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- Master thesis -

Why firms purchase employee insurance

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Abstract

In this paper we study the determinants of corporate demand for employee insurance. Our study is on small and medium sized unlisted Norwegian firms. We find that larger firms insure more than smaller firms, which is inconsistent with theory on diversification and real service benefits. We also find that firms with high average salaries insure more because these employees are thought to be valuable for firms and hence costly to lose. Lastly, we find that firms where the CEO owns shares insure less. Theory suggest that managers will want to insure more due to risk aversion and lack of diversification. We find evidence that the CEOs motives are twofold; On one hand he will want to insure more to retain valuable workforce, whereas he does not want to insure because insurance reduces cash flows to shareholders. We find that the first effect dominates when the average salary exceeds a certain threshold.

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1. Introduction

Similar to derivatives, corporate insurance provides companies the opportunity to hedge unfavorable outcomes. Despite the fact that global insurance premiums grew by 8% to $3.7 trillion in 2006,[1] relatively few articles have been written regarding corporate insurance. Insurance as a risk management tool is virtually absent from corporate finance literature (Mayers and Smith, 1982) despite its widespread use among corporations.

Not many empirical studies have been performed in this field due to data scarcity. The few empirical research papers available focus primarily on the aggregate demand for corporate insurance and/or property insurance and do not account for the fact that the characteristics of demand may vary between contract types.

The risk aversion motive is the primary motive for individuals who purchase insurance. Yet, for corporate demand for insurance the risk aversion motive is an inadequate sole explanation. Mayers and Smith (1982, 1987), Hoyt and Khang (2000), Yamori (1999), Smith and Stulz (1985) and Ehling (2008) argue that the demand for corporate insurance can be determined by; (i) the underinvestment problem (conflicting interests between shareholders and debt holders); (ii) management incentives (difference in interest between managers and owners); (iii) real service benefits; (iv) taxes; (v) liquidity (insurance and cash can be viewed as substitutes and/or complements).

By studying the demand for corporate employee insurance, we venture into an area of research where literature is scarce. The above literature may very well provide guidance as to the factors determining the corporate demand for employee insurance, but we believe the determinants may differ because employee insurance deals with human capital whereas other insurance contracts in most cases deal with physical capital.

[1] According to International Financial Services London.

Our research is important because it covers an area of research which to our knowledge has not previously been addressed, mainly because insurance companies are reluctant to provide data on insurance purchase as this would compromise their client base. Our dataset is provided by AON Grieg Norway, and is unique. By merging the insurance data with accounting data for Norwegian unlisted firms provided by the Centre for Corporate Governance & Research (CCGR), we have the opportunity to analyze the determinants of corporate employee insurance purchase and bring new insights to a sphere of risk management in which not much is known.

We find that larger firms purchase more insurance. This is contradictory to a priori literature. Smaller firms were expected to benefit from the real services of the insurance agents. However, for smaller firms employee insurance contracts are fairly standardized and firms need to be of a certain size in order for the insurance agents to find customization profitable. In addition, lack of bargaining power versus the insurance agents causes smaller sized firms to insure to a lesser degree.

Furthermore, we find that employee insurance is purchased for at least two reasons; firstly, it is a way of hedging; and secondly, it is a benefit for the employees. We find that firms that pay high salaries also purchase a lot of insurance. High salaries proxy for the value of an employee because salaries are determined by e.g. experience, education and responsibility and so forth. In this respect, firms which pay higher salaries have more valuable employees and have to provide benefits to retain them.

Lastly, we find that the CEO and his degree of ownership influences demand for insurance negatively. We expected that CEOs with a lot of wealth tied up in the firm would insure their employees more rigorously due to a lack of diversification and the risk aversion motive. We find that the CEO faces a trade off; on one hand he will want to purchase more insurance to retain valuable employees, whereas he on the other hand wants to purchase less when he holds a lot of common stock because insurance premiums reduce cash flow to the stockholders.

Our paper is arranged as follows; Section 2 contains our hypotheses. In Section 3 we present our data. Section 4 describes the methodology used in this paper. In Section 5 we thoroughly describe our results. Section 6 contains robustness checks. Section 7 sums up our key findings.

2. Hypotheses

According to classic financial theory, the Modigliani Miller propositions suggest that in perfect capital markets, investors can offset unsystematic risk by holding a well-diversified portfolio of assets. This implicates that in perfect markets, costly insurance is superfluous since investors can hedge more cost-efficiently themselves.

In the real world however, we observe large markets for derivatives and insurance contracts. Taxes, information asymmetry, capital restrictions and transaction costs may be obstacles hindering an investor from creating an optimal well-diversified portfolio.

Although insurance is an expensive and non-retrievable cost which reduces cash flow, the perceived benefits arising from this means of hedging may far exceed the costs of the alternatives. Internal risk management is complex and requires both sufficient knowledge and capital to be successful. For many firms, especially smaller firms, diversification and internal risk management may not be justifiable when balancing costs versus benefits (Mian, 1996). For these firms it is easier and less costly to have their risks assessed by insurance companies which through competency and experience can tailor insurance contracts according to perceived risks (Nance, Smith, and Smithson, 1993).

Norwegian companies are required by law[2] to provide a minimum employee insurance coverage for their employees. However, there seems to be cross sectional variation across firms and industries implying that firms insure more than legally required. We seek to find the factors influencing the demand for corporate employee insurance.

[2] See website of Lovdata

Research on risk management is largely directed towards derivates and its applications. Very little has been written on the use of insurance contracts as a hedging tool and existing literature focuses largely on property insurance. It is dubious whether the theories on both corporate hedging and corporate insurance have implications for the demand for corporate insurance or not. Our hypotheses are based on existing literature in the cases where we believe we can draw sensible analogies.

Property insurance generally covers property, plant & equipment whereas employee insurance covers illness/injuries and death amongst employees. Damages to property, plant and equipment can cause business interruption and hurt firm cash flows. This in turn can cause financial distress and lead to bankruptcy. The probability of default decreases with the degree of diversification. This obviously is important for human capital as well. Loss of employees is generally not an event that causes distress for larger firms. Larger sized firms are more naturally diversified because they have more employees, more cash and often a more diversified product line. Yet for smaller firms, loss of key employees is of great concern because these often hold non-retrievable knowledge and experience and cannot be replaced. For smaller firms it will be important to hedge these outcomes because the marginal cost of the loss of an employee, is higher than for larger more diversified firms.

The lesser degree of natural diversification will, according to the above discussion, lead smaller firms to hedge more. Large insurance brokers like e.g. Aon Grieg provide advice on how to build long term employee benefit plans, perform a risk analysis of the company and give tax and legal advice.[3] More often smaller firms do not hold these competencies internally and the expertise of the insurance companies is more likely to be of greater value for smaller firms because internal risk monitoring is costly. Larger firms on the other hand may be more conscious about risk management and have risk monitoring systems in place. In effect, we argue that smaller firms will demand more employee insurance for two reasons; firstly, they are smaller and less diversified and will

[3] See Hoyt and Khang (2000) for elaboration on the real service hypothesis.

want to hedge more. Secondly, these firms do not have internal risk management competencies and it is both easier and probably cheaper to outsource risk management to insurance agents.

Mayers and Smith (1987) examine the effect of the underinvestment problem associated with property losses. They show that firms with more risky debt in have incentive to forgo positive net present value projects because the wealth creation is largely transferred to the bondholders. They argue that this problem can be mitigated by reducing the amount of debt until the incentives between bond- and equity holders are compatible. Alternatively, they show that the problem can be handled by including covenants in the bond contracts requiring insurance coverage. Property insurance ensures that reinvestments will be made in case of accidents. As the debt/equity ratio increases, it becomes increasingly important for lenders to include covenants to reduce agency costs. It is dubious whether employee insurance can be directly related to the underinvestment problem. Insurance covenants in the bond contracts are means of lenders to reduce risk. In that sense, it is plausible that lenders want a broader base of insurance contracts that cover a wider range of risks. In this respect, it is reasonable to assume that firms with more debt in their capital structure will demand more employee insurance.

As we are studying the demand for employee insurance, we believe that firms will determine the level of insurance based on the perceived value of their employees. A proxy for this may simply be the average salary of the employees as it is reasonable to assume that a high salary is a way for firms to retain valuable workforce. Alternatively, we can measure the marginal value of a worker by his marginal productivity, that is; how much revenue the worker generates on average. We believe the motives for corporate employee insurance demand are twofold; firstly, insurance may be a way for firms to hedge the loss of valuable workforce, that is, the reduction of cash flow caused by death and/or disease of a valuable worker. Secondly, good insurance plans may be complementary to salary and is a way to attract/retain talent by enhancing the total benefit package offered by the firm. Hence we argue there is a positive relation between the level of insurance and average salary.

Ehling (2008) suggests that family owned firms care more about their stakeholders and are prone to hedge more. With respect to employee insurance purchase, firms that are more closely held would thus purchase more insurance relative to firms with more dispersed ownership. This could particularly prove important for smaller firms where there is no clear separation between management and ownership, where e.g. the CEO holds a majority of the common stock. According to Ehling (2008), the perceived importance of stakeholder welfare in the eyes of the shareholders increases with the degree of ownership concentration. That is; firms with highly concentrated ownership, typically family held firms where the owner is also the CEO, will want to provide more insurance for their employees.

Considering that the owner might also be the CEO of a small firm, diversification might be of a great concern to him as he has most of his human, as well as physical capital tied up in the firm. Consequently, events that hurt cash flows would affect him as an undiversified investor more, and he might want to hedge these events through the use of financial instruments like e.g. insurance contracts. Following Myers and Smith (1982), closely held firms have the same incentives to purchase insurance as individuals, mainly the risk aversion motive. Furthermore, they argue that firms with more dispersed shareholders can reduce risk by diversifying away firm specific risks by holding a broader portfolio of financial assets.

One could argue that the managers have conflicting interests with regards to employee insurance coverage. The value of his stocks decreases proportionally with the volatility of the firm's assets (Hoyt and Khang 2000). In this respect, hedging cash flows hurts the value of his shareholdings. Steady cash flows however, increase the value of human capital, so the combined effect of hedging is ambiguous.[4] Nonetheless, we argue that firms with more concentrated ownership and where the CEO has more of his wealth tied up in the firm will purchase more employee insurance.

[4] See Hoyt & Khang (2000).

Mayers and Smith (1982, 1990) argue that taxes also determine the level of insurance firms purchase. Insurance premiums are, in contrast to derivatives, deductible and may reduce the effective tax rate companies' pay. Hence insurance contracts may be a more attractive way of hedging because the costs are deductible. Furthermore, they argue that depreciation on replaced property produces the expected tax shield sooner than with self-insurance. Even though this argument is not directly transferable to the purchase of employee insurance, we expect companies in higher tax brackets to demand more employee insurance, due the deductible nature of insurance contracts.

Literature on hedging through derivates suggests that dividends are a measure for liquidity. Nance et al (1993), Gezcy, Minton and Schrand (1997) as well as Graham and Rogers (2002) suggest a positive relationship between the dividend yield and derivatives use, but only Nance et al. (1993) find empirical support for this hypothesis. According to Aunon-Nerin and Ehling (2007), firms buy insurance to hedge against states of nature with low cash flows. They also argue that firms can use cash as an alternate means of hedging. Firms with a lot of cash on their balance sheet are hedged against states with low cash flows. When accidents occur, firms can either rely on disbursements from their insurance agent and/or cover the expenses through their cash reserves. Hence cash and insurance purchase could be viewed upon as substitutes and/or complements. Firms with a lot of cash may still want insurance coverage, but due to their cash reserves they may feel safer and require less insurance relative to firms without excess cash. Following these arguments, we expect that firms with larger cash reserves will demand less insurance.

3. Data Description

Our dataset consists of insurance contracts provided by AON Grieg, accounting data from the Centre for Corporate Governance & Research (CCGR) as well as credit scoring provided by Creditinform. The insurance data provided by Aon Grieg originally consisted of insurance 7692 observations of 13 different contract types in the period 2003-2006 for 1087 predominantly small and medium sized unlisted firms. As our study focuses on the corporate demand for employee

insurance, we are only interested in the part of the dataset regarding employee insurance contracts.

The data from AON Grieg contained in total 1075 observations on employee insurance contracts from 2003 until 2005. The data sample contains small, medium and large sized firms, distributed across the following industries; agriculture, manufacturing, energy, construction, service, financial, trade and multi grouped[5].

Due to discrepancies between the AON Grieg data and the CCGR data we have to remove insurance data for which we do not have complementary accounting data. This reduces our sample size to 698. Furthermore, Winzoring of the data shrinks our sample to 591 observations for 367 firms. A detailed motivation for this procedure is provided in the methodology section of this paper.

The data cover the time span 2003-2005, and are unevenly distributed across years; 15.7% of the observations are from 2003, 45.2% from 2004 and finally 39.1% from 2005.

The firms in our sample are unevenly drawn from different industries. Industries such as manufacturing, service and trade account for respectively 17.5%, 15.8%, and 17.58% of total observations. On aggregate these industries account for 51% of the total observations[6].

Since we are dealing with employee insurance, it is crucial that the data measuring the number of employees are as accurate as possible. We find that the employment data provided by CCGR appear to have a lot of missing observations. We find e.g. that employment data are missing for the entire 2005 series. This would have reduced our data sample by 231 observations to 361. However this problem was mitigated by manually retrieving employee data from Proff Forvalt.[7]

[5] Firms that according to Berzins & Bøhren (2008) operate in multiple industries.

[6] See the Appendix for Table 1.2.

[7] Available from www.forvalt.no.

3.1 Descriptives

The primary motive behind purchase of employee insurance (and insurance in general) is that firms wish to hedge against events that reduce cash flows. Statistics show that insurance claims for casualties indeed may hurt firm's cash flows in the absence of insurance. In the top 10 industries with most work related injuries, the indemnifications amounted to 548.000 NOK on average.[8] This number represents the total compensatory damages the injured party receives from the public administration and the employer. According to Norwegian legislation the employer is obliged to pay workers compensation for the 16 first days of absence,[9] the social welfare system handles the excess part of the sick leave. Nevertheless, indemnity claims on the firm may affect company performance and has the potential to hurt cash flows. This is probably even more important for smaller firms which have a lesser degree of diversification and are more vulnerable to the marginal loss of a worker.

Norwegian firms are by law obliged to insure their employees, but the degree of insurance coverage may vary. Employee insurance contracts typically cover loss of revenue, costs associated to injuries/death and indemnities to the victims of accidents. In addition firms can purchase extended coverage that covers injuries/accidents that are non-work related.[10]

Table 3.1.1

	N	Mean	Std. Dev.	Min.	Median	Max
Premium in NOK	591	759672.10	2762859.90	686.00	132571.00	42821870.00
Insurance per employee	591	4458.3	3750.3	176.4	3241.9	17336.3
Premium to earnings	590	0.36502	7.40973	-7.62308	0.01430	178.89800

The table above summarizes the descriptive statistics for employee insurance purchases in our sample. From this we see that firms on average purchase about 4460 NOK of insurance per employee, whereas the median is about 3240 NOK. It is also interesting to notice the variation in insurance ratio per employee with a

[8] According to statistics from The Norwegian Financial Services Association.

[9] According to the Norwegian Labor and Welfare Association (NAV).

[10] See Trygg Vesta, Gjensidige & IF's webpages.

minimum value of 176.4 NOK and a maximum of 17336 NOK. This shows that there indeed is cross sectional variation among firms and that the degree of employee insurance coverage varies a lot. The median of the premium to earnings ratio (1.4%) is above the median for property insurance found in Ehling (2008), which indicates that firms spend relatively more on employee insurance than on property insurance contracts.

Statistics on work related injuries in 2004 show that most reported injuries (excluding public services) occur in agriculture & fishing, construction and manufacturing[11]. Common for these industries is that they are capital intensive and often involve handling of heavy machinery, which increases the probability of injuries relative to industries that rely more on human capital. This is substantiated by statistics of the most commonly reported injuries; fractures, bruising and dislocations. These are injuries more likely to occur in more capital intensive and perhaps more risky industries relative to e.g. finance and banking.

We divide our sample according to industries where the most and least injuries occur. Table 3.1.2 includes firms which have a high frequency of employee injuries. These industries are agriculture, manufacturing, energy and construction. Table 3.1.2 consists of industries where the injury frequency is low, and consists of the service, trade, financial and transport industries.[12]

Table 3.1.2

	N	Mean	Std. Dev.	Min.	Median	Max
Premium in NOK	256	1105283,60	3924177,70	4538,00	199296,50	42821870,00
Insratio_empl	256	4735,6	3689,6	176,4	3664,2	17263,4
Premium to earnings	255	0,76871	11,21729	-3,21371	0,01714	178,89800

Table 3.1.3

	N	Mean	Std. Dev.	Min.	Median	Max
Premium in NOK	326	504408,63	1267205,83	686,00	99926,00	8792594,00
Insratio_empl	326	4269,8	3809,2	195,3	2977,3	17336,3
Premium to earnings	326	0,01740	0,70417	-7,62308	0,01356	4,33067

[11] For detailed statistics see The Norwegian Financial Services Association's website.

[12]Multi group is excluded due to classification difficulties.

What is interesting to note is that firms in the most risky industries (industries where statistics show that most accidents occur) on average purchase insurance for approx. 500 NOK more per employee than firms which operate in industries with lower injury frequencies.[13] A comparison of premium to earnings reveals the same tendency; the risky firms spend 0.5% more of their earnings on insurance. As the probability of sustaining work related injuries increases, the companies have to provide better insurance plans to compensate for the increase in risk. Evidently the premiums paid on employee insurance vary across industries and this should be accounted for in our analysis.

4. Methodology

In a related paper, Hoyt and Khang (2000) use ordinary least squares regressions (OLS) when determining the corporate demand for property insurance. We adopt this methodology and run OLS regressions with the scaled insurance premium ratio as dependent variable and proxies for our hypotheses as independent.

4.1 Dependent variable

Our dependent variable in our regression is as aforementioned; the insurance premium ratio. The insurance premium as a price measure says nothing about quantity demanded, the premium paid is a function of the frequency and impact of the losses that the firms intend to cover (Hoyt and Khang, 2000). We need to scale our dependent variable to have a comparable measure of insurance coverage. Hoyt and Khang (2000) scale their insurance premiums by insurable property in order to determine to which extent firms are insured. We follow this methodology, and use the insurance premium scaled by the number of employees.

With our dependent variable being insurance premium divided by number of employees, it is plausible that we will have outliers in our data due to either measurement error in either recorded insurance premium or number of employees. We find firms which e.g. pay an average of 4 millions of insurance per person. An inspection of these firms reveals that they are often holding companies which

[13] This was shown using a dummy regression, results are available upon request.

seem to purchase insurance on behalf of subsidiaries. Furthermore, we find firms that purchase nearly no employee insurance but are listed with many employees. These firms may perhaps have holding companies handling their insurance.

To deal with the problem of outliers in the insurance premium variable, we Winsorized the data by removing 5% of the observations on both sides of the distribution. In practice we deleted 30 largest and 30 smallest observations and reduced our data sample to 591 observations.

4.2 Independent variables

We employ the following independent variables[14] in order to determine corporate demand for employee insurance; LOG_CASH is the logarithm of cash and cash equivalents. CEOSHAREM is the equity share held by the CEO scaled by 100 where all missing values have been replaced by zero[15] and CEO_SALARY is CEO salary scaled by assets and multiplied by 1000. CONCENTRA is the Herfindahl index for equity ownership concentration. DE is the debt to equity ratio. DIV is the dividend yield ratio; usually it is calculated as dividends per share to stock price at the end of the year. Since we do not observe the stock price, here it is given by total paid out dividends scaled by total equity. TAX is the marginal tax rate calculated as tax on operating result/operating result before taxes. SIZE is the logarithm of book value of equity plus book value of long-term debt.LTD is the long-term debt ratio; it is given by the book value of long-term debt divided by total assets. SIZE_EMPL is the logarithm of number of employees. EMPL_SALARY is the logarithm of average salary. REV_EMPL is the logarithm of revenues over number of employees.

We follow the methodology of Ehling (2008) and manually inspect all variables to control for potential outliers. This leads us to delete what we consider to be extreme values.[16] The problem with outliers is that they can increase the standard errors and render erroneous inference about coefficients in addition to reducing the explanatory power of the regression model. Deleting single observations is

[14] See the Appendix, Table 1.3 for descriptive statistics.

[15] See Ehling (2008) for appropriateness of this method.

[16] Examples of extreme values are e.g. debt/equity ratios of 282 and 70.

clearly a matter of subjective judgment, but we argue that as long as the observations are far out from the distribution, the method can be justified.

Our dataset consists of firms from 9 different sectors classified by Berzin and Bøhren (2008). Clearly the probability of loss varies by industry. To control for this we follow the methodology of Hoyt and Khang (2000) and employ industry dummies. However, the firms in our sample are not distributed evenly across the industries[17] and we hence have to leave out dummies for underrepresented industries.[18]

We also divide our dataset into various subsamples to check the robustness of our results. A further description of this procedure follows in the subsequent robustness part of this paper.

Diagnostics of our dataset reveal that we have a certain degree of autocorrelation in our data. We also detect heteroskedacity. To account for this we run our regressions with Newey-West variance-covariance estimator. The power of this method is that it adjusts the standard deviations to account for heteroskedacity and autocorrelation without changing the betas estimated by the OLS estimator. Typically the Newey-West adjusted standard errors are larger than the ones produced by OLS, thus producing lower t-scores and ensuring that we do not commit type 2 errors.

5. Empirical findings

For our main model we run an OLS regression where we include variables for all hypothesized relations as well as industry dummies to control for industry effects.[19] The main results of our regressions can be seen in Table 2.1 in the Appendix.

[17] See the Appendix Table 1.2.

[18] Financial & Multi group were excluded.

[19] Our regressions use Newey-West corrected error terms to account for serial correlation and heteroskedasity in the data.

Firstly, we find SIZE to be significant with a positive sign. This is contrary to what was found in a priori research. Mayers and Smith (1990) and Hoyt and Khang (2000) show empirically that smaller firms demand more property insurance because these firms benefit more from the real services provided by insurance agents. Generally, these firms are small in size and have a lesser degree of diversification.

In our sample 50% of the firms have 40 employees or less and accordingly are characterized as small. The positive coefficient of SIZE indicates that smaller firms do not insure in excess of what they are obliged to by law. For smaller sized firms contracts are standardized and only firms of larger size have the opportunity to get their insurance contracts tailor made. Smaller firms have less bargaining power versus the insurance agents and may wind up paying a higher price per employee and/or receive fewer benefits relative to larger firms. This may also be related to economies of scale; larger firms have more workers performing the same task, which facilitates risk monitoring and reduces the average underwriting cost per employee. From the insurance brokers perspective it may thus be more attractive to attract larger customers and provide them with a discounted insurance package relative to contracting many small firms because the efforts and cash spent on real services do not marginally pay off for smaller contracts.

Furthermore, larger firms which we argue are more diversified, purchase more insurance. Insurance is expensive and is a cost that adversely affects results. The cost of employee insurance weighted up against the benefits from hedging may make these contracts less attractive for smaller firms.

Secondly, CEOSHAREM is negative and significant. The predicted sign for this variable is positive as it was argued that CEOs with a lot of wealth tied up in the firm would insure their employees more rigorously due to lack of diversification and the risk aversion motive. We find that CEOs with larger share ownership tend to purchase less employee insurance. Theory regarding this hypothesis was mostly concerned with property insurance where the loss of equipment may have a more severe impact on firms' cash flows than accidents involving employees.

Statistics show that the average cost of injuries in Norway was approximately 548.000 NOK per case, whereas the same statistics for fire showed a cost of 780.000 NOK.[20] When comparing these numbers it is important to bear in mind that the government pays parts of the 548.000 NOK and that insurance companies pay the outstanding, so the actual difference is probably larger than these numbers indicate.

It is plausible that CEOs find property insurance to be a more important mean of hedging than employee insurance because the impact of accidents on property may hurt his personal wealth more. If employee insurance is viewed more as a part of a total benefit package for the employee it is possible that the CEO faces a trade off; on one hand he will want to purchase more insurance to retain valuable employees, whereas he on the other hand wants to purchase less when he holds a lot of common stock because insurance premiums reduce cash flow to the stockholders.

Indeed we find evidence for this by running a separate analysis by including an interaction term of CEOSHAREM and EMPL_SALARY. When setting the first order derivative of this expression, with respect to CEOSHAREM, equal to zero and solving for EMPL_SALARY,[21]. We find that for average salaries above approx. 620.000 NOK, the CEO and hence the firm, buy more insurance because employees who earn over 620.000 NOK are harder to replace and more valuable. When the average salary falls below this threshold however, employee insurance may be viewed more as a cost which affects firm performance resulting in less demand for insurance. However, the interaction term is not statistically significant, which limits the power of this conclusion. The data-series CEOSHAREM had a lot of missing variables which in accordance with Ehling (2008) were replaced by zero. This may contribute to the poor level of significance.

[20] According to statistics from The Norwegian Financial Services Association.

[21] Methodology adopted from Hoyt & Khang (2000).

Hoyt and Khang (2000) argue that managerial entrenchment increases as size decreases, and that the CEO who owns large parts of smaller firms will buy more property insurance. When employing an interaction term of CEOSHAREM and SIZE we find that CEO ownership has shifting effects on the demand for employee insurance. For firms with book value of asset above approx. 290 mill, NOK[22] CEO share ownership has a positive effect on demand. For smaller firms, (B.V. <290 mill. NOK) CEO ownership has a negative effect on insurance purchases.[23] This contradicts Hoyt and Khang (2000), and may indicate that CEOs who have shares in larger firms will have more wealth tied up in the firm in absolute terms and hence would like to hedge more of their unsystematic risk. Hoyt and Khang (2000) study listed firms where lack of liquidity increases the entrenchment effect for smaller firms. For unlisted firms however, lack of liquidity could make liquidation of stock positions even more difficult. CEOs of larger firms may be entrenched by their inability to sell their shareholding at a reasonable price because it is hard to find buyers for large bulks of company stock. So these CEOs would prefer to hedge more because they cannot easily reduce their exposure to the company.

We find EMPL_SALARY to be positive and highly significant. Indeed companies with higher average salaries purchase more employee insurance. This is in line with our predictions that the more valuable the employees are perceived, the more they will be insured. Employee salary can in most cases be positively related to level of education and years of experience etc. and may indeed be a good proxy for the marginal value of an employee. Consequently, the higher the average salary, the higher level of education and experience and the harder and more expensive will it be to replace the employee. The company will perhaps not be willing to bear this risk alone. Alternatively, one can view insurance plans as a part of a total benefit package to attract and retain valuable workforce.

EMPL_SALARY contains the average salary for all employees in the firm (including the CEO). This would be a potential problem if we run CEO_SALARY

[22] Setting the first order derivative equal to zero and solving for SIZE.

[23] Analysis based on Hoyt & Khang (2000). See the Appendix, Table 3.1, Model 7.

and EMPL_SALARY in the same model because we would be accounting for the wage of the CEO twice. In closely held firms, the distinction between management and owners may be vague. In our sample we find that a mere 4.72% of the CEOs hold a majority of shares. Therefore it is in the best interest of the owners to retain good management by providing good benefits too them as well. However, we cannot control for differences amongst employees, the results may e.g. be driven by one or two employees who have higher salaries and better benefits.

Firms with more concentrated ownership appear to buy more employee insurance. This is in accordance with what was predicted; firms which are more closely held appear to purchase more employee insurance. This supports the theory that firms which are tightly held have less diversified owners and that they hence will prefer to compensate for this by purchasing more insurance. However the variable measuring ownership concentration (CONCENTRA) is statistically weak and not significant. We thus limit ourselves to note that the variable has the expected sign, but that the result does not hold statistically.

Contrary to our prior predictions, we find DE to be positive and significant. This is in accordance with the theories presented by Mayers and Smith (1987); Firms can mitigate the underinvestment problem mainly through reduction of debt until bondholders and shareholders find common incentives or through covenants concerning insurance embedded in the bond issues. Highly levered firms may indeed be facing underinvestment problem, but it seems quite equivocal how employee insurance contracts can deal with these problems. However for highly levered firms lenders might want full insurance coverage across both intangible and tangible assets to mitigate the underinvestment problem as well as hedging unfavorable states of nature. It is important to bear in mind that most companies in our sample are fairly small,[24] and as previously argued, are less diversified by nature. This lack of diversification combined with high debt equity ratio is

[24] 50% of the firms in our sample have less than 40% employees. According to Norwegian definitions small firms are firms with less than 20 employees and medium have between 20 and 100 employees. See Ministry of Finance NOU 1995:16.

obviously of great concern for lenders who will want this unsystematic risk mitigated through e.g. insurance contracts.

The literature on corporate insurance demand argues that firms with high expected bankruptcy costs and higher probability of bankruptcy will have a greater incentive to purchase property insurance.[25] These firms insure to hedge states of nature with low cash caused by accidents and casualties to property. It is important to bear in mind that accidents involving property, plant and equipment may quite possibly also involve workers and personnel. These events may very well be correlated to a certain extent. It follows that if disaster strikes, firms do not only face the loss of cash flow due to loss of property, but also due to the loss of employees. Consequently, lenders will want borrowers to hedge both effects as the combined effect on cash flow might potentially render bankruptcy. In line with this reasoning, we argue that firms with high debt equity ratios purchase more employee insurance because lenders may demand full insurance coverage due to a low degree of diversification as well as the fact that accidents to some extent may be interrelated.

In our regressions we find tax to be negative as expected, but not statistically significant. The sign however is consistent with our expectations; firms that purchase more insurance have lower tax brackets. It is important to bear in mind that the effective tax rates are ex post insurance premiums, firms with ex ante high insurance premiums can effectively reduce their tax rate by purchasing insurance. Our findings are consistent with Hoyt and Khang (2000) and Mayers and Smith (1982, 1990), but we are not able to draw any statistical inference.[26]

Ehling (2008) shows that the dividend payout ratio exerts a negative influence on the insurance coverage ratio. Firms which pay out dividends insure less because they have excess cash and hence are more naturally hedged. These firms will thus purchase less insurance.

[25] See Mayers & Smith 1987 and Hoyt & Khang (2000).

[26] See the Appendix, Table 2.1 Model 1.

Contrary to the results found by Ehling (2008) and Allen and Michaely (2003), we find that dividends exert a positive and significant influence on the employee insurance purchase decision. Firms which pay out a lot of dividend also tend to purchase more insurance. This is consistent with Nancy et al (1993) who find a positive relationship between hedging and dividend payments.

According to Allen and Michaely (2003) firms defined as cash cows[27] pay out more dividends than average in lack of investment opportunities. Large and profitable firms with less information asymmetries are less risky and pay out more dividends.

Credit ratings provided by Standard & Poor, Fitch and in our data, Creditinform, measure the perceived risk of companies. Aunon-Nerin and Ehling (2008) show that firms with higher ratings (less risky firms) indeed payout more dividends. In a similar analysis we find the same conclusion.[28]

Interestingly, when we run analysis with cash over assets as the dependent variable and various indicators of debt and usage of cash as independent variables, we find that firms with a lot of cash payout higher salaries to both employees and CEO[29], buy more insurance and payout more dividends. Although we cannot infer the magnitudes of this spending, we see that firms spend cash on both salaries and insurance, which is in line with our hypothesis that employee insurance may be a means of retaining valuable workforce.

[27] Allen & Michaely use the following definition of cash cows; They have positive earnings, rating of A or better and a price/earnings ratio lower than the median for firms with positive earnings and have an A rating. However this definition is used on listed firms, and may not be appropriate since we study non-listed firms.

[28] Regression output included in the Appendix Table 4.1 Model 12.

[29] The salary of the CEO is included in EMPL_SALARY. We therefore correct for the double counting by calculating EMPL_SALARY2 which is (payroll expenses – CEO salary)/(number of employees)-1.

A similar analysis run with dividend yield as dependent variable shows a negative relationship between dividends and salary paid to CEO and employees.[30] One could argue that for firms with high CEO ownership, dividend and CEO salary are substitutes; the CEO can extract cash from the firm by either paying dividends or by salary. In our sample however, we find that only 4.74% of the CEOs hold more than 50% of the common stock and less than half of these CEOs fully own the firm, so dividends and CEO salary do not appear to be substitutes.

Firms with high dividend yields appear to spend less on salary. So it may seem like the firms in our sample are not cash cows in the sense that they do not spend cash on both dividends and salaries. If firms spend lots of cash on salaries, there might not be any left for dividends and vice-versa. For firms with lots of excess cash, it may not be unreasonable to believe that they can afford both.

Given this, the fact that we find a positive relationship between dividends and insurance purchase may not be too unreasonable; if the firms do not hold large amounts of excess cash they are not naturally hedged and hence would want to purchase insurance. It might be the case that they have some cash, but not excessive amounts and choose to spend some on insurance, some on dividends and some on salary.[31]

6. Robustness

In order to check the robustness of our results we perform a series of different test. It is especially important to run robustness tests on our findings because we use theories developed on other types of insurance contracts. We want to ensure that the relationships we discuss are not spurious and a product of peculiarities of our data sample.

To control if our results change because of misspecifications to our measurement variables, we employ different proxies for the independent variables. First we

[30] See Appendix Table 4.1 Model 11.

[31] See Appendix Table 4.1 Model 10.

replace the EMPL_SALARY in the main regression model (Model 1), with REV_EMPL (Model 2, table 2.1) to confirm that the positive and significant coefficient would still hold if we employ another proxy. The result obtained in Model 1 still holds, as REV_EMPL is positive and statistical significant. Furthermore, we replace CEOSHAREM with CEOSALARY as a measure of the CEO's incentives (Model 3, Table 2.1). This implies that we have to account for the fact that CEO salary is embedded in the employee salary variable, so we have to replace EMPL_SALARY with EMPL_SALARY2, where CEO salary is excluded. The results are still consistent with results obtained previously, as CEO_SALARY has a negative and statistical significant coefficient. However, the SIZE variable changes sign, which may be due to the high negative correlation between CEOSALARY and SIZE. The size effect was previously measured by the SIZE variable; we now measure this effect by SIZE_EMPL, which is the logarithm of the number of employees. The coefficient estimate shows that the sign of the size effect is still consistent with the results obtained in the main regression, but the level of significance falls (Model 4). We find that the firms with more risky debt insure more. To check the robustness of the results we replace DE with LTD; the ratio of long term debt. The results obtained (Model 5 Table 2.1), show that coefficient obtained is still negative and statistical significant.

To control that the results obtained are not driven by differences between small and large firms, we also estimate Model 1 on different sub samples. We divide the sample into a small firm sample which consists of firms with number of employees below or equal to 39 employees (sub-sample 1), and a sample consisting of large firms, above 39 employees (sub-sample 2). The results for the small sample are consistent with the results obtained from the entire sample. When re-estimating Model 1 on the sample comprised of large firms we find similar results, with the exception that SIZE is statistically insignificant.

We also construct a sample consisting of 113 random observations from the whole sample (sub-sample 3.) The results obtained when estimating Model 1 on the sample were qualitatively the same, as the coefficient estimates have the same signs as when the model was estimated on the whole sample. From Table 2.2 in

the Appendix we see that SIZE becomes statistically insignificant. DIV also becomes marginally insignificant.

Finally, we follow the methodology of Eisenberg, Sundgren and Wells (1998) and construct a sample where there is only one observation per firm. If a firm has observations in more than one year, we average over the given years (sub-sample 4). The results obtained when re-estimating Model 1, Table 2.2, are in line with the results obtained from Model 1 (entire sample). All the variables have the same signs, although CEOSHAREM and DE becomes marginally insignificant

We also re-estimate Model 1 by employing year dummies instead of industry dummies, to control that our results are not driven by differences between years. For the whole sample we see that the results obtained are more or less unchanged (Table 2.2), but DE becomes marginally insignificant. For the small firm sample the results obtained are more or less unchanged when employing year dummies. The results are qualitatively the same on the large size firm sample. CEOSHAREM and DIV become marginally insignificant. Finally, for the random sample the coefficients for CEOSHAREM, EMPL_SALARY and SIZE are very similar to the results from when Model 1 was estimated on the whole sample, but DIV becomes marginally insignificant, yet the sign remains unchanged.

By running versions of our main model on several sub-samples and using different proxies for the effect of the variables, we learn that our results are fairly robust. The fact that the significance level varies to some extent when using proxies is expected; some of the proxies contain a smaller number of observations and the data may be inaccurate. The same holds true for the sub samples as they contain less observations. However almost all the sign predictions are in line with what we find the main sample.

7. Conclusion

In this paper we attempt to explain what drives the corporate demand for employee insurance. The main implications of our findings are as follows;

The most striking and perhaps most interesting finding in our paper is that smaller firms purchase less employee insurance. This is in contrast to both the real services and diversification hypotheses. The small firms in our sample may be so small that it from the insurance broker's perspective is not profitable to provide real services. Employee insurance is expensive and the benefits may simply not outweigh the costs.

We show that insurance is a way for companies to attract and retain valuable workforce. Employee salary is in most cases positively related to level of education and years of experience etc. and may indeed be a good proxy for the marginal value of an employee. Companies that have high average salaries want to insure their employees more because these workers are valuable and hard to replace.

Lastly, we find that CEOs who hold stocks in the firm tend to purchase less employee insurance. Theory predicts that CEOs with a lot of wealth tied up in the firm would insure their employees more rigorously due to a lack of diversification and the risk aversion motive. We show that the CEO faces a trade off; on one hand he will want to purchase more insurance to retain valuable employees, whereas he on the other hand wants to purchase less when he holds a lot of common stock because insurance premiums reduce cash flow to the stockholders. We find evidence of this when we show that firms where CEOs hold stocks insure less up to a certain threshold. Above this, CEOs insure more. This also supports our hypothesis that more valuable employees are insured more.

8. Appendix

Table 1.1

This table shows the descriptive statistics of the insurance premium paid by firms for the whole sample (sample 1.1), which is comprised of 591 firm year specific observations of non listed Norwegian firms purchase of person insurance contracts. Premium in NOK is just the premium paid for the contracts. Insratio_empl gives the insurance premium paid for each employee. LOGIR is logarithm of the insurance premium paid per employee. Premium to earnings gives us the premium paid as a fraction of earnings.

	N	Mean	Std. Dev.	Min	Median	Max
Premium in NOK	591	759,672	2,762,860	686	132,571	42,821,870
Insratio_empl	591	4458.343	3750.290	176.406	3241.917	17336.300
LOGIR	591	3.464	0.441	2.247	3.511	4.239
Premium to earnings	590	0.365	7.410	-7.623	0.014	178.898

Table 1.2

The table below shows the distribution of the total sample between the different industries in our sample. The firms in the multi group classifications are firms which operate in more than one of the different industries, classifications are adopted from Berzins and Bøhren (2008).

Industry	N	% of sample N=591
Agriculture, forestry, fishing, mining	38	6.43%
Manufacturing	169	28.60%
Energy	26	4.40%
Construction	23	3.89%
Service	131	22.17%
Financial	5	0.85%
Trade	166	28.09%
Transport	24	4.06%
Multi Group	9	1.52%
Sum	591	100.00%

Table 1.3

This table shows the descriptive statistics of the explanatory variables for the total sample, comprised of 591 firm year specific observations. CEOSALARY is the CEO salary over assets. CEOSHAREOWN is the fraction of outstanding shares owned by the CEO, and CEOSHAREM is the CEOSHAREOWN where all missing observations are replaced by zero. CONCENTRA gives us the concentration of ownership measured by the Herfindahl index of ownership. DE is the ratio of debt over equity. DIV is dividends over equity. LTD is the long term debt ratio. SIZE is the logarithm of the Book value of assets. SIZE_EMPL is the logarithm of number of employees. EMPL_SALARY is average salary for the employees in the given firm. REV_EMPL is the revenue per employee. LOG_CASH is the logarithm of bank deposits and cash. CASH_ASSETS are bank deposits and cash normalized by assets. TAX is the marginal tax rate calculated as tax on operating result/operating result before taxes.

	N	Mean	Std. Dev.	Min.	Median	Max
CEOSALARY	511	0.0340	0.0573	0.0001	0.0133	0.3612
CEOSHAREOWN	85	0.4419	0.3261	0.0500	0.3500	1.0000
CEOSHAREOWNM	591	0.0636	0.1980	0.0000	0.0000	1.0000
CONCENTRATION	565	0.7809	0.3253	0.0037	1.0000	1.0000
DE	573	0.8626	1.5579	-2.1930	0.2054	10.6921
DIV	591	0.1511	0.5616	0.0000	0.0000	6.7272
LTD	586	0.1895	0.2571	0.0000	0.0880	2.3213
SIZE	583	7.3992	0.9461	4.3010	7.3925	10.0074
SIZE_EMPL	591	1.6131	0.7486	0.0000	1.5911	4.1278
EMPL_SALARY	576	5.5539	0.3172	4.0661	5.6213	6.1838
REV_EMPL	512	6.1865	0.5283	4.0496	6.2133	7.5041
LOG_CASH	572	6.5171	0.9128	4.1761	6.4727	8.7295
CASH_ASSETS	591	0.1461	0.1739	-0.0034	0.0777	0.9520
TAX	566	0.2940	0.2539	-0.9814	0.3872	0.9989

Table 1.4

This table provides the correlations between the independent variables from the whole sample, which contains 591 observations from 2003 up to, and including 2005.

Correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	CEOSALARY	1.00														
2	CEOSHAREOWN	0.45	1.00													
3	CEOSHAREOWNM	0.44	1.00	1.00												
4	CONCENTRATION	0.05	0.82	-0.12	1.00											
5	DE	-0.03	0.04	0.05	-0.06	1.00										
6	DIV	0.07	-0.09	0.13	-0.14	0.00	1.00									
7	LTD	-0.09	-0.05	0.01	-0.05	0.47	-0.08	1.00								
8	SIZE	-0.72	-0.37	-0.33	-0.09	0.11	-0.16	0.20	1.00							
9	SIZE_EMPL	-0.49	-0.33	-0.26	-0.03	0.01	-0.14	-0.07	0.66	1.00						
10	EMPL_SALARY	-0.08	-0.12	-0.16	0.24	-0.05	0.03	-0.10	-0.04	-0.27	1.00					
11	REV_EMPL	-0.13	-0.22	-0.10	0.13	-0.04	0.01	-0.19	0.04	-0.21	0.61	1.00				
12	LOG_CASH	-0.42	-0.28	-0.25	0.01	-0.04	0.02	-0.11	0.56	0.53	0.10	0.05	1.00			
13	CASH_ASSETS	0.28	0.10	0.01	0.09	-0.13	0.11	-0.21	-0.29	-0.15	0.09	-0.07	0.37	1.00		
14	TAX	0.01	0.06	0.03	0.09	-0.03	0.08	-0.09	-0.06	-0.01	0.09	0.19	0.02	0.04	1.00	
15	EMPL_SALARY2	-0.43	-0.45	-0.29	0.11	-0.04	-0.09	-0.09	0.54	0.68	0.17	0.11	0.45	-0.11	0.15	1.00

Table 2.1

This table summarizes the OLS results for sample 1 consisting of 591 firm year specific observations. The dependent variable used in all the regressions is LOGIR, which is the logarithm of insurance premium over number of employees. The independent variables are as follows; EMPL_SALARY is the salary divided by the number of employees. REV_EMPL is logarithm of revenue over number of employees. EMPL_SALARY2 is the salary expenditure with CEO salary subtracted, divided by the number of employees, excluding the CEO CEOSHAREM is the fraction of CEO owned shares to the total number of shares outstanding, where missing observations are replaced with zero. SIZE is the logarithm of the Book value of assets, while SIZE_EMPL is the logarithm of the number of employees in the firm. CONCENTRA is the Herfindahl index of equity ownership. DE is the debt equity ratio. LTD is long term debt over assets, or the long term debt ratio. LOG_CASH is the logarithm of bank deposits and cash. DIV is the payout ratio of the firm. TAX is the marginal tax rate calculated as tax on operating result/operating result before taxes. All the regression employs industry dummies, where the dummies are defined as 1 for the industry in which the firm operates and zero for the other industries, dummies for finance and multi group where excluded due to lack of observations. Further all coefficient are calculated using Newey-West variance and covariance estimator, hence the coefficients are heteroskedasticity and autocorrelation consistent.

	Model 1			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variables:	Coefficient	P-value		Coefficient	P-value		Coefficient	P-value		Coefficient	P-value		Coefficient	P-value	
EMPL_SALARY	0.5107	0.0000	***							0.5392	0.0000	***	0.5350	0.0000	***
EMPL_SALARY2							0.0312	0.3661							
REV_EMPL				0.1957	0.0001	***									
CEOSHAREM	-0.2087	0.0287	**	-0.2163	0.0436	**				-0.2436	0.0103	**	-0.2136	0.0370	**
CEO_SALARY							-2.1526	0.0001	***						
SIZE	0.0738	0.0149	**	0.0739	0.0287	**	-0.0616	0.1844					0.0903	0.0039	***
SIZE_EMPL										0.0531	0.1469				
CONCENTRA	0.0075	0.8931		0.0860	0.1810		0.1668	0.0057	***	-0.0158	0.7716		0.0028	0.9593	
DE	-0.0235	0.0449	**	-0.0279	0.0585	*	-0.0184	0.2059		-0.0163	0.1420				
LTD													-0.1574	0.0433	**
LOG_CASH	0.0011	0.9695		0.0172	0.5787		0.0398	0.2456		0.0174	0.5307		-0.0105	0.7050	
CASH_ASSETS															
DIV	0.0651	0.0011	***	0.0792	0.0093	***	0.0568	0.0327	**	0.0567	0.0113	**	0.0647	0.0014	***
TAX	-0.0327	0.6505		-0.0520	0.5437		-0.0468	0.5388		-0.0561	0.4465		-0.0366	0.6089	
R-squared	0.2819			0.2478			0.1973			0.2737			0.2795		
F-statistic	12.4028			9.3554			6.9469			12.0335			12.5456		
P-value	0.0000			0.0000			0.0000			0.0000			0.0000		
N	490			442			440			495			501		

Table 2.2

This table summarizes the OLS results for Model 1 on different sub-samples. Sample 1 is the whole data sample comprising of 591 firm year observations. Sub-sample 1 is the sample of firms with number of employees less or equal to 39, and contains 301 firm year specific observations. Sub-sample 2 is a comprised of firms with above 39 employees, and includes 290 observations. Sub-sample 3 is a sample constructed by 133 random observations from the main data sample. Sub-sample 4 contains one observations per firm, where the firm specific observation is the average over the periods, which the firm has more than one observation. The sample consists of 369 observations. The dependent variable in the regressions is LOGIR, which is the logarithm of insurance premium over number of employees. The independent variables are as follows; EMPL_SALARY is the payroll expense divided by the number of employees in the firm. CEOSHAREM is the fraction of CEO owned shares to the total number of shares outstanding, where missing observations are replaced with zero. SIZE is the logarithm of the book value of assets. CONCENTRA gives us the Herfindahl index of equity ownership. DE is the debt equity ratio. LOG_CASH is the logarithm of bank deposits and other liquid assets. DIV is the payout ratio of the firm. TAX is the marginal tax rate calculated as tax on operating result/operating result before taxes. The regressions employ industry dummies or year dummies. Industry dummies are defined as 1 for the industry in which the firm operates and zero for the other industries, dummies for finance and multi group where excluded due to lack of observations. The year dummy are defined as 1 for observation within a given year and zero otherwise All coefficient are calculated using Newey-West variance and covariance estimator, hence the coefficients are heteroskedasticity and autocorrelation consistent.

	Sample 1			**Sub-sample 1**			**Sub-sample 1**			**Sub-sample 2**		
Variables:	Coefficient	P-val		Coefficient	P-val.		Coefficient	P-val		Coefficient	P-val	
EMPL_SALARY	0.5350	0.0000	***	0.6541	0.0001	***	0.7176	0.0000	***	0.4204	0.0000	***
CEOSHAREM	-0.2635	0.0047	***	-0.1893	0.0824	*	-0.2407	0.0237	**	-0.4039	0.0271	**
SIZE	0.0987	0.0009	***	0.1045	0.0175	**	0.1210	0.0031	***	0.0563	0.2520	
CONCENTRA	-0.0309	0.5702		0.0061	0.9418		-0.0340	0.6725		0.0134	0.8704	
DE	-0.0206	0.1087		-0.0378	0.0382	**	-0.0253	0.1877		-0.0284	0.0760	*
LOG_CASH	-0.0010	0.9724		-0.0685	0.1035		-0.0536	0.2115		0.0870	0.0291	**
DIV	0.0624	0.0019	***	0.0612	0.0067	***	0.0643	0.0037	***	0.0989	0.1126	
TAX	-0.0239	0.7489		0.0179	0.8610		-0.0007	0.9952		-0.0566	0.5704	
R-squared		0.2436			0.3434			0.2897			0.2799	
DW		1.7388			1.5555			1.5755			1.9058	
N		490			257			257			233	
Dummy:	**Year**			**Industry**			**Year**			**Industry**		

* Significant at 10% level

** Significant at 5% level

*** Significant at 1% level

Table 2.2 (continued)

	Sub-sample 2			Sub-sample 3			Sub-sample 3			Sub-sample 4		
Variables:	Coefficient	P-value		Coefficient	P-value		Coefficient	P-value		Coefficient	P-value	
EMPL_SALARY	0.4072	0.0000	***	0.4680	0.0004	***	0.5085	0.0013	**	0.4908	0.0000	***
CEOSHAREM	-0.2744	0.1041		-0.0978	0.5954		-0.3051	0.0636	*	-0.2022	0.1382	
SIZE	0.0760	0.0741	*	0.1022	0.0620	*	0.1283	0.0159	***	0.0757	0.0538	*
CONCENTRA	0.0078	0.9220		0.1044	0.3024		0.0346	0.7591		0.0352	0.5942	
DE	-0.0292	0.0706	*	-0.0116	0.5210		-0.0086	0.6646		-0.0176	0.1440	
LOG_CASH	0.0715	0.0671	*	0.0166	0.8112		-0.0144	0.8256		0.0061	0.8560	
DIV	0.0586	0.3379		0.0641	0.1437		0.0573	0.3679		0.0670	0.0036	***
TAX	-0.0226	0.8225		-0.2073	0.0727	*	-0.1000	0.4175		-0.0096	0.9160	
R-squared		0.2377			0.4557			0.3240			0.2933	
DW		1.8668			1.7511			1.8678			1.8588	
N		233			111			111			313	
Dummy:	**Year**			**Industry**			**Year**			**Industry**		

* Significant at 10% level

** Significant at 5% level

*** Significant at 1% level

Table 3.1

This table shows the results from the OLS regressions run with interaction terms on Sample 1.The dependent variable in the regressions is LOGIR, which is the logarithm of insurance premium over number of employees. The independent variables are as follows; EMPL_SALARY is the payroll expense divided by the number of employees in the firm. CEOSHAREM is the fraction of CEO owned shares to the total number of shares, where missing observations are replaced with zero. SIZE is the logarithm of the book value of total assets. CONCENTRA gives us the Herfindahl index of equity ownership. DE is the debt equity ratio. LOG_CASH is the logarithm of bank deposits and other liquid assets. DIV is the payout ratio of the firm. TAX is the marginal tax rate calculated as tax on operating result/operating result before taxes. The regressions employ industry dummies, which is defined as 1 for the industry in which the firm operates and zero for the other industries, dummies for finance and multi group where excluded due to lack of observations. All coefficient are calculated using Newey-West variance and covariance estimator, hence the coefficients are heteroskedasticy and autocorrelation consistent. The interactions terms employed are; for model 6 CEOSHAREM*EMPL_SALARY and for model 7; CEOSHAREM*SIZE.

	Model 6			**Model 7**		
Variables:	Coefficient	P-value		Coefficient	P-value	
EMPL_SALARY	0.4821	0.0000	***	0.5026	0.0000	***
CEOSHAREM	-3.0798	0.2654		-0.8791	0.0420	**
SIZE	0.0696	0.0269	**	0.0637	0.0411	**
CONCENTRA	0.0165	0.7624		0.0128	0.8163	
DE	-0.0248	0.0341	**	-0.0236	0.0426	**
LOG_CASH	0.0004	0.9888		0.0005	0.9859	
DIV	0.0583	0.0039	***	0.0628	0.0019	***
TAX	-0.0399	0.5816		-0.0376	0.6052	
CEOSHAREM*EMPL_SALARY	0.5316	0.2906				
CEOSHAREM*SIZE				0.1039	0.1263	
R-squared	0.2853			0.2848		
DW	1.7696			1.7824		
N	490			490		
Dummy:	**INDUSTRY**			**INDUSTRY**		

* Significant at 10% level

** Significant at 5% level

*** Significant at 1% level

Table 4.1

This table shows the results from the OLS regressions which show the relationship between dividends, cash & credit rating. They are run on sample 1, which contains 591 firm year specific observations. The dependent variable of the models is as follows; In Model 10 the dependent variables is CASH_ASSETS, which is cash divided by total assets. In Model 11 the dependent variable is DIV, which is the payout ratio of the firm. In model 12 the dependent variable is RATING, which is CreditInform's credit rating divided by 100. The independent variables are as follows; EMPL_SALARY2 is the salary expenditure with CEO salary subtracted, divided by the number of employees, excluding the CEO. CEOSHAREM is the fraction of CEO owned shares to the total number of shares, where missing observations are replaced with zero. SIZE is the logarithm of the Book value of total assets. DE is the debt equity ratio. TAX is the marginal tax rate calculated as tax on operating result/operating result before taxes. The regressions employ industry dummies, which is defined as 1 for the industry in which the firm operates and zero for the other industries, dummies for finance and multi group where excluded due to lack of observations. All coefficient are calculated using Newey-West variance and covariance estimator, hence the coefficients are heteroskedasticity and autocorrelation consistent.

	Model 10		**Model 11**		**Model 12**	
Dependent:	CASH_ASSETS		DIV		RATING	
Variables:	coefficient	P-value	coefficient	P-value	coefficient	P-value
DE	-0.0006	0.7590			-0.0260	0.0000
LTD	0.1553	0.1156				
QUICK	0.3175	0.0000	-0.3504	0.0007	0.0417	0.0760
SIZE	-0.0613	0.0000	-0.1750	0.0017	0.1103	0.0000
LOGIR	0.0201	0.0816	0.0815	0.2172	0.0103	0.5295
EMPL_SALARY2	0.0574	0.0000	-0.0886	0.2108	-0.0010	0.9478
TAX	0.0267	0.2857	0.1085	0.1439	0.0654	0.0102
CEOSHAREM			0.4288	0.0319		
CEO_SALARY	0.3149	0.0198	-1.6328	0.0736	-0.3414	0.0153
R_D	-0.0095	0.7197			-0.1068	0.0000
DIV	0.0225	0.0121			0.0244	0.0019
RATING	0.0442	0.1729	0.7400	0.0007		
CASH_ASSETS			0.9005	0.0030	0.0802	0.1551
R-squared	0.6992		0.1147		0.5134	
DW	1.8474		1.7240		1.4772	
N	406		463		406	
Dummy:	**INDUSTRY**		**INDUSTRY**		**INDUSTRY**	

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