR) is used that equals one when the auditee firm provides full information (identity of the external auditor, contract tenure, fees, etc.) about the audit firm, and zero otherwise.

Table 3 reports the descriptive statistics (mean, standard deviation, and quartiles) of the variables and Table 4 reports the correlation matrix among the variables. The literature generally considers multicollinearity to be a problem if the correlation between the independent variables is higher than 0.7 (Cooper & Schindler 2003). Although the correlation coefficients are, in general, below 0.7, the variance inflation factor is computed to test the lack of multicollinearity in the estimates. VIF values are all found to be below 3. Given that a lack of multicollinearity is broadly accepted when VIF values are below 5 (Studenmund 1997), multicollinearity was not deemed to be an issue with the estimates.

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<sup>24</sup> The underlying reason, as explained by Stice (1991), is that the higher the variability of a firm's returns, the higher the probability of large decreases and increases in stock price, and the greater the perceived benefit of legal action against the auditor.

<sup>25</sup> Additional analyses (not tabulated) have been run with a similar index based on the three main segments. Broadly speaking, the results remain unaffected.

<sup>26</sup> Only four firms in the present sample were audited by an external audit firm other than the *Big Four*.

**Table 3. Descriptive statistics**

	Obs.	Mean	Std. Dev.	Q25	Median	Q75
QUALIF	2,350	4.792	1.209	4.035	5.071	5.580
COMSIZE	2,487	4.207	1.171	3	4	5
ACTIV	1,845	6.041	3.071	4	5	7
DEDIC	2,487	0.722	0.242	0.6	0.75	1
DIRECTORSHIPS	2,487	2.811	2.666	0	2	4
ROTAT	1,724	0.039	0.193	0	0	0
FEE	1,142	0.264	0.231	0.075	0.194	0.402
ASSETS	2,448	4.287	0.758	3.748	4.197	4.722
LEV	2,448	0.673	0.186	0.544	0.675	0.814
ROA	2,435	0.053	0.049	0.015	0.044	0.075
INTERNAT	2,382	0.274	0.305	0	0.2	0.5
VARIAB	1,577	0.008	0.076	0.0001	0.0002	0.0005
RECEIV	1,407	0.107	0.084	0.048	0.089	0.149
INVENT	1,249	0.088	0.108	0.018	0.065	0.122
DIVISIONS	1,360	5.711	2.090	4	6	7
HH5	1,236	0.474	0.205	0.306	0.416	0.593

Note: this table provides the mean, standard deviation, and quartiles of the variables. QUALIF is the average qualification of committee members; COMSIZE is the number of directors on the committee; ACTIV is the number of meetings held by the committee each year, DEDIC is the proportion of committee members with full-time dedication to the committee; DIRECTORSHIPS is the average number of outside directorships of audit committee members; ROTAT is a dummy variable that equals 1 when the audit committee decides to change the audit firm in a given year, and zero otherwise; FEE is the amount of audit fees relative to total assets; ASSETS is the log of total assets; LEV is the debt-to-total assets ratio; ROA is the return on assets; VARIAB is the variance of residuals of the daily firm stock returns regression; RECEIV is the ratio of accounts receivable to total assets; INVENT is the ratio of inventory to total assets ratio; DIVISIONS is the number of segments of the firm; and HH5 is the Herfindahl-Hirschman index of concentration among the five main segments.

**Table 4. Correlation matrix**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
QUALIF	0.033	0.030	-0.128***	0.134***	0.023	0.066**	0.110***	0.123	0.026***
COMSIZE (1)		0.050**	-0.008	0.283***	-0.007	-0.067**	0.261***	0.128***	-0.088***
ACTIV (2)			0.118***	-0.114***	0.079***	-0.171***	0.349***	0.258***	-0.228***
DEDIC (3)				-0.863***	0.006	0.022	-0.168***	0.033	-0.038
DIRECTORSHIP(4)					-0.005	-0.057*	0.268***	0.008	-0.010
ROTAT (5)						-0.035	0.008	0.018	0.030
FEES(6)							-0.486***	-0.225***	0.214***
ASSETS (7)								0.534***	-0.451***
LEV (8)									-0.512***

Note: this table provides the correlation coefficients. QUALIF is the average qualification of committee members; COMSIZE is the number of directors on the committee; ACTIV is the number of meetings held by the committee each year; DEDIC is the proportion of committee members with full-time dedication to the committee; DIRECTORSHIPS is the average number of outside directorships of audit committee members; ROTAT is a dummy variable that equals 1 when the audit committee decides to change the audit firm in a given year, and zero otherwise; and FEE is the amount of audit fees relative to total assets; ASSETS is the log of total assets; LEV is the debt-to-total assets ratio; and ROA is the return on assets.

\*\*\*  $p$ -value < 0.01. \*\*  $p$  < 0.05. \*  $p$  < 0.10.

### 3.3.3. Method

A test of means comparisons was first performed in order to check whether differences exist between two groups of firms: in other words, firms whose audit committees have above-average expertise and firms whose audit committees have below-average expertise. The combination of time series with cross-sectional data thus allows a panel data set to be formed. The panel data methodology enhances control of the so-called constant and unobservable heterogeneity introduced by the firms' fixed-effects term. One of the key points of the panel data procedure is this fixed-effects term or, in other words, the identification of certain specific features of each firm which remain invariant over time. Consequently, Tables 7-13 report the Hausman test, which is used to test the null hypothesis of lack of correlation between the independent variables and the fixed effects term and, thus, the choice between the within-groups or the between-groups estimate (Baltagi 2013).

The dependent variables are *ACTIV*, *DEDIC*, *ROTAT*, and *FEES*. Because *ROTAT* is a dummy variable (the decision to change the audit firm), a logit panel data regression is used when the dependent variable is *ROTAT*.<sup>27</sup> The model can be expressed as:

$$COMACT_{it}, DEDIC_{it}, ROTAT_{it}, FEES_{it} = \beta_0 + \beta_1 QUALIF + \beta_2 LEV + \beta_3 ROA + \beta_4 LOGACT + \beta_5 VARIAB + \beta_6 RECEIV + \beta_7 DIVISIONS + \varepsilon_{it}$$

All estimates include dummy variables to control for time, industry, and country fixed effects. For industry effects, the one-digit level SIC is used. For each estimate, given the constraints imposed by the availability of data of the control variables, a parsimonious model is run: a baseline model is initially tested, to which a different control variable is then added in each column.

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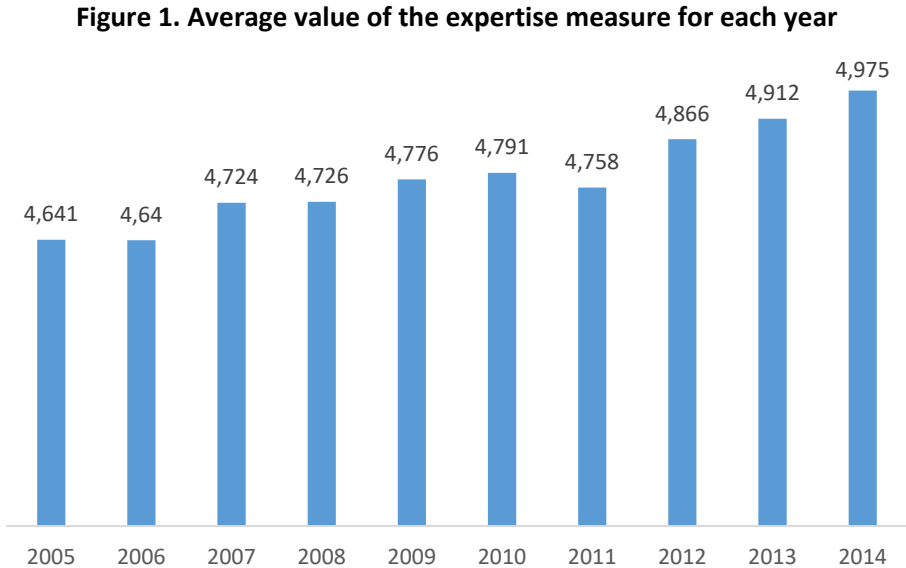
<sup>27</sup> French firms have been dropped from the estimate of the switch of auditors since these firms are required by law to have two audit firms.



**3.4. Results**

**3.4.1. Descriptive Analysis**

Given the relevance of our measure of expertise, Figure 1 shows the evolution of expertise (QUALIF) throughout the period studied.



A sustained increasing trend can be seen between 2005 and 2014 (from 4.641 to 4.975), such that audit committees in European listed firms have gained expertise over this period. Table 5 reports the values for the start and the end of the period for each country. The countries with the highest expertise in the audit committee are the Netherlands and Italy. All the countries apart from Germany have improved considerably in terms of audit committee expertise, with the largest improvements taking place in France and the Netherlands. This positive trend is in line with the aim of the new European regulation and may suggest how the largest (and likely the most visible) European listed firms have responded to the new legal framework.

Average audit committee size is just over four people, not far from the 3.5 people in Chinese committees (Yin *et al.* 2012) or 3.6 in Malaysian firms (Ahmed Haji 2015). Audit committees meet around six times a year, consistent with the 4.6 times reported by Greco (2011) for Italian firms, and meet far more often than in emerging markets (Khlif & Samaha 2016). Slightly less than three out of

four members have full-time dedication and, on average, directors belong to almost three outside boards. These figures are consistent with similar figures reported for U.S. firms (Iyer *et al.* 2013).

**Table 5. Evolution of expertise across countries**

	2005	2014	Variation
Germany	4.465	4.427	-0.86%
Belgium	4.189	4.567	9.00%
Spain	4.273	4.607	7.80%
France	4.474	5.105	14.10%
Netherlands	4.829	5.423	12.30%
Italy	5.130	5.356	4.40%
Portugal	3.984	4.114	3.27%
UK	4.801	5.159	7.45%
<b>Sample</b>	<b>4.641</b>	<b>4.975</b>	<b>7.21%</b>

Note: this table provides the average QUALIF value for each country at the start and end of the study period.

Table 6 reports the results of the test of means comparison. The sample was split into two groups according to the mean value of QUALIF: firms whose audit committee has above-average expertise and firms whose audit committee has below-average expertise. Results show significant differences between the two subgroups in terms of the committee’s features and the audit function. Most of these differences are consistent with our hypotheses and suggest the need for further analyses. Firms with more highly qualified audit committees also differ in terms of the audit function: the audit committee meets significantly more often and has fewer full-time members. These firms also change the audit firm more often and pay audit firms more. Firms with more qualified committees are also larger. Although not conclusive, these results are in line with our hypotheses.

**Table 6. Test of means comparison**

	Less expertise	Greater expertise	t-test
COMSIZE	4.16	4.33	-3.573***
ACTIV	5.86	6.14	-1.964**
DIRECTORSHIP	2.64	3.18	-4.863***
DEDIC	0.74	0.69	5.042***
ROTAT	0.03	0.05	-2.010**
FEE	0.29	0.35	-3.013***
ASSETS	4.26	4.35	-2.858**
LEV	0.68	0.67	0.100
ROA	4.56	4.64	-0.385
INTERNAT	0.20	0.33	-10.61***
VARIAB	0.007	0.010	-0.967
RECEIV	0.122	0.099	5.800***
INVENT	0.089	0.087	0.493
DIVISIONS	5.515	5.801	-3.005***
HH5	0.487	0.469	1.934**

Note: this table provides the means of each group and the t-test for the means comparison. The sample is divided according to the average QUALIF (average expertise of committee members). COMSIZE is the number of directors on the committee; ACTIV is the number of meetings held by the committee each year, DEDIC is the proportion of committee members with full-time dedication to the committee; DIRECTORSHIPS is the average number of outside directorships of audit committee members; ROTAT is a dummy variable that equals 1 when the audit committee decides to change the audit firm in a given year, and zero otherwise; and FEE is the amount of audit fees relative to total assets; ASSETS is the log of total assets; LEV is the debt-to-total assets ratio; ROA is the return on assets. INTERNAT is the proportion of foreign directors in the committee; VARIAB is the variance of residuals of the daily firm stock returns regression; RECEIV is the ratio of accounts receivable to total assets; INVENT is the ratio of inventory to total assets ratio; DIVISIONS is the number of segments of the firm; and HH5 is the Herfindahl-Hirschman index of concentration among the five main segments.

\*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

### 3.4.2. Explanatory Analysis

Table 7 reports the estimates concerning the implications of audit committee expertise vis-à-vis the committee's activity (H1). The baseline results in column 1 support the idea of a positive relation between expertise and the number of audit committee meetings, given the positive and significant coefficient of the variable QUALIF. In other words, committees who have greater expertise meet more often. Columns 2-4 introduce the additional control variables. A parsimonious model is run because of the decrease in the number of observations due to the lack of available information. In all cases, the

positive relationship holds between audit committee qualifications (QUALIF) and the number of committee meetings. It seems that more highly qualified audit committee members meet more often, which might be seen as evidence of their commitment. Given the supervisory role which directors play, by meeting more often the committee members seem to be evidencing their alignment with shareholder interest in order to ensure the quality of financial information. From a resource based perspective, this result can be seen as the members trying to bring more valuable resources in the form of more frequent scrutiny.

As for other factors, company size is positively related to committee activity, consistent with Yin *et al.* (2012), Al-Najjar (2011), and Greco (2011). The degree of internationality in the committee has a negative relationship, which could be due to the difficulties involved in gathering an international group of directors. The committees of firms who have more volatile stock returns, *i.e.*, one of the proxies of litigation risk, meet more often, which is consistent with the relevance of the financial information issued by the firm to capital markets. The lack of significance of other explanatory variables, such as leverage or financial performance, is in line with previous research (Sharma *et al.* 2009; Al-Najjar 2011; Greco 2011; Yin *et al.* 2012).

The F-statistics and the R-squared coefficient support the explanatory power of the model. This table also reports the variance inflation factor to test the lack of multicollinearity in the estimates. As previously noted, multicollinearity is not a problem in the estimates.

**Table 7. Effects on audit committee activity**

	(1)	(2)	(3)	(4)
QUALIF	0.103** (2.084)	0.127** (2.547)	0.102** (2.002)	0.114* (1.935)
ASSETS	0.902*** (5.082)	0.882*** (4.807)	0.777*** (3.716)	0.678*** (2.976)
LEV	0.548 (0.994)	0.532 (0.958)	0.303 (0.519)	0.477 (0.731)
ROA	0.013 (1.070)	0.014 (1.141)	0.011 (0.882)	0.013 (0.907)
COMSIZE	0.029 (0.563)	0.057 (1.121)	0.027 (0.499)	0.075 (1.181)
INTERNAT	-0.405 (-1.556)	-0.660** (-2.474)	-0.415 (-1.557)	-0.605** (-1.979)
AUDITOR	0.069 (0.496)	0.020 (0.143)	-0.005 (-0.037)	0.054 (0.315)
VARIAB		26.203*** (3.330)	15.680* (1.811)	15.147 (1.552)
RECEIV			0.981 (0.910)	1.196 (1.025)
DIVISIONS				0.049 (1.425)
Observations	1,533	1,412	1,209	997
Hausman test	4.37	7.74	13.05	6.52
R <sup>2</sup>	0.393	0.397	0.360	0.3546
F-stat	273.9***	257.8***	212.9***	207.1***
VIF	1.42	1.42	1.41	1.52

Note: this table provides the estimated coefficients (t-statistics) by the generalized least squares panel data method. The dependent variable is the number of meetings held by the committee each year (ACTIV). QUALIF is the average qualification of committee members, ASSETS is the log of total assets; LEV is the debt-to-total assets ratio; ROA is the return on assets; COMSIZE is committee size; INTERNAT is the proportion of foreign directors in the committee; AUDITOR is a dummy variable that equals one when the auditee firm provides full information on the external audit firm; VARIAB is the variance of residuals of the daily firm stock returns regression; RECEIV is the ratio of accounts receivable to total assets; and DIVISIONS is the number of segments of the firm. All the estimates include year, industry, and country-dummy variables.

\*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

Table 8 reports the results for H2 concerning the relationship between audit committee expertise and committee member dedication. Dedication is operationalized with two variables: the proportion of members with full-time dedication to the committee (DEDIC) and the average number of outside directorships (DIRECTORSHIPS). The results for each variable are shown in columns 1-4 and 5-8, respectively. As hypothesized, the significant coefficient of QUALIF suggests that the most qualified committee experts display less dedication both in terms of less full-time dedication in the

firm (columns 1-4) and in terms of more engagements in other firms (5-8). This result may be a consequence of a higher number of directorships among expert directors and the increased demand for such expertise due to recent legal changes (Jaafar *et al.* 2016). The negative relationship between expertise and dedication raises certain concerns that should be addressed by the law. The aim of the new audit legal framework in terms of improving the dedication of audit related agents is clear. In this vein, Recommendation 2005/162/CE states that directors should limit the number of their other professional commitments, particularly directorships held in other companies, in order to ensure they can perform their duties properly. Nevertheless, our results indicate that new legal efforts must be made to ensure that committee member qualification and dedication do not conflict but, rather, converge.

The coefficients of the control variables imply that dedication is negatively related to the firm's size and performance, but positively related to the internationality of the committee. As they did previously, the F-statistics and the R-squared coefficient support the explanatory power of the model. The choice between the within-groups or the generalized least squares estimate is based on the Hausman test.

**Table 8. Effects on committee member dedication**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
QUALIF	-0.040*** (-7.641)	-0.041*** (-7.387)	-0.042*** (-7.066)	-0.046*** (-7.079)	0.091*** (3.604)	0.065** (2.432)	0.080*** (2.743)	0.106*** (3.370)
ASSETS	-0.070*** (-4.773)	-0.069 (-0.091)	-0.064*** (-3.305)	0.059 (0.852)	0.375*** (5.538)	0.347*** (4.766)	0.395*** (4.487)	0.345*** (3.631)
LEV	0.077 (1.499)	0.065 (1.180)	0.077 (1.288)	0.074 (1.155)	-0.489** (-1.998)	-0.340 (-1.313)	-0.230 (-0.816)	-0.053 (-0.175)
ROA	-0.004*** (-2.801)	-0.004*** (-2.735)	-0.004** (-2.468)	-0.004*** (-2.716)	0.006 (0.925)	0.008 (1.252)	0.010 (1.356)	0.007 (0.909)
COMSIZE	0.003 (0.518)	-0.001 (-0.261)	-0.002 (-0.365)	-0.004 (-0.582)	0.091*** (3.583)	0.114*** (4.279)	0.137*** (4.619)	0.142*** (4.391)
INTERNAT	0.102*** (3.775)	0.114*** (3.861)	0.111*** (3.571)	0.122*** (3.586)	-0.042 (-0.324)	-0.001 (-0.005)	-0.003 (-0.018)	-0.036 (-0.221)
AUDITOR	0.017 (1.146)	0.015 (0.966)	0.013 (0.766)	0.020 (1.091)	-0.216*** (-2.975)	-0.165** (-2.208)	-0.250*** (-3.019)	-0.230** (-2.517)
VARIAB		0.013 (0.242)	0.001 (0.019)	-0.003 (-0.051)		-0.219 (-0.806)	-0.266 (-0.902)	-0.230 (-0.793)
RECEIV			0.021 (0.191)	0.403** (2.513)			0.002 (0.003)	-0.503 (-0.940)
DIVISIONS				-0.004 (-1.119)				0.015 (0.842)
Observations	2,068	1,888	1,621	1,359	2,068	1,888	1,621	1,359
Hausman test	22.29	31.29*	11.83	196.14***	27.48	40.09**	38.15**	52.55***
R <sup>2</sup>	0.158	0.154	0.146	0.171	0.206	0.197	0.196	0.228
F-stat	208.9***	187.1***	160.0***	148.1***	200.3***	174.1***	162.6***	154.2***
VIF	1.31	1.27	1.22	1.23	1.31	1.27	1.22	1.23

Note: this table provides the estimated coefficients (t-statistics) by the within-groups or generalized least squares panel data method depending on the Hausman test. The dependent variable is the proportion of committee members with full-time dedication to the committee (DEDIC) in columns 1-4, and the number of outside directorships (DIRECTORSHIPS) in columns 5-8. QUALIF is the average qualification of committee members, ASSETS is the log of total assets; LEV is the debt-to-total assets ratio; ROA is the return on assets; COMSIZE is committee size; INTERNAT is the proportion of foreign directors in the committee; AUDITOR is a dummy variable that equals one when the auditee firm provides full information on the external audit firm; VARIAB is the variance of residuals of the daily firm stock returns regression; RECEIV is the ratio of accounts receivable to total assets; and DIVISIONS is the number of segments of the firm. All the estimates include year, industry, and country-dummy variables. \*\*\*  $p$ -value < 0.01. \*\*  $p$  < 0.05. \*  $p$  < 0.10.

The effect of committee expertise on certain issues related to external audit is now explored. More specifically, whether committee expertise influences the rotation of the audit firm is now examined (H3). Since the decision to switch the audit firm is a dichotomous variable, Table 9 reports the logit estimates of the model. In no case does the expertise of the audit committee (QUALIF) have any significant relationship with the rotation of the external audit firm (ROTAT), thus rejecting the third hypothesis. To understand the lack of significance of expertise, we need to bear in mind the recent legal changes that have made auditor rotation mandatory and we must also take into account the policies implemented by various European countries regarding this rotation. Although our sample covers the period 2005-2014, prior to the coming into force of Directive 2014/56/EU, in which mandatory auditor rotation was established, large listed firms used to change the external audit firm as proof of independence and good governance. In addition, before said Directive, Italy already complied with mandatory rotation, France had established co-audit firms, and Portugal had included audit rotation on a "comply or explain" rule. Consequently, this lack of relationship could be due to mandatory rotation having been implemented among the most visible firms before the legal mandate was enacted, and to the different legal situations in the various countries at the time.

Indeed, the control variables suggest that the change of external auditor is more frequent among large firms (ASSETS), firms with superior performance (ROA), and among firms with more volatile stock returns (VARIAB), which proxies litigation costs. Despite the lack of significance of the main explanatory variable, the predicting power of the model is highly acceptable since it correctly classifies over 95% of the observations.



**Table 9. Effects on external auditor rotation**

	(1)	(2)	(3)	(4)
QUALIF	0.002 (0.397)	-0.003 (-0.537)	-0.004 (-0.652)	0.000 (0.033)
ASSETS	0.009 (1.079)	0.016** (2.602)	0.027** (2.453)	0.027** (2.143)
LEV	0.016 (0.435)	0.012 (0.307)	0.019 (0.467)	-0.015 (-0.322)
ROA	0.003** (2.171)	0.003* (1.863)	0.003** (2.213)	0.003* (1.730)
COMSIZE	0.003 (0.556)	0.003 (0.565)	0.008 (1.463)	0.008 (1.188)
INTERNAT	-0.033 (-1.346)	-0.012 (-0.449)	-0.035 (-1.252)	-0.037 (-1.121)
AUDITOR		0.071 (0.911)	0.108 (1.305)	0.111 (1.305)
VARIAB			8.244** (2.449)	8.244** (2.350)
RECEIV				0.001 (0.343)
Observations	1,397	1,257	1,047	876
Hausman test	4.96	7.38	5.64	3.46
% correct classification	95.53%	95.63%	95.87%	95.46%
Wald test	65.67***	63.69***	69.19***	54.19***
VIF	1.42	1.42	1.41	1.52

Note: this table provides the estimated coefficients (t-statistics) by the logit panel data method. The dependent variable is the change of the external audit firm (ROTAT). QUALIF is the average qualification of committee members, ASSETS is the log of total assets; LEV is the debt-to-total assets ratio; ROA is the return on assets; COMSIZE is committee size; INTERNAT is the proportion of foreign directors in the committee; AUDITOR is a dummy variable that equals one when the auditee firm provides full information on the external audit firm; VARIAB is the variance of residuals of the daily firm stock returns regression; RECEIV is the ratio of accounts receivable to total assets; and DIVISIONS is the number of segments of the firm. All the estimates include year, industry, and country-dummy variables. The Wald test is a test of joint significance of the estimated coefficients. \*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

As regards audit fees (FEES), Table 10 shows a negative relation between committee expertise (QUALIF) and fees (FEES), in line with hypothesis H4. There are several possible explanations for this result. First, audit committees with more expertise can negotiate more affordable audit fees. A complementary explanation is that the expertise of audit committee members improves the internal audit process in such a way that it makes the job of the external audit firms less time-consuming. It should be remembered that one of the items considered in the measure of director expertise is experience as an auditor or consultant, which is consistent with these two possible explanations. The

negative relation with the size of the committee may be seen as a possible confirmation of this. Whatever the reason, our result suggests that, in line with Krishnan and Visvanathan (2009), audit pricing reflects audit committee effectiveness. Our result deviates from Lin (2018), which may be due to the different metric. Whereas said author proxies audit committee quality with incentive-based compensation, the present study uses the average expertise of the committee. Another difference is the measure of fees, since Lin uses abnormal audit fees.

**Table 10. Effects on audit fees**

	(1)	(2)	(3)	(4)
QUALIF	-0.009** (-2.101)	-0.008* (-1.817)	-0.009* (-1.818)	-0.012** (-2.251)
ASSETS	-0.199*** (-5.701)	-0.201*** (-5.759)	-0.199*** (-4.413)	-0.169*** (-3.435)
LEV	-0.008 (-0.129)	-0.036 (-0.572)	-0.043 (-0.611)	0.024 (0.315)
ROA	-0.001 (-1.243)	-0.001* (-1.647)	-0.002* (-1.717)	-0.000 (-0.171)
COMSIZE	-0.014*** (-3.149)	-0.015*** (-3.157)	-0.017*** (-3.240)	-0.006 (-1.046)
INTERNAT	-0.009 (-0.359)	0.002 (0.064)	-0.006 (-0.217)	0.002 (0.059)
AUDITOR	-0.035* (-1.836)	-0.036* (-1.819)	-0.043** (-2.027)	-0.035 (-1.435)
VARIAB		-0.024 (-0.528)	-0.029 (-0.566)	-0.030 (-0.642)
RECEIV			0.121 (0.568)	-0.406 (-1.505)
DIVISIONS				-0.001 (-0.134)
Observations	904	851	728	551
Hausman test	19.15	16.77	23.01	21.07
R <sup>2</sup>	0.233	0.238	0.179	0.111
F-stat	3.72***	3.82***	3.38***	1.57**
VIF	1.31	1.27	1.22	1.23

Note: this table provides the estimated coefficients (t-statistics) by the generalized least squares panel data method. The dependent variable is audit fees deflated by total assets (FEES). QUALIF is the average qualification of committee members, ASSETS is the log of total assets; LEV is the debt-to-total assets ratio; ROA is the return on assets; COMSIZE is committee size; INTERNAT is the proportion of foreign directors in the committee; AUDITOR is a dummy variable that equals one when the auditee firm provides full information on the external audit firm; VARIAB is the variance of residuals of the daily firm stock returns regression; RECEIV is the ratio of accounts receivable to total assets; and DIVISIONS is the number of segments of the firm. All the estimates include year, industry, and country-dummy variables.

\*\*\*  $p$ -value < 0.01. \*\*  $p$  < 0.05. \*  $p$  < 0.10.

### 3.4.3. Additional Analyses

Our measure of qualification is a continuous variable. Since it is questionable whether a director/committee with, say, an index value of 6 is exactly twice as qualified as a director/committee with an index value of 3, we defined a dummy variable (HIGHQUALIF) that equals one if the variable QUALIF is above the median value. We ran new estimates that are reported in Table 11.

**Table 11. Qualification measured with a dummy variable**

	(1)	(2)	(3)	(4)
HIGHQUALIF	0.282** (2.357)	-0.055*** (-3.986)	0.002 (0.113)	-0.022** (-1.977)
ASSETS	0.650*** (2.839)	-0.058*** (-2.856)	0.027** (2.133)	-0.171*** (-3.470)
LEV	0.509 (0.778)	0.073 (1.133)	-0.015 (-0.321)	0.020 (0.261)
ROA	0.013 (0.888)	-0.005*** (-2.824)	0.003* (1.717)	-0.000 (-0.129)
COMSIZE	0.074 (1.170)	-0.003 (-0.443)	0.008 (1.186)	-0.006 (-1.005)
INTERNAT	-0.606** (-1.997)	0.084** (2.469)	-0.038 (-1.164)	-0.000 (-0.002)
AUDITOR	0.063 (0.372)	0.014 (0.758)		-0.038 (-1.565)
VARIAB	-0.606 (-1.186)	-0.000 (-0.005)	0.111 (1.302)	-0.032 (-0.664)
RECEIV	1.080 (0.922)	0.195* (1.711)	-0.013 (-0.182)	-0.362 (-1.339)
DIVISIONS	0.048 (1.418)	-0.004 (-1.190)	0.001 (0.343)	-0.001 (-0.323)
Observations	997	1,359	876	551
Hausman test	33.41*	2.48	11.26	40.29**
R <sup>2</sup>	0.351	0.160		0.120
VIF	2.79	1.94	2.17	2.89
F-stat	205.5***	113.3***		1.52*
% correct classification			95.46%	
Wald test			54.20***	

Note: this table provides the estimated coefficients (t-statistics) by the generalized least squares panel data method. The dependent variable is the number of meetings held by the committee each year (ACTIV) in column 1, the proportion of committee members with fume dedication to the committee (DEDIC) in column 2, the change of the external audit firm (ROTAT) in column 3, and the audit fees deflated by total assets (FEES) in column 4. HIGHQUALIF is a dummy variable that equals 1 if QUALIF (committee member qualification) is above the median value, ASSETS is the log of total assets; LEV is the debt-to-total assets ratio; ROA is the return on assets; COMSIZE is committee size; INTERNAT is the proportion of foreign directors in the committee; AUDITOR is a dummy variable that equals one when the auditee firm provides full information on the external audit firm; VARIAB is the variance of residuals of the daily firm stock returns regression; RECEIV is the ratio of accounts receivable to total assets; and DIVISIONS is the number of segments of the firm. All the estimates include year, industry, and country-dummy variables. \*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

For brevity, we only ran the most complete models with all the control variables<sup>28</sup>. The results corroborate previous findings. The HIGHQUALIF variable is positively related to the activity of the committee and negatively related to the dedication of committee members and to audit fees. These results are those expected in hypotheses H1, H2, and H4b. In contrast, more qualified audit committees do not seem to have any statistically significant relationship with the change in the external audit firm.

In a similar vein, we defined the ORDER variable. This variable is the position of each firm-year observation in the qualification ranking of all the committees. It ranges from 1 (the firm-year committee with the lowest qualification) to 2,350 (the most qualified committee in a given year). We then ran similar estimates, whose results are reported in Table 12.

**Table 12. Qualification measured with an order variable**

	(1) ACTIV	(2) DEDIC	(3) ROTAT	(4) FEE
ORDER	0.222** (2.186)	-0.072*** (-6.412)	0.001 (0.023)	-0.024*** (-2.645)
ASSETS	0.669*** (2.931)	-0.059*** (-2.854)	0.027** (2.143)	-0.171*** (-3.491)
LEV	0.485 (0.743)	0.075 (1.161)	-0.015 (-0.321)	0.018 (0.236)
ROA	0.012 (0.847)	-0.004*** (-2.610)	0.003* (1.728)	-0.000 (-0.149)
COMSIZE	0.077 (1.222)	-0.005 (-0.726)	0.008 (1.189)	-0.007 (-1.073)
INTERNAT	-0.629** (-2.051)	0.118*** (3.435)	-0.037 (-1.122)	0.006 (0.185)
AUDITOR	0.057 (0.338)	0.018 (0.953)		-0.035 (-1.478)
VARIAB	-0.604 (-1.181)	-0.002 (-0.037)	0.111 (1.305)	-0.031 (-0.655)

(Continued on next page)

<sup>28</sup> The results for simpler models are available from the authors upon request.

**Table 12. Qualification measured with an order variable**

	(1)	(2)	(3)	(4)
	ACTIV	DEDIC	ROTAT	FEE
RECEIV	1.194 (1.022)	0.169 (1.484)	-0.014 (-0.188)	-0.405 (-1.505)
DIVISIONS	0.049 (1.427)	-0.004 (-1.103)	0.001 (0.343)	-0.000 (-0.117)
Observations	997	1,359	876	551
Hausman test	51.2***	57.9***	11.1	19.8
VIF	2.80	1.94	2.17	2.90
R <sup>2</sup>	0.354	0.169		0.112
% correct classification			95.46%	
F-stat	206.97***	138.65***		1.66**
Wald test			54.19***	

Note: this table provides the estimated coefficients (t-statistics) by the panel data method. The dependent variable is the number of meetings held by the committee each year (ACTIV) in column 1, the proportion of committee members with full-time dedication to the committee (DEDIC) in column 2, the change of the external audit firm (ROTAT) in column 3, and the audit fees deflated by total assets (FEES) in column 4. ORDER is the position of each firm-year observation in the ranking of qualification of all the committees, ASSETS is the log of total assets; LEV is the debt-to-total assets ratio; ROA is the return on assets; COMSIZE is committee size; INTERNAT is the proportion of foreign directors in the committee; AUDITOR is a dummy variable that equals one when the auditee firm provides full information on the external audit firm; VARIAB is the variance of residuals of the daily firm stock returns regression; RECEIV is the ratio of accounts receivable to total assets; and DIVISIONS is the number of segments of the firm. All the estimates include year, industry, and country-dummy variables.

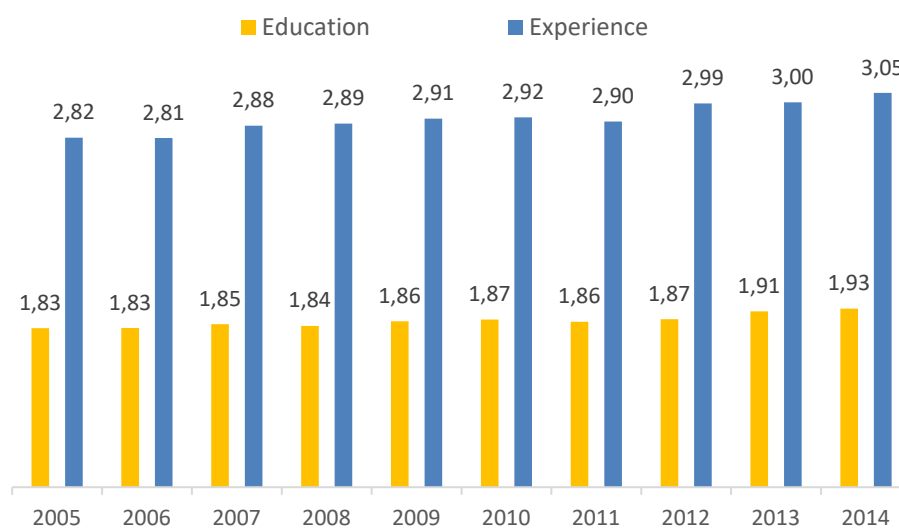
\*\*\*  $p$ -value < 0.01. \*\*  $p$  < 0.05. \*  $p$  < 0.10.

Once again, the results support those previously reported: more qualified committees are positively related to the number of meetings and negatively related to the proportion of full-time members and audit fees (H1, H2, and H4b). We do not find any significant relationship with the decision to change the external audit firm.

Member and audit committee expertise can be gained both through education and experience. In fact, our measure of qualification aggregates the two characteristics. We now wonder whether both sources of expertise are complementary or substitutive. Thus, we define two sub-dimensions of qualification: education-based qualification (EDUCQUALIF) and experience-based qualification (EXPQUALIF). Education-based qualification is the aggregation of the first three components of expertise, whereas the experience-based metric is the aggregation of the last five components of expertise. Accordingly, EDUCQUALIF ranges from 0 to 3, and EXPQUALIF ranges from

0 to 5. Figure 2 shows the evolution of each dimension of expertise. Both components increase slightly during the period, although the increasing trend is more noticeable in the experience-based metric. This may be explained by the fact that education-based expertise only increases with the incorporation of new members who have a better educational background, whereas experience-based expertise increases every year in itself through the work of the director.

**Figure 2. Average value of the education-based and experience-based expertise measure for each year**



In Table 13, we report the estimates of the explanatory analysis using both variables. The results lead to interesting inferences regarding how to gain expertise. For brevity, we only report the results of the most complete model. In column 1, we study the relationship with the number of audit committee meetings. Whereas the education-based dimension has no significant effect, experience-based expertise has a positive relationship, consistent with hypothesis H1. It could be understood as a sign that both types of expertise are not redundant, but bring different views and implications to audit committees. Similarly, in column 4, we study the relationship of both kinds of expertise with audit fees. In this case, while the experience-based component has no significant effect, education-based expertise displays a negative relationship, as stated in hypothesis H4b. It might also suggest that

both kinds of expertise play different roles in the board. Thus, to some extent, there seem to be reasons for considering that education and professional experience are two complementary sources of expertise that enrich committee member qualification.

**Table 13. Education-based and experience-based expertise**

	(1) ACTIV	(2) DEDIC	(3) ROTAT	(4) FEE
EDUCQUALIF	-0.117 (-0.725)	-0.043** (-2.393)	-0.526 (-0.791)	-0.036** (-1.991)
EXPQUALIF	0.278*** (2.601)	-0.071*** (-5.972)	0.275 (0.598)	-0.006 (-0.560)
ASSETS	0.660*** (2.895)	-0.059*** (-2.860)	0.904** (2.351)	-0.176*** (-3.563)
LEV	0.439 (0.673)	0.074 (1.160)	-0.660 (-0.419)	0.013 (0.164)
ROA	0.012 (0.811)	-0.004*** (-2.632)	0.080* (1.686)	-0.000 (-0.198)
COMSIZE	0.080 (1.272)	-0.004 (-0.674)	0.216 (1.233)	-0.007 (-1.150)
INTERNAT	-0.750** (-2.369)	0.137*** (3.907)	-1.670 (-1.314)	-0.006 (-0.173)
VARIAB	-0.604 (-1.180)	-0.003 (-0.056)	8.227** (2.305)	-0.030 (-0.629)
RECEIV	1.132 (0.970)	0.174 (1.529)	0.141 (0.056)	-0.428 (-1.581)
DIVISIONS	0.051 (1.498)	-0.004 (-1.091)	0.034 (0.347)	-0.000 (-0.074)
AUDITOR	0.054 (0.315)	0.019 (1.028)		-0.036 (-1.489)
Observations	1,209	1,359	876	551
Hausman test	116.0***	44.58***	12.20	28.06
VIF	2.18	1.97	2.20	2.89
R <sup>2</sup>	0.356	0.155		0.312
F-stat	20.6***	2.81***		100.5***
Wald test			54.22***	
% correct classification			95.46%	

Note: this table provides the estimated coefficients (t-statistics) by the panel data method. The dependent variable is the number of meetings held by the committee each year (ACTIV) in column 1, the proportion of committee members with full dedication to the committee (DEDIC) in column 2, the change of the external audit firm (ROTAT) in column 3, and the audit fees deflated by total assets (FEES) in column 4. EDUCQUALIF is the average education-based qualification of committee member, EXPQUALIF is the average experience-based qualification of committee members, ASSETS is the log of total assets; LEV is the debt-to-total assets ratio; ROA is the return on assets; COMSIZE is committee size; INTERNAT is the proportion of foreign directors in the committee; AUDITOR is a dummy variable that equals one when the auditee firm provides full information on the external audit firm; VARIAB is the variance of residuals of the daily firm stock returns regression; RECEIV is the ratio of accounts receivable to total assets; and DIVISIONS is the number of segments of the firm. All the estimates include year, industry, and country-dummy variables. \*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

As far as committee member dedication is concerned, both education-based and experience-based expertise seem to play a similar role, since they exhibit a negative relationship, in accordance with hypothesis H2 (column 2 of Table 13). Given the lack of support for our hypothesis H3 in the baseline estimates, it comes as no surprise that neither type of expertise has a significant relationship with the change of audit firm (column 3).

As robustness checks, we ran some analyses replacing the control variables: litigation risk is controlled for with the proportion of inventories on total assets (INVENT), and company complexity is controlled for with the Herfindahl index (HH5). In all cases, estimates confirm the baseline findings. The results of these analyses are not tabulated but are available from the authors upon request.

### **3.5. Conclusion**

Audit committees have become a key element in the corporate governance landscape. Consistent with this process, an international wave of legal changes has reinforced the role of the audit committee. These legal improvements seek both to safeguard the independence of the directors and to ensure their ability (i.e., expertise) to provide reliable financial information. Whereas the concept of independence is less subject to debate, measures of expertise prove more controversial.

The European regulator indicated in Recommendation 2005/162/EC that *there is one issue which usually raises particular concern, namely the need for particular competence in the audit committee where some specific knowledge is deemed to be indispensable*. Subsequently, Directive 2014/56/EU confirmed the importance of strengthening the technical competence of audit committees by requiring at least one of their members to be competent in auditing and/or accounting. In addition, it ratified the recommendation concerning board of director responsibility to determine the desired composition of the audit committee and to evaluate it periodically.



This study focuses on the multifaceted notion of expertise and explores some consequences of audit committee member qualifications. More specifically, the relation between audit committee member expertise and said committee's activity and the external audit function is examined. A new and comprehensive metric of expertise is proposed, which includes directors' academic background, professional experience, international experience, and financial knowledge. Personal information on 2,477 directors and corporate information for 296 firms from eight European countries between 2005 and 2014 is subject to thorough processing. Based on this information, a continuous variable is computed to measure the audit committee's average expertise.

Data show a positive trend among large European firms towards more expert audit committees in recent years. Committees with more expertise are found to be more active in terms of meetings, with their directors evidencing less dedication (in terms of fewer directors with full-time dedication and more outside directorships), and lower audit fees being paid. However, no relationship with the change of external audit firm is found. This is likely due to mandatory auditor rotation in certain countries during the period studied. We also split our measure into two components: education-based expertise and experience-based expertise. Our results suggest that both ways of gaining expertise are complementary and bring different competences and skills to the audit committee. Taken together, these results support the view that committee expertise is complementary to other characteristics of good corporate governance and improves the audit process.

Results bear out the importance of the audit committee in corporate governance, and have implications both for firms and for policymakers alike. For the former, the results suggest that the board of directors (and, in particular, nomination committees) should adopt a broad view of the skill matrix of audit committee members, and consider the complementarities among them. For the latter, the pivotal role of the audit committee is confirmed, as is the need to pay further attention to

directors' expertise by defining the different competences that must be taken into account and the possible ways in which such expertise may be gained. This implication is especially important in the European environment since, unlike the authorities in the USA<sup>29</sup>, the European Commission has not yet specified how audit expertise may be gained.

Certain limitations are apparent in this research which, at the same time, point to several directions for future inquiry. Endogeneity is a frequent concern in the research on corporate governance. However, our research is not affected as much by endogeneity since external legal changes and rules are considered. Nonetheless, future studies that explicitly address endogeneity should confirm the insights presented herein. Future research may also explore the internal dynamics of audit committees. By using individual-level information, future studies may shed some light on the types of expertise and the interplay inside the committee among directors who have different backgrounds.

### **3.6. Appendix: Technical Note**

The process of preparing the expertise measure started with the hand collection of the curricula vitae of all the audit committee directors. The information available in the annual reports and the companies' websites was used.

Big data techniques were used to obtain background, experience, and expertise from these directors' curriculum vitae. The information contained in the curriculum vitae was included in a single

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<sup>29</sup> According to SOX and its subsequent revision by the Securities and Exchange Commission (2003), an expert is a person who, through education and experience as a public accountant, auditor, principal financial officer, controller, or principal accounting officer of an issuer, or from a position which involves performing similar functions, has (i) an understanding of generally accepted accounting principles and financial statements; (ii) experience in preparing or auditing financial statements of generally comparable issuers and the application of such principles in connection with accounting for estimates, accruals, and reserves; (iii) experience with internal accounting controls; and (iv) an understanding of audit committee functions.

text and cut into separate words. All of the coincidences were grouped in order to form a ranking of which words were repeated most often throughout the curricula vitae.

The ranking was analysed to identify words associated with qualifications. For example, the words “universität”, “university”, “master”, “PhD”, “professor”, and so on are related to the “university studies” component. For the “accounting expertise” attribute, the words “accounting”, “revisore contabile”, “auditor”, “Deloitte”, “PWC”, and so on are identified. “Chief executive officer”, “CEO”, “directeur general”, “Geschäftsführer”, and so on are identified for the “CEO expertise” dimension. For the “economic expertise” attribute, the associated words include “economics,” “CFA”, “Wirtschaft”, and so on. For “audit experience”, the associated words are “auditor”, “vérificateur comptable”, “CPA”, “Ernst & Young”, “KPMG”, and so on. Over 600 topics related to academic degrees and work experience are identified herein.

These academic degrees and work experience areas were mapped to each individual director’s curriculum vitae, and classified into eight characteristics: (i) a post-secondary degree in corporate business or related fields; (ii) post-graduate studies in corporate business or related fields; (iii) post-graduate studies at a prestigious business school<sup>30</sup>; (iv) experience as a CEO; (v) experience as an auditor or consultant; (vi) international professional experience; (vii) understanding of accounting principles gained as a controller, chief financial officer, chief accounting officer, etc.; and (viii) knowledge of economics acquired through professional experience in economics, finance, or investment banking, or through a university degree in economics. A director obtains a score of 1 for each one of these characteristics if his/her curriculum vitae contained the topics related to this characteristic at least once, and 0 otherwise. Consistency tests were carried out to ensure, for

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<sup>30</sup> The category of prestigious business schools is based on the Forbes magazine in 2015: INSEAD, London Business School, IESE, IE Business School, IMD, SDA Bocconi, Cranfield, Saïd, Warwick, Lancaster University, and SP Jain.

example, that a director who reported post-graduate studies would also be considered to have a post-secondary degree even though he/she did not report it.

In addition, each director's curriculum vitae is examined in order to obtain the number of outside directorships held in a given year and to examine their current international position in the board.



## **4. Audit or accounting expertise? Audit committee competence and earnings management in Europe**

### **4.1. Introduction**

The recent financial crisis and high-profile corporate financial scandals have renewed the concerns of policymakers, investors, and academia alike with regard to the quality of financial information (Palazuelos Cobo, et al., 2017). The reaction of capital market authorities to these episodes has resulted in a more enforceable legal framework. One example of this new framework is the European Union regulatory framework on statutory auditing (mainly, Recommendation 2005/162/EC and Directives 2006/43/EC and 2014/56/EU). This new legal setting focuses on the audit committee and on improving its function by ensuring directors' competence.

Research into these legal changes has shown that, more than the mere existence of audit committees, their monitoring effectiveness and competence are important vis-à-vis enhancing financial reporting quality (Bajra and Čadež, 2018). These results are in line with the evolution of studies exploring audit committees: whereas the first generation merely addressed the committee's existence, subsequent studies have focused on certain characteristics of such audit committees, particularly their independence, activity and their members' expertise (Biedma López, et al., 2011, Bilal, et al., 2018, Ghafran and O'Sullivan, 2013, Inaam, 2016, Sultana, et al., 2019, Zalata, et al., 2018).

Thus, the competence of the committees and their members has emerged as a topic which requires further attention. Whereas US-centred research shows a clear association between the qualifications of the audit committee (in terms of independence, activity, and directors' expertise) and the quality of financial reporting, evidence from outside the US has proven to be less consistent. According to Bilal, et al. (2018), the clear results to emerge for American countries may stem from

higher institutional transparency, more effective audit committees, and greater investor protection. Given the institutional differences with European countries, a gap emerges in the literature which this research aims to fill.

Although the literature does not provide any explicit definition of director competence, EU Recommendation 2005/162/EC mandates that audit committee directors should possess expertise and that their dedication to the committee must be enough to allow them to perform their duties. In line with this point of view, we posit that the competence of audit committee members depends on two traits: dedication and qualification or expertise. Our first construct is committee member dedication, which provides insights into their ability to spend the time and effort required for them to fulfil their duties on the committee. Our second measure is directors' expertise.

We examine the relation between the qualifications and dedication of audit committee members and earnings management in a sample of 142 European listed firms for the period 2006–2013 from the five largest European Union countries in terms of GDP and stock market capitalization: France, Germany, Italy, Spain, and the United Kingdom. Our time span is prior to the European regulation that includes the concept of audit expertise in the audit committee (Directive 2014/56/EU on Statutory Audits). Up to that point, regulation only considered general accounting expertise in the audit committee. As of 2014, however, the regulatory authorities implicitly admitted that accounting expertise may not be enough and acknowledged the existence of a type of new expertise: audit expertise. Thus, one of our research questions addresses the extent to which the new shift of the European regulatory framework towards specific audit expertise is justified.

We individually examine 1,054 directors, who provide 3,649 director-year observations in order to gauge their experience in four fields: supervisory, financial, audit, and non-audit accounting expertise. We provide three sets of results. First, a U-shaped relation exists between audit committee

members' dedication (in terms of outside directorships) and earnings management. Although multi-directorships may be a good sign of director incentive, a threshold exists (our estimates suggest a maximum of two outside directorships) beyond which too many engagements may prove detrimental. Second, we find that only audit expertise is relevant vis-à-vis curbing earnings management and that committees with greater audit experience are negatively related to earnings management. Our third set of results points to certain characteristics of the audit committee, the board, and the firm which enhance the role played by audit experts; namely, smaller or less active audit committees, smaller and busier boards and, in smaller and more profitable firms that have a longer-running relationship with the external auditor, as well as in firms with smaller and busier boards of directors. Taken together, this evidence suggests that the contribution of audit experts to decreasing earnings management is conditional on the characteristics of the firm and the audit committee.

This paper contributes to the previous literature in three ways. Our first contribution is that we go a step further in order to analyse different types of expertise. Whereas the literature only considers accounting, financial, and supervisory expertise, we underline the importance of audit expertise. Second, we analyse an international sample of European firms, which is by no means a minor issue given the orientation of most prior research. Furthermore, most US-based studies show very strong support for the positive impact of audit committee characteristics on earnings quality, whereas findings from other corporate environments are fragmented and less consistent (Bilal, et al., 2018). Thus, we provide additional evidence to support the European-level shift towards better qualified audit committees in the EU. Third, we report the twofold effect of outside commitments. Holding multi-directorships may be positively related to financial reporting quality but becomes detrimental after a given point.

The remainder of the paper is organised as follows. Section 2 provides the literature review and hypotheses development. Section 3 describes the data collection process, the sample, and the



research method. Section 4 discusses the results of the empirical analysis, and section 5 summarises the main contributions of the study.

## **4.2. Previous literature and hypotheses development**

In the aftermath of various well-known corporate scandals, the European Parliament created Recommendation 2005/162/CE on the role of non-executive or supervisory directors of listed companies and on board committees, and Directive 2006/43/CE on statutory audits. In this new legal framework, audit committee members are required to dedicate the necessary time and attention to fulfil their function. Recommendation 2005/162/CE states that directors should limit the number of their other professional commitments, particularly the directorships held in other companies, in order to ensure they can perform their duties properly. European countries have imposed this mandate in different ways (Braiotta and Zhou, 2008). For instance, France, Germany, and the United Kingdom limit directors to a maximum of four, three, and one directorships, respectively. On the other hand, Spain and Italy only require sufficient dedication to the duties involved.

The literature reports both positive and negative effects of multi-directorships. On the positive side, multi-directorships can have a reputation effect, signalling that directors evidence the ability to fulfil their duties. Resource-based theory suggests that directors who sit on multiple boards provide valuable resources that influence corporate decisions. These directors may have richer experience, connections, or expertise that can improve the decision-making process. In this line, prior research shows that, at lower levels, committees containing members who have multiple appointments tend to mitigate discretionary accruals (Dhaliwal, et al., 2010, Fich and Shivdasani, 2006). In addition, directors are interested in preserving their reputation. This motivates them to perform their duties as directors in order to improve the quality of the financial information as an output of the audit committee (Masulis and Mobbs, 2011, Sharma, 2011). On the negative side, a dedication effect may

occur, since belonging to too many boards might harm directors' dedication and negatively affect their work.

Most of the literature confirming this dedication effect has analysed the impact on firm performance, whilst only a few studies have focused on earnings management. This accounting literature echoes the twofold approach, although the results are conditional on the kind of earnings management under consideration (real vs. accounting). Thus, while Yang and Krishnan (2005) find that multiple directorships reduce earnings management, Garven (2015) and Sun, et al. (2014) report the opposite results in US firms.

The research has also looked at some emerging countries, yet there is a surprising dearth of studies for Europe (Baccouche, et al., 2013, Baccouche and Omri, 2014). Some examples of these studies that reflect the conflicting results are Baatour, et al. (2017) for Arabia, Banderlpe II (2009) for the Philippines, Saleh, et al. (2005) and Mansor, et al. (2013) for Malaysia, and Sarkar, et al. (2008) for India. As far as European countries are concerned, the scant empirical evidence has also failed to provide conclusive results. In this vein, for a sample of French firms, Baccouche and Omri (2014) find that accumulating several outside directorships by audit committee members leads to a higher degree of earnings management. In contrast, De Vlamincck and Sarens (2015) report a positive association between the proportion of audit committee members holding more than three directorships and financial statement quality.

Unlike previous research that advocates either a beneficial or a detrimental influence of multi-directorships, we posit that the positive and negative effects of multi-directorships may act in tandem: the reputation effect may initially prevail until the number of directorships reaches a threshold, after which the dedication effect takes over. Our first hypothesis may be broadly stated as follows:

*H1: Audit committee members' outside directorships are related to earnings quality.*

Prior literature has examined the role of expertise in the different audit committee functions. Zhang, et al. (2007) establish a negative association between financial expertise and weakness in the internal control of US firms. The evidence suggests that audit committees with greater financial expertise are more likely to seek higher levels of external audit (Chen and Zhou, 2007, Chen, et al., 2005), pay higher fees (Vafeas and Waagelein, 2007, Zaman, et al., 2011), and switch from permissible auditor-provided tax services to non-auditor-provided tax services (Albring, et al., 2014). For US firms, Bedard, et al. (2004) find that audit committee member expertise is negatively associated with aggressive earnings management. Other studies show that expertise is positively correlated with accounting conservatism (Krishnan and Visvanathan (2008), as well as smaller discretionary current accruals ((Xie, et al., 2003). Dhaliwal, et al. (2010) find for US firms that expertise is positively associated with accruals quality, while Liu, et al. (2014) report that US firms with experts on the audit committee exhibit less expectations management and less earnings surprises through expectations management. Abernathy, et al. (2013) find that firms with high audit expertise have more accurate and less dispersed earnings forecasts. Using meta-analysis, Bilal, et al. (2018), Inaam and Khamoussi (2016), and Lin and Hwang (2010) confirm most of these findings.

Although most US-based studies show strong support for the positive impact of audit committee expertise on earnings quality, evidence from non-American firms is not as consistent. Whereas Habbash, et al. (2013) fail to find any significant association between financial expertise and absolute discretionary accruals for British firms, Lo, et al. (2010) and Siam, et al. (2018) report that Chinese and Jordanian firms with financial experts on the audit committee are less likely to manage earnings. De Vlamincx and Sarens (2015), Piot and Rémi (2007), and Baxter and Cotter (2009) find that certain characteristics of audit committee members in Belgian, French, and Australian firms, respectively, are associated with financial statement quality. However, they fail to find any evidence to support the hypothesis related to directors' expertise.

The definition of a financial expert is a key question when examining the influence of expertise, and the varying answers provided in the literature may go some way towards explaining the diverse results (Bilal, et al., 2018). Early research identified audit committee expertise with directors who have a corporate or investment banking background (Xie, et al., 2003), serve on another audit committee (Karamanou and Vafeas, 2005), or hold multiple directorships (Baccouche, et al., 2013). The Sarbanes-Oxley Act of 2002 provides one of the seminal definitions of financial expert. However, following criticism that the definition was too restrictive, the Securities and Exchange Commission (2003) amended the language so as to embrace the notion that directors can gain expertise through experience supervising employees with financial reporting responsibilities, overseeing the performance of companies, and other relevant experience.<sup>31</sup>

Several studies subsequent to these initial legal definitions sought to measure audit committee member expertise more accurately. Bedard, et al. (2004) were among the first to differentiate expertise by type, such as financial expertise and governance expertise. Similarly, Albring, et al. (2014) and Zhang, et al. (2007) separate financial expertise into accounting and non-accounting expertise, while Hoitash, et al. (2009) consider accounting and supervisory financial expertise. As shown by the meta-analysis of Bilal, et al. (2018), accounting financial experts have a stronger relationship with earnings quality than non-accounting financial experts. Furthermore, according to Zalata, et al. (2018), when financial experts are split by gender, only female financial experts constrain earnings management. Krishnan and Visvanathan (2008), Sun, et al. (2012), Dhaliwal, et al. (2010), and Abernathy, et al. (2013) go a step further by categorizing non-financial expertise, in addition to

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<sup>31</sup> The US Securities and Exchange Commission defines the concept of financial expert as the person who (i) understands generally accepted accounting principles and financial statements; (ii) has the ability to assess such principles in relation to accounting estimates, provisions, and reserves; (iii) has experience preparing, auditing, analysing, or evaluating financial statements with the same complexity as those expected in their role of director; (iv) understands internal control mechanisms; and (v) understands the functions of the audit committee.

financial accounting and non-accounting expertise. This classification is in line with Badolato, et al. (2014) who define three areas of expertise: accounting, supervisory, and finance.

European Directive 2014/56/EU qualifies the minimum competences that audit committees should cover. This Directive is especially relevant because, for the first time, it included audit expertise as a specific skill that directors should possess<sup>32</sup>. Up to that point, the regulation<sup>33</sup> had only considered general accounting expertise in the audit committee. Member states have also included specific references in their national transpositions. In this vein, Germany requires some knowledge and experience in accounting and auditing. In Spain, at least one director of the audit committee must be appointed considering the member's knowledge and experience in accounting, auditing, or both. Similarly, the European Central Bank (2018) has separated the theoretical experience of decision-makers by distinguishing between accounting and audit experience. Thus, a new dimension of expertise seems to be emerging: audit expertise. This new type of expertise, which differs from accounting expertise, may play a complementary and specific role. Thus, we state our hypothesis concerning the impact of expertise as follows:

*H2: Audit committee member audit expertise is positively related to earnings quality.*

### **4.3. Empirical design**

#### **4.3.1. Sample**

Initially, we identify all the firms listed in the most representative stock exchange indexes in the largest countries of the European Union in terms of GDP and stock market capitalization: France,

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<sup>32</sup> Paragraph 24 Directive 2014/56/EU mandates that "it is particularly important to reinforce the technical competence of the audit committee by requiring that at least one of its members have competence in auditing and/or accounting".

<sup>33</sup> The members of the audit committee should, collectively, have a recent and relevant background in and experience of finance and accounting for listed companies appropriate to the company's activities. (Recommendation 2005/162/EU).

Germany, Italy, Spain, and the United Kingdom<sup>34</sup> (245 firms). We obtain our final sample by applying several filters to the data so as to ensure the most comprehensive and reliable information possible. We then identify and compile the curricula vitae for all audit committee members in these companies between 2006 and 2013. This information was hand-collected from the firms' annual reports and, where necessary, by looking at other public sources such as *Bloomberg Business Week* and the official websites of other companies where these directors served.

We then standardise and typify the information on director qualifications included in the curricula vitae. Specifically, we use big data techniques to extract and consolidate all the words related to directors' background, experience, and expertise.<sup>35</sup> We identify over 600 topics related to academic degrees, work experience, and involvement in public activities. Of these topics, we include university studies; an MA or PhD degree; previous experience as CEO; accounting skills; economic knowledge; previous experience as an external auditor; previous experience as a consultant; activity in politics, diplomacy, or government as a senior officer; and professional experience abroad. We assign a score to each director for each item in order to assess their expertise in different fields. In addition, we examine each director's curriculum vitae so as to obtain the number of outside directorships held in a given year.

We build the final sample by aggregating the information on the audit committee members. In order to ensure data reliability, for a given firm to be included in a given year we require all the information to be available for all the audit committee members in that year. Since not all curricula vitae contain the required data, the number of firms with available information comes down to 142

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<sup>34</sup> These indexes are the IBEX-35 (35 Spanish firms), DAX (30 German firms), CAC-40 (40 French firms), FTSE MIB (40 Italian firms), and FTSE-100 (100 UK firms).

<sup>35</sup> Big data techniques are very helpful given the different languages and terms used to express analogous expertise or qualifications such as "auditor," "auditeur," "Prüfer," "revisore," and so on.

firms (France, 26; Germany, 24; Italy, 16; Spain, 20, and the United Kingdom, 56)<sup>36</sup>. We complete director-level information with firm-level financial information from the consolidated financial statements from the Bloomberg database.

**Table 1. Number of observations and audit committee members by year and country**

Panel A (Panel B) provides the number of observations (audit committee members) by year and country.

	2006	2007	2008	2009	2010	2011	2012	2013	Total
Panel A. Number of observations									
France	15	15	15	15	10	11	24	21	126
Germany	15	18	18	22	22	21	24	22	162
Italy	12	12	11	13	14	16	14	14	106
Spain	11	15	14	16	17	16	16	19	124
United Kingdom	33	38	40	40	38	28	41	35	293
<b>Total</b>	<b>86</b>	<b>98</b>	<b>98</b>	<b>106</b>	<b>101</b>	<b>92</b>	<b>119</b>	<b>111</b>	<b>811</b>
Panel B. Number of audit committee members									
France	57	59	59	62	46	50	105	97	535
Germany	77	89	91	116	111	111	124	115	834
Italy	66	65	61	77	72	73	68	76	558
Spain	43	57	57	64	68	62	64	82	497
United Kingdom	145	165	165	163	154	112	173	148	1,225
<b>Total</b>	<b>388</b>	<b>435</b>	<b>433</b>	<b>482</b>	<b>451</b>	<b>408</b>	<b>534</b>	<b>518</b>	<b>3,649</b>

After this process, we gather a sample of 811 firm-year observations from the 142 firms for the period 2006–2013. Given that our research includes two levels of analysis (firm level and director level), we individually examine the professional information of 1,054 directors who have 3,649 firm-year directorships. Table 1 provides the distribution of the sample by years and countries.

#### 4.3.2. Variables

Consistent with our aim, we operationalize audit committee competence by member dedication and expertise. To some extent the two characteristics are not unrelated because directors serving on other corporate boards can obtain some expertise (Bedard, et al., 2004, Bryan, et al., 2013).

<sup>36</sup> To assess the comprehensiveness of our sample, we compare it with samples from other studies on audit committee expertise such as the 2,484 firm-year observations in Abernathy, et al. (2013), 203 firms in Albring, et al. (2014), the 3,451 firm-year observations in Bedard, et al. (2004), 702 directors in DeFond, et al. (2005), the 770 firm-year observations in Dhaliwal, et al. (2010), the 3,590 firm-year observations in Erkens and Bonner (2013), the 3,218 audit committee members in Krishnan and Lee (2009), the 633 firm-year observations in Krishnan and Visvanathan (2008), the 423 firm-year observations in Kusnadi, et al. (2016), and the 98 firms in Sun, et al. (2012).

Consequently, we run two separate models for each of the hypotheses. We use the number of multiple directorships (DIRECTORSHIPS) to assess dedication which, in line with previous research, we measure as the average number of outside boards on which the directors of a given committee sit in the same year (Baccouche, et al., 2013, De Vlaminck and Sarens, 2015, Jiraporn, et al., 2008, Jiraporn, et al., 2009).

In order to measure director expertise, we compute four kinds of expertise: audit, non-audit accounting, financial, and supervisory (Abernathy, et al., 2013, Badolato, et al., 2014). We further the work of prior literature on accounting expertise by distinguishing between general (non-audit) accounting expertise and specialised audit expertise. To some extent, this choice has been supported by the European Central Bank (2018), which requires members of the decision-making bodies of financial institutions to have differentiated experience in accounting and auditing. Thus, we define ACCOUNT as the proportion of directors on the audit committee who have accounting expertise based on their education (i.e., bachelor, master, or doctoral degree in accounting) or professional background (e.g., certified public accountant, chief financial officer, chief account officer, accountant). Audit expertise (AUDIT) is defined as the proportion of audit committee members who have experience as external auditors or in internal audit departments (Habbash, et al., 2013). Financial expertise (FINANCIAL) is defined as the proportion of audit committee members who have held a position in economics, investment banking, chartered financial analysis, or any similar post (DeFond, et al., 2005, Zhang, et al., 2007). We define supervisory expertise (CEO) as the proportion of audit committee members who have served as a chief executive officer, since it proxies their ability to supervise (Dhaliwal, et al., 2010). The translations into English of the terms in several languages (Spanish, Italian, French and German) used to classify the four dimensions of expertise are summarized in Table 2.



**Table 2. Identification of each type of expertise**

Accounting	Accountant
	Bachelor, master, or doctoral degree in accounting
	Certified public accountant
	Chief financial officer
	Chief account officer
Audit	Audit firms
	Chief audit executive
	Internal audit departments
Financial	Bachelor, master, or doctoral degree in economics
	Investment banking
	Chartered financial analysis or similar
Supervisory	Chief executive officer or similar

Based on these metrics, we also define four dummy variables, ONEAUDIT, ONEACC, ONEFINAN, and ONECEO, which equal 1 when at least one member of the audit committee has audit, non-audit accounting, financial, or supervisory expertise, respectively, and zero otherwise. These variables enable us to check the effectiveness of regulations that require at least one member of the audit committee to be competent in finance, accounting, or auditing.

We also consider a set of control variables due to their potential influence on earnings management. First, we include four board-related variables: audit committee size, directors' power, board size, and board independence. Audit committee size (ACSIZE) is measured by the total number of members on the committee. We define directors' power (POWER) as the proportion of directors with a political, diplomatic, or senior government officer background. This definition is motivated by the prestige and power requirements approach of Pollock, et al. (2010), who stress the position of authority within a social organization or institution, and Badolato et al. (2014), who focus on audit committee member status. Board size (BSIZE) is measured by the total number of members on the board. Finally, board independence (INDEP) is measured by the proportion of independent directors

within a board. We also control for the tenure of the external auditor (TENURE), measured as the number of years.

Second, we include a number of firm-level financial variables. One of the underlying reasons is to control for the litigation risk (Krishnan and Krishnan, 1997). Edwards (2019) asserts that expert directors are particularly important when the firm faces risks that are difficult to quantify or measure, but that may result in important losses. Auditor litigation risk is affected by client firm size, the variability of the firm's returns, the receivables, and the inventory, among others<sup>37</sup>. Firm size (ASSET) is calculated as the log of total assets; variability of a firm's returns (VARIAB) is operationalized using the variance of residuals obtained from regressing daily firm stock returns against a market index for a six-month period<sup>38</sup>. RECEIV is the ratio of accounts receivable to total assets; and INVENT is the ratio of inventory to total assets ratio. We also control for financial leverage (LEV) -measured as the ratio of total debt to total assets-, profitability (ROA) -the return on assets- firm value (MTB) –the market-to-book ratio-. Finally, we use a set of year and country dummies to control for time and country effects, respectively<sup>39</sup>.

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<sup>37</sup> Auditor tenure has also been shown to be related to litigation risk, which confirms the need to control for this issue. The aforementioned authors consider that the receivables and inventory accounts represent an important part of the firm's financial statements, and that there is a high risk for the auditor in this valuation. They also consider that companies which have very variable returns will have a higher probability of losses and, therefore, of legal action against the auditor.

<sup>38</sup> As explained by Stice (1991), the underlying reason is that the higher the variability of a firm's returns, the higher the probability of major decreases and increases in stock price, and the greater the perceived benefit of legal action against the auditor.

<sup>39</sup> We do not include industry dummy variables because we control for industry specific issues when computing discretionary accruals.

**Table 3. Descriptive statistics of the main variables**

This table provides the mean, standard deviation, and quartiles of the variables. DACC is the measure of discretionary accruals; DIRECTORSHIPS is the average number of outside directorships of board members; ACCOUNT is the proportion of AC members with accounting expertise; AUDIT is the proportion of audit committee members who have experience as an external auditor; FINANCIAL is the proportion of audit committee members who have previous experience in economics and finance; CEO is the proportion of audit committee members who have experience as CEO; ONEACC, ONEAUDIT, ONEFINAN, and ONECEO are dummy variables that equal 1 when the AC has at least one accounting, auditing, finance or supervisory expert, respectively, and that equal zero otherwise; ACSIZE is the total number of directors on the audit committee; POWER is the proportion of directors with a political, diplomatic or senior government official background; ACSIZE is the total number of directors on the audit committee; ASSET is the logarithm of total sales; LEV is the ratio of total debt to total assets; ROA is the return on assets; MTB is the market to book ratio; TENURE is the duration of the relation with the external auditor. BSIZE is the total number of board members; INDEP is the proportion of independent directors on the board; VARIAB is the variability of a firm's return; RECEIV is the accounts receivable to total assets ratio; and INVENT is the inventory to total assets ratio.

	Mean	Std. Dev.	Q1	Median	Q3
DACC	0.116	0.629	0.001	0.004	0.020
DIRECTORSHIPS	1.748	1.119	0.000	2.000	2.333
ACCOUNT	0.438	0.318	0.200	0.400	0.667
AUDIT	0.078	0.130	0.000	0.000	0.200
FINANCIAL	0.588	0.289	0.331	0.600	0.800
CEO	0.328	0.287	0.000	0.330	0.500
ONEACC	0.838	0.368	1.000	1.000	1.000
ONEAUDIT	0.308	0.462	0.000	0.000	1.000
ONEFINAN	0.948	0.221	1.000	1.000	1.000
ONECEO	0.707	0.455	0.000	1.000	1.000
ACSIZE	4.499	1.238	4.000	4.000	5.000
POWER	0.112	0.159	0.000	0.000	0.200
ASSET	16.685	1.203	15.833	16.751	17.542
LEV	0.660	0.153	0.553	0.677	0.770
ROA	0.114	0.070	0.082	0.112	0.143
MTB	3.947	5.735	2.251	3.141	4.430
TENURE	8.381	3.683	6	9	11
BSIZE	12.928	3.625	10	12	15
INDEP	0.565	0.173	0.455	0.556	0.667
VARIAB	0.010	0.068	0.0001	0.0003	0.0005
RECEIV	0.113	0.084	0.059	0.100	0.154
INVENT	0.072	0.064	0.015	0.059	0.115

In Table 3, we summarize the main descriptive statistics of all the variables. The mean (median) number of outside directorships of board members is around 1.7 (2). These findings are very

similar to those reported by Badolato, et al. (2014) for US firms, and slightly lower than those reported by Baccouche, et al. (2013) and De Vlaminck and Sarens (2015) for French and Belgian firms, respectively. Almost all firms (94.8%) have at least one financial expert on the audit committee. A majority of firms (83.8%) have a non-audit accounting expert and a supervisory expert (70%), and only 30% of firms have a former auditor on the audit committee. Accounting experts make up 43.8% of directors. The proportion of ex-auditor directors is around 10%, and the average proportion of directors with financial expertise is 59%. Finally, the mean of directors with CEO experience is 33%.<sup>40</sup>

Table 4 reports the correlation matrix among the variables. The literature generally considers multicollinearity to be a problem if the correlation between the independent variables is above 0.7 (Cooper and Schindler, 2003). Although the correlation coefficients are, in general, below 0.7, we compute the variance inflation factor (VIF) to test the lack of multicollinearity in our estimates, and we find that VIF values are all below 2. Given that a lack of multicollinearity is broadly accepted when VIF values are under 5 (Studenmund, 1997), we determine that multicollinearity is not an issue with our sample.

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<sup>40</sup> These findings are similar to those of prior research. Albring et al. (2014) find that 42% of directors are accounting experts; Abernathy et al. (2013) report that 14% of directors are ex-auditors and that 61% have financial expertise; and Badolato et al. (2014) show that 30% of directors have CEO experience.

**Table 4. Correlation matrix**

This table provides the pairwise correlation coefficients between the main variables. DACC is the measure of discretionary accruals; DIRECTORSHIP is the average number of outside directorships of board members; ACCOUNT is the proportion of the AC members with non-audit accounting expertise, AUDIT is the proportion of AC members who have experience as an external auditor; FINANCIAL is the proportion of AC members who have previous experience in economics and finance; CEO is the proportion of AC members who have experience as a CEO; ACSIZE is the total number of directors on the audit committee; POWER is the proportion of directors with a political, diplomatic or senior government officer background; ASSET is the logarithm of total sales; LEV is the ratio of total debt to total assets; and ROA is the return on total assets. MTB is the market to book ratio; TENURE is the duration of the relation with the external auditor. BSIZE is the total number of board members; INDEP is the proportion of independent directors on the board; VARIAB is the variability of a firm's return; RECEIV is the accounts receivable to total assets ratio; and INVENT is the inventory to total assets ratio.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
(1) DACC																
(2) DIRECTORSHIP	-0.020															
(3) ACCOUNT	0.061	0.055														
(4) AUDIT	0.004	-0.012	0.041													
(5) FINANCIAL	-0.026	-0.088	0.261	-0.003												
(6) CEO	0.130	0.107	-0.027	-0.030	-0.212											
(7) ACSIZE	-0.066	0.175	-0.060	0.087	0.052	-0.240										
(8) ASSET	-0.064	0.282	-0.187	0.049	-0.069	-0.060	0.201									
(9) LEV	-0.076	-0.031	-0.013	0.189	0.063	-0.139	0.094	0.161								
(10) ROA	0.053	0.005	0.071	-0.065	-0.014	-0.032	0.020	-0.122	-0.246							
(11) MTB	-0.003	-0.039	0.012	0.018	-0.031	-0.065	0.015	-0.044	0.286	0.078						
(12) TENURE	0.128	0.072	-0.004	-0.069	-0.191	0.101	-0.016	0.003	-0.125	-0.005	-0.025					
(13) BSIZE	-0.118	0.181	-0.229	-0.035	-0.193	-0.265	0.297	0.508	0.255	-0.120	0.006	0.065				
(14) INDEP	0.076	0.105	0.004	-0.059	-0.108	0.271	0.069	0.146	-0.210	0.017	-0.044	0.061	-0.254			
(15) VARIAB	-0.015	-0.005	-0.008	0.016	-0.020	-0.032	0.036	0.004	0.002	0.004	0.011	-0.056	0.031	-0.021		
(16) RECEIV	-0.049	-0.022	0.039	0.015	-0.031	-0.074	0.027	-0.230	0.120	0.006	-0.019	0.029	0.076	-0.099	-0.041	
(17) INVENT	0.031	0.002	0.044	-0.066	-0.009	0.078	0.057	-0.222	-0.114	-0.003	-0.032	-0.068	-0.088	0.107	0.036	0.252
VIF	1.09	1.15	1.15	1.27	1.25	1.21	1.65	1.22	1.18	1.13	1.10	1.72	1.35	1.05	1.20	1.18

### 4.3.3. Method

Although the literature has failed to reach any specific conclusion with regard to what earnings quality actually is, evidence from the field points to the importance of earnings management. In their large-scale survey of CFOs, Dichev, et al. (2013) underline the prominent role played by earnings management as one of the main factors in firm performance misrepresentation. This focus is in line with the comprehensive survey carried out by Dechow and Skinner (2000), who provide both academic- and practitioner-related evidence of earnings management. Thus, and keeping in mind that no measure of earnings quality is superior for all decision models, we use accounting earnings management as our measure of earnings quality (Almarayeh, et al., 2020, Dechow, et al., 2010).

The literature provides a number of accruals models to detect the discretionary component of earnings management. Dechow, et al. (2010) review earnings management literature and find that the most commonly used accruals models are the Jones (1991) model, the modified Jones model (Dechow, et al., 1995), the Jones model adjusted to ROA (Kothari, et al. (2005), and the cash flow model (Dechow and Dichev (2002). We compare these accruals models to calculate earnings management.

In order to determine which model has the smallest margin of error, we calculate discretionary accruals based on each of the four models and then apply a specification test and a power test. We base these tests on calculating the number of times that Type I and Type II errors occur for each estimated model, following the method of Brown and Warner (1985). According to these results, the cash flow model performs better than the other models. We therefore use the performance-adjusted cross-sectional cash flow model (Dechow and Dichev, 2002).

Our measure of accruals quality is based on the standard deviation of residuals from firm-specific regressions of changes in working capital accruals on lagged, current, and future cash flows

from operations. Operating cash flows are defined as net income adjusted to a cash basis using changes in depreciation, amortization, accounts receivable, and accounts payable. We calculate industry-specific expected accruals using all firms with the same two-digit SIC code, conditional on having at least six year-industry observations with usable data in each SIC group. This model is

$$\frac{TA}{ATA_{i-1}} = \frac{\beta_0}{ATA_{i-1}} + \beta_1 \left( \frac{CFO_{t-1}}{ATA_{i-1}} \right) + \beta_2 \left( \frac{CFO_t}{ATA_{i-1}} \right) + \beta_3 \left( \frac{CFO_{t+1}}{ATA_{i-1}} \right) + e \quad (1)$$

where TA is total accruals; CFO is the cash-flow from operations;  $e$  is the error term, which represents discretionary accruals; and  $t$  represents the year. We scale all variables by average total asset (ATA).

As is common in this kind of research, we divide our investigation into two stages. First, we estimate total accruals and compute the discretionary component using equation (1). Second, we analyse the relation between discretionary accruals and our independent variables, with the absolute value of discretionary accruals (DACC) as the dependent variable. Given our assumption that the positive and negative effect of multi-directorships are not mutually exclusive, we test a non-linear relation that introduces both effects simultaneously. The general model is

$$DACC_{i,t} = \beta_0 + \beta_1 DIRECTORSHIPS + \beta_2 DIRECTORSHIPS^2 + \beta_3 AUDIT + \beta_4 FINANCIAL + \beta_5 CEO + \sum \beta_i CV + \mu_i + \varepsilon_{it}, \quad (2)$$

where  $\beta_0$  is the intercept,  $\beta_i$  is the coefficient of each independent variable, and CV are the control variables.  $i$  identifies the individual and  $t$  identifies the year;  $\mu_i$  represents the fixed individual effect; and  $\varepsilon_{it}$ , the stochastic error. The stochastic error term combines both the measurement error of any independent variable and the omission of explanatory variables.

Our database combines time-series and cross-sectional data to form panel data. We use the Hausman test to determine whether a fixed effects or random effects estimation model is the most suitable. We verify the assumptions underlying the regression model for all the models and find no

problems of multicollinearity and heteroscedasticity. We test for the lack of heteroscedasticity using the Breusch–Pagan or Cook–Weisberg tests.

#### **4.4. Results**

Table 5 reports the results on the impact of multiple directorships on earnings management (i.e., the dedication effect). We run a non-linear specification of the model. The negative coefficient of DIRECTORSHIPS and the positive coefficient of DIRECTORSHIPS<sup>2</sup> confirm a U-shaped relation, with the lowest point being at around two outside board directorships. Our findings thus indicate that serving on less than two boards is related to a reduction in discretionary accruals. The underlying rationale is that economies of scale are in play, such that audit committee member experience on other boards enables them to learn how to work more efficiently. Nevertheless, because directors are charged with carefully controlling the financial information process in the firm, a high number of outside directorships reduces the dedication of directors and thus their ability to monitor the preparation of financial statements. Consistent with Baccouche and Omri (2014), our results suggest that when audit committee members belong to too many boards, they can become swamped and ineffectively mitigate earnings management. This result corroborates the guideline of the European Central Bank (2018) which advocates limiting the number of directorships that a member of the management body of a financial institution may hold at the same time in different entities.



**Table 5. Multiple directorships and discretionary accruals**

This table provides the estimated coefficients (standard error) of equation (2). The dependent variable is DACC, a measure of discretionary accruals; DIRECTORSHIP is the average number of outside directorships of board members; POWER is the proportion of directors with a political, diplomatic or senior government official background; ACSIZE is the total number of directors on the audit committee; ASSET is the logarithm of total sales; LEV is the ratio of total debt to total assets; ROA is the return on assets; MTB is the market to book ratio; TENURE is the duration of the relation with the external auditor. BSIZE is the total number of board members; INDEP is the proportion of independent directors on the board; VARIAB is the variability of a firm's return; RECEIV is the accounts receivable to total assets ratio; and INVENT is the inventory to total assets ratio. \*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

DIRECTORSHIP	-1.094** (0.439)
DIRECTORSHIP2	0.290** (0.121)
POWER	-1.255 (1.372)
ACSIZE	-0.133 (0.219)
ASSET	1.221* (0.645)
LEV	1.874 (3.392)
ROA	10.023*** (3.563)
MTB	0.173 (0.142)
TENURE	0.087 (0.067)
BSIZE	-1.441** (0.655)
BSIZE <sup>2</sup>	0.056** (0.025)
VARIAB	0.132 (1.936)
RECEIV	-10.766** (4.887)
INVENTORY	-0.578 (10.093)
Observations	618
Adjusted R-squared	0.120
F-test	3.081***

As regards the control variables, the size of the board (BSIZE) also has a U-shaped relationship with abnormal accruals, with the lowest point being reached at around 13 directors. Both the firm's size and performance display a positive and significant coefficient, whereas the receivables coefficient has a negative relationship with earnings management.

We then address the association between directors' expertise (non-audit accounting, audit, financial, and supervisory expertise) and earnings management. Table 6 reports the results. We first run a model in which the dummy variables for the presence of at least one person with each kind of expertise are introduced (Model 1). Accounting, financial, audit, and supervisory expertise are not relevant. Thus, having at least an accounting, CEO, finance expert or former auditor on the audit committee *per se* does not mean lower earnings management. This result is consistent with Bilal, et al. (2018), whose analysis confirms the need to require at least two financial experts in the audit committee. In turn, our results suggest that the legal requirement of having at least one financial or accounting expert does not translate into more reliable financial statements (in terms of earnings management). We then run another analysis with the proportion of experts as continuous variables (Model 2 in Table 5). In this model, we simultaneously analyse the four types of expertise. Our results suggest that only audit expertise is relevant to reducing earnings management. Interestingly, our findings show that accounting expertise lacks any significance. This result is in line with Naiker and Sharma (2009), who also argue that audit experience helps to reduce discretionary accruals. However, accounting (non-audit), financial, and supervisory experience do not mitigate earnings management. The difference between the results with dummy and continuous metrics of expertise has been explained by Bilal, et al. (2018), who show that the different measures of audit committee financial expertise moderate the relationship between expertise and earnings quality. In Column 3, we report the results of the model isolating audit experience as a measure of expertise. We have run similar analyses with the other measures of expertise. Given the lack of significance, the results are not tabulated. Model 3 confirms the relevance of audit expertise vis-à-vis reducing earnings management.

**Table 6. Directors' expertise and discretionary accruals**

This table provides the estimated coefficients (standard error) of equation (2). The dependent variable is DACC, a measure of discretionary accruals; ONEACC, ONEAUDIT, ONEFINAN, and ONECEO are dummy variables that equal 1 when the AC has at least accounting, auditing, finance or supervisory expertise, respectively, and that equal zero otherwise; AUDIT is the proportion of audit committee members who have experience as an external auditor; CEO is the proportion of audit committee members who have experience as a CEO; ACCOUNT is the proportion of audit committee members with accounting expertise; FINANCIAL is the proportion of audit committee members who have previous experience in economics and finance; POWER is the proportion of directors with a political, diplomatic or senior government official background; ACSIZE is the total number of directors on the audit committee; ASSET is the logarithm of total sales; LEV is the ratio of total debt to total assets; ROA is the return on assets; MTB is the market to book ratio; TENURE is the duration of the relation with the external auditor. BSIZE is the total number of board members; INDEP is the proportion of independent directors on the board; VARIAB is the variability of a firm's return; RECEIV is the accounts receivable to total assets ratio; and INVENT is the inventory to total assets ratio. \*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

	(1)	(2)	(3)
ONECEO	0.399 (0.337)		
ONEACC	0.095 (0.446)		
ONEFINAN	-0.612 (0.465)		
ONEAUDIT	0.191 (0.142)		
CEO		-0.958 (1.971)	
ACCOUNT		-6.416 (12.835)	
FINANCIAL		9.203 (12.534)	
AUDIT		-6.251* (3.445)	-6.329** (3.100)
POWER	-0.565 (0.841)	-1.217 (2.578)	-2.546 (2.184)
ACSIZE	0.055 (0.121)	0.498 (0.386)	0.493 (0.359)
ASSET	0.061 (0.324)	1.751 (1.211)	1.383 (1.046)
LEV	-1.309 (1.921)	0.912 (6.599)	1.003 (5.485)
ROA	-1.041 (1.630)	6.858 (6.059)	0.939 (5.442)
MTB	0.001 (0.010)	0.443* (0.254)	0.013 (0.035)
TENURE	-0.006 (0.038)	0.106 (0.127)	0.085 (0.111)
BDSIZE	0.476 (0.434)	0.665 (1.254)	2.071 (1.372)
BSIZE <sup>2</sup>	-0.014 (0.016)	-0.026 (0.050)	-0.073 (0.052)

(Continued on next page)

**Table 6. Directors' expertise and discretionary accruals**

This table provides the estimated coefficients (standard error) of equation (2). The dependent variable is DACC, a measure of discretionary accruals; ONEACC, ONEAUDIT, ONEFINAN, and ONECEO are dummy variables that equal 1 when the AC has at least accounting, auditing, finance or supervisory expertise, respectively, and that equal zero otherwise; AUDIT is the proportion of audit committee members who have experience as an external auditor; CEO is the proportion of audit committee members who have experience as a CEO; ACCOUNT is the proportion of audit committee members with accounting expertise; FINANCIAL is the proportion of audit committee members who have previous experience in economics and finance; POWER is the proportion of directors with a political, diplomatic or senior government official background; ACSIZE is the total number of directors on the audit committee; ASSET is the logarithm of total sales; LEV is the ratio of total debt to total assets; ROA is the return on assets; MTB is the market to book ratio; TENURE is the duration of the relation with the external auditor. BSIZE is the total number of board members; INDEP is the proportion of independent directors on the board; VARIAB is the variability of a firm's return; RECEIV is the accounts receivable to total assets ratio; and INVENT is the inventory to total assets ratio. \*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

	(1)	(2)	(3)
INDEP	-0.355 (0.988)	1.138 (3.434)	1.650 (3.319)
VARIAB	0.357 (1.375)	2.059 (5.308)	2.801 (4.380)
RECEIV	-3.948 (2.644)	-11.204 (9.352)	-6.675 (8.959)
INVENTORY	-0.792 (5.027)	-0.491 (18.294)	-5.077 (17.311)
Observations	328	540	529
Adjusted R-squared	0.257	0.150	0.163
F-test	1.574**	2.405***	2.387***

The lack of significance of accounting expertise requires further clarification given prior contradictory evidence, primarily from the United States. Unlike previous research, we analyse accounting expertise and audit expertise separately. Thus, whether the effect of accounting expertise found in other studies is due to audit or non-audit accounting expertise is unknown. We explicitly show that accounting expertise, as it is broadly defined, is too vague and that only audit expertise is relevant in terms of reducing earnings management.

Thus our evidence for the European argument is not inconsistent with other research in the US environment. For example, DeFond, et al. (2005) find a positive market reaction to the appointment of an accounting expert and no relation to the appointment of a non-accounting expert. Dhaliwal, et al. (2010) also confirm the non-significant association between accruals quality and finance or CEO expertise on the audit committee. Our result is also consistent with Archambeault and

DeZoort (2001), who argue that not all kinds of expertise in the audit committee are negatively related with suspicious auditor switches.

We now address the question concerning factors which may moderate the association between audit committee expertise and earnings management. Dhaliwal, et al. (2010), Krishnan and Visvanathan (2008), and Bilal, et al. (2018) show that some corporate governance characteristics modify the influence of audit experts. We study some characteristics of the audit committee and the board of directors, as well as some financial issues of firms.

As far as corporate governance (board of directors and audit committee) characteristics are concerned, we analyse dedication, size, and activity (Baccouche, et al., 2014, DeZoort and Salterio, 2001, McMullen and Raghunandan, 1996). We operationalize committee dedication through the proportion of full-time directors, board dedication through the number of outside directorships, size through the number of directors, and activity through the number of meetings.

We divide our sample into two groups depending on the average or median values of these characteristics and replicate the analysis considering audit expertise as the independent variable. Tables 7 and 8 report the results. Thus, in columns 1, 3, 5, 7, and 9 of Table 7 we report the results for firms with less than the median proportion of full-time committee members, less than the median outside directorships of board members, a number of members below the median, or whose committees meet less than the median. Similarly, in columns 1, 3, and 5 of Table 8 we run analogous models for firms whose size, profitability and auditor tenure are under the sample median value.

Table 7 identifies the characteristics of the board and the committee that enhance the influence of audit expertise. Directors' audit expertise effectively reduces discretionary accruals when the committee has more full-time members (Models 1 and 2). Thus, audit expertise in the committee seems to be catalysed by more dedication from the incumbents. Results for board member dedication

are somehow different, which may be explained by the measure of dedication (Models 3 and 4). When dedication to the board is measured through the number of outside directorships, audit expertise becomes more relevant when the directors have less time to spend on a given board.

As far as the committee and board size are concerned, directors with audit knowledge can better apply their skills to reduce discretionary accruals in smaller committees (Models 5 and 6) and smaller boards (Models 7 and 8). This finding is consistent with less human capital in these bodies and, in turn, more valuable input provided by former auditors. It could be said that the contribution of former auditors proves particularly valuable when the input provided by other directors is scarcer.

Models 9 and 10 show a negative association between audit expertise and earnings management in less active audit committees (defined as those holding fewer than six meetings per year). Although no mandate exists at the European level vis-à-vis audit committee activity, many European countries have issued rules requiring a minimum meeting frequency.<sup>41</sup> Thus, our findings show that the audit expertise of audit committee members is relevant in less active committees. Taken together, this evidence suggests that the contribution of audit experts to decreasing earnings management is conditional on the characteristics and activity of both the audit committee and the board of directors.

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<sup>41</sup> German and Italian committees must meet at least quarterly. In Spain, France, and the United Kingdom, regular meetings are mandatory.

**Table 7. Director expertise and discretionary accruals**

This table provides the estimated coefficients (standard errors) of equation (2). The dependent variable is DACC, a measure of discretionary accruals; AUDIT is the proportion of audit committee members who have experience as an external auditor; POWER is the proportion of directors with a political, diplomatic or senior government official background; ACSIZE is the total number of directors on the audit committee; ASSET is the logarithm of total sales; LEV is the ratio of total debt to total assets; ROA is the return on assets; MTB is the market to book ratio; TENURE is the duration of the relation with the external auditor. BSIZE is the total number of board members; INDEP is the proportion of independent directors on the board; VARIAB is the variability of a firm's return; RECEIV is the accounts receivable to total assets ratio; and INVENT is the inventory to total assets ratio. \*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

	Dedication of the committee		Dedication of the board		Committee size		Board size		Committee meetings	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
	Lower	Higher	Lower	Higher	Smaller	Bigger	Smaller	Bigger	Lower	Higher
AUDIT	1.969 (3.150)	-15.186** (7.725)	-27.935*** (7.923)	-6.499 (4.588)	-8.503* (4.687)	2.637 (4.424)	-15.591** (6.383)	-1.829 (4.009)	-17.803** (7.179)	3.448 (3.546)
POWER	-2.731 (3.185)	-0.218 (5.228)	-4.469 (7.326)	-3.274 (3.074)	0.242 (3.959)	-0.134 (2.471)	0.690 (6.828)	-3.913* (2.041)	-7.426 (5.485)	-2.302 (2.669)
ACSIZE	0.365 (0.417)	0.926 (0.798)	-0.370 (0.568)	0.956* (0.555)	2.448** (1.067)	-0.039 (0.425)	0.168 (0.869)	0.510 (0.350)	0.612 (0.772)	0.294 (0.446)
ASSET	1.678 (1.347)	6.059** (2.943)	-5.281 (3.516)	1.410 (1.645)	0.655 (1.915)	1.333 (1.363)	-0.292 (3.349)	2.191* (1.274)	11.157*** (3.851)	1.461 (1.361)
LEV	-5.899 (7.508)	3.810 (14.206)	10.161 (10.689)	-1.615 (8.824)	16.014 (11.041)	-15.585** (7.862)	10.460 (19.585)	1.269 (6.189)	-0.826 (12.876)	0.729 (8.093)
ROA	-4.404 (6.324)	9.960 (11.550)	11.799 (13.099)	1.593 (7.401)	19.019* (10.015)	8.793 (5.613)	23.928 (24.291)	-6.367 (4.669)	13.683 (10.541)	5.709 (7.562)
MTB	0.351 (0.299)	0.338 (0.659)	0.497 (0.390)	0.211 (0.394)	0.349 (0.481)	0.380 (0.264)	0.528 (0.685)	0.009 (0.259)	1.154** (0.445)	-0.064 (0.330)
TENURE	0.210 (0.168)	0.029 (0.248)	0.278 (0.258)	0.101 (0.165)	0.094 (0.196)	0.003 (0.118)	0.319 (0.274)	0.057 (0.126)	0.269 (0.335)	0.222* (0.130)
BSIZE	0.449 (1.626)	1.192 (2.348)	-2.527 (2.214)	1.320 (1.771)	2.677 (2.116)	-1.012 (1.380)	-31.188 (31.063)	-2.205 (2.013)	2.725 (2.703)	-1.901 (1.682)
BSIZE <sup>2</sup>	-0.020 (0.065)	-0.025 (0.087)	0.094 (0.087)	0.052 (0.068)	-0.102 (0.087)	0.033 (0.050)	1.757 (1.572)	0.067 (0.068)	-0.113 (0.108)	0.058 (0.065)

(Continued on next page)

**Table 7. Director expertise and discretionary accruals**

This table provides the estimated coefficients (standard errors) of equation (2). The dependent variable is DACC, a measure of discretionary accruals; AUDIT is the proportion of audit committee members who have experience as an external auditor; POWER is the proportion of directors with a political, diplomatic or senior government official background; ACSIZE is the total number of directors on the audit committee; ASSET is the logarithm of total sales; LEV is the ratio of total debt to total assets; ROA is the return on assets; MTB is the market to book ratio; TENURE is the duration of the relation with the external auditor. BSIZE is the total number of board members; INDEP is the proportion of independent directors on the board; VARIAB is the variability of a firm's return; RECEIV is the accounts receivable to total assets ratio; and INVENT is the inventory to total assets ratio. \*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

	Dedication of the committee		Dedication of the board		Committee size		Board size		Committee meetings	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
	Lower	Higher	Lower	Higher	Smaller	Bigger	Smaller	Bigger	Lower	Higher
INDEP	3.665 (4.066)	-1.189 (6.251)	1.737 (5.115)	-0.066 (4.598)	1.140 (5.121)	1.995 (3.683)	0.081 (8.329)	2.286 (3.214)	4.950 (5.869)	-2.748 (4.777)
VARIAB	-0.529 (4.605)	2.584 (15.296)	-3.446 (4.531)	-0.927 (12.619)	0.340 (11.672)	1.701 (3.462)	18.529 (14.333)	-0.470 (4.453)	4.899 (10.399)	0.333 (5.860)
RECEIV	-10.491 (9.817)	12.561 (20.089)	-26.882 (17.285)	-4.719 (14.509)	-5.552 (16.108)	-1.204 (8.342)	-27.682 (30.210)	-4.111 (7.575)	-5.349 (16.917)	-14.296 (12.322)
INVENT	0.816 (26.018)	0.887 (28.910)	44.307 (44.732)	-7.170 (22.097)	12.298 (29.992)	12.358 (20.190)	23.694 (63.473)	-19.862 (14.268)	62.087 (45.410)	-11.167 (19.163)
Observations	285	255	154	382	340	200	225	315	247	289
Adj. R-squared	0.149	0.158	0.190	0.254	0.239	0.505	0.157	0.260	0.130	0.265
F-test	1.560*	1.420	2.219***	1.515*	1.940**	0.758	2.211***	1.484*	2.749***	1.746**



**Table 8. Directors' expertise and discretionary accruals**

This table provides the estimated coefficients (standard error) of equation (2). The dependent variable is DACC, a measure of discretionary accruals; AUDIT is the proportion of audit committee members who have experience as an external auditor; POWER is the proportion of directors with a political, diplomatic or senior government official background; ACSIZE is the total number of directors on the audit committee; ASSET is the logarithm of total sales; LEV is the ratio of total debt to total assets; ROA is the return on assets; MTB is the market to book ratio; TENURE is the duration of the relation with the external auditor. BSIZE is the total number of board members; INDEP is the proportion of independent directors on the board; VARIAB is the variability of a firm's return; RECEIV is the accounts receivable to total assets ratio; and INVENT is the inventory to total assets ratio. \*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

	Firm size		Firm profitability		Audit tenure	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Smaller	Bigger	Lower	Higher	Shorter	Longer
AUDIT	-9.631* (5.479)	-1.989 (4.195)	3.602 (2.775)	-21.747*** (7.587)	-1.594 (3.552)	-19.016*** (6.820)
POWER	-0.293 (6.657)	-2.546 (2.457)	-1.419 (1.857)	-4.206 (5.428)	-0.601 (1.722)	-6.283 (5.026)
ACSIZE	0.413 (0.676)	0.576 (0.426)	0.364 (0.324)	0.099 (0.779)	0.250 (0.254)	0.824 (0.844)
ASSET	5.486 (3.747)	3.190* (1.663)	2.052* (1.174)	6.314 (4.190)	1.626 (1.361)	6.915** (2.989)
LEV	8.175 (13.602)	2.085 (7.581)	-1.216 (6.150)	6.661 (15.980)	-0.011 (6.086)	1.787 (14.106)
ROA	2.487 (11.763)	-6.833 (6.988)	-20.676*** (6.160)	29.599 (20.928)	3.746 (5.913)	-4.595 (11.341)
MTB	0.576 (0.533)	-0.005 (0.315)	0.264 (0.195)	0.267 (0.527)	-0.057 (0.149)	0.451 (0.675)
TENURE	0.197 (0.229)	0.088 (0.138)	0.086 (0.093)	-0.295 (0.326)	0.058 (0.083)	-0.983 (1.325)
BSIZE	7.797** (3.783)	-1.276 (1.670)	0.824 (1.152)	6.450 (4.024)	-0.175 (1.287)	2.110 (2.771)
BSIZE <sup>2</sup>	-0.292* (0.165)	0.037 (0.060)	-0.038 (0.042)	-0.234 (0.158)	0.002 (0.050)	-0.065 (0.105)
INDEP	-0.279 (6.480)	2.433 (3.837)	2.027 (3.034)	-3.657 (6.748)	0.960 (2.769)	3.346 (6.659)
VARIAB	8.750 (11.667)	-0.624 (4.750)	1.233 (3.287)	0.754 (17.324)	1.153 (2.297)	48.208 (219.711)
RECEIV	-4.931 (20.734)	-12.054 (9.892)	-5.494 (6.794)	-21.671 (27.973)	-7.176 (9.349)	-0.442 (23.809)
INVENT	6.969 (42.888)	-11.892 (19.508)	-1.536 (13.135)	6.012 (58.296)	-8.850 (11.257)	-20.774 (47.616)
Observations	252	252	252	252	238	266
Adj. R-squared	0.188	0.137	0.213	0.256	0.596	0.263
F-test	1.87**	1.34	2.34***	2.58***	0.690	2.266***

We replicate this analysis considering different scenarios depending on certain firm characteristics (Table 8). We divide our sample into two groups according to the median value of three

characteristics: firm size, firm profitability, and external auditor tenure<sup>42</sup>. As regards firm size (Models 1 and 2), our findings show that the effect of audit expertise is more important in smaller firms<sup>43</sup>. This result may be due to the fact that the information on large firms is more dispersed in the markets and more available for investors (Siregar and Utama, 2008).

The impact of audit expertise is also affected by company profitability, such that this expertise only reduces earnings management in the most profitable firms (Columns 3 and 4 of Table 8). This result seems counterintuitive since the managers of the least profitable firms are likely to be under more intense pressure to achieve the expected performance levels. Nevertheless, a more in-depth comparison of both groups of firms show that the most profitable firms have more audit experts in the audit committee<sup>44</sup>. Consequently, this higher proportion of audit experts could increase their power of influence. In Columns 5 and 6, we report the results when the sample is split depending on external auditor tenure. Long auditor tenure may be associated with higher levels of earnings management, since it might lead to a more friendly relationship with managers and so threaten auditor independence (Espinosa-Pike and Barrainkua, 2016, Gómez Aguilar, et al., 2018, González-Díaz, et al., 2015, Hohenfels, 2016, Rickett, et al., 2016). In such contexts, the specific audit expertise of the directors is especially relevant with regard to mitigating earnings management. We have run similar estimates for accounting expertise (ACCOUNT). The results are not tabulated for brevity but do show that such expertise is not significant in many cases. These results corroborate the different role of audit expertise relative to accounting expertise.

Finally, in Table 9 we report the results of the sensitivity analysis. One common concern in this kind of research involves the possible endogeneity of the results. We assume that audit committees

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<sup>42</sup> Since the audit tenure is an integer number, in this last case we use the mean value.

<sup>43</sup> The terms “big” and “small” firms must be understood with certain caveats since all the firms in our sample are big enough to be included in the most important stock markets indexes.

<sup>44</sup> The non-tabulated results are available from the authors upon request.

are designed to supervise the development and dissemination of reliable financial information (Ghafran and O'Sullivan, 2013). Nevertheless, the characteristics of the audit committee members (i.e., their dedication and experience) might be affected by the quality of financial information, which could result in a problem of endogeneity. We address this issue using two methods: the Generalized Method of Moments (GMM), and Heckman's two-step method. The GMM procedure allows us to address potential endogeneity problems by using the lagged right-hand-side variables as instruments (Blundell and Bond, 1998). The consistency of GMM estimates depends on both the absence of second-order serial autocorrelation in the residuals and on the validity of the instruments. Thus, in Table 9 we report the Hansen test of over-identifying restrictions and the  $m_2$  statistic for the absence of second-order serial correlation in the first-difference residual. The results reported in Columns 1 and 2 corroborate our two basic sets of results: there is a non-linear relationship between the number of outside directorships and earnings management (Column 1), and the proportion of committee members with audit background is negatively related to discretionary accruals (Column 2).

Our second sensitivity analysis is based on the idea of a two-step decision process. First, firms select the audit committee members and, second, the work of these directors affects earnings management. In this case, the Heckman (1979) two-step estimator is a suitable approach (Wooldridge, 2010). This approach involves estimating a probit model for the selection equation, followed by the inclusion of a correctional factor –the inverse Mills ratio calculated from the probit model–. In the second step, an OLS regression model is applied to estimate the relationship between audit committee competence and discretionary accruals. Thus, we define two dummy variables (whether the number of directorships is above the mean value and whether there is a former auditor in the committee), which will be the dependent variables in the first-stage analysis. We then introduce the inverse Mills ratio as an additional independent variable in our models. The results of the second stage are reported in Columns 3 and 4 of Table 9, and corroborate the consistency of our baseline estimates.

**Table 9. Sensitivity analysis**

This table provides the estimated coefficients (standard errors) of Equation 2. The dependent variable is DACC, a measure of discretionary accruals. Columns 1 and 2 report the GMM estimates, and Columns 3 and 4 the Heckman two-step method. DIRECTORSHIP is the average number of outside directorships of board members; AUDIT is the proportion of audit committee members who have experience as an external auditor; CEO is the proportion of audit committee members who have experience as a CEO; ACCOUNT is the proportion of AC members with accounting expertise; FINANCIAL is the proportion of audit committee members who have previous experience in economics and finance; POWER is the proportion of directors with a political, diplomatic or senior government official background; ACSIZE is the total number of directors on the audit committee; ASSET is the logarithm of total sales; LEV is the ratio of total debt to total assets; ROA is the return on assets; MTB is the market to book ratio; TENURE is the duration of the relation with the external auditor. BSIZE is the total number of board members; INDEP is the proportion of independent directors on the board; VARIAB is the variability of a firm's return; RECEIV is the accounts receivable to total assets ratio; and INVENT is the inventory to total assets ratio. \*\*\* $p$ -value < 0.01. \*\* $p$  < 0.05. \* $p$  < 0.10.

	(1)	(2)	(3)	(4)
DIRECTORSHIP	-5.646*		-1.324**	
	(2.886)		(0.557)	
DIRECTORSHIP <sup>2</sup>	1.846*		0.364**	
	(0.950)		(0.169)	
AUDIT		-34.239**		-7.193**
		(14.910)		(3.449)
CEO		-0.639		-1.482
		(3.423)		(1.973)
ACCOUNT		9.012		-7.569
		(27.374)		(12.773)
FINANCIAL		6.899		10.902
		(25.801)		(12.485)
POWER	5.668	9.862	-1.360	-0.589
	(3.912)	(12.131)	(1.583)	(2.578)
ACSIZE	0.165	1.431	-0.080	0.547
	(0.907)	(1.765)	(0.269)	(0.385)
ASSET	1.333**	-0.475	0.312	5.497***
	(0.658)	(1.533)	(2.007)	(1.990)
LEV	7.619*	0.380	2.799	6.956
	(4.203)	(6.764)	(4.769)	(7.043)
ROA	31.197**	12.758	4.706	104.334**
	(12.196)	(11.775)	(13.607)	(41.664)
MTB	0.098	0.262	0.207	0.314
	(0.278)	(0.473)	(0.187)	(0.259)
TENURE	0.765**	1.740***	-0.183	0.079
	(0.322)	(0.531)	(0.519)	(0.127)
BSIZE	-1.205	-2.439	-1.859**	6.508**
	(2.844)	(4.919)	(0.884)	(2.768)
BSIZE <sup>2</sup>	0.013	0.087	0.074**	-0.362**
	(0.104)	(0.179)	(0.037)	(0.151)
INDEP	2.926	41.726***	-2.411	22.584**
	(5.201)	(14.833)	(4.803)	(9.692)
VARIAB	-9.921	15.535	-4.866	80.201**
	(8.810)	(11.884)	(9.955)	(33.468)
RECEIV	6.872	0.978	-8.680	64.279*
	(12.385)	(22.795)	(7.508)	(33.252)
INVENT	-10.387	43.804*	-8.929	-28.588
	(15.364)	(25.888)	(16.319)	(21.730)
Inverse Mills ratio			8.551	41.679**
			(15.033)	(17.628)
Observations	453	314	513	540
Hansen test (d.f.)	40.17 (51)	49.73 (41)		
m <sub>2</sub>	-0.21	0.82		
Adj. R-squared			0.139	0.135
F-test			2.746***	2.559***

## 4.5. Conclusions

Prior research around the world highlights the role of the audit committee as one of the key mechanisms of corporate governance with regard to improving the quality and reliability of accounting information. As in other geographical and institutional settings, Europe has made a major effort to create a legal framework aimed at strengthening the proper functioning of such committees. Having ensured committee independence, the new international European framework now seeks to improve committee member competence.

We study the effect on the earnings management of two characteristics related to audit committee competence: committee member dedication and expertise. Whereas previous US-based research shows very strong support for the positive impact of audit committee expertise on earnings quality, evidence from other countries remains scarce, fragmented, and inconsistent. In an attempt to fill this gap, we study a sample of 142 firms from France, Germany, Italy, Spain, and the United Kingdom. Given that our research has two levels of analysis (firm level and director/individual level), we individually examine professional information from 1,054 directors (3,649 director-year observations) between 2006 and 2013, previous to European Directive 2014/56/EU, where the concept of audit expertise is expressly included in the audit commission for the first time. Given that it covers an environment which lacks any mandatory requirement on expertise, this time horizon enables us to test the justifiability of the current legal framework.

We measure directors' dedication with the number of outside directorships. Our results show that these directorships display a U-shaped non-linear relation with earnings management. In turn, although multi-directorships may provide a good signal and incentive, a threshold exists (our estimates suggest around two outside directorships) beyond which too many engagements prevent directors from devoting the necessary time and attention to their duties. As regards expertise, we distinguish four types of experience: specialized audit, general accounting, financial, and supervisory expertise.

We find that only specialized audit expertise is relevant in curbing earnings management and that committees with more audit experience are negatively related to earnings management. Furthermore, we find that the requirement for audit committees to have at least one accounting and/or audit expert is not sufficient to reduce earnings management. Our third set of results suggests that certain audit committee characteristics —namely, smaller and less active committees— and board characteristics —namely, smaller and busier— enhance the role of audit experts. These results are consistent with the view that audit expertise is more valuable under certain circumstances of scarce resources. The same can be said for some financial characteristics of the firm —smaller, more profitable and with longer external auditor tenure—.

Taken together, our results support European authorities' efforts aimed at bolstering audit committee qualifications. Specifically, Directive 2014/56/EU requires at least one audit committee member to have competence in auditing and/or accounting. Our results provide further clarification of this audit versus accounting duality. We find that audit and non-audit accounting experts fulfil different functions on the audit committee and that audit experts play a more decisive role in curbing earnings management. In addition, we find that having at least one expert on the audit committee does not guarantee the quality of earnings. Thus, although Directive 2014/56/EU is a step in the right direction, it is not enough. At present, financial supervisors have taken the lead by requiring the members of financial institution management bodies to report the mandates they hold, including the time and number of meetings dedicated to each mandate (ESMA and EBA, 2018). Similarly, the European Central Bank (2018) has separated the theoretical experience of decision-makers by distinguishing between accounting and audit experience.

Our paper suffers from some limitations that could be addressed in the future. We use the absolute value of abnormal accruals taken from successive balance sheet accounts even though this method could imply some measurement errors compared to when measuring accruals directly from

cash flow statements (Hribar and Collins, 2002). Another limitation of our paper is the sample composition, with British firms accounting for a large proportion of the sample. Although we control for country-level issues, we do not control for the extent to which the European Directive is applied at a national scale.

In addition to these limitations, our study provides several directions for future research. First, since we focus on the foundations of the new legal requirements, one interesting question concerns the extent to which such requirements have been proved to be effective by comparing the influence of audit expertise before and after the enactment of the above-mentioned Directive. Second, directors' dedication could be measured using more fine-grained metrics. While we have used the number of directorships, the time or effort required by each directorship may differ and could somehow be included. Another related direction of research is to explore the specific effect of audit expertise relative to general accounting expertise. Future inquiry should examine what former auditors can bring to the audit committee that accounting experts cannot. Given the importance of reputational risk and trustworthiness standards in the audit industry, our results suggest that former auditors bring considerable value to audit committees. Thus, future research should provide new clues concerning the most effective combinations of expertise.

## **5. The right person at the right time: Audit committee members and the quality of financial information.**

### **5.1. Introduction**

Recent high profile corporate scandals such as *Parmalat*, *Société Générale*, *Lehman Brother* or *Bankia* have eroded the public trust in corporate financial information, and called for legal improvements in the audit process (Palazuelos Cobo, Herrero Crespo, & Montoya del Corte, 2017). The role of the audit committee is particularly debated as an enhancer of more reliable financial statements. Most of the new legal rules have in common two basic characteristics of the audit committee: the members' independence and professional competence. But, whereas the literature has provided abundant evidence on the positive effect of the audit committee independence, the qualification calls for further analyses (Monterrey & Sánchez, 2008; Tepalagul & Lin, 2015).

The European Union regulatory framework on statutory audit (mainly Recommendation 2005/162/EC and Directive 2014/56/EU) is an example of this new framework. The Directive 2014/56/EU of the European Parliament on statutory audits acknowledges that audit committees play a decisive role in contributing to high-quality statutory audits, and stresses the technical competence of the members as one of the most important requirements for the committee membership. The European Commission has not issued an explicit definition of audit committee member competence, but the legal framework mandates that directors on the audit committee should possess expertise, and their dedication to the committee must be sufficient to develop their functions. In turn, the qualification of audit committee members seems to be related to two traits: their dedication and expertise.



Regarding their dedication, the members of the audit committee are required to dedicate the time and attention necessary to fulfill their function. Recommendation 2005/162/CE states that members should limit the number of their other professional commitments, particularly directorships held in other companies, to assure the proper performance of their duties. This approach runs parallel to the concern of the European policy makers about the corporate governance framework (European Commission, 2011). Indeed, following the issuance of the Green Paper on corporate governance, in April 2011 the European Commission launched a public consultation and one of the questions dealt with a possible measure at EU level limiting the number of mandates a non-executive director may hold. As a proof of this concern, the European financial sector has been the first to incorporate some measures on the limitation of mandates (European Banking Authority & European Securities and Markets Authority, 2017; European Central Bank, 2017).

As far as the expertise of the audit committee is concerned, both the EU laws and the Spanish national regulation have paid special attention to this issue. First, the Directive 2014/56/EU of the European Parliament attempts to reinforce the technical competence of audit committees by requiring that at least one member of the committee is competent in auditing and/or accounting. Similarly, EU Recommendation 2005/162/EC mandates that the members of the audit committee should, collectively, have a recent and relevant background and experience in finance and accounting for listed companies appropriate to the company's activities.

The final disposition of the Law 22/2015 of Auditing has transposed these mandates into the Spanish regulation. In the same vein, the 25<sup>th</sup> Recommendation of the Good Governance Code of Listed Companies (CNMV, 2015) and subsequently the Technical Guide on audit committees at public-interest entities (CNMV, 2017) demands that all members of the audit committee should be appointed with regard to their knowledge and experience in accounting or auditing.

In this paper we use public sources of information to analyze the qualification and competence of the audit committee members of the Spanish listed firms. Our sample consists of 102 non-financial firms (293 firm-year-observations and 1,228 director-year observations) listed in the *Mercado Continuo* of the Spanish Stock Exchange between 2009 and 2013. Our research has two complementary aims. First, we report a descriptive analysis about the evolution of the committees' qualification between 2009 and 2013 in Spain. We consider four dimensions of directors' personal characteristics: tenure, directorships, academic studies, and, professional profile. Second, we study the relevance of these features to improve the quality of financial information. Thus, we examine whether there is an association between earnings management and some specific characteristics of audit committee members.

The remainder of this study is structured as follows. Section 2 discusses the theoretical arguments and develops our research questions. Section 3 sets out the empirical design and introduces the data and the empirical method. Section 4 presents the results. Finally, Section 5 concludes by summarizing the most important implications and suggesting some implications for managers and future research.

## **5.2. Financial information quality and audit committee members' characteristics**

To carry out their duties, the audit committee members are supposed to act independently and to have technical competence on accounting and auditing. Whereas directors' independence can be quite clearly defined, the competence or qualification on accounting issues is not easily measured. Following the above mentioned European new framework on statutory audit and the recent Spanish legal reforms to adopt this framework, we posit that the qualification of audit committee members depends on three characteristics: their experience, dedication and expertise.

### 5.2.1. Committee members experience and earnings management

Tenure within a firm enables directors to acquire a greater expertise, and develop important knowledge about the firm and its business environment. Effective monitoring is potentially an acquired skill, which suggests audit committees with long tenure can provide good monitoring. Furthermore, seniority makes the directors more independent and less susceptible to top management pressures. Thus, committee members with longer tenure are likely to be more able to perform their tasks, which include the review of financial statements<sup>45</sup>.

Nevertheless, audit is an activity especially sensitive to the tenure, and too long tenures could be detrimental for audit quality (Ruiz Barbadillo, Gómez Aguilar, & Carrera Pena, 2009a, 2009b). In fact, both the European law (Regulation EU 537/2014 art. 17) and the Spanish Law 22/2015 of Auditing (art. 40) have placed a time limit for the external audit firm. Similarly, directors serving on the audit committee for too long periods could lose some independence. Vafeas (2003) proves this *management-friendliness* hypothesis and suggests that extended board service time makes committee members too close to managers at the expense of shareholders. Extended tenure can also reduce intragroup communications and thus lower the quality of monitoring decisions (Ben-Amar, Francoeur, Hafsı, & Labelle, 2013). Furthermore, committee members with very long tenures could be influenced by their own beliefs and schemes; in turn, their knowledge could eventually become a less valuable resource in the monitoring process. Consequently, the independent directors' monitoring role is especially valuable when they have served long enough to learn about the firm but not too long to compromise their ability to monitor.

According to these theoretical arguments we raise the question about the relation between audit committee members' tenure and the quality of financial statements. Furthermore, we wonder

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<sup>45</sup> The Spanish Law of Auditing corroborates this learning curve for auditing and mandates that external audit contract should be longer than three years.

our first research question: Can there be a non-linear relation between members' tenure and earnings management?

### **5.2.2. Dedication and earnings management**

As previously stated, the number of directorships that a given director can hold is a matter of debate both from the policy-makers, the practitioners, and the academia point of view (Habbash, Sindezingue, & Salama, 2013). Nevertheless, the answers have focused on the members of the board, and we still lack of enough evidence for the audit committee. On the one hand, directors with multiple appointments may have richer experiences and connections, and provide access to more valuable resources (Sharma & Kuang, 2014). Moreover, an increase in the number of directorships enhances the reputation of directors. Nevertheless, the quality of directors with multiple appointments can be compromised when the number of their directorships is too high. Serving on many boards can diminish the directors' dedication as it can limit directors' time, attention and preparation for board meetings, thus narrowing these directors' ability to monitor (Baccouche, Hadriche, & Omri, 2013; Tanyi & Smith, 2015).

In line with previous arguments, we consider a non-linear relation between the qualification of audit committee members and multiple directorships. Consequently, in a first stage the reputation effect has a high influence but there is a threshold after which committee members can be over-committed, so that the dedication effect prevails at too high level of directorships. In this sense, we propose the following research question: Is there any relation between multiple directorships and financial information quality?

### **5.2.3. Expertise and financial information quality**

The abilities of the members of the audit committee to perform their duties can be a determinant of the quality of the audit process and, in turn, of the quality of the financial information

(Badolato, Donelson, & Ege, 2014; Lee & Fargher, 2017). In this sense, the directors' expertise and knowledge are two key issues (Sultana & Mitchell Van der Zahn, 2015).

Most of the definitions of a financial expert in the literature have in common the assumption that financial expertise can be gained through education or experience. Consequently, we focus on these two traits of the directors' professional career, and analyze whether the members of the audit committee with wider professional experience or higher academic education can improve the quality of the financial information (Wang, Su, Wang, & Chen, 2017). Some authors have underlined the convenience of combining several sources of expertise (Dhaliwal, Naiker, & Navissi, 2010; Kusnadi, Leong, Suwardy, & Wang, 2016). From this point of view, our research question would be: Is there any relationship between directors' professional or educational background and the quality of the financial information?

### **5.3. Empirical design**

#### **5.3.1. Sample**

Our sample is made up of all the non-financial firms listed in the Spanish Stock Exchange (*Mercado Continuo*) between 2009 and 2013. Then, we identify the audit committee members of these companies and we look for information about their personal characteristics such as tenure as director, number of other directorships, age, etc. We drop out the firms that do not report enough information about the audit committee, which reduces the sample to 357 firm-year observations. The information about directors was mainly hand-collected from the Report of Corporate Governance that each firm must post on the firm's website and submit to the Spanish Securities Exchange Commission (*Comisión Nacional del Mercado de Valores*). If necessary, this information was complemented by looking at other public sources such as *Bloomberg Business Week* and the official websites of other companies where these directors served. We complete the director-level information with firm-level financial

information from Thomson ONE database. At the end of this process our sample consists of 102 firms, 293 firm-year-observations and 1,228 director-year observations.

### 5.3.2. Method

The dependent variable of our study is the financial reporting quality. Since all of the proxies for earnings quality have at their core the reported accrual-based earnings number, it makes sense to focus on earnings management (Parte Esteban & Gonzalo Angulo, 2008; Parte Esteban & Gonzalo Angulo, 2009).

The literature has developed a number of accruals models with the aim of detecting the discretionary component of earnings management. To determine which model has the smallest margin of error, we calculate discretionary accruals based on four different models: the Jones model, the Jones modified model, the Jones model adjusted to ROA, and the cash-flow model. The choice of the most suitable model is based on the tests of specification and power of each model. These tests inform about the ability of each model to avoid the so-called type I and type II errors. The specification test refers to the type I error, i.e., to consider as discretionary accruals some accruals which are not actually discretionary. On the contrary, the power test has to do with the ability of the models to avoid type II errors, namely not to detect some abnormal accruals<sup>46</sup>. According to these results, the Jones model adjusted to ROA performs better than the Jones model, and this latter better than the other models.

Accordingly, we based on the Jones model adjusted to ROA to calculate the variable DACC, which is the discretionary accruals. The abnormal or discretionary accruals have been calculated by estimating cross-section regressions by year and sector, requiring at least six observations by year and industry<sup>47</sup>.

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<sup>46</sup> The results of the specification and power tests are not tabulated but are available from the authors upon request.

<sup>47</sup> We use the first-level (six sectors) industrial classification of the *Bolsa de Madrid*.

### 5.3.3. Variables

To answer the research questions we consider three sets of directors' characteristics: experience, dedication and expertise. Regarding the experience, directors' tenure (TENURE) is calculated as the average number of years that members spend on a particular audit committee. To operationalize the dedication, in line with other studies, we consider busy members those who hold three or more board appointments. Thus, multiple directorships (BUSY) is calculated as the average number of busy members (Andres, van den Bongard, & Lehmann, 2013). As far as the expertise is concerned, we define four variables: first, the educational level of committee members (STUDIES) is measured as the proportion of members with postgraduate (either master or PhD) studies. Second, we compute the proportion of members with studies abroad (ABROAD). Third, after analyzing the professional experience of each director, we define four main profiles: politics, economics/business, public administration, and university. Then, we define a dummy variable (PROFILE) which equals one when a director has simultaneously more than one category, and zero otherwise. This variable is a qualitative metric of the professional background, and complements the quantitative approach of the years of experience (TENURE). Finally, we also consider the proportion of foreign members (FOREIGN).

We introduce a set of variables due to their potential influence on financial reporting quality. First, two committee-related variables are included: audit committee size and audit committee independence. Audit committee size (ACSIZE) is measured by the total number of members on the committee. Audit committee independence (INDEP) is measured as the proportion of independent directors on the committee. In addition, two financial variables were added: firm size and leverage. Firm size (ASSET) is calculated as the log of total assets; and leverage (LEV) is measured by the ratio of total debt to total equity. Finally, we also use year and industry dummies to control both for time and industry effects.

## 5.4. Results

### 5.4.1. Descriptive analysis

Table 1 displays the definition of the variables and some descriptive statistics for the main variables. On average, the directors' tenure in a given committee is close to seven years (6.84) and the average proportion of busy members is around 33%. It means that one out of three members of the audit committees sits, on average, at two additional boards. The average of members with postgraduate education (master or PhD) is 44%, and the mean of committee members with more the one profile is 11%.

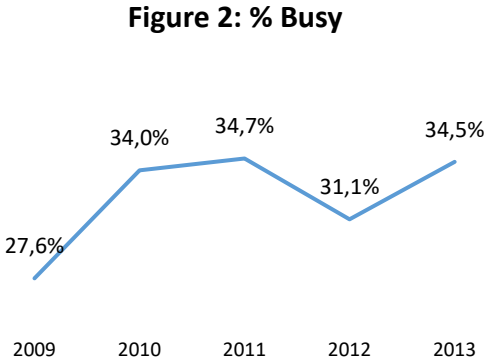
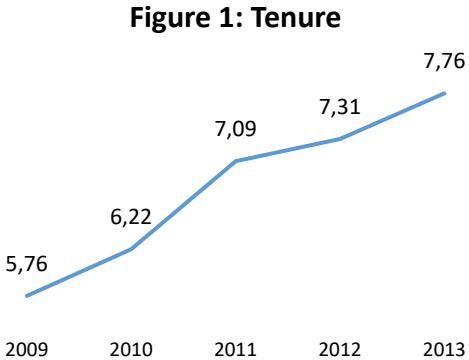
**Table 1. Definition and descriptive statistics of the main variables**

	Description of the variables	No. Obs.	Mean	Std. Dev.	Median
DACC	Discretionary accruals using the model of Jones adjusted to ROA	293	0.011	0.014	0.008
TENURE	Average number of years on the board	293	6.848	4.217	6.200
BUSY	Proportion of members with more than two outside directorships	293	0.332	0.279	0.333
STUDIES	Proportion of members with postgraduate studies	293	0.437	0.273	0.400
ABROAD	Proportion of directors with studies abroad	293	0.075	0.163	0.000
PROFILE	Proportion of members with more than one professional profile	293	0.111	0.097	0.123
FOREIGN	Proportion of foreign members	293	0.180	0.209	0.166
ACSIZE	Total number of members on the audit committee	293	3.734	1.039	3
INDEP	Proportion of independent members on the audit committee	293	0.959	0.106	1
ASSET	Logarithm of total sales	293	21.188	1.927	21.200
LEV	Ratio of total debt to total equity	293	3.228	3.249	2.143

Figure 1 displays the evolution of the members' characteristics between 2009 and 2013 in order to provide a view of the recent evolution. Whereas in 2009 the average tenure was 5.76 years, it has increased steadily until 7.76 year in 2013. Thus, the members of the audit committee have longer



and longer experience within the board. Whether it can have a positive or a negative influence on earnings management is an empirical issue that we will address.



The proportion of busy members (i.e., the ones with three or more directorships), displayed in Figure 2, has also followed an upwards trend. This trend can be partially explained by the recent prominence of the financial experts, so that directors with this expertise are more solicited whereas the availability of such directors is not unlimited. This result is coherent with Jaafar, Wan-Hussin, and Bamahros (2016), who find that financial experts in the audit committee have more directorships than non-experts.

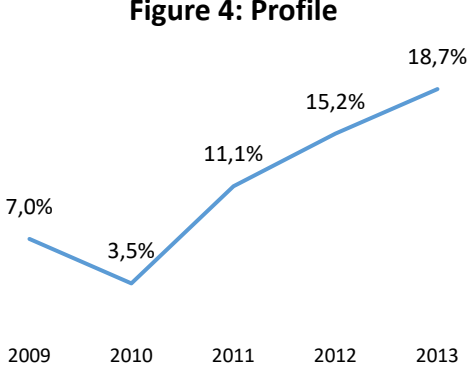
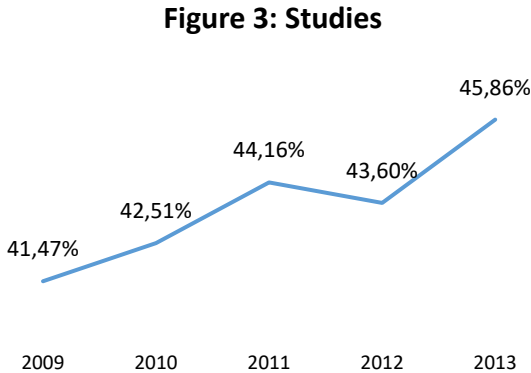
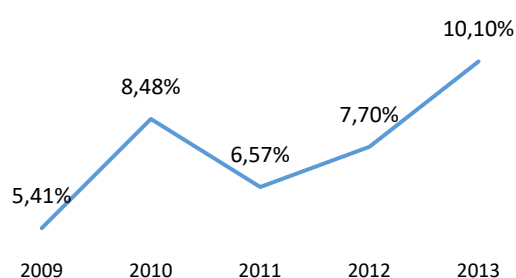
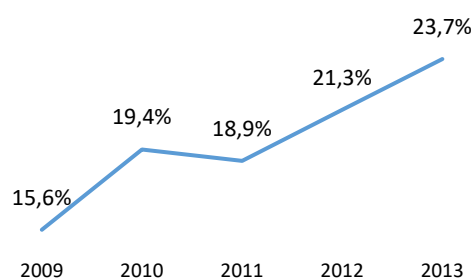


Figure 3 reports the proportion of members with postgraduate education. According to this graph, the proportion of committee members with master or PhD degrees has increased significantly between 2009 and 2013. A similar evolution can be found in Figure 4, concerning the proportion of members with more than one professional profile.

**Figure 5: Foreign members**



**Figure 6: Studies abroad**



In figures 5 and 6 we report the proportion of foreign members and the proportion of Spanish members who have obtained an academic degree abroad. It can be seen an upwards trend towards more internationalization of the audit committees.

Taken together, the picture that emerges from illustrations 1 to 6 is that the audit committees of the Spanish listed firms have become more qualified in the recent years. Their members are credited as more experienced, with longer tenure in the board, more diverse professional background, and have higher academic education. In addition, an unneglectable proportion of them serve in several boards and there is an increasing internationalization trend, both in terms of foreign members and of Spaniards who have obtained their degrees abroad. The extent to which these characteristics can influence the tasks of the committee, i.e., the quality of the financial information will be analyzed in the next paragraphs.

#### **5.4.2. Explanatory analysis**

In Table 2 we report the panel data estimates of the regression between earnings management (DACC) and the characteristics of the members of audit committees. We run four different models, and a joint model including all the independent variables. Model 1 concerns the impact of committee members' tenure on earnings management. Our results suggest a curvilinear inverted U-shaped relationship, according to which, for low levels of members' tenure, discretionary accruals increase with tenure. On the contrary, after a given threshold, the relation turns into negative, so that longer-tenured members reduce earnings management. As such, these results confirm both the friendliness

and the experience hypotheses suggested by Vafeas (2003). Initially, members of the audit committee may become close to the managers and, thus, less independent and worse supervisors. This happens until a given point, after which seniority and long experience prevail over the acquaintance.

In model 2 we study the effect of multiple directorships, i.e., whether *busy* members in the audit committee affect the earnings management. It can be seen that *busy* members have a positive effect on the discretionary accruals. In other words, our results suggest that committee members holding too many mandates can have a negative influence on the quality of firm financial information. Consequently, these results support the dedication approach and refute the reputation approach. It means that members of the audit committee must have enough time to prepare for the task in order to give the governance the attention it deserves. This result is in line with the Recommendation 25 of the Spanish Good Governance Code of Listed Companies and the paragraph 24 of the Technical Guide on Audit Committees. Although the code recognizes that it is very difficult to specify directors' dedication standards which can be recommended on a general basis, the firm should ensure that non-executive directors have sufficient time available to discharge their responsibilities effectively. In turn, the boards of directors are required to lay down the maximum number of company boards on which directors can serve.

**Table 2. Regression of directors' expertise and financial reporting quality**

Estimated coefficients and (t-statistics). The dependent variable is the discretionary accruals (DACC) from the Jones model adjusted to ROA. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5
TENURE	0.0021*** (2.7524)				0.0017** (2.3970)
TENURE <sup>2</sup>	-0.0001** (-2.4339)				-0.0001* (-1.8627)
BUSY		0.0036* (1.7149)			0.0035* (1.6583)
PROFILE			-0.0366* (-1.8347)		0.0055 (0.7724)
FOREIGN			-0.0075 (-1.0682)		0.0032 (0.4612)
STUDIES				-0.0098** (-2.2736)	-0.0074* (-1.7385)
ABROAD				0.0053 (1.0670)	0.0024 (0.4776)
ACSIZE	-0.0011 (-1.0579)	0.0010 (1.0464)	0.0006 (0.5677)	0.0001 (0.0982)	0.0005 (0.5203)
INDEP	-0.0005 (-0.0437)	-0.0175* (-1.6527)	-0.0095 (-0.7992)	-0.0028 (-0.2523)	-0.0102 (-0.9878)
LEVERAGE	0.0008** (2.5570)	0.0001 (0.1739)	0.0010*** (2.8563)	-0.0000 (-0.0238)	-0.0000 (-0.0985)
ASSET	-0.0008 (-0.9828)	-0.0003 (-0.3172)	-0.0004 (-0.3233)	-0.0004 (-0.4722)	-0.0005 (-0.6303)
Sector dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
No. observations	258	272	241	262	260
Adj.-R <sup>2</sup>	0.042	0.047	0.021	0.028	0.081

In Model 3 we study the influence of the professional background. More specifically, we analyze whether having more than one professional profile (politics, economics/business, public administration, or university) or being a foreigner can be helpful skills in the audit committee. Although the foreign citizenship is not relevant, the coefficient of the PROFILE variable is statistically significant

and negative, which means that members with a diversified professional experience can improve the quality of the financial information. This result is coherent with the Recommendation 14 of the above cited Spanish Good Governance Code of Listed Companies and paragraph 14 of the Technical Guide on Audit Committees, which mandate that the director selection policy should favor the diversity of knowledge and experience. The result is also consistent with Dhaliwal et al. (2010) and Kusnadi et al. (2016) who show the importance of board members having mixed expertise in several areas.

Finally, we test the effect of the members' academic background (STUDIES and ABROAD) in Model 4. Although ABROAD is not significant, we find a negative effect of the level of studies on earnings management, so that directors with higher educational level (either master or PhD degrees) in the audit committee have a significant influence in decreasing discretionary accruals. Consequently, the educational level of directors seems to be a relevant means to gain supervisory skills and to improve their role in the boardroom.

As far as the control variables are concerned, the most significant result is the positive relation between financial leverage and earnings management. This result corroborates previous research and can be due to the relevance of financial information in the debt contracts covenants. In Model 5 we check the joint effect of all the variables. Results are coherent with the above explained ones.

As a robustness test, in Table 3 we report the results of similar analyses when abnormal accruals are calculated using the Jones model. Broadly speaking the results are in the same line than those previously explained.

**Table 3. Regression of directors' expertise and financial reporting quality**

Estimated coefficients and (t-statistics). The dependent variable is the discretionary accruals (DACC) from the Jones model.

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5
TENURE	0.0020** (2.0115)				0.0018** (2.1310)
TENURE <sup>2</sup>	-0.0001* (-1.7935)				-0.0001* (-1.9178)
BUSY		0.0065* (1.9042)			0.0056** (2.1964)
PROFILE			0.0171* (1.6880)		0.0048 (0.5442)
FOREIGN			0.0070 (0.9313)		-0.0031 (-0.3677)
STUDIES				-0.0054* (-1.7199)	-0.0081* (-1.6936)
ABROAD				0.0097* (2.4953)	-0.0035 (0.5750)
ACSIZE	0.0013 (1.0127)	0.0019* (1.7435)	0.0026** (2.2058)	0.0010 (1.1356)	-0.0002 (-0.1447)
INDEP	-0.0082 (-0.6510)	-0.0052 (-0.5636)	-0.0119 (-1.1956)	0.0023 (0.2896)	-0.0129 (-1.0200)
LEVERAGE	0.0000 (0.2411)	0.0000 (0.2311)	0.0000 (0.1138)	0.0000 (0.5569)	0.0000 (0.7674)
ASSET	-0.0005 (-0.6397)	0.0004 (0.8689)	0.0002 (0.3040)	-0.0004 (-0.8146)	-0.0007 (-0.7270)
Sector dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
No. observations	300	266	254	253	255
Adj.-R <sup>2</sup>	0.062	0.062	0.079	0.112	0.057

## 5.5. Conclusions

The recent legal impulse of the audit committee both in Spain and at the European Union level highlights the prominence that the members of this committee have for business and economic stability. Whereas the effect of the independence of the audit committee has been largely analyzed, the influence of the members' qualification is a still relatively unexplored

topic. In this paper we analyze the members' experience measured by their tenure as director, their dedication measured by the number of other directorships held, and their professional and academic background measured by the professional profile and formal academic studies.

We manually collect the curriculum vitae of the audit committee members of 102 listed Spanish firms between 2009 and 2013, which means an analysis of 1,228 director-year observations. We find that some of these characteristics are significantly related to the earnings management. Our estimates suggest a non-linear relation with tenure, so that long tenures can initially compromise the directors' independence but, after a given threshold, longer tenures improve the expertise of the members of the committee. We also find that serving in too many boards has a negative influence on the ability of directors to detect earnings management. Finally, higher academic and more diverse professional background improve the directors' abilities, reinforcing the recommendation of the Spanish regulator in this sense.

Our research can be interesting for a number of incumbents. First, for firms and practitioners, we provide some clues on the optimal design of the audit committee in order to reduce earnings management. Our results underline the relevance of the audit committee and confirms that the professional and academic characteristics of its members can affect the quality of the firm's financial information. We show that firms must trade-off the advantages and disadvantages of long tenure in the committee, so that an optimal policy would be combining new members with long tenured ones. This policy of diversity also applies to the professional background since we find that combining members with different professional profiles improves the performance of the committee. Another implication of our study is that counting on committee members with too many outside directorships can impact negatively on the quality of the financial statements.

For policy makers, our research joins the ongoing debate on the new regulatory framework of the corporate governance and the audit function. We show that the focus on the members'

competence is a step in the right direction, but new measures could be taken. We also shed some light on the debate about harmonizing across industries the limitation of multiple directorships given the recent recommendation of the European authorities for banks. We also contribute to the academia and other researchers by proposing some metrics of the directors' expertise and extending our knowledge about the importance of committee members' personal qualification.

Our study suggests some avenues for future research. It would be interesting to check the validity of our results in other countries, especially the EU members that are under the same European legal framework. In addition, more specific components of the directors' expertise (for instance, accounting, audit, financial, or industry expertise) call for further attention. Finally, not all the directors play the same role within the committee (chairman, secretary, etc.). Forthcoming research could take into account these different roles.





## 6. Conclusiones

La profesión de auditoría, ya sea mediante el ejercicio legal como censor jurado de cuentas, o a través de la función de la comisión de auditoría de las sociedades, se ha convertido en una pieza fundamental para el correcto funcionamiento del sistema económico y de las empresas. El regulador europeo, consciente de esta importancia, ha reforzado esta actividad a través de un nuevo marco legal europeo que salvaguarde tanto la independencia como las capacidades de sus profesionales. Este marco se ha instrumentado a través de la Directiva 2014/56/UE y el Reglamento UE 537/2014 del Parlamento Europeo, así como de las correspondientes transposiciones al ordenamiento legal de cada país.

La propia exposición de motivos de la Directiva recalca el papel decisivo de la comisión de auditoría para garantizar que las revisiones alcancen una calidad elevada (párrafo nº 24 de la exposición de motivos de la Directiva 2014/56/UE). El Reglamento, por su parte, alerta de la amenaza que supone para la independencia del auditor la familiaridad con la empresa auditada (párrafo nº 21 de la exposición de motivos del Reglamento UE 537/2014). Se entiende así que este nuevo marco europeo de auditoría haya tratado de potenciar la rotación del auditor externo y las dos características esenciales de la comisión de auditoría: su independencia y las competencias de sus miembros.

En lo que se refiere a la rotación del auditor, y previa a la entrada en vigor de este nuevo marco regulatorio, el grado de obligatoriedad de esta medida no era uniforme en los países europeos, destacando el caso de España donde no existía un mandato al respecto. Tampoco ha sido clara su justificación empírica, pues la investigación existente hasta el momento evidenciaba beneficios y dificultades en una relación continuada con el auditor.

Respecto a las características de la comisión de auditoría, mientras que el concepto y las medidas de independencia están menos sometidas a debate, la competencia o *expertise* de sus miembros parecen ser una cuestión más compleja. Así se ha reflejado igualmente en la investigación existente hasta el momento, pues la literatura ha abordado más frecuentemente el estudio de la independencia de la comisión de auditoría.

Esta tesis doctoral ha pretendido profundizar en estos aspectos tan relevantes, contribuyendo a la mejora del gobierno corporativo de las empresas a través del estudio de la independencia del auditor externo y la cualificación de los miembros que componen la comisión de auditoría.

En lo que concierne a la independencia del auditor externo, nuestra investigación se ha enfocado en la rotación del auditor de las sociedades cotizadas españolas previo al actual marco normativo (Directiva 2014/56/UE y el Reglamento UE 537/2014) que obliga a tal rotación. Por tanto, analizamos los elementos que provocaron el cambio de firma auditora en España bajo un contexto jurídico donde no existía tal obligación.

Tanto investigadores como reguladores han coincidido en la idea de que la relación del auditor externo con su sociedad auditada debe ser lo suficientemente prolongada como para adquirir un conocimiento exhaustivo de la misma, pero sin excederse en el tiempo para evitar posibles conflictos de interés resultantes de esta relación tan dilatada en el tiempo.

Nuestra investigación, publicada con anterioridad al cambio regulatorio que obliga a una rotación del auditor, confirma la preocupación del legislador y arroja las características de gobierno corporativo que han facilitado el cambio de auditora en un entorno donde no era obligatorio dicho cambio.

Los resultados muestran que el tamaño de la comisión de auditoría, la actividad del consejo y la independencia de ambos órganos mantienen una relación positiva con el cambio de auditor, de tal

forma que comisiones de auditoría de mayor tamaño, con consejos muy activos y un elevado porcentaje de consejeros independientes en ambos órganos facilitan el cambio de auditor. Además, estos cambios de auditor no mermaron la calidad de la información contable de las empresas auditadas.

Asimismo, comprobamos una relación no lineal entre el tamaño del consejo de administración y la actividad de la comisión de auditoría con la rotación del auditor. En el primer caso se identificó que los consejos con un número elevado de consejeros propiciaban el cambio de auditor hasta llegar a un umbral (entre doce y trece miembros, según nuestras estimaciones) a partir del cual el tamaño del consejo influía negativamente en la decisión del cambio de auditor. En el caso de la actividad de la comisión de auditoría, se revelaba que una baja actividad de la misma no implicaba el cambio de auditor hasta llegado a un nivel, en torno a las nueve reuniones anuales, a partir del cual resulta más frecuente el cambio de auditor.

Estos resultados evidencian que el cambio de auditor es más frecuente en aquellas empresas cuyos consejos y comisiones de auditoría se ajustan a las recomendaciones de buen gobierno, pudiendo confirmarse que dicha decisión está influida por una cierta presión social o política y no tanto por el afán de mejorar la calidad de la información financiera.

Además, nuestra investigación también pone de manifiesto, en conformidad con estudios previos, una mayor rotación del auditor en empresas con presión financiera, baja rentabilidad, con informes de auditoría cualificados previos, o con una relación prolongada en el tiempo con el auditor. Por el contrario, una menor propensión al cambio se ha detectado en entornos donde el auditor está incluido entre las cuatro grandes firmas o donde existe un vínculo más fuerte en términos de mayores honorarios satisfechos, ya sea por trabajos de auditoría u otros servicios.

Al igual que el regulador y la comunidad científica, este estudio corrobora el papel que desempeña la comisión de auditoría en la calidad de la información contable, por lo que el segundo eje de esta tesis, compuesto por tres artículos de investigación, ha pretendido abarcar la cualificación de la misma como aspecto clave en la mejora del gobierno corporativo y la calidad de la información financiera.

En un primer artículo proponemos una medida de cualificación de la comisión de auditoría más precisa de la que ha utilizado hasta el momento la mayoría de investigaciones. Además, tratamos de identificar los factores de gobierno corporativo, adicionales a los exigidos por el regulador, que pueden determinar una comisión de auditoría altamente cualificada en un entorno europeo.

En cuanto a la métrica sobre cualificación, la dificultad en la medición de esta variable cualitativa obligaba a la mayoría de los estudios científicos a considerarla como variable dicotómica en función de si se cumplía la premisa de que, al menos, un miembro de la comisión de auditoría poseía determinados conocimientos en contabilidad o auditoría.

Nuestro estudio ha permitido avanzar en la obtención de una variable continua mucho más precisa, puesto que tiene en cuenta el nivel de cualificación de todos los miembros de la comisión de auditoría conforme a ocho parámetros que representan las competencias educativas y la experiencia profesional: Grado universitario, postgrado o doctorado, estudios en escuela de negocios de prestigio, experiencia como consejero delegado (CEO), experiencia como auditor o consultor, experiencia profesional internacional, conocimientos contables y conocimientos de economía.

Por un lado, se observó que la cualificación media de las comisiones de auditoría había aumentado significativamente en los últimos años, hecho que concuerda con el requisito impuesto por el regulador de contar con, al menos, un experto contable o financiero en este tipo de comisiones. Además, se verificó que las comisiones más cualificadas eran aquellas más activas, con más reuniones.

Estas comisiones contaban con consejeros que ocupaban cargos en otros consejos de administración (es decir, presentaban menor dedicación en la comisión como consecuencia de los diferentes compromisos adquiridos en los consejos de otras empresas), y conseguían negociar unos honorarios de auditoría menores para sus empresas.

Por el contrario, no encontramos influencia en el cambio de auditor, aspecto razonable si consideramos que, durante el horizonte temporal de nuestra investigación, existían países con rotación obligatoria del auditor (caso italiano) o con relación de co-auditoría (en el caso francés). Adicionalmente, identificamos dos formas de adquirir la cualificación, a través de la educación y mediante la experiencia, observando que ambas son complementarias, de tal manera que la competencia educativa se relaciona con menores honorarios del auditor, y la experiencia profesional mantiene una relación positiva con el aumento de actividad de estas comisiones.

En definitiva, la cualificación de los miembros de la comisión de auditoría repercute en una mayor actividad supervisora de la misma así como en menores honorarios pagados al auditor externo. Este tipo de comisión también comporta una menor dedicación de sus miembros, al constatar que una parte importante de los mismos forman parte de otros consejos de administración, lo que podría explicarse por la necesidad normativa de contar con más expertos en esta comisión y las limitaciones del mercado de consejeros con elevada cualificación. Además, se observa que es la combinación de competencias educativas y experiencia profesional la que garantiza los resultados obtenidos.

Los resultados reafirman la importancia de la comisión de auditoría en el gobierno corporativo, destacando diferentes implicaciones tanto para las empresas como para los reguladores. Para las primeras, los resultados sugieren que el consejo de administración (y, en particular, las comisiones de nombramientos) debería adoptar una visión amplia de la matriz de habilidades o *skill matrix* de los miembros de la comisión de auditoría y considerar las complementariedades existentes entre sus miembros. En el caso de los reguladores, se confirma la necesidad de identificar las diferentes

competencias que deben tenerse en cuenta y las posibles formas en que se puede adquirir dicha experiencia. Esta implicación es especialmente importante en el entorno europeo ya que, a diferencia de las autoridades estadounidenses, la Comisión Europea aún no ha proporcionado un catálogo completo de modos para obtener la experiencia en auditoría.

Respecto a la segunda publicación correspondiente al eje de investigación de la cualificación de la comisión de auditoría, estudiamos las implicaciones de la cualificación de esta comisión en el funcionamiento del proceso de auditoría. De la misma forma, analizamos el efecto de determinados tipos de cualificación en la capacidad de la comisión para atenuar la gestión del resultado, también desde una perspectiva europea.

El análisis pormenorizado realizado al currículum vitae de los consejeros de empresas europeas no solo nos ha permitido construir una medida continua de su cualificación, sino distinguir cuatro aspectos de la misma: cualificación o *expertise* auditor, contable no auditor, financiero no contable y de supervisión (CEO).

A través de los diferentes tipos de *expertise* y la dedicación -esta última medida mediante el número de consejos de los que es miembro un consejero-, hemos analizado la capacidad que se presupone a esta comisión para mitigar la gestión del resultado en una muestra de empresas que cotizan en los principales índices europeos.

Los resultados obtenidos muestran una relación no lineal entre la dedicación de los miembros de la comisión de auditoría y la gestión del resultado. A pesar de que el hecho de pertenecer a varios consejos podría considerarse un reconocimiento de la capacidad de un consejero, superar un umbral de cargos (nuestros resultados sugieren un máximo de dos consejos) podría perjudicar su tarea supervisora.

Además, encontramos que el *expertise* en auditoría es el único perfil relevante capaz de mitigar la manipulación contable o gestión del resultado, potenciándose dicho perfil en aquellas comisiones de auditoría más pequeñas y menos activas, pertenecientes a consejos de administración de menor tamaño y más ocupados<sup>48</sup> y, en empresas más pequeñas y rentables, con una relación más duradera con el auditor externo.

Por último, en este artículo también proporcionamos una evidencia adicional que respalda las medidas tomadas por el regulador europeo con el fin de mejorar el funcionamiento de las comisiones de auditoría. Ha de tenerse presente que el período de nuestro estudio es anterior a la normativa<sup>49</sup> europea que incorpora el concepto de experiencia en auditoría en la comisión. Hasta ese momento, la regulación solo consideraba la experiencia contable general en dicha comisión. Sin embargo, a partir de 2014, las autoridades reguladoras admitieron explícitamente que la experiencia contable podría no ser suficiente, reconociendo así la existencia de la experiencia en auditoría.

La principal aportación de este artículo de investigación es una mayor claridad sobre la dualidad de experto contable y auditor que propone el regulador. Revelamos que los expertos en auditoría y contabilidad no auditora cumplen diferentes funciones en la comisión de auditoría, desempeñando los primeros un papel decisivo en la detección de la manipulación contable. Además, hallamos que el requerimiento regulatorio sobre la composición de la comisión de auditoría por, al menos, un experto no garantiza la calidad de la información financiera.

Estas evidencias constatan la necesidad de seguir reforzando el marco de auditoría recogido en la Directiva 2014/56/UE, aspecto que así lo han debido entender los diferentes supervisores financieros al determinar de manera más precisa en sus diferentes guías la dedicación y cualificación

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<sup>48</sup> En términos de cargos ocupados por sus miembros en otros consejos de administración.

<sup>49</sup> Directiva 2014/56/UE relativa a la auditoría legal de las cuentas anuales y consolidadas.



que deben poseer los miembros de los consejos de las entidades financieras (ESMA y EBA, 2018 y ECB, 2018).

El último artículo se centra en el caso español, y en él analizamos la importancia de las características personales de los consejeros de la comisión de auditoría en su labor de supervisión de la manipulación contable, medida a través de la gestión del resultado.

Un primer análisis descriptivo muestra que el nivel de cualificación de las comisiones de auditoría de las sociedades cotizadas españolas ha aumentado en los últimos años, lo que se ha traducido en una mayor proporción de miembros más experimentados, con una permanencia más larga, unos antecedentes profesionales más diversos y una educación académica superior. Además, existe una proporción alta de estos consejeros que prestan servicios en varios consejos a la vez, y existe una tendencia creciente a la internacionalización, tanto en términos de miembros extranjeros que forman parte de los consejos de empresas españolas, como de consejeros españoles que han obtenido su titulación en el extranjero.

Adicionalmente, el análisis explicativo sugiere que la gestión del resultado mantiene una relación no lineal con la antigüedad: mientras que en los primeros estadios una mayor duración puede comprometer la independencia de los consejeros, llega un punto en el que una mayor antigüedad en la comisión incrementa su experiencia a la hora de mitigar la gestión del resultado. También encontramos que un perfil profesional de la comisión de auditoría más diverso (con miembros con antecedentes profesionales relacionados con la política, economía y negocios, administración pública y universidad) y con miembros que poseen estudios superiores contribuye eficazmente a la reducción de la gestión del resultado.

Además, en línea a lo identificado en el anterior estudio europeo, se constata que las comisiones de auditoría con una elevada proporción de consejeros que participan en otros consejos

de administración reduce significativamente la capacidad de detección de la gestión del resultado. Por tanto, podemos asegurar que una mayor formación académica y una formación profesional más diversa de los consejeros, sin excesivos compromisos en otros consejos y con una amplia trayectoria en la comisión de auditoría mejoran el funcionamiento de la misma, y robustece las recomendaciones del regulador español<sup>50</sup>.

Entre las implicaciones más destacadas de este último trabajo resalta la necesidad de valorar las ventajas e inconvenientes de una permanencia prolongada de los consejeros en la comisión de auditoría, de modo que una política óptima, en línea con las recomendaciones sobre diversidad, sería combinar nuevos miembros con titulares de larga duración. Además, la política de diversidad también podría considerar la trayectoria profesional de los consejeros, puesto que una combinación de diferentes perfiles profesionales mejora el desempeño de la comisión, aspecto que también quedó confirmado con las evidencias obtenidas en nuestro anterior estudio sobre competencias educativas y experiencia profesional.

Otra implicación estaría relacionada con la evaluación de idoneidad en el nombramiento de consejeros para la comisión de auditoría, prestando especial atención a aquellos perfiles con demasiados cargos en otros consejos, aspecto que podría tener un impacto negativo en la calidad de los estados financieros.

Como todo trabajo de investigación, los artículos que componen esta tesis doctoral están sujetos a ciertas carencias o limitaciones. En primer lugar, hemos de citar la endogeneidad, una preocupación frecuente en la investigación sobre gobierno corporativo. Hemos de reconocer, sin embargo, que nuestro trabajo toma como puntos de referencia cambios legales y normativos externos,

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<sup>50</sup> Guía Técnica 3/2017 de las Comisiones de Auditoría de las entidades de interés público (CNMV, 2017).

lo que atenúa esta problemática. No obstante, sería interesante la realización de estudios futuros que aborden explícitamente la endogeneidad a fin de testar nuestros resultados.

Otra limitación es la referente a la composición de la muestra de empresas en el entorno europeo. La necesidad de contar con datos detallados sobre los miembros de las comisiones de auditoría nos ha llevado a estudiar un número relativamente reducido de empresas y países. Asimismo, aunque incorporamos elementos de control para cada país, no consideramos el grado en que se aplica la Directiva europea a escala nacional.

También debemos destacar que, para la obtención de la gestión del resultado, hemos utilizado el valor absoluto de los ajustes por devengo anormales (*abnormal accruals*) tomados de las diferentes cuentas del balance, lo que puede implicar algunos errores de medición no materiales en comparación con la utilización de los ajustes obtenidos directamente de los estados de flujo de efectivo.

Como cabe esperar, cerramos este trabajo apuntando varias direcciones para futuras investigaciones que surgen de la presente tesis. A pesar de que la rotación del auditor parece ser un problema resuelto con la trasposición de la Directiva 2014/56/UE, el cambio de firma auditora no debería considerarse en sí mismo un hecho positivo, por lo que un estudio posterior ampliado a nivel europeo podría confirmar si las rotaciones producidas han comportado cambios relevantes en la calidad de la información financiera.

En lo que respecta a la cualificación de la comisión de auditoría, diversos aspectos podrían ser considerados en próximas investigaciones. En primer lugar, debería profundizarse en el análisis de la dinámica de las comisiones de auditoría y los distintos perfiles profesionales y competencias al objeto de identificar la combinación de habilidades que favorecen la actividad de la comisión. En este sentido, sería interesante analizar el efecto de la experiencia auditora sobre la experiencia contable no auditora, identificando qué aporta cada una de ellas en el funcionamiento de la comisión de auditoría.

Además, y en línea con la reciente entrada en vigor de la normativa en materia de información no financiera y diversidad, futuros estudios deberían analizar tanto la efectividad de la comisión de auditoría en la gestión los principales indicadores no financieros, como el impacto de la política de diversidad establecida por el consejo para dicha comisión.



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## 8. Anexo. Datos bibliométricos de las publicaciones

# Gobierno corporativo y factores determinantes del cambio de firma auditora en la gran empresa española \*

*Corporate governance and determinants of auditor rotation in large Spanish firms*

Félix J. López Iturriaga \*\*. Universidad de Valladolid

César Zarza Herranz. Universidad de Valladolid y Banco Santander

**RESUMEN** El presente trabajo analiza el efecto del consejo de administración y del comité de auditoría en la decisión de cambio de auditor. Hemos analizado todos los cambios de auditor en las empresas no financieras cotizadas en el mercado continuo español entre 2004 y 2007. Nuestros resultados muestran que el tamaño, la composición y el número de reuniones de ambos órganos influyen significativamente en el cambio de auditor. También encontramos que la rotación de auditor no comporta una mejor calidad de la información financiera, siendo las empresas cuyos órganos de gobierno corporativo más se adecuan a las recomendaciones de buen gobierno las que se hallan más inclinadas a cambiar de auditor.

**PALABRAS CLAVE** Auditoría; Cambio de auditor; Consejo de administración; Comité de auditoría; Gobierno corporativo; Honorarios de auditoría.

**ABSTRACT** We study the effect of the board of directors and the audit committee on the decision of auditor replacement. We analyze all the changes in auditors for all the non-financial firms listed in the Spanish capital market between 2004 and 2007. Our results show that the size, the composition and the number of meetings of both the board of directors and the auditing committee have a significant influence on auditor rotation. We also find that the replacement of the auditor does not mean better quality of financial information. The firms whose mechanisms of corporate governance fit the most with the recommendations of good governance are the most prone to replace the auditor.

**KEYWORDS** Auditing; Auditor replacement; Board of directors; Audit committee; Corporate governance; Audit fees.

### 1. INTRODUCCIÓN

En los últimos años legisladores, profesionales y académicos han prestado una especial atención a la tarea de auditoría y a los factores que condicionan su eficacia (García y Vico, 2003; Gonzalo, 2004). No ha de extrañar, en consecuencia, que esa inquietud se haya canalizado a través de una perspectiva basada en el gobierno corporativo y en el análisis

\* **Agradecimientos:** Los autores agradecen los comentarios de Juan Monterrey, Beatriz García Osma, Fernando Peñalva, Joaquina Laffarga, dos evaluadores anónimos y los asistentes a la III Jornada de Investigación de la Revista Española de Financiación y Contabilidad. Todos los errores son responsabilidad única de los autores. Las ideas reflejadas en este trabajo son opiniones de los mismos y no corresponden a las instituciones en las que prestan sus servicios.

\*\* **Autor para correspondencia:** Félix J. López Iturriaga. Departamento de Economía Financiera y Contabilidad. Universidad de Valladolid, Avda. Valle del Esgueva 6, 47011 Valladolid (España). Tel. (+34) 983 184 395. Correo-e: flopez@eco.uva.es

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2010	51	0.163	0.041	n/a	0.000	24	100.00	4.605

# Audit committee expertise in large European firms

Audit  
committee  
expertise

César Zarza Herranz

*School of Business and Economics, Universidad de Valladolid, Valladolid, Spain*

Felix Lopez-Iturriaga

*School of Business and Economics, Universidad de Valladolid, Valladolid, Spain,  
and NRU Higher School of Economics, Moscow, Russian Federation, and*

Nuria Reguera-Alvarado

*University of Seville, Seville, Spain*

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## Abstract

**Purpose** – This paper aims to study how audit committee member expertise is related to certain features of the committee and to the audit process.

**Design/methodology/approach** – Based on information from 2,477 directors from 296 firms in eight European countries between 2005 and 2014, this study measures average audit committee expertise using a continuous variable, which combines education-based and experience-based expertise. Different measures of the audit process are then regressed against this and other control variables.

**Findings** – Average committee expertise has increased in recent years. Education-based and experience-based expertise seem to be complementary. Results also show that committees with greater expertise meet more frequently, have fewer directors with full-time dedication and pay lower audit fees. There is no link to changes in the external firm audit, which may be due to mandatory auditor rotation.

**Originality/value** – The paper provides a comprehensive metric of audit committee expertise that includes directors' academic background, professional experience and qualifications. In addition, this study expands current knowledge concerning whether and how committee expertise affects the audit process.

**Keywords** Corporate governance, Audit committee, Financial and accounting expertise, Audit committee activity, Audit fees

**Paper type** Research paper

## 1. Introduction

Audit committees have been at the core of both recent academic research and financial market authority attention (Martinov-Bennie *et al.*, 2015). One aim of policymakers has been to create revitalized audit committees, which has led to a new and more stringent legal framework for auditing (Ghafran and O'Sullivan, 2013). One key point of the new legal framework is audit committee composition in terms of independence and member expertise [1].

In the USA, the Sarbanes-Oxley Act (SOX) of 2002 requires every public company's audit committee to be composed of independent directors, with at least one member possessing financial expert qualifications, either through education or experience. In Europe, a number of laws, guides and recommendations [2] have been enacted with an objective analogous to that of SOX. Directive 2014/56/EU of the European Parliament (and



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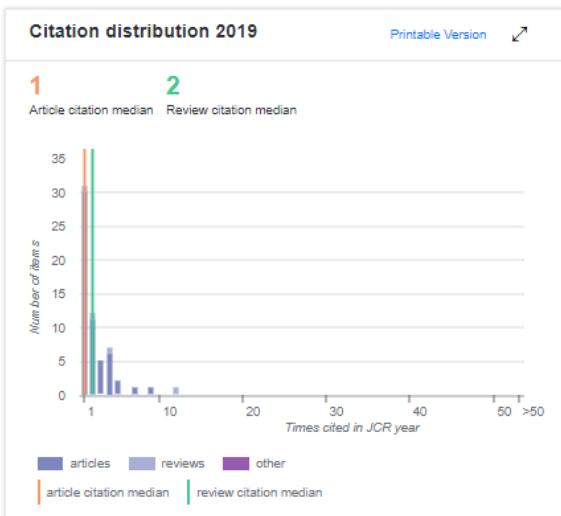
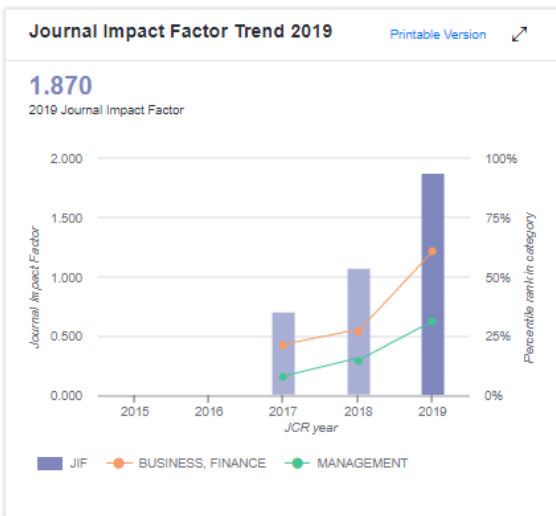
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## [RC-SAR] Editor Decision

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Dear Felix Lopez Iturriaga:

After the pertinent evaluation of the reviewers, I would like to inform you that we have already taken a decision about your manuscript entitled "Audit or accounting expertise? Audit committee competence and earnings management in Europe", with identifier 385331, regarding its publication in Revista de Contabilidad - Spanish Accounting Review.

Our editorial decision is: Accept.

This new version of the manuscript properly addresses all the points raised in the previous editorial round. Your paper has definitely increased its quality by benefiting from the valuable insight of our prestigious reviewers and the effort you put in the revision process. Congratulations!

Now that your paper has been accepted for publication it will proceed to copy-editing and production. The proofs will be sent to you for your approval. Also, you will obtain the offprint of the article in pdf format in the electronic edition of the journal as soon as it is published in the corresponding issue.

Thank you for your collaboration and I hope you continue to count on this journal to publish your research.

Sincerely,

Ana Zorio-Grima

Associate Editor Revista de Contabilidad- Spanish Accounting Review,

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**César Zarza Herranz**  
Universidad de Valladolid  
cesarzarza@uah.es

# The right person at the right time: Audit committee members and the quality of financial information<sup>1</sup>



**Félix J. López Iturriaga<sup>2</sup>**  
Universidad de Valladolid  
flopez@eco.uva.es

## La persona adecuada en el momento adecuado: Los miembros del comité de auditoría y la calidad de la información financiera

### I. INTRODUCTION

Recent high profile corporate scandals such as *Parmalat*, *Société Générale*, *Lehman Brother* or *Bankia* have eroded the public trust in corporate financial information, and called for legal improvements in the audit process (Palazuelos Cobo, Herrero Crespo, & Montoya del Corte, 2017). The role of the audit committee is particularly debated as an enhancer of more reliable financial statements. Most of the new legal rules have in common two basic characteristics of the audit committee: the members' independence and professional competence. But, whereas the literature has provided abundant evidence on the positive effect of the audit committee independence, the qualification calls for further analyses (Monterrey & Sánchez, 2008; Tepalagul & Lin, 2015).

The European Union regulatory framework on statutory audit (mainly Recommendation 2005/162/EC and Directive 2014/56/EU) is an example of this new framework. The Directive 2014/56/EU of the European Parliament on statutory audits acknowledges that audit committees play a decisive role in contributing to high-quality statutory audits, and stresses the technical competence of the members as one of the most important requirements for the committee membership. The European Commission has not issued an explicit definition of audit committee member competence, but the legal framework mandates that directors on the audit committee



**Nuria Reguera-Alvaredo**  
Universidad de Sevilla  
nreguera@us.es

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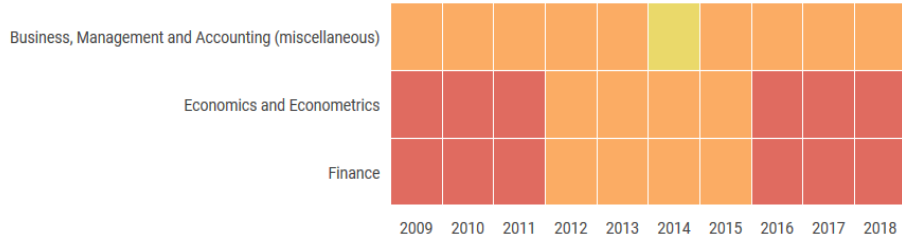
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