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Comparison of Different Compensation Components and Levels Among Different Sectors of the Economy - Ares(2011) 550517

Peter H. Egger
ETH Zurich

Maximilian von Ehrlich
ETH Zurich

Doina Radulescu
ETH Zurich

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Abstract

This paper provides an assessment of the extent of managerial pay around the world. It uses a novel database on managerial wages and other forms of compensation to compare managerial remuneration across different sectors with a special emphasis on the financial sector versus other sectors, and it does so by comparing different countries with each other. We find that there is a significant earnings premium in the financial sector which amounts for the overall sample (including both EU and Non-EU countries) to about 40 percent after conditioning out observable director-specific and firm-specific characteristics. Yet, there is considerable heterogeneity of earnings across different types of businesses within the financial sector.

Keywords: Managerial pay; Financial Sector; Banks; EU
JEL classification: G2; J24; J3; O51; O52

1. INTRODUCTION

At least with the economic crisis of 2008 – the roots of which are inter alia seen in the lack of regulation of and misconduct by agents in the financial sector – executive compensation, especially in the financial sector, has become a contentious issue. Recently, the Wall Street Journal published the results of the annual study on Chief Executive Officers' (CEO) compensation for the biggest 350 public companies in the United States conducted by the Hay Group (Wall Street Journal, 2011). According to this study, the median value of CEO pay including salary, long term incentive plans, and bonuses increased by 11 percent to 9.3mn US dollars between 2009 and 2010. The bulk of this surge is attributed to a significant rise in bonuses by 19.7 percent, induced by an increase in profits. The top ranks in terms of pay in this list of CEOs are held by CEOs of media companies. However, when averaging within industries, the study suggests that chief executives in the telecom, oil and gas, consumer goods, and financial sectors received higher pay on average than their counterparts elsewhere. In any case, the Hay Group study gives an impression of the magnitude of compensation in different industries as well as the extent of existing disparities.

In the light of the recent financial crisis, many questions have been raised regarding both the appropriateness of the *level* of compensation as well as the *structure of incentives* of directors and managers employed in the financial sector. Several European institutions, the International Monetary Fund (IMF), the group of G-20 countries, and the European Union (EU) member states have had a number of policy debates concerning whether tax systems should be adapted to make the financial sector contribute in a fair and substantial way to public budgets (see IMF, 2010, and European Commission, 2010). This ongoing debate is fueled by questions such as whether the sector is too big in general and behaves too risky due to high concentration in the industry, the availability of implicit state guarantees, and the value added tax exemption of many financial services. Both academics and policy makers are concerned that these features could lead to economic rents which among others translate into higher wage payments compared to representatives with similar qualifications in other sectors. Already in 2009, for instance, the Obama administration was concerned about finding ways of changing compensation practices at firms in the financial industry in a way that would better align pay with long-term performance. This concern rooted in the observation of the high extent of variable compensation (such as bonus payments) which is linked to the short-term performance of a company instead of focusing on incentives aimed at raising and stabilizing the long-run value of firms. However, this particular focus on the regulation of the banking sector only has been criticized: employees could choose to work in non-regulated areas of

the financial sector such as private equity firms, or hedge funds (Wall Street Journal, 2009) so that the problem would be shifted to other players rather than being eliminated at large.

With a view on these discussions, the present paper aims to shed light on the issue of executive compensation of directors employed in the financial sector and quantify the extent of the premium of their pay relative to directors and CEOs with similar characteristics employed in other sectors of the economy. To be able to identify such a premium, we aim at addressing the following questions in this study. Does the financial sector pay better because the employees have special skills or are better educated than in other sectors? Obviously, answering such a question requires data on CEOs and directors with some information about their characteristics such as education and experience. If the answer to that question were yes, the premium in pay would simply be a skill premium and the matter one of self-selection of the best-educated individuals into the financial sector. Is there a premium in pay for financial sector at large or is it a matter of only some subsectors such as investment banking? An answer to that question can only be given from a data-set which covers sectors beyond the financial industry. Is the premium in the financial industry very much a phenomenon arising in a few countries such as the United States and United Kingdom or is it a global phenomenon? Obviously, the latter could not be addressed by a large number of studies utilizing data from only a single country such as the United States. Is the premium only a matter for CEOs or also for other executive directors?

The paper remainder of the paper is organized as follows. The subsequent section provides an overview of the literature on compensation of financial sector employees. In Section 3, we present report on a relatively novel data-set our study is based upon and provide some descriptive statistics. Section 4 introduces the estimation strategy and summarizes related empirical results. The last section concludes with a synopsis of the key findings.

2. LITERATURE

Previous work on the level and structure of CEO compensation has focused almost entirely on the United States especially due to the availability of the relevant data for that country. For instance, using data from Frydman and Saks (2010), Frydman and Jenter (2010) portray the evolution of total compensation for executives in the 50 largest firms between 1936 to 2005. The growth in CEO pay gained pace in around 1975, reaching its peak at the end of the 1990s with the Dot-Com bubble. The authors document a tremendous increase in compensation during the 1990s, where the median level of CEO pay among the S&P 500 companies rose from 2.3mn

US$ in 1992 to as much as 7.2mn US$ in 2001. Their findings suggest that firm size does not only explain *compensation levels* but also *pay raises*. Regarding the structure of executive compensation, the mentioned studies document a change in the relative importance of different compensation components such as salary, bonuses, and options over time. Until the 1970s, monetary incentives focused on bonuses based on annual accounting performance, and long-term incentive plans linked to multi-year performance. These features started to change in the early 1980s. In order to incentivize directors to focus on shareholder value, firms started awarding stock options which are tied to the evolution of share prices then. This type of compensation gained in importance especially in the 1990s and it formed up to 47 percent of total compensation in 2002 in the United States. Nowadays, it is the main component of CEO pay. Hence, the tremendous increase in executive compensation in the last decade can be largely attributed to the boost in stock option compensation. Similar trends of huge increases in executive compensation in the United States are also documented in a number of other studies such as Bebchuk and Grinstein (2005) or Gabaix and Landier (2008) to name but a few recent examples. None of the aforementioned papers considered compensation levels or schemes outside of the United States. One exception is a working paper by Fernandes, Ferreira, Matos, and Murphy (2010) which tries to explain the differences between the compensation of US executives and their counterparts in other economies. Their findings confirm our results that directors in the United States receive significantly higher remuneration and their pay is much more performance sensitive in the sense that the fraction of variable compensation in terms of options and shares is higher than in non-US countries.

However, all the above mentioned studies, do not consider the compensation of executives in the financial sector in particular, but look at the whole economy and sometimes control for specific sectors by using industry fixed effects. Only a rather small number of papers focuses on the compensation of employees in the financial sector vis-à-vis their counterparts in other sectors and employ US data only. The paper closest to other, by Philippon and Reshef (2009), identifies the existence of economic rents in the financial sector which can explain 30 percent to 50 percent of the wage differential. The authors use detailed data on wages in the US financial sector between 1930 and 2006 to provide evidence that these reached excessively high levels especially around 1930 and between 1995 to 2006. Their results suggest that on the one hand, complex corporate activities such as IPOs or credit risk have a positive effect on the demand for skilled workers whereas on the other hand, stricter regulation has a negative effect on the demand for skilled workers. In contrast to Philippon and Reshef (2009) who use population survey data, we focus explicitly on directors in our study. Regulation, or rather deregulation of the financial sector and its effects on executive pay is also the subject of the paper by Cuñat and

Guadalupe (2009). In their article, the authors use as quasi natural experiments two deregulation episodes in the US banking and financial industry in the 1990s to study their effect on executive pay. Their findings indicate that while deregulation and accordingly increased competition led to an increase in the performance pay sensitivity and accordingly in variable pay, fixed and effort independent pay declined.

3. CROSS-INDUSTRY AND CROSS-COUNTRY DATA ON MANAGERIAL COMPENSATION

The main data-set we employ in this study is BoardEx, compiled by Management Diagnostics Limited. The data-set offers detailed compensation data such as ones on salary, bonuses, long-term insurance plans (LTIPs), or estimated value of options awarded as well as biographic information (age, education, gender, etc.) on directors and officers in 42 countries. In total, the BoardEx data-set we utilize covers 24,508 directors and 7,403 companies for the time period 1998-2008.

We exclude data prior to 2002 and after 2007 for two main reasons. First, the country and industry coverage is much better from 2002 onwards with data coverage being skewed strongly towards the United States prior to that. Second, including years at the time of the bursting of the Dot-com market bubble in 2001 or the peak of the financial crisis in 2008 might bias the results. Furthermore, we drop independent directors from the sample as we are only interested in those executives who are company employees and accordingly receive both fixed and variable remuneration for their work in these firms. Given these considerations, we may use data on bonuses for 13,173 directors and 4,022 companies, on salary for 13,467 directors and 4,040 companies and on total compensation for 12,492 directors and 3,841 companies. We merge this data-set based on BoardEx onto data from Compustat which provides detailed firm characteristics, such as the number of employees or the return on assets, variables which we will use as control variables in our regressions which we employ to identify observable determinants of executive pay.

The companies covered can be grouped according to the Global Industry Classification Standard (GICS) into four major sectors, namely finance (GICS group 40), industry (GICS group 20), consumer goods (GICS groups 25 and 30), and others where the latter include inter alia the information technology sector, the pharmaceutical and chemical industry, etc. (GICS groups 10, 15, 35, 45, 50 and 55). Focusing on the financial sector, we can assign the companies into four subsectors, namely commercial banks, real estate, insurance and other finance (the last subsector including basically investment banks and capital market firms). This subdivision allows us to identify compensation differences within the financial sector.

4. EMPIRICAL EVALUATION

Let us start looking at various remuneration components in selected industries and countries by way of descriptive statistics. In particular, let us illustrate average compensation components and provide some other moments of those before turning to estimating the determinants of compensation premia in the financial sector and consider the conditional differences in compensation across sectors.

4.1 COMPENSATION BY SECTORS, COUNTRIES, AND ROLES

Table 1 provides summary statistics on the total level of compensation as well as its components for the overall sample and for the four different sectors mentioned above. Regarding the coverage of the different sectors notice the following. There is an overall number of 42,447 observations regarding total compensation of which the industrial, the consumer goods, the financial, and the other sectors account for 7,757, 10,812, 7,969, and 15,909, respectively. Hence, around 19 percent of the observations on total compensation accrue to directors in the financial sector. The coverage is similar for other remuneration components such as bonuses, LTIPs, salary and options.

Even a first glance at the numbers shows that executives in the finance industry at large tend to receive a higher pay on average – especially in terms of total compensation, bonuses, and LTIPs – than their counterparts in other sectors of the economy. The average value of total compensation reaches 2.8 mn US$ and is thus 9.8 percent lower than in the financial sector where the average is around 3.2 mn US$. Executives in the industrial sector receive only around 2,1 mn US$ on average. The difference is even more striking when it comes to bonuses and LTIPs which amount on average to 1.8 mn US$ in the financial sector and are thus by 30 percent higher than on average. Following the numbers presented in Table 1, we should also notice that the share of variable compensation – defined as the sum of bonuses, LTIPs, and the estimated value of options awarded divided by total compensation – is with 52.5 percent the highest in the financial sector which seems to indicate that pay is much more performance-sensitive than in other sectors.

Table 2 distinguishes once again between the different compensation components, yet not between different sectors but for different roles, namely CEOs and Non-CEOs. We use the term CEO for chief executives, irrespective of whether the company denotes this role as *CEO*, *chief executive*, *managing director*, or *president/CEO* in its reports. As expected, the values reported in Table 2 are significantly higher for CEOs than for Non-CEOs for both overall compensation and its components. CEOs receive an average annual total compensation of 4.3 mn US$ which represents 2.8 times the average compensation of Non-CEOs. The contrast is

most striking for options where the value awarded to CEOs is more than 4 times the one of Non-CEOs. Once again, the numbers presented for the share of variable compensation in total compensation indicate that the reliance on performance-related pay is more important for CEOs than for Non-CEOs.

Table 1: COMPENSATION COMPONENTS BY SECTOR

	Mean	Std.dev.	Min	Max	Observations
	(1)	(2)	(3)	(4)	(5)
Total Compensation (1000$)					
Total	2,838.78	7,574.18	1	437,760.00	42,447
Industry	2,131.35	6,716.04	1	326,989.00	7,757
Consumer goods	3,019.42	7,636.77	1	289,496.00	10,812
Finance	3,146.50	7,049.34	2	158,048.00	7,969
Other	2,906.79	8,138.61	2	437,760.00	15,909
Salary (1000$)					
Total	509.69	532.44	1	64,517.00	42,438
Industry	486.37	396.24	1	6,522.00	7,757
Consumer goods	580.35	791.20	1	64,517.00	10,808
Finance	523.98	431.41	1	7,002.00	7,964
Other	465.91	394.49	1	7,620.00	15,909
Bonus and LTIPs (1000$)					
Total	1,430.75	5,458.32	0	418,031.00	40,190
Industry	1,149.31	5,902.11	0	321,743.00	7,334
Consumer goods	1,490.82	5,490.74	0	288,462.00	10,237
Finance	1,870.24	5,191.21	0	122,600.00	7,570
Other	1,305.97	5,327.09	0	418,031.00	15,049
Options (1000$)					
Total	978.30	4,051.16	0	208,102.00	39,693
Industry	565.01	2,401.36	0	92,936.00	7,118
Consumer goods	1,022.04	4,425.68	0	208,102.00	10,129
Finance	863.36	3,641.55	0	149,587.00	7,420
Other	1,201.36	4,553.56	0	186,449.00	15,026
Variable compensation as share of total compensation (percent)					
Total	49.09	32.33	0	99.95	42,438
Industry	45.70	30.01	0	99.75	7,757
Consumer goods	48.03	32.07	0	99.93	10,808
Finance	52.51	32.25	0	99.95	7,964
Other	49.75	33.42	0	99.93	15,909

Notes: We restrict our sample to executive directors and to the 2002-2007 period. Total compensation is defined as the sum of salary, boni, estimated values of options awarded and the value of long-term incentive plans. The value of options is calculated according to the Black-Scholes model. The sector classifications refer to the Global Industry Classification Standard (GICS) where industry refers to GICS group 20, consumer goods to groups 25, 30, finance to group 40, and others to the remainder.

Table 2: COMPENSATION COMPONENTS BY ROLE

	Mean	Std.dev.	Min	Max	Observations
	(1)	(2)	(3)	(4)	(5)
Total Compensation (1000$)					
Non CEOs	1,574.30	3,967.00	1	208,824.00	23,107
CEOs	4,349.54	10,144.88	1	437,760.00	19,340
Salary (1000$)					
Non CEOs	398.66	364.14	1	8,320.00	23,099
CEOs	642.32	656.84	1	64,517.00	19,339
Bonus and LTIPs (1000$)					
Non CEOs	840.73	3,102.77	0	204,,193.00	21,944
CEOs	2,140.35	7,288.76	0	418031.00	18,246
Options (1000$)					
Non CEOs	383.71	1,958.96	0	70,007.00	21,296
CEOs	1,666.60	5,485.03	0	208,102.00	18,397
Variable compensation as share of total compensation (percent)					
Non CEOs	43.71	30.81	0	99.92	23,099
CEOs	55.51	32.93	0	99.95	19,339

Notes: We restrict our sample to executive directors and to the 2002-2007 period. Total compensation is defined as the sum of salary, boni, estimated values of options awarded and the value of long-term incentive plans. The value of options is calculated according to the Black-Scholes model. We define CEO as the leading role in the board of directors which is ambiguously phrased in the Boardex dataset.

While the tables just described provide some information about the structure and level of CEO pay in different industries without distinguishing among different countries, we consider the latter aspect as well in the following graphs.

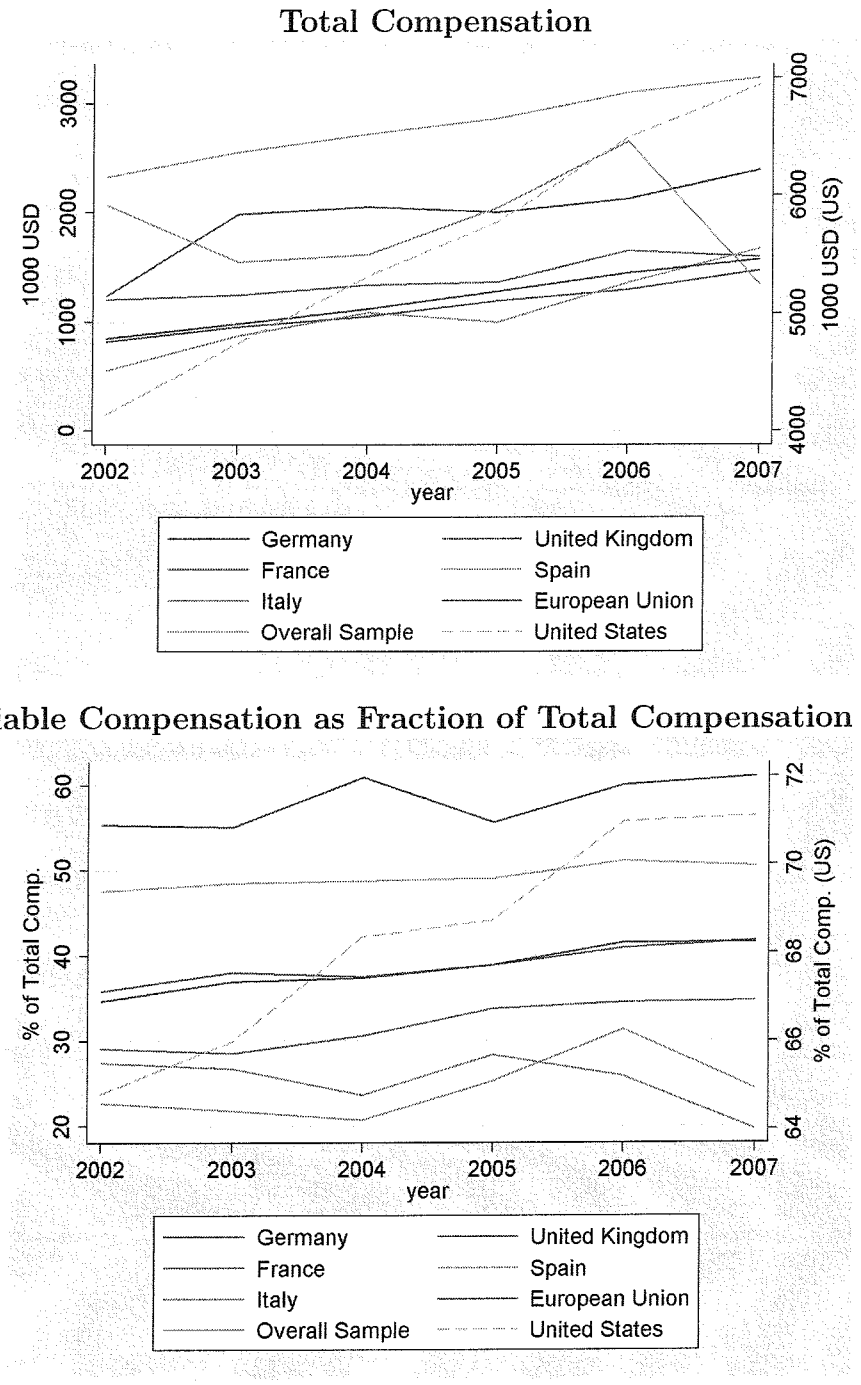
Figure 1 depicts the evolution of compensation over time. In the first panel we show how total compensation has evolved between 2002 and 2007 for Germany, France, Italy, Spain, the United Kingdom, the United States, for the European Union as a whole and for all countries in the sample. The scale on the right hand side refers to the United States as total compensation is much higher there than elsewhere. As we can see from the first panel, average total compensation has increased in almost all economies between 2002 and 2007. European Union countries started at levels of about 500,000 US$ (Spain) or slightly above 1mn US$ (Germany and France) and increased to in between 1,5mn US$ (France) and above 2mn US$ (Germany). For the overall European Union, average total compensation rose from slightly below

1mn US$ in 2002 to around 1.5mn US$ in 2007. The gap between the compensation level in the United States and European countries is tremendous. In the United States, average total compensation with 4mn US$ was almost four times as high as in the EU in 2002, and it increased to as much as 7mn US$ in 2007. While the levels of executive pay differ largely between the EU and the United States, they follow a similar trend. Average total compensation in the United States increased by 68 percent in the six years between 2002 and 2007, and it rose even by around 86 percent during the same time period in the European Union. Hence, the annual growth rate in total compensation reached almost 11 percent in the United States and 13 percent in the European Union.

The second panel of Figure 1 depicts the evolution of the fraction of variable pay in total compensation during the same time period. Once again we can observe a noticeable difference between European Union countries and the United States. Whereas in the latter, variable compensation accounts for more than two thirds of total compensation and increased from around 65 percent in 2002 to 71 percent in 2007, it just ranges between 35 and 42 percent of total remuneration in the European Union. The lowest values are recorded in countries such as Italy and Spain which seem to rely less on performance-sensitive pay and more on fixed, effort-independent remuneration. The highest values are found for Germany, where the share of variable pay accounts for up to 55-60 percent of total compensation.

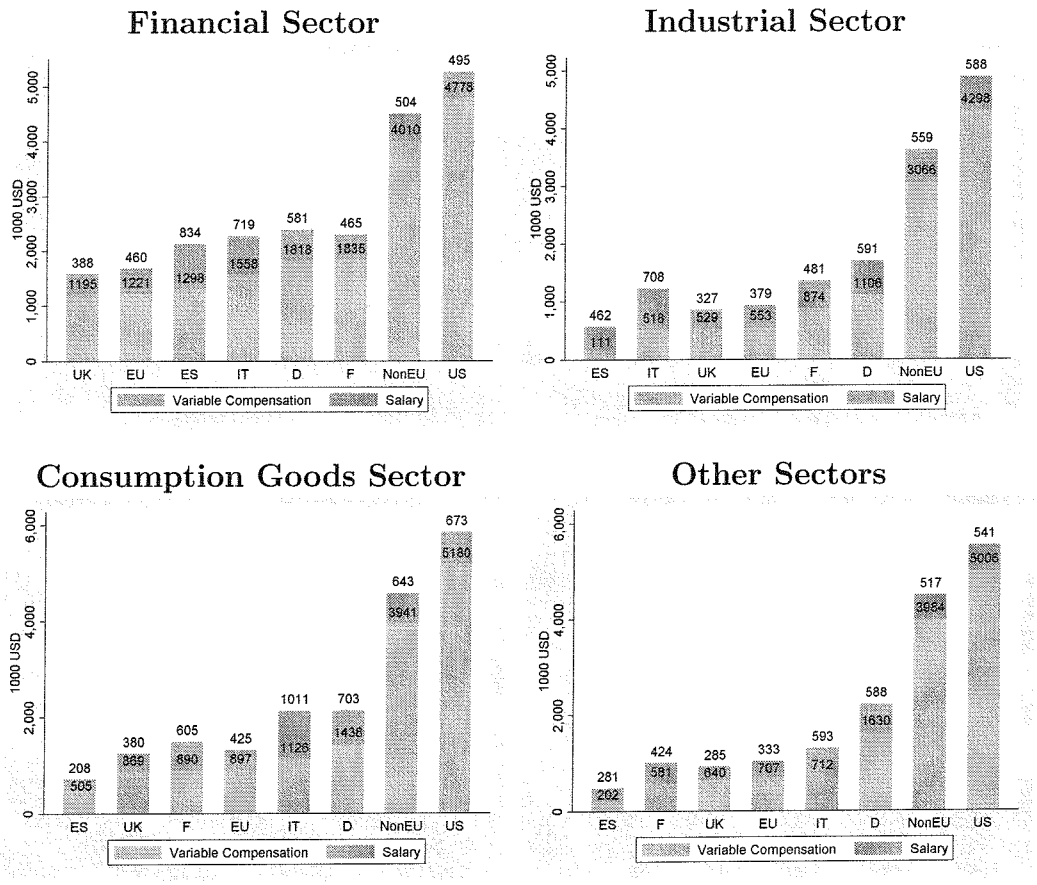
In the following, we scrutinize the relationship between salary (i.e., effort- independent compensation) and variable pay in different sectors of the economy for the countries mentioned above. As can be seen from Figure 2, the financial sector relies more heavily on variable compensation compared to the industrial, consumption goods sectors, or other sectors of the economy on average. Furthermore, the difference in the levels of variable pay between European Union countries and the United States appears to be lowest in this sector. Thus, the average amount of variable compensation in finance reaches 1,2mn US$ in the European Union and 4.8mn US$ in the United States. For the industrial sector, for instance, the discrepancy is larger since an executive receives on average 4.3mn US$ variable pay in the United States and only around 0.5mn US$ in the European Union.

Figure 1: Compensation Over Time in Different Countries



Notes: The graphs are based on data restricted to the time period 2002-2007. European Union includes Austria, Belgium, Cyprus, Czech Republic, Denmark, Germany, Finland, France, Greece, Hungary, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Republic of Ireland, Spain, Sweden, United Kingdom. Variable compensation is defined as the sum of boni, the value of long-term incentive plans and the estimated value of options awarded. The sector classifications refer to the Global Industry Classification Standard (GICS) where finance refers to group 40, industry to group 20, consumer goods to groups 25 and 30 and others to the remainder

Figure 2: MEAN SALARY VS. MEAN VARIABLE COMPENSATION IN DIFFERENT SECTORS AND COUNTRIES



Notes: The graphs are based on data restricted to the time period 2002-2007. European Union includes Austria, Belgium, Cyprus, Czech Republic, Denmark, Germany, Finland, France, Greece, Hungary, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Republic of Ireland, Spain, Sweden, United Kingdom. NonEU includes Argentina, Australia, Bermuda, Brazil, Canada, Cayman Islands, China, Croatia, Gabon, Gibraltar, Guernsey, Hong Kong, Iceland, India, Indonesia, Isle of Man, Israel, Japan, Jersey, Liechtenstein, Macau, Malaysia, Mexico, Morocco, Netherlands Antilles, New Zealand, Panama, Papua New Guinea, Puerto Rico, Russian Federation, South Africa, Switzerland, taiwan, Turkey, United States, United Arab Emirates and Virgin Islands, British. Variable compensation is defined as the sum of boni, the value of long-term incentive plans and the estimated value of options awarded. The sector classifications refer to the Global Industry Classification Standard (GICS) where finance refers to group 40, industry to group 20, consumer goods to groups 25 and 30 and others to the remainder

As depicted in Figure 2, the top overall compensation is recorded in the financial sector in the European Union and in the consumption goods sector in the United States. Furthermore, these bar graphs show that considerable differences exist in terms of variable compensation even between European countries, but to a lesser extent in terms of salary. Germany, France, and Italy offer the highest overall remuneration to their executives in the financial and industrial sectors. Whereas Germany, France, and the United Kingdom apparently rely more strongly on variable compensation, Italian companies award rather fixed salaries to their executives. The average salary exceeds the average variable compensation in the industrial sector and has almost the same level in the consumption goods sector in Italy. Moreover, as already shown in Figure 1, in the United States average variable compensation amounts to almost eight times fixed pay in the consumption goods sector and it is almost 10 times as high as fixed compensation in the financial sector.

4.2 REGRESSION RESULTS: TOTAL COMPENSATION

The compensation differences described above indicate that not only total compensation but also its composition varies across sectors (and countries). Yet, these differences could be driven by observable differences across managers and firms such as the education and the experience of the directors and/or the scale and profitability of the firms. Specifically, we aim at assessing whether these differences across sectors are statistically significant after controlling for observable characteristics of managers and firms. Even though we abstract from any causal interpretation here, such an analysis may help obtaining a more accurate estimate of the effective *wage premium* in the financial sector beyond descriptive statistics.

We aim at estimating the determinants of managerial pay by way of Mincer-type earnings equations that take into account firm-specific as well as director-specific characteristics. Following the seminal work of Mincer (1974), a large number of studies have analyzed the role of education and experience on earnings in different countries, sectors or time periods (for an overview see Psacharopoulo and Patrino (2002)). The typical Mincerian model specification specifies log-transformed earnings as a function of years of education and years of job-specific experience along with other covariates. Following Card and Krueger (1992) and Heckman, Layne-Farrar, and Todd (1996) who show that log earnings tend to be a nonlinear function of education, we include a quadratic education term in our specification of managerial pay:

$$ln(Y_i) = \alpha + \beta_1 Edu_i + \beta_2 Edu_i^2 + \beta_3 Exp_i + \beta_4 Exp_i^2 + \mathbf{X_i}\gamma + \delta Finance_i + \epsilon_i, \quad (1)$$

where Y_i denotes total annual compensation of director i, Edu_i the educational level, Exp_i the number of years director i has been employed in the specific role held, and

ϵ_i denotes an error term. The $1 \times K$ vector $\mathbf{X_i}$ refers to additional covariates we control for such as age, gender, the log of total number of employees of the firm, the firm's return on assets, the number of directors per employee and an indicator telling whether the director is the CEO of the company. Finally, we employ an indicator variable $Finance_i$ which is unity if a manager works in a firm in the financial sector. Ultimately, we aim at identifying the parameter δ which measures the semi-elasticity of compensation with respect to financial sector membership *conditional on other observable characteristics*. Accordingly, $\hat{\delta} \times 100$ is an estimate of the earnings premium of the financial sector compared to the sample average in percent. Since we pool our data over the period 2002-2007, we include year fixed effects in each specification. Moreover, we capture country specific compensation differences by country fixed effects. The fact that almost no directors switching from the financial sector to other industries or vice versa precludes us from estimating specifications with director fixed effects.

Table 3 illustrates the results for the earnings regressions using the total sample (column 1), the subset of EU countries (column 3), and the subset of Non-EU countries (column 5). Our estimate for the premium of the financial sector is about 40 percent for the total sample while it is about 60 percent and 20 percent in the EU and the Non-EU countries, respectively. These estimates are in line with Philippon and Reshef (2009) who identify a premium of 30 to 50 percent comparing the earnings of the financial sector in the USA to the rest of the private sector. However, Philippon and Reshef (2009) take into account all types of employees whereas our study exploits information on directors only. We expect that focusing on a more homogenous subgroup improves the comparability across sectors. The coefficient of the financial sector indicator is highly significant in each of these specifications. The controls we include feature the expected effects: age, education, and years in role exhibit a positive but diminishing effect on log earnings. A CEO receives about 60 percent higher total compensation than other directors, and females with similar characteristics are paid significantly less than males in similar positions and firms. Regarding the firm characteristics, we observe larger firms (measured in terms of their number of employees) paying significantly more. The same applies to more profitable firms in terms of their return on assets (ROA). Lastly, the number of directors per employee turns out to be significantly negatively correlated with the total compensation. This could be explained by a more or less fixed budget that is devoted to the board of a company with a given size. Overall, we find strong evidence for directors in the financial sector receiving more generous pay than their counterparts with similar characteristics in other sectors of the economy. This tendency seems to be more pronounced in Europe than in other parts of the world as the 90 percent confidence intervals of the δ coefficients in specifications (3) and (5) do not overlap.

Table 3: TOTAL COMPENSATION

	Total Sample		EU		Non-EU	
	Total	Finance	Total	Finance	Total	Finance
	(1)	(2)	(3)	(4)	(5)	(6)
Finance sector	.426 (.015)***		.597 (.018)***		.232 (.025)***	
Real Estate		.713 (.043)***		.462 (.059)***		.741 (.061)***
Other Finance		.630 (.039)***		.308 (.049)***		.993 (.077)***
Insurance		.362 (.038)***		.141 (.048)***		.490 (.058)***
Director Characteristics						
Age	.107 (.007)***	.129 (.017)***	.094 (.011)***	.034 (.027)	.121 (.011)***	.198 (.024)***
Age^2	-.001 (.00006)***	-.001 (.0002)***	-.001 (.0001)***	-.0004 (.0003)	-.001 (.00009)***	-.002 (.0002)***
Education	.222 (.012)***	.238 (.031)***	.163 (.015)***	.245 (.036)***	.295 (.021)***	.207 (.051)***
Education^2	-.033 (.003)***	-.047 (.008)***	-.021 (.004)***	-.045 (.009)***	-.048 (.005)***	-.043 (.012)***
Gender	-.132 (.031)***	-.103 (.063)*	-.149 (.038)***	-.195 (.085)**	-.124 (.049)**	.059 (.091)
CEO	.607 (.012)***	.598 (.030)***	.515 (.015)***	.507 (.037)***	.695 (.020)***	.675 (.046)***
Years in role	.018 (.003)***	.040 (.008)***	.044 (.004)***	.068 (.009)***	-.005 (.003)	.008 (.011)
Years in role^2	-.0007 (.0001)***	-.002 (.0004)***	-.001 (.0002)***	-.002 (.0005)***	-.0002 (.0001)	-.001 (.0005)**
Firm Characteristics						
Employees	.269 (.005)***	.253 (.014)***	.272 (.005)***	.201 (.017)***	.185 (.013)***	.257 (.026)***
Employees^2	.021 (.002)***	.022 (.004)***	.012 (.002)***	.012 (.005)***	.080 (.007)***	.082 (.012)***
Employees^3	-.001 (.0004)***	.004 (.001)***	-.0001 (.0005)	.007 (.001)***	-.010 (.001)***	-.012 (.002)***
ROA	.002 (.0003)***	.008 (.002)***	.001 (.0003)***	.006 (.002)***	.006 (.0008)***	.005 (.005)
Directors/Employees	-.004 (.001)***	-.006 (.002)**	-.002 (.001)*	-.002 (.003)	-.042 (.006)***	-.055 (.011)***
Const.	3.487 (.178)***	2.966 (.449)***	3.488 (.267)***	5.250 (.677)***	3.452 (.297)***	1.380 (.695)**
Country fixed effects	yes	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes	yes
N	35461	6776	19590	3785	15871	2991
R^2	.487	.466	.45	.492	.335	.385

Notes: ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively. Robust standard errors are computed. We restrict our sample to executive directors and to the 2002-2007 period. Total compensation is defined as the sum of salary, boni, estimated values of options awarded and the value of long-term incentive plans. Total compensation as well as employees are measured in logarithmic terms. The first two columns refer to the total sample, the third and fourth focus on observations within the EU while columns five and six focus on non-EU observations. For each of these three subsamples we identify the overall effect of the financial sector as well as variations within the financial sector which is referred to in the second column of each subsample.

The financial sector consists of a rather heterogenous set of companies and the stylized facts suggest that the compensation levels differ sharply between more conservative commercial banks and riskier investment companies. The data-set at hand enables us to further differentiate between these distinctive types of businesses within the financial sector. In particular, we can assign companies to the following subsectors: commercial banks (GICS group 4010), insurance companies (GICS group 4030), real estate which primary covers real estate investment trusts (GICS group 4040), and other finance which covers for instance investment banks and asset management companies (GICS group 4020). Specifications (2), (4), and (6) in Table 3 focus on the subset of companies which are part of the financial sector. In these specifications we substitute the financial sector indicator by indicators for the respective subsectors real estate, insurances, and other finance. Hence, the commercial banking sector acts as the reference group. Again, the firm-specific and director-specific covariates exhibit the expected correlations and most of them are significant at conventional levels of confidence. In the overall sample (column 2) individuals in the real estate sector, the insurance sector, and the set of other financial businesses earn significantly higher compensation than the commercial banking sector. The same holds true for the subsample of EU and Non-EU countries. The magnitude of the compensation differences within the financial sector is remarkable. Within the EU, real estate investment firms feature the highest compensation while firms belonging to the other finance sector exhibit the highest earnings in Non-EU countries. This indicates that the premium of the overall financial sector is driven to a large extent by more specialized units as for example the investment banks, asset management firms or real estate investment trusts.

In each of the total compensation regressions, the CEOs received a significant premium as compared to other directors which can be explained by their specific position within the firm. Focusing on the compensation of chief executive officers may reduce unobservable differences in the job demands of the analyzed units across sectors. It seems plausible that job characteristics companies' leaders are facing are more similar across sectors than the ones of other members of the board. Therefore, we run the above specifications for the subset of CEOs separately in Table 4. Again, the financial sector features a highly significant premium in all specifications. Yet, the magnitude of the effect diminishes slightly. As for the sum of directors, we observe significant compensation disparities for CEOs in different subsectors of the financial sector which is illustrated in columns (2),(4), and (6) of Table 4. The lowest CEO compensation within the financial sector applies to commercial banks.

Table 4: Total Compensation (CEO/Chairman of the Board)

	Total Sample		EU		Non-EU	
	Total	Finance	Total	Finance	Total	Finance
	(1)	(2)	(3)	(4)	(5)	(6)
Finance sector	.329 (.023)***		.574 (.034)***		.200 (.030)***	
Real Estate		.659 (.064)***		.522 (.113)***		.562 (.078)***
Other Finance		.708 (.059)***		.395 (.098)***		.816 (.089)***
Insurance		.429 (.059)***		.193 (.088)**		.449 (.075)***
Director Characteristics						
Age	.084 (.010)***	.066 (.023)***	.058 (.016)***	-.039 (.043)	.098 (.013)***	.108 (.028)***
Age^2	-.0009 (.00009)***	-.0008 (.0002)***	-.0007 (.0001)***	.00009 (.0004)	-.001 (.0001)***	-.001 (.0002)***
Education	.258 (.020)***	.292 (.045)***	.203 (.027)***	.378 (.064)***	.312 (.026)***	.201 (.063)***
Education^2	-.038 (.005)***	-.061 (.010)***	-.025 (.007)***	-.067 (.014)***	-.053 (.006)***	-.045 (.014)***
Gender	-.018 (.057)	.107 (.115)	.056 (.103)	-.046 (.155)	-.082 (.068)	.132 (.158)
Years in role	.012 (.003)***	.037 (.011)***	.037 (.006)***	.060 (.016)***	.001 (.004)	.026 (.014)*
Years in role^2	-.0005 (.0001)***	-.002 (.0005)***	-.001 (.0002)***	-.002 (.0007)***	-.0003 (.0001)**	-.002 (.0006)**
Firm Characteristics						
Employees	.274 (.008)***	.262 (.022)***	.285 (.010)***	.213 (.032)***	.196 (.016)***	.235 (.033)***
Employees^2	.025 (.003)***	.027 (.006)***	.010 (.004)***	.008 (.007)	.077 (.008)***	.089 (.015)***
Employees^3	-.002 (.0007)***	.001 (.002)	-.0002 (.0008)	.006 (.002)***	-.009 (.001)***	-.011 (.003)***
ROA	.002 (.0006)***	.009 (.003)***	.001 (.0004)***	.005 (.003)*	.005 (.0009)***	.011 (.005)**
Directors/Employees	-.006 (.002)***	-.010 (.004)***	-.002 (.002)	-.004 (.004)	-.040 (.008)***	-.056 (.013)***
Const.	4.890 (.263)***	5.429 (.644)***	4.976 (.404)***	8.001 (1.142)***	4.820 (.352)***	4.572 (.810)***
Country fixed effects	yes	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes	yes
N	17,089	2,891	6,198	1,014	10,891	1,877
R^2	.436	.449	.441	.543	.294	.359

Notes: ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively. Robust standard errors are computed.We restrict our sample to executive directors and to the 2002-2007 period. Total compensation is defined as the sum of salary, boni, estimated values of options awarded and the value of long-term incentive plans. Total compensation as well as employees are measured in logarithmic terms. The first two columns refer to the total sample, the third and fourth focus on observations within the EU while columns five and six focus on non-EU observations. For each of these three subsamples we identify the overall effect of the financial sector as well as variations within the financial sector which is referred to in the second column of each subsample.

4.3 REGRESSION RESULTS: VARIABLE COMPENSATION

Regarding the composition of compensation, Table 1 indicates that the financial sector receives a greater fraction of variable compensation compared to other sectors. To determine whether this difference is driven by observable firm or director characteristics we estimate the effect of the financial sector on variable compensation employing the same control variables as in equation 1 but substituting the dependent variable by variable compensation as a fraction of total compensation. Table 5 and 6 provide the results for the total sample and the subsample of CEOs, respectively. The fraction of variable compensation in the financial sector exceeds variable compensation in other sectors of the economy by about 7.7 percentage points. For the subset of EU countries the difference is even 11.5 percentage points while it amounts to 2.5 percentage points in Non-EU countries.

When focusing on CEOs (see Table 6) the results remain almost the same. The financial sector places significantly more emphasis on incentive compatible compensation than the other sectors considered. Comparing the subsectors of the finance industry, commercial banking follows a rather conservative compensation strategy whereas the real estate sector as well as the other finance sector allocate a significantly higher fraction of total remuneration to bonuses, options, and long term incentive plans (LTIPs). With respect to insurance companies, we observe a discrepancy between EU countries and Non-EU countries. In the former the compensation structure is not significantly different from the one applied by commercial banks while in the latter they put significantly more emphasis on variable compensation than commercial banking does.

Since the fraction of variable compensation is by definition limited to an interval between zero and unity, a standard linear model as utilized above may not be appropriate. Therefore, as a robustness check we estimate the sectoral differences in compensation structure by using a nonlinear fractional response model which ensures that the model prediction lies in the support region between zero and unity. Regarding functional form of the model we follow Papke and Wooldridge (1996) and Wooldridge (2002) to employ a fractional logit model. The corresponding results are summarized in Table 7. The correlations remain qualitatively unaffected in comparison to the linear models. Of course, the coefficients in Table 7 to the corresponding ones in Table 5, which may be interpreted as marginal effects. The reason is that the fractional logit model is nonlinear and marginal effects vary across observations. However, since the predictions of the linear models in Table 5 do generally not fall outside of the support region on the unit interval, the marginal effects in Tables 5 and 7 are quite similar on average.

Table 5: VARIABLE COMPENSATION

	Total Sample		EU		Non-EU	
	Total	Finance	Total	Finance	Total	Finance
	(1)	(2)	(3)	(4)	(5)	(6)
Finance sector	.077 (.004)***		.115 (.005)***		.025 (.005)***	
Real Estate		.131 (.011)***		.120 (.016)***		.129 (.015)***
Other Finance		.098 (.009)***		.083 (.013)***		.121 (.016)***
Insurance		.042 (.009)***		.0001 (.013)		.083 (.011)***
Director Characteristics						
Age	.021 (.002)***	.021 (.004)***	.020 (.002)***	.007 (.006)	.024 (.002)***	.036 (.005)***
Age^2	-.0002 (.00002)***	-.0002 (.00003)***	-.0002 (.00002)***	-.0001 (.00005)**	-.0003 (.00002)***	-.0004 (.00005)***
Education	.049 (.003)***	.054 (.007)***	.043 (.004)***	.063 (.009)***	.053 (.005)***	.036 (.012)***
Education^2	-.007 (.0007)***	-.011 (.002)***	-.006 (.0009)***	-.013 (.002)***	-.008 (.001)***	-.007 (.003)***
Gender	-.028 (.008)***	-.009 (.016)	-.010 (.010)	-.014 (.021)	-.052 (.012)***	-.002 (.024)
CEO	.043 (.003)***	.044 (.007)***	.022 (.004)***	.029 (.010)***	.064 (.005)***	.062 (.010)***
Years in role	-.002 (.0006)***	.003 (.002)**	.0008 (.0009)	.003 (.002)	-.004 (.0008)***	.001 (.002)
Years in role^2	-.00006 (.00002)**	-.0003 (.00008)***	-.0001 (.00004)***	-.0001 (.0001)	-1.00e-05 (.00003)	-.0003 (.00009)***
Firm Characteristics						
Employees	.045 (.001)***	.046 (.003)***	.052 (.001)***	.047 (.004)***	.018 (.003)***	.032 (.005)***
Employees^2	.002 (.0004)***	.001 (.0008)*	.002 (.0005)***	.0009 (.0009)	.010 (.001)***	.012 (.002)***
Employees^3	-.0004 (.00009)***	.0006 (.0002)***	-.0005 (.0001)***	.001 (.0002)***	-.002 (.0002)***	-.002 (.0004)***
ROA	.0007 (.0001)***	.002 (.0004)***	.0006 (.0001)***	.001 (.0004)***	.001 (.0002)***	.003 (.001)***
Directors/Employees	-.0003 (.0002)*	-.0006 (.0003)*	-.0002 (.0002)	-.0002 (.0004)	-.007 (.001)***	-.011 (.002)***
Const.	-.026 (.043)	-.023 (.100)	-.098 (.061)	.267 (.144)*	-.008 (.068)	-.367 (.149)**
Country fixed effects	yes	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes	yes
N	35,452	6,771	19,581	3,780	15,871	2,991
R^2	.347	.388	.269	.4	.184	.262

Notes: ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively. Robust standard errors are computed. We restrict our sample to executive directors and to the 2002-2007 period. Variable compensation is defined as one minus total compensation where total compensation is the sum of salary, boni, estimated values of options awarded and the value of long-term incentive plans. Employees is measured in logarithmic terms. The first two columns refer to the total sample, the third and fourth focus on observations within the EU while columns five and six focus on non-EU observations. For each of these three subsamples we identify the overall effect of the financial sector as well as variations within the financial sector which is referred to in the second column of each subsample.

Table 6: Variable Compensation (CEO/Chairman of the Board)

	Total Sample		EU		Non-EU	
	Total	Finance	Total	Finance	Total	Finance
	(1)	(2)	(3)	(4)	(5)	(6)
Finance sector	.051 (.006)***		.111 (.010)***		.017 (.007)**	
Real Estate		.106 (.016)***		.094 (.033)***		.093 (.020)***
Other Finance		.108 (.014)***		.095 (.027)***		.107 (.020)***
Insurance		.063 (.013)***		-.002 (.027)		.085 (.015)***
Director Characteristics						
Age	.015 (.002)***	.003 (.006)	.016 (.005)***	-.008 (.012)	.017 (.003)***	.015 (.007)**
Age^2	-.0002 (.00002)***	-.00009 (.00005)*	-.0002 (.00004)***	-.00003 (.0001)	-.0002 (.00003)***	-.0002 (.00006)***
Education	.051 (.005)***	.055 (.011)***	.046 (.007)***	.059 (.017)***	.055 (.006)***	.037 (.016)**
Education^2	-.007 (.001)***	-.011 (.002)***	-.006 (.002)***	-.011 (.003)***	-.009 (.001)***	-.008 (.003)**
Gender	-.030 (.014)**	.011 (.030)	-.021 (.027)	-.063 (.053)	-.042 (.016)***	.036 (.030)
Years in role	-.0007 (.0008)	.008 (.003)***	.003 (.002)*	.008 (.004)**	-.003 (.0009)***	.007 (.003)***
Years in role^2	-.00008 (.00003)***	-.0004 (.0001)***	-.0001 (.00006)**	-.0001 (.0001)	-.00005 (.00003)	-.0005 (.0001)***
Firm Characteristics						
Employees	.036 (.002)***	.035 (.005)***	.045 (.003)***	.036 (.008)***	.015 (.003)***	.022 (.007)***
Employees^2	.002 (.0007)***	.002 (.001)	.002 (.0008)**	.0002 (.002)	.011 (.002)***	.013 (.002)***
Employees^3	-.0003 (.0001)**	.0007 (.0003)**	-.0003 (.0002)	.002 (.0004)***	-.001 (.0003)***	-.001 (.0005)***
ROA	.0008 (.0002)***	.002 (.0007)**	.0006 (.0002)***	.001 (.0007)	.001 (.0002)***	.004 (.001)***
Directors/Employees	-.0005 (.0003)*	-.0008 (.0006)	-.00007 (.0003)	.0002 (.0006)	-.008 (.001)***	-.010 (.002)***
Const.	.211 (.066)***	.549 (.167)***	.023 (.119)	.831 (.316)***	.255 (.081)***	.292 (.196)
Country fixed effects	yes	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes	yes
N	17088	2891	6197	1014	10891	1877
R^2	.356	.382	.257	.436	.179	.251

Notes: ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively. Robust standard errors are computed. We restrict our sample to executive directors and to the 2002-2007 period. Variable compensation is defined as one minus total compensation where total compensation is the sum of salary, boni, estimated values of options awarded and the value of long-term incentive plans. Employees is measured in logarithmic terms. The first two columns refer to the total sample, the third and fourth focus on observations within the EU while columns five and six focus on non-EU observations. For each of these three subsamples we identify the overall effect of the financial sector as well as variations within the financial sector which is referred to in the second column of each subsample.

Table 7: VARIABLE COMPENSATION - NONLINEAR MODEL

	Total Sample		EU		Non-EU	
	Total	Finance	Total	Finance	Total	Finance
	(1)	(2)	(3)	(4)	(5)	(6)
Finance sector	.349 (.030)***		.508 (.040)***		.120 (.047)***	
Real Estate		.620 (.091)***		.538 (.145)***		.594 (.125)***
Other Finance		.469 (.081)***		.349 (.118)***		.583 (.143)***
Insurance		.200 (.080)**		-.0003 (.122)		.380 (.114)***
Director Characteristics						
Age	.095 (.012)***	.108 (.027)***	.105 (.020)***	.076 (.047)	.107 (.018)***	.164 (.040)***
Age^2	-.001 (.0001)***	-.001 (.0002)***	-.001 (.0002)***	-.001 (.0005)**	-.001 (.0002)***	-.002 (.0003)***
Education	.227 (.025)***	.240 (.060)***	.195 (.032)***	.288 (.077)***	.247 (.040)***	.158 (.101)
Education^2	-.033 (.006)***	-.049 (.015)***	-.027 (.008)***	-.059 (.019)***	-.039 (.011)***	-.030 (.027)
Gender	-.130 (.064)**	-.049 (.147)	-.050 (.086)	-.049 (.190)	-.234 (.094)**	-.009 (.234)
CEO	.199 (.026)***	.212 (.060)***	.108 (.034)***	.154 (.086)*	.302 (.038)***	.298 (.087)***
Years in role	-.008 (.005)	.021 (.013)	.005 (.008)	.016 (.018)	-.019 (.007)***	.012 (.019)
Years in role^2	-.0003 (.0002)	-.002 (.0005)***	-.0006 (.0004)*	-.0006 (.0008)	-.00003 (.0002)	-.002 (.0007)***
Firm Characteristics						
Employees	.189 (.010)***	.196 (.028)***	.224 (.013)***	.194 (.037)***	.084 (.024)***	.143 (.053)***
Employees^2	.011 (.004)***	.015 (.008)*	.011 (.004)**	.007 (.009)	.049 (.013)***	.067 (.025)***
Employees^3	-.002 (.0008)**	.003 (.002)	-.002 (.001)**	.005 (.003)**	-.007 (.002)***	-.007 (.005)
ROA	.006 (.0007)***	.013 (.004)***	.007 (.001)***	.010 (.005)**	.005 (.001)***	.017 (.009)*
Directors/Employees	-.004 (.002)*	-.007 (.005)	-.003 (.002)	-.003 (.005)	-.033 (.011)***	-.053 (.022)**
Const.	-.628 (1.280)	-2.192 (.747)***	-2.959 (.557)***	-3.428 (1.386)**	-1.538 (1.366)	-3.909 (1.164)***
Country fixed effects	yes	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes	yes
R^2	35,452	6,771	19,581	3,780	15,871	2,991
R^2						

Notes: ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively. We restrict our sample to executive directors and to the 2002-2007 period. Variable compensation is defined as one minus total compensation where total compensation is the sum of salary, boni, estimated values of options awarded and the value of long-term incentive plans. Employees is measured in logarithmic terms. The first two columns refer to the total sample, the third and fourth focus on observations within the EU while columns five and six focus on non-EU observations. For each of these three subsamples we identify the overall effect of the financial sector as well as variations within the financial sector which is referred to in the second column of each subsample.

5. CONCLUSIONS

In the aftermath of the financial crisis at the end of the first decade of the century, both policymakers and academics have raised concerns that certain characteristics of the financial sector such as its size and concentration, the large risks involved in certain financial transactions, or the value-added tax exemption of many financial services may lead to economic rents which should be redistributed. One concern raised was and still is that a significant share of those rents is reaped in the form of higher remuneration of executives employed in the financial sector compared to their counterparts in other sectors. In the light of these debates, our paper scrutinizes both the level and composition of the compensation of directors employed in the financial sector and in some of its subsectors compared to other executives with similar characteristics working in other branches of the economy. In particular, using a large set of data on directors' compensation in several sectors and countries, our findings indicate that there is a significant earnings premium in the financial sector which amounts for the overall sample to about 40 percent after conditioning out observable director-specific and firm-specific characteristics. Yet, there is considerable heterogeneity of earnings across different types of businesses within the financial sector.

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