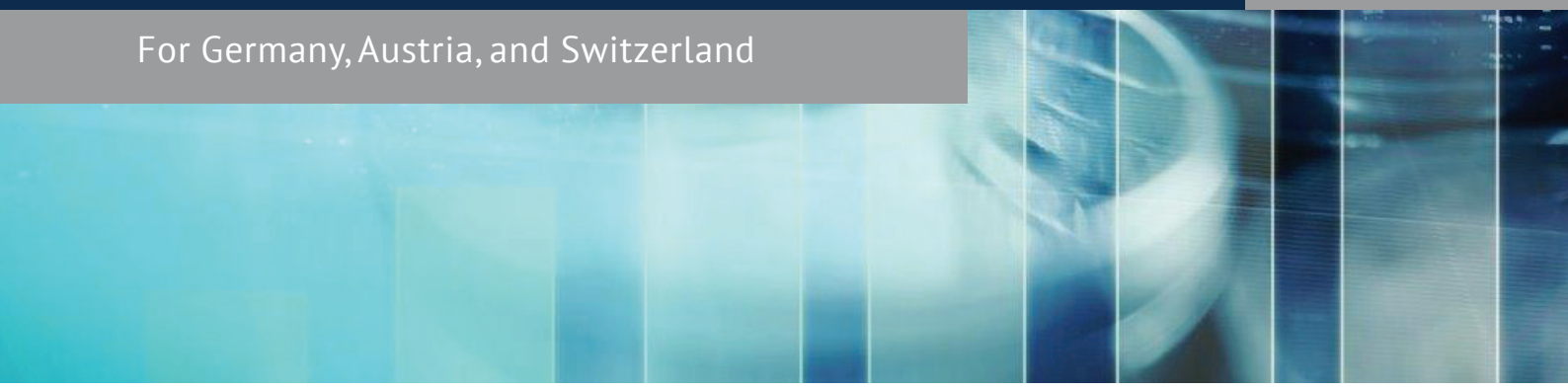
# Pay for Performance Report 2017

April 2017

For Germany, Austria, and Switzerland



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# Introduction

Compensation of top managers has been a broadly discussed theme in politics and society for years. Political plebiscites in Switzerland, such as the "Ripper offer plebiscite" [Abzockerinitiative[1]] and the "1:12 plebiscite[2]", are attempts in the political landscape to reform corporate governance with popular votes[3]. There has also been a lively discussion in Germany in the media – for example, there was a broad discussion on the compensation for the board of directors of VW[4], which also extended into politics. The grand coalition is presently debating limitations on executive compensation.

*People have a subjective feeling that this form of compensation is not in conformity to performance*

## *Focus: Compensation for top management in conformity to performance*

What happened to jolt this theme so strongly into the public focus? People have a subjective feeling that this form of compensation is not in conformity to performance. Or, to put this another way: compensation is not considered to be fair[5]. Many citizens cannot comprehend what the performance payment is based on. Interestingly, political measures to increase compensation transparency (such as the "ripper offer plebiscite") have not solved this problem. On the contrary, the increasing transparency has led to a stronger sense of awareness in the populace. How much management earns is in this case often less the stumbling block than how the compensation was calculated.

This becomes very clear in the statements that are made in many shareholders' meetings. For example, the compensation report of the Georg Fischer Industrial Group was rejected, and those of ABB and Novartis only narrowly accepted (with about 60%[6]). The Proxy Advisor ISS also recommends rejection of the Credit Suisse compensation report[7]. The shareholders of the Deutsche Bank rejected the new compensation system of the bank last year[8]. This shows clearly: compensation and performance are no longer directly connected from the point of view of proxy advisors and shareholders – the criteria for performance are in

Nobel Laureate Bengt Holmström shows the purpose for pay for performance in his scientific research. It should help force management to make decisions in the interest of the shareholders[9], since managers do not always make decisions in line with the owners. The often have advance information, and often have limited interest in giving this up in various situations. Economists have been conducting research on this conflict of interest – called the principal-agent theory[10]in factual jargon – for a long time. Bengt Holmström offers a solution to the problem by showing how performance based compensation can harmonize the interests of shareholders and management.

Where Holmström developed a solution in theory, Prof. Ernst Fehr of the University of Zurich is now putting this into practice: a performance based management compensation, a so-called "pay for performance" logic[11]. The current discussion on management compensation, however, leads to the conclusion that such a "pay for performance" logic has not yet been realized in all firms. Many members of boards of directors have not yet succeeded in closing the existing gaps in corporate governance and establishing a solid basis for a performance based compensation in upper management contracts.

This study has the objective of systemizing the discussion. It studies whether the feelings of the populace, the recommendations of proxy advisors, and the statements of shareholders are reflected systematically in the markets (Germany, Austria, Switzerland), i.e. whether compensation and performance are actually in a recognizable relationship.

*[1] SRF, 2013 , [2] Tagesanzeiger, 2013 , [3] Die «Abzockerinitiative» wurde angenommen, die 1:12 Initiative, jedoch 2013 abgelehnt, [4] Handelsblatt, 2016, [5] Rost & Weibel, 2013*

*[6] NZZ, 2017, [7] Handelszeitung, 2017, [8] N-TV, 2016, [9] Holmström, 1979*

*[10] Jensen & Meckling, 1976, [11] NZZ, 2010*

# Pay for Performance

In order to be able to systematically examine the relationship between performance and compensation, we must first clarify how a pay for performance logic is designed in practice.

Holmström and his colleagues name two important components that can solve the conflict of interest about compensation described above. These are criteria for performance indicators, i.e. the instrument used to measure management performance:

- A performance indicator should include as much information as possible about all manage ment activities (informativeness principle[12]). This aspect is particularly relevant in times of increased multi-tasking at the management level[13].
- A performance indicator is much better suited if it is less likely to be distorted by disruptive factors that are independent of performance (incentive intensity principle[14]). Put another way, elements that management cannot influence, such as the general market situation, should not be reflected in the performance indicator.

If both criteria are adequately respected, the performance compensation will fulfill its goals: the interests of management and shareholders can be harmonized, and the boards of directors and with them the shareholders have an efficient steering instrument and the compensation is based on performance.

In accordance with Bengt Holmström, relative performance indicators fulfill the criteria mentioned above particularly well[15]. Relative performance indicators are always in relation to a comparison group, for example other firms. This comparison allows the elimination of effects from performance measurement that are due to market considerations, i.e. those effects that determine both the success of the own company as well as that of other firms in the comparison group. As a well-known saying goes, a rising tide lifts all boats, even those with holes in the hull. A relative performance indicator eliminates these effects and thus does not consider an economic boom as a feat of management, but only considers factors that management can actually influence.

FehrAdvice & Partners developed a relative performance indicator in cooperation with Ernst Fehr that fulfills the requirements of a pay for performance logic: the Market Adjusted Performance Indicator, abbreviated as MAPI[16]. The total shareholder returns (TSR) are used to calculate the MAPI in this study. This is a holistic performance indicator that fulfills the informativeness principle described above. A market index, however, is by its nature subject to many large external forces that management cannot influence. The MAPI concept, i.e. the relativization with a comparison group, eliminates these market influences. In total, this results in a relative performance indicator that fulfills both criteria named. We summarize the MAPI methods in the next chapter.

# The MAPI concept in summary

The MAPI is calculated in the following three steps

**Step 1: preliminary selection**

A preliminary selection of possible comparison firms is made based on similar geographical markets, industrial sectors, and size of the enterprise[17]. The historical course of performance indicators (TSR) of each potential peer is then calculated using a correlation analysis with the performance indicator of the target firm. The objective of this analysis is to identify how probable it is that a potential peer shares the target firm's market shocks.

**Step 2: Statistical analysis and weighting**

Each potential peer's predictive ability for the target firm's potential market shocks is evaluated using a statistical analysis (regression analysis). The optimal weighting within the comparison group is calculated based on the peer's predictive ability for the target firm's market shocks. Firms without predictive ability are not selected for the comparison group.

**Step 3: Securing comparability**

The perfect comparability with the target firm is guaranteed in the last step. The comparison group will be adjusted to the target firm with respect to fluctuation and level (using regression analysis). The result: the best possible clone comparable to the target firm, consisting of an optimally weighted index of comparison firms.

The Market Adjusted Performance Indicator (MAPI) results from the difference between the stock returns of the target firm and that of the "clone".

*[12] Holmström, 1979, [13] Holmström & Milgrom, 1991,*

*[14] Milgrom&Roberts, 1991, [15] Holmström, 1982,*

*[16] Black, Dikolli & Hofmann, 2015, [17] Albuquerque, 2009*

# Procedure

The compensation and performance components of all enterprises in the DAX, SMI, and ATX (basis: calendar year 2016) were calculated for the 2010 to 2015 fiscal years in this study.

The performance components were calculated using the MAPI principle based on the total shareholder return (TSR). A comparison group was compiled for each enterprise in DAX, SMI, and ATX (basis: shareholder returns for the years 2004 to 2009). Enterprises that were not yet listed on the stock exchanges in 2004 or that merged with another listed enterprise in the period in question were removed from the study (63 enterprises remained in the analysis out of the 70 originally considered)[18].

The annual reports of the enterprises were used to analyze compensation. The aggregate and variable compensation of all upper management and boards of an enterprise were collected at the time of they were awarded for the 2010 to 2015 fiscal years. In order to guarantee comparability of compensation between enterprises, this was divided by the actual number of top managers in the fiscal year[19]. This results in an average compensation per top manager and also yields the average variable compensation per fiscal year. In order to attain the highest possible data quality, the compensation data was collected using uniform criteria, which are detailed in the appendix.

***63 Enterprises out of DAX, SMI and ATX***

Compensation is compared to performance for all enterprises examined below. If there is a positive correlation between compensation and performance, a systematic "pay for performance" logic exists (see figure 1). Or, to put this another way, high performance is associated with high compensation and low performance with low compensation. If there is no positive correlation, there is no systematic pay for performance. This analysis was completed over the aggregate market (DAX, SMI, ATX), and also over the individual firms.

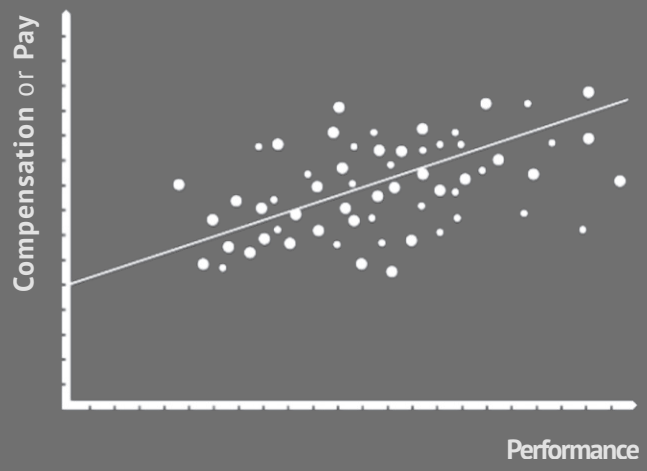


*Figure 1: an example of a systematic pay for performance logic. Performance and compensation are positively correlated. / Compensation or pay / performance*

[18] *More information in the appendix*

[19] *The number of top managers at the end of a year does not necessarily correspond to the actual number due to changes during the year. The number was calculated for all top managers based on the exact number of months in the position.*

# Results

The results for the three markets show a uniform picture. There is no systematic correlation between compensation and performance in the markets we examined – a pay for performance logic is thus not systematically in place.

The compensation data at the level of aggregate compensation in enterprises is compared to the performance indicators in figure 2. The vertical axis shows compensation numbers. A value of 0 shows that upper management received an average compensation. A value of 0.5 means that the compensation was 50% above average. The horizontal axis shows the performance indicator MAPI(TSR). A value of 0 means here that the firm's performance corresponds to that of the comparison group. A value of 0.5 means that the enterprise in question exceeded the performance of the comparison group by 50%. Further explanations are contained in the appendix. No positive correlation can be identified in the three markets. Compensation of upper management does not correspond systematically to entrepreneurial performance.

Figure 3 shows an identical picture. There is no systematic correlation between compensation and performance at the level of variable compensation. Even if some tendency seems to be recognizable in figure 3, this tendency is not statistically significant. In other words, the increase in the line is neither positive nor negative in accordance with statistical criteria. There is no clear correlation between compensation and performance.

Even when enterprises are examined individually, there is no clear picture. Only approximately 35% of the companies examined show a clearly positive correlation between compensation and performance[21]. The converse argument sows that approximately two-thirds of all enterprises use no or only a very weak pay for performance system.

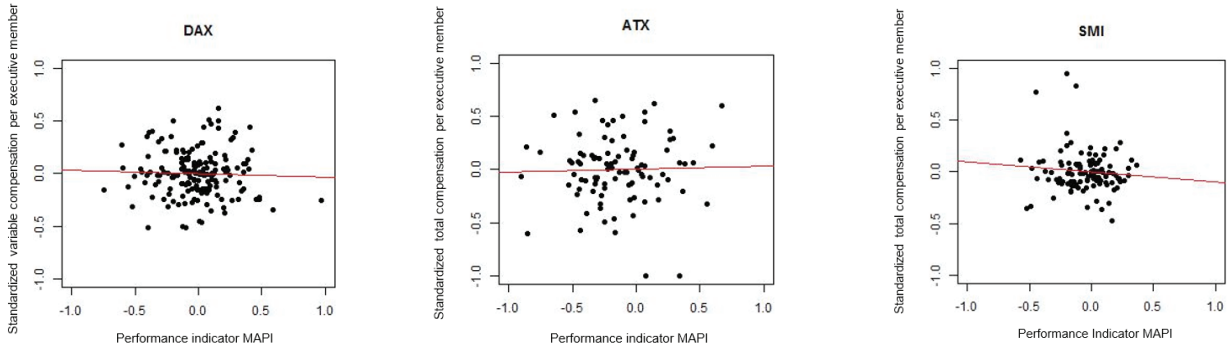


*Figure 2: The correlation between the performance indicator MAPI(TSR) and the aggregate compensation for top managers is presented here, separately calculated for the enterprises of the DAX, ATX, and SMI. The analysis shows there is not a statistically significant correlation between the performance indicator MAPI(TSR) and the aggregate compensation per upper management (red line)[20].*

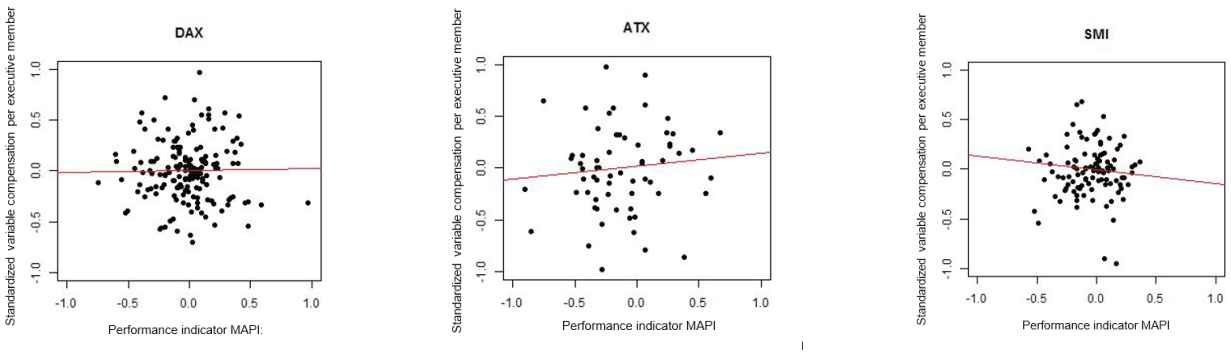


*Figure 3: The correlation between the performance indicator MAPI(TSR) and the variable compensation for each top manager is presented here, separately calculated for the enterprises of the DAX, ATX, and SMI. The analysis shows there is not a statistically significant correlation between the performance indicator MAPI(TSR) and the aggregate compensation per upper management (red line)[28].*

*[20] p-values for the increase in values in figure 2: DAX 0.63, ATX 0.8, SMI 0.34/ [21] Criterium: Pearson correlation is greater than 0.25 / [22] p-values for the increase in values in figure 3 DAX 0.85, ATX 0.46, SMI 0.355*

# Conclusion

We could not show a systematic correlation between compensation for upper management and management performance in the pay for performance report 2017. This leads to the conclusion that only very few enterprises systematically implement top management contracts with functioning pay for performance criteria.

If we follow Ernst Fehr's[23] basic logic for pay for performance and good corporate governance, we can draw the conclusion that boards of directors in the German language area do not systematically harmonize the interests of management and shareholders with pay for performance contracts. As several recently published studies[24] show, the lack of these incentives also has negative effects on an enterprise's long-term performance, since the compensation system has a decisive influence on management's strategic investment behavior. The results lead to clear recommendations. The pay for performance logic of the existing compensation system should be examined regularly with a relative performance indicator. If unexplainable differences are apparent, we recommend revising the compensation system. Particular attention should be paid to the following:

- Clear target salaries should be defined
- Not only compensation components, but also the performance components should be clearly named in the compensation report (performance transparency)
- Both short-term and in particular long-term components of the compensation system should be valued with a relative performance indicator.

*[23]NZZ, 2010, [24]z.B. Bell & van Reenen, 2016*

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# Appendix

## Appendix on compensation numbers

The total compensation and the variable compensation for the 2010 to 2015 fiscal years was collected as follows:

- The basis for data collection is the compensation report for the corresponding fiscal year.
- The LTI payments and evaluation adjustments for the bonus payments placed in reserves ("deferred bonus") were excluded from the compensation data. This is necessary, as the LTI schemes in the enterprises differ and thus endanger the comparability of data.
- Compensation data are generally collected at the time of approval (granting) and not at the time of payment (vesting).
  In order to guarantee the comparability at the time of granting (fix compensation plus STI), the compensation was examined with respect to the individual components in the compensation report such as pension benefits, perquisites, severance pay, sign-up bonus, etc. Uniform criteria were defined based on all data sets (all enterprises and all fiscal years) that guarantee comparability of the components of the compensation at the time of granting, not just in general (between other comparison firms) but also over the fiscal years for each enterprise. Enterprises use various reporting methods and adjusted and changed their compensation reports during the time of the study (2010 to 2015). The most important criterion in critical cases was the guarantee of the comparability within the enterprise; comparability between enterprises was ranked second.
- Severance payments were excluded. We understand these to be the costs for firing a top manager, and not compensation based on performance.
- Sign-in bonuses were also excluded. We understand these as costs for hiring a top manager, and not compensation based on performance.
- We also collected the number of top managers in each fiscal year. We based our calculations on the concept of a full-time equivalent (FTE), meaning that all managers who were not available for the entire twelve months were taken into account based on the exact number of months they were available.
- In order to guarantee comparability between compensation sums (within and between enterprises), the average compensation per top manager was calculated in each fiscal year (2010 – 2015).

In order to eliminate size effects between enterprises and branches, the compensation data were also standardized. The standardization was done as follows:

$$x_{standardized\ ij} = \frac{x_{ij}}{\frac{1}{n}\sum_{i=1}^{n} x_{ij}} - 1$$

where $x_{ij}$ represents the compensation variable in fiscal year $_i$ for enterprise$_j$. $x_{\text{standardized } ij}$ is thus the standardized compensation variable, calculated as the deviation in percent from the average compensation in the enterprise$_j$. The average compensation in the enterprise thus serves as the target compensation in this logic that represents a negative value of a negative variation ("malus") or a positive variation of a positive value ("bonus") in the individual fiscal years. The standardization of the data is thus analog to the presentation in MAPI.

# Appendix on MAPI calculation

A comparison group was determined using the FAP process developed in collaboration with Ernst Fehr for the enterprises examined in DAX, ATX, and SMI (target firms), i.e. a corresponding comparison group was developed for each of the enterprises examined.

- The comparison groups were limited to a maximum of 80 enterprises and comprise at least 60 enterprises.
- No detailed plausibility of the comparison groups was made for markets, branches, or entrepreneurial size. This means that the comparison groups for the target firms are a pure statistical clone.
- The time period for determining the comparison groups are the 2004 to 2009 fiscal years.
- Since the financial crisis in 2008 and 2009 represented a large market shock, and since possible distortions might extend for the period from 2010 to 2015, we made a second comparison group for each enterprise (target firm) for the time from 2004 to 2007 (robustness check).

The following logic was used for determining the MAPI's (difference between the TSR of the target firm and the TSR of the comparison group):

- MAPI target firm = TSR target firm – TSR comparison group, i.e. a MAPI with the value 0 represents the target performance, while a negative or positive MAPI (deviation from 0) represents a relative negative or relative positive performance of the target firm.
- The corresponding MAPI's for the corresponding 2010 to 2015 fiscal years were calculated using the known procedure for each target firm in DAX, ATX, and SMI.
- If the fiscal year varies from the calendar year, the corresponding time period of the enterprise's (target firm's) fiscal year was used as the basis for calculating the MAPI.
- The comparison group ("statistical clone") and thus the calculation of the MAPI was not changed during the time of the study (2010 to 2015).

# Appendix results

Table 1 contains the quantiles of the Pearson correlation as well as the rank correlation (Kendall's tau) for each enterprise. The latter serves as a robustness check, as the assumption of linearity is necessary for the rank correlation. Table 1 shows that there is no strong deviation between the Pearson's correlation coefficients and the rank correlation coefficients. The median (50% quantile) is close to zero for all three markets (DAX, ATX, and SMI). The distribution of values shows that a similar number of firms have a positive correlation (higher compensation is correlated to higher performance) and a negative correlation (higher compensation is correlated to lower performance). We cannot recognize a systematic approach in the enterprises.

*Table 1 on the next page.*

| | | DAX | | ATX | | SMI | |
|---|---|---|---|---|---|---|---|
| | Quantile | Correlation | Rank correlation | Correlation | Rank correlation | Correlation | Rank correlation |
| Total Compensation | 0% | -0.77 | -0.55 | -0.66 | -0.70 | -0.82 | -0.87 |
| | 25% | -0.34 | -0.23 | -0.42 | -0.27 | -0.43 | -0.33 |
| | 50% | 0.04 | -0.07 | -0.02 | 0.03 | -0.02 | -0.07 |
| | 75% | 0.35 | 0.33 | 0.36 | 0.33 | 0.36 | 0.20 |
| | 100% | 0.65 | 0.60 | 0.71 | 0.33 | 0.55 | 0.49 |
| Variable Compensation | 0% | -0.77 | -0.53 | -0.83 | -0.43 | -0.86 | -0.65 |
| | 25% | -0.23 | -0.20 | -0.43 | -0.20 | -0.33 | -0.33 |
| | 50% | 0.15 | 0.00 | 0.19 | 0.00 | -0.02 | -0.07 |
| | 75% | 0.33 | 0.30 | 0.37 | 0.27 | 0.39 | 0.20 |
| | 100% | 0.64 | 0.47 | 0.57 | 0.52 | 0.52 | 0.33 |

*Table 1: Correlation between the performance indicator MAPI and the standardized compensation per top manager*

*Quantile / correlation / rank correlation / total compensation / variable compensation. We present quantiles for both the Pearson correlation and the rank correlation (Kendall's tau). No strong deviations between the Pearson correlation coefficients can be observed. The median (50% Quantile) is close to zero for the DAX, the ATX, and the SMI (there is a small positive deviation for the Pearson correlation between MAPI(TSR) and variable compensation for DAX and ATX). The distribution of values shows that approximately the same number of enterprises a similar number of firms have a positive correlation and a negative correlation. This means that higher compensation and higher performance occur as often as higher compensation and lower performance. The table emphasizes the result that enterprises in the DAX, ATX, and SMI do not compensate top management in accordance with their performance.*

The shared examination of DAX, ATX, and SMI is shown in figure 4. This shows the frequency of the correlations for eight intervals. The frequency of the Pearson correlations and the rank correlations vary slightly from one another, but the medians of the two correlation calculations lie close to zero (Pearson correlation at -0.01 and rank correlation at -0.07). Based on this, there are no systematics between enterprises in a common examination of all markets. Moreover, most enterprises only have a slightly positive or negative correlation between the performance and compensation, and that this is strongly negative or positive in a very few enterprises. We can thus assume that there are no distorting effects.

The main results of the study are based on a MAPI standardized period from 2004 to 2009. As a check for robustness, all results were also competed based on a standardized period from 2004 to 2007 (in order to exclude any distorting effects of the2008/2009 financial crisis).Figures 5, 6, and 7 and table 2 summarize the results. The results do not lead to a different conclusion. Distorting effects due to the financial crisis can be ruled out.

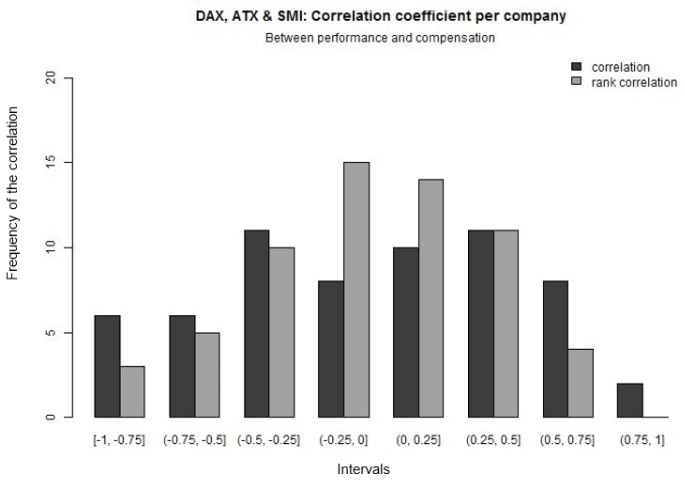


*Figure 4: The frequency and correlation per interval in an aggregate examination of the DAX, ATX, and SMI are represented here. We correlated the performance indicator MAPI and the standardized total compensation per top manager in each enterprise. The frequency of the Pearson correlations and the rank correlations vary slightly from one another, but the medians of the two correlation calculations lie close to zero (Pearson correlation at -0.01 and rank correlation at -0.07). An aggregate examination of the markets shows there are no systematics between enterprises. The result corresponds to the previous analyses: on average, top managers are not compensated in accordance with their performance.*

*The values show the correlation between the MAPI and the standardized compensation per top manager for each enterprise. There are no relevant differences between the frequency distribution of the correlation of the MAPI and the standardized variable compensation per top manager.*

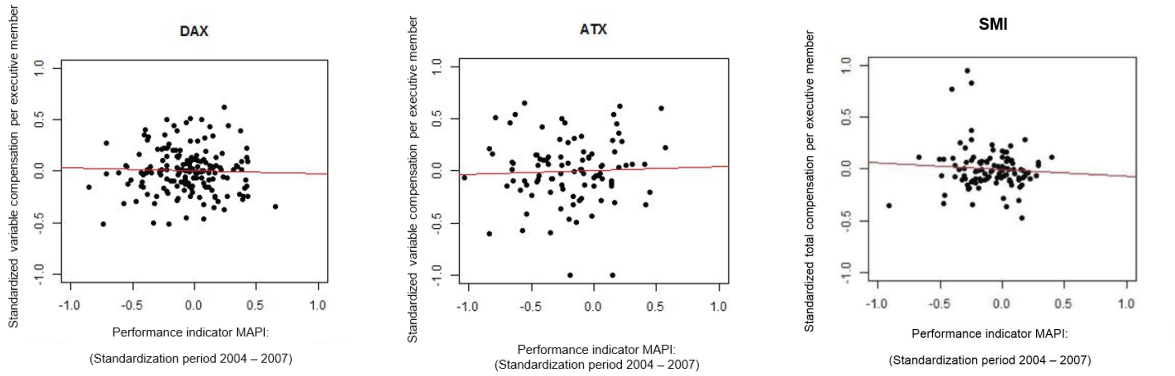


*Figure 5: The correlation between the performance indicator MAPI(TSR) based on the standardized period 2004-2007 and the total compensation per top manager is shown here. The enterprises of the DAX, ATX, and SMI are examined separately here. The analysis shows that there is no statistically significant correlation between the performance indicator MAPI(TSR) and the total compensation per top manager.*

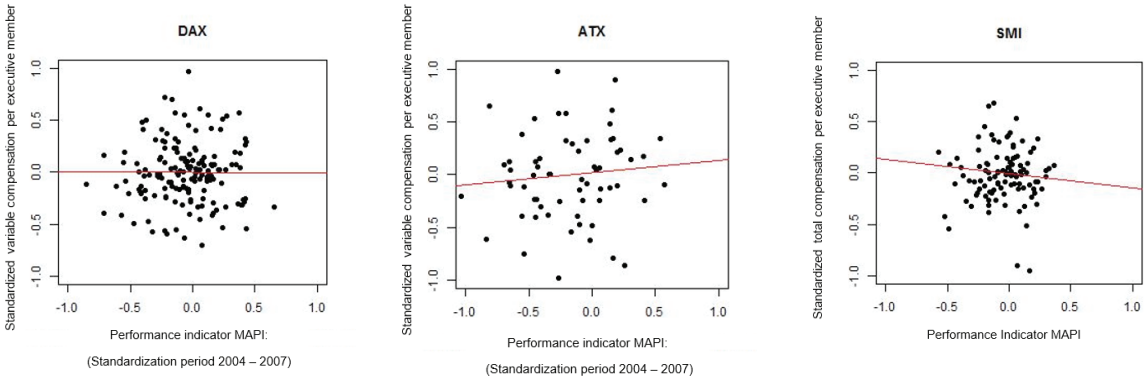


*Figure 6: The correlation between the performance indicator MAPI(TSR) based on the standardized period 2004-2007 and the variable compensation per top manager is shown here. The enterprises of the DAX, ATX, and SMI are examined separately here. The analysis shows that there is no statistically significant correlation between the performance indicator MAPI(TSR) and the variable compensation per top manager.*

*Table 2: Correlation between the performance indicator MAPI(TSR) (standardized period 2004-2007) and the standardized compensation per top manager*

| | | DAX | | ATX | | SMI | |
|---|---|---|---|---|---|---|---|
| | Quantile | Correlation | Rank correlation | Correlation | Rank correrlation | Correlation | Rank correrlation |
| Total Compensation | 5% | -0.80 | -0.47 | -0.66 | -0.39 | -0.82 | -0.87 |
| | 25% | -0.37 | -0.23 | -0.19 | -0.20 | -0.43 | -0.33 |
| | 50% | 0.11 | 0.13 | 0.01 | -0.07 | -0.02 | -0.07 |
| | 75% | 0.46 | 0.37 | 0.47 | 0.33 | 0.36 | 0.20 |
| | 95% | 0.72 | 0.55 | 0.68 | 0.47 | 0.55 | 0.49 |
| Variable Compensation | 5% | -0.77 | -0.57 | -0.68 | -0.25 | -0.81 | -0.65 |
| | 25% | -0.18 | -0.20 | -0.05 | -0.03 | -0.30 | -0.20 |
| | 50% | 0.17 | 0.07 | 0.25 | 0.07 | -0.13 | -0.07 |
| | 75% | 0.45 | 0.33 | 0.48 | 0.27 | 0.20 | 0.20 |
| | 95% | 0.60 | 0.57 | 0.58 | 0.43 | 0.61 | 0.47 |

*Quantile / correlation / rank correlation / total compensation / variable compensation. We present quantiles for both the Pearson correlation and the rank correlation (Kendall's tau). No strong deviations between the Pearson correlation coefficients can be observed. The median (50% Quantile) lies between -.013 and 0.25 for DAX, ATX, and SMI. The distribution of values shows that approximately the same number of enterprises a similar number of firms have a positive correlation and a negative correlation. A very detailed examination shows that enterprises of the DAX and ATX are somewhat more likely to be positively correlated, and the SMI is somewhat more negatively correlated. The table emphasizes the result that enterprises in the DAX, ATX, and SMI do not compensate top management in accordance with their performance.*

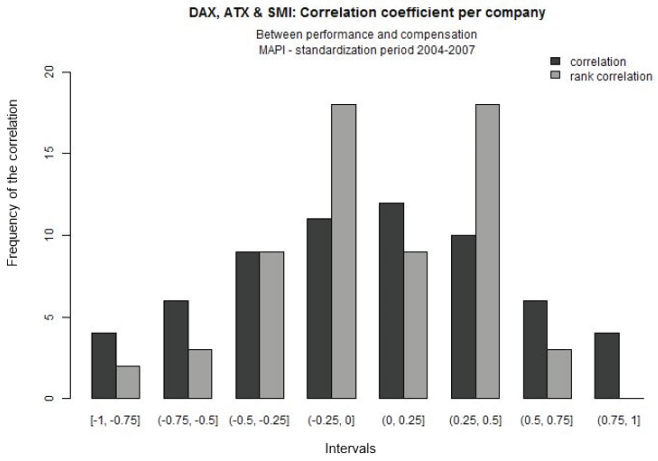


*Figure 7: DAX, ATX, and SMI: correlation coefficient per firm / between performance and compensation / MAPI standardized period 2004 – 2007 / correlation / rank correlation / frequency of correlation*

*Figure 7: The frequency of the correlation per interval in the aggregate examination of the DAX, ATX, and SMI is shown. Correlation was done for each enterprise for the performance indicator MAPI(TSR) and the standardized compensation per top manager. The frequency of the Pearson correlation and that of the rank correlation differ slightly, but the median of both correlation calculations is close to zero (Pearson correlation at 0.03 and rank correlation at -0.07). An aggregate examination of the markets shows there are no systematics between enterprises. On average, top managers are not compensated in accordance with their performance.*

# Additional comments

All data are available for scientific examination.

The MAPI data for the last five years can be requested for journalistic content on management performance.

Boards of directors, compensation committees, and representatives of top management will receive access to the MAPI and compensation data for their firms upon request. Contact: Sybille Nirk, FehrAdvice & Partners AG, Klausstrasse 20, CHF-8008 Zurich, Switzerland, +41 44 256 79 00

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