

DIPLOMARBEIT

Titel der Diplomarbeit

„Bonus vs. Dismissal: A Meta-Analysis of Incentives for Executives“

Verfasserin

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Angestrebter akademischer Grad

Magistra der Sozial- und Wirtschaftswissenschaften
(Mag. rer. soc. oec.)

Wien, im September 2010

Studienkennzahl lt. Studienblatt:
Studienrichtung lt. Studienblatt:
Betreuer:

157
Internationale Betriebswirtschaft
o.Univ.-Prof. Dr. Franz Wirl

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ABBREVIATIONS

CEO: Chief Executive Officer

EPR: Efficiency/Profitability Ratios

GDP: Gross Domestic Product

M&As: Mergers and Acquisitions

MR: Market Ratios

OR: Other Ratios

RR: Revenue Ratios

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1. PURPOSE OF THE THESIS

“The soaring pay of top executives has caused a public outcry [...] and rumblings of discontent [...]. The real problem is not the level of salaries, but their failure to reflect performance.”¹

Executive compensation is often rumored to be unrelated to firm performance or to be connected with short-term rather than long-term profitability.

Overshadowed by the recent economic crisis, business companies face the challenge of implementing effective incentives for their executives that have a positive impact on firm performance. Not even multi-million bonus payments could protect numerous enterprises from insolvency.

Inferior firm performance can be based on incompetence of managers, insufficient incentives for managers, or both. Antidotes include replacing incumbents with more skilled managers, establishing the right incentives, or a combination of the two. In the contemporary literature, these amendments are often considered as complementary. If managers are incompetent in the first place, little can be gained from establishing the right incentives. Similarly, competent managers slack off under inadequately structured incentives.²

1.1 INCENTIVES AND MANAGERIAL DISCRETION

*“Incentive: from Latin *incentivum*, noun use from neuter of *incentivus* (‘setting the tune’), from stem of *incinere* (‘to strike up’), from *in* (‘in, into’) + *canere* (‘to sing’); antonym: *disincentive*³.”⁴*

An incentive is any factor that motivates a particular course of action, or is regarded as a reason for preferring one choice to the alternatives.⁵

¹ The Economist, Vol. 335 (1995), (qtd. in: Conyon, Nicolitsas (1998))

² See Muravyev (2003)

³ In this thesis, I refer to negative incentives or disincentives as turnover, meaning dismissal.

⁴ URL: <http://www.merriam-webster.com/dictionary/incentive> [June 16, 2010]

⁵ URL: http://en.wikipedia.org/wiki/Incentive#cite_note-0 [June 16, 2010]

Usually, incentives serve several purposes:⁶

- Motivation: encouraging the willingness to perform,
- Control: aligning executive aims to corporate objectives,
- Information: signaling what kind of performance is (not) rewarded,
- Cooperation: encouraging cooperation with other company divisions,
- Alteration: pointing out modified requirements (variation in strategy), and
- Screening: selecting a certain type⁷ of executive

Aligning executive aims to corporate objectives includes inhibiting managerial discretion.

The managerial-discretion literature preceded the development of principal-agent models⁸ and addressed the question what goals managers pursue instead of profit maximization. Managerial goals include:⁹

- leisure,
- sales,
- staff and emoluments, as well as
- growth¹⁰, which results in pecuniary¹¹ and non-pecuniary¹² benefits.

Constraints on managerial discretion include:¹³

- the capital market, as it eliminates the principal-agent problem under the rational expectations assumption,
- competitive product and factor markets, as in a rigid competitive environment, it will be impracticable for managers to do anything other than maximizing their firm's profit if they wish to survive,

⁶ See Becker, Kramarsch (2006), 11f

⁷ E.g. risk-seeking vs. risk-averse

⁸ See 2.1

⁹ See Mueller (2003), 68ff

¹⁰ Growth can be realized by paying too little in dividends, and retaining and investing too much.

¹¹ Promotion and an increase in the number of hierarchy levels lead to higher salary.

¹² Power, prestige, etc.

¹³ See Mueller (2003), 82ff

- the market for managers, as hard work and little on-the-job-consumption increase the chance of being promoted,
- the market for corporate control¹⁴, and
- contractual constraints¹⁵.

Incentives are an example of contractual constraints. This leads to the research issue of the present thesis.

1.2 RESEARCH ISSUE AND MODUS OPERANDI

By means of a meta-analysis of sixty studies, the thesis investigates the efficiency of the two major incentive systems positive vs. negative incentives, i.e. bonus vs. dismissal. Its aim is to identify the more useful framework from an economic point of view and bring to light which one leads to better firm performance. This thesis omits notions such as fairness, equity, morale, trust, social responsibility, and culture.

“Managers, like many other wage earners, face basically three different incentives: pay for performance, promotion opportunities, and the threat of being replaced.”¹⁶

The meta-analysis specifically discusses pay for performance and the threat of being replaced, but it excludes promotion opportunities.

In addition, the analysis intends to identify the relevant factors¹⁷ affecting the implementation of a particular incentive scheme. The studies are clustered in industries, countries, continents, regions, and time periods to evaluate possible correlations regarding the incentive type, its effect on firm performance, and how company performance is measured.

The next part of the thesis intends to give an overview of the theoretical framework the subject of incentives is based on.

¹⁴ E.g. hostile takeovers

¹⁵ E.g. the principal-agent contract, see 2.1

¹⁶ Eriksson (2005)

¹⁷ Industry, country, continent/region, or time period

Motivation and incentives, including possible types of incentives and their relation to shareholder wealth, are discussed after a brief introduction to the principal-agent theory and the managerial power approach in the third chapter of the thesis.

The fourth section covers empirical evidence on incentives for executives focusing on different countries and industries, including evidence on the relation between incentives and firm performance.

The last part of the thesis contains the meta-analysis with descriptive statistics, a correlation analysis and a logistic regression.

2. THEORETICAL FRAMEWORK

This chapter simply intends to provide a general idea of the principal-agent and managerial power frameworks to facilitate the understanding of the thesis.

Economic models of compensation generally suppose that higher performance is associated with disutility on the part of the worker. These models assume reward systems so that a worker's expected utility increases with his productivity.¹⁸

2.1 PRINCIPAL-AGENT THEORY

Executive compensation is often referred to as a real-world example of a principal-agent problem.¹⁹

The principal-agent problem has its source in the separation between ownership and control of an organization. The underlying dilemma in principal-agent situations is how to align the concerns of the principal²⁰ with those of the agent^{21, 22}.

Agency costs originate from this divergence in interests between the principal and the agent.²³

Agency costs comprise:

- the monitoring costs of principals,
- the bonding costs of agents, and
- dead-weight losses.

The principal-agent literature suggests a contractual solution to this predicament. The principals do not have adequate information to insure that the agent maximizes their wealth. The effort exerted is the private information of the agent. On this account, the

¹⁸ See Baker et al. (1988)

¹⁹ See Weisbach (2007)

²⁰ The shareholder

²¹ The manager

²² See Mueller (2003), 64f

²³ See Main (1991)

principals devise an employment contract that encourages the agent to maximize the principals' wealth.²⁴

There are three implicit assumptions which are the foundations of the basic principal-agent model:²⁵

- The agent is averse to effort and will choose as low a level of effort as he can and still get paid.
- The agent is averse to risk.
- The factions cannot contract on the level of effort.

In a principal-agent problem, remuneration is fixed at the manager's reservation utility. To solve the underlying agency problem, incentives are provided for the executives.²⁶

The principal-agent theory regards executive compensation primarily as a solution for the agency problem. According to Bebchuk and Fried, a noteworthy quandary of this real-world example is the fact that not the principals, i.e. the shareholders, but rather the managers themselves design the managers' employment contracts in the real world.²⁷

2.2 MANAGERIAL POWER APPROACH

The managerial power approach is an alternative view to the principal-agent theory and has been developed by Bebchuk and Fried.

Bebchuk and Fried distinguish managerial power from any bargaining power executives might have vis-à-vis the company because of their individual talents and features. Managerial power goes beyond bargaining power and means the control an executive has over the board of directors. It allows the executive to gain more utility in a negotiation given whatever bargaining power he holds. Utility in this case means

²⁴ See Mueller (2003), 84

²⁵ See Baron, Kreps (1999), 248

²⁶ See Weisbach (2007)

²⁷ See Bebchuk, Fried (2004), 61

the executive can set a considerable part of his own compensation resulting in higher pay or pay that is less sensitive to performance.²⁸

An executive's managerial power depends on the company's ownership and governance structure and therefore comes in many different shapes.²⁹

“Other things being equal, managers will tend to have more power when

- *the board is relatively weak or ineffectual,*
- *there is no large outside shareholder,*
- *there are fewer institutional shareholders, and*
- *managers are protected by antitakeover arrangements.”*³⁰

As opposed to the principal-agent theory, the managerial power approach considers the pay-setting process itself as a key part of the agency problem. It implies that not even chief executive officer (CEO) compensation agreements including incentive plans exclusively take account of shareholders' interests.³¹

Options and restricted shares are not seen as a method to provide incentives for executives but are merely another way to hand over money.³²

The only boundary to executive compensation under the managerial power approach is represented by the so-called 'outrage costs'³³. Outrage costs emerge when the public considers executive compensation to be disproportionately high. The subsequent public reaction to the company allegorizes the costs to the executive. Unlike principal-agent theory, the managerial power approach sets executive pay as high as possible limited only by public perceptions.³⁴

²⁸ See Bebchuk, Fried (2004), 62

²⁹ See Bebchuk, Fried (2004), 64

³⁰ Bebchuk, Fried (2004), 80

³¹ See Bebchuk, Fried (2004), 61f

³² See Weisbach (2007)

³³ See Bebchuk, Fried (2004), 64

³⁴ See Weisbach (2007)

3. MOTIVATION AND INCENTIVES

This section presents possible types of incentives and their relation to shareholder wealth. It covers:

- intrinsic and extrinsic motivation,
- relative performance evaluation,
- executive compensation,
- deferred remuneration,
- rank-order tournaments,
- promotion, and
- dismissal.

Further issues comprise

- the question whether incentives are based on accounting profits or stock market returns, and
- the relation between shareholder value and executive compensation.

3.1 INTRINSIC AND EXTRINSIC MOTIVATION

The incentive-contribution-theory is a theory of work motivation. The basic idea of this theory implies that human beings optimize their effort to obtain an equilibrium between their contribution and the incentives they receive.³⁵

Intrinsic motivation is rooted in task fulfillment itself, e.g. in enjoying the chore, in moral concepts, or in personal goals.³⁶

On the other hand, extrinsic motivation has its source in environmental circumstances, e.g. monetary incentives, competition, or punishment.³⁷

Interaction between intrinsic and extrinsic motivation includes the “crowding-out-effect”. The motivation crowding theory suggests that extrinsic motivation may undermine intrinsic motivation.³⁸

³⁵ See Havranek, Mauhart (2010), 10

³⁶ See Mayrhofer (2009)

³⁷ See Mayrhofer (2009)

³⁸ See Mayrhofer (2009)

3.2 RELATIVE PERFORMANCE EVALUATION

To provide incentives that reflect performance, company and manager performance have to be evaluated.

Relative performance evaluation entails comparing a firm's performance with the performance of companies in the same industry or market. However, relative performance evaluation is more functional in competitive environments because CEOs have more peers and are more likely to be subject to comparable uncertainties. Empirical analyses corroborate that greater simplicity in detecting substandard managers should lead to higher turnover rates in more homogeneous industries.³⁹

Performance evaluation fulfills several purposes, e.g.:⁴⁰

- improving job matching,
- communicating organizational values and objectives,
- information for self-improvement,
- pay and promotion for performance,
- evaluating human resource practices, or
- legal defense.

The advantage of relative performance evaluation is straightforward: the risk exposure of risk-averse managers can be decreased by filtering out some or all of the common risk.⁴¹

Costs of relative performance evaluation include observing the average performance of organizations that are subject to the same common shock.⁴²

³⁹ See Muravyev (2003)

⁴⁰ See Baron, Kreps (1999), 211f

⁴¹ See Gibbons, Murphy (1990)

⁴² See Gibbons, Murphy (1990)

3.3 COMPENSATION AS AN INCENTIVE FOR EXECUTIVES

Executive compensation is composed of fixed and variable elements.

Fixed compensation consists of base salary and fringe benefits⁴³. Variable remuneration elements contain short-term bonuses and long-term incentive plans⁴⁴.

Short-term incentive compensation rewards the achievement of short-term aims depicted by performance figures whereas long-term incentive elements recompense the realization of major business objectives.⁴⁵

A cost-effective method to achieve the executive's obedience is a deal whereby he is paid exclusively in the form of corporate equity. Such a dodge would leave the executive extremely exposed to the company's serendipity which may be disturbed by incidents beyond the manager's control. Therefore, some compromise is necessary.⁴⁶

The sort of compensation that is best for one firm may not be best for another. Ryan and Wiggins look at attributes of firms and their managers and scrutinize the relations between the different types of incentive compensation which include cash bonuses, restricted stock and stock options.⁴⁷

Firm-specific characteristics include:⁴⁸

- firm size,
- ownership structure,
- capital structure,
- cash flow volatility,
- investment opportunities,
- monitoring mechanisms,
- CEO stock ownership, and

⁴³ Non-wage payment or benefit, e.g. company car, insurance programs, or pension plans

⁴⁴ Profit participation, stock-based compensation, e.g. stock ("performance shares") and stock option plans, as well as operating-based remuneration, e.g. long-term cash rewards

⁴⁵ See Becker, Kramarsch (2006), 36f

⁴⁶ See Main (1991)

⁴⁷ See Ryan, Wiggins (2001)

⁴⁸ See Ryan, Wiggins (2001)

- CEO/board chair duality.

Managerial attributes comprise:⁴⁹

- the CEO's age and
- tenure.

Firms with high growth opportunities receive a lot of their value from future investments. Since these assets are not yet in place, monitoring is a difficult method for controlling agency problems. Agency theory suggests that growth firms should offer equity-based incentives in order to moderate these monitoring problems. Ryan and Wiggins document a positive relation between the use of stock options and the firm's investment opportunity.⁵⁰

A different agency conflict surfaces when a risk-averse manager bears residual risk and responds by foregoing risky investment projects. In this case, the optimal incentive contract should restrict the risk borne by the manager.⁵¹

A common form of agency conflict occurs when the manager's horizon is shorter than the firm's horizon. A manager might have a short horizon when he is approaching retirement or when he aspires building his reputation to improve his value in the labor market. Given his short horizon, the manager will focus on projects that will pay off while he is still in office. Ryan and Wiggins use the CEO's age to proxy for the horizon problem and suggest that horizon conflicts are to be expected mostly for the oldest and the youngest CEOs. The authors recommend that the oldest and the youngest managers should be offered a compensation package that contains more equity-based pay and less cash bonus.⁵²

⁴⁹ See Ryan, Wiggins (2001)

⁵⁰ See Ryan, Wiggins (2001)

⁵¹ See Ryan, Wiggins (2001)

⁵² Cf. Ryan, Wiggins (2001); Mueller (2003), 83

Deckop examines determinants of executive compensation with particular emphasis on measures of firm performance. Since CEO compensation is based on other factors as well, Deckop's model investigates some major hypotheses. It includes:⁵³

- firm performance variables like profit, sales, and market equity value,
- market factors, which are represented by the external labor market and the way a person becomes CEO,
- individual attributes of job incumbents, e.g. general business experience represented by age, and tenure as a CEO, as well as
- the Consumer Price Index to control for price changes over time.

Deckop finds that CEOs are not incentivized to escalate the size of the firm at the expense of profit but rather receive compensation that is positively related to profit as a percentage of sales. That finding is entirely consistent with the fact that CEOs in large firms generally earn more than CEOs in small firms. Then, the author states that CEOs recruited from outside the firm earn significantly more than internally promoted CEOs. CEOs who were founders of the firm are discovered to be paid much less than internally promoted CEOs. The market equity value and the CEO's age and tenure, however, have an insignificant impact on compensation.⁵⁴

3.4 DEFERRED REMUNERATION

*"Deferred executive compensation is any arrangement providing payment to an executive in a year or years subsequent to the year in which profit is earned."*⁵⁵

Deferred remuneration is a long-term incentive policy which benefits the firm's long-term performance.⁵⁶

Ju studies the application of the principal-agent model by Chinese state-owned enterprises and analyzes the outcome of deferred executive remuneration policies in China. The author compiles a model of a deferred executive compensation policy in

⁵³ See Deckop (1988)

⁵⁴ See Deckop (1988)

⁵⁵ Ju (2007)

⁵⁶ See Ju (2007)

which the executives' compensation depends on the firms' future revenue. The model explains the effectiveness of deferred compensation policies as it shows that managers offer an increasing level of effort in every period. Furthermore, Ju finds that managers tend to invest in profitable long-term investments, which might generate revenue even after the termination of managerial contracts.⁵⁷

3.5 RANK-ORDER TOURNAMENTS

Lazear and Rosen investigate compensation systems which pay according to an executive's ordinal rank rather than his output level. They put forward the hypothesis that executive compensation may not epitomize individual productivity but may rather represent the result of a competitive process among managers. The tournament can be thought of as being self-funding. All contestants implicitly deposit part of their expected marginal product into a pot. The winner collects a 'prize' drawn from the pot and the runners-up obtain less than their expected marginal product. The authors show that under particular conditions a remuneration scheme that features a tournament character can induce the optimal investment of effort by participants.⁵⁸

3.6 PROMOTION AS AN INCENTIVE

Wage levels in a hierarchical organization are often tied to job levels in the firm and not to individuals. Individuals differ in their skills and abilities, and jobs differ in the requirements they impose on individuals.⁵⁹

Promotion fulfills two different functions:⁶⁰

- It is a method to match individuals to the jobs to which they are appropriate.
- Promotion provides incentives for lower level employees who desire the pay and prestige associated with a higher rank in the organization.

⁵⁷ See Ju (2007)

⁵⁸ See Lazear, Rosen (1981)

⁵⁹ See Baker et al. (1988)

⁶⁰ See Baker et al. (1988)

3.7 DISMISSAL AS AN INCENTIVE

The dismissal of top executives is one of the most important instruments of corporate governance. Linking turnover to firm performance can provide a strong incentive for performance.⁶¹

The economic literature identifies several factors that affect forced resignation of CEOs. The main causes are:⁶²

- CEO performance and
- the ability of monitors to assess it accurately,
- the market for corporate control,
- the firm's ownership structure and
- board size as well as
- board composition,
- the firm's debt constraints,
- incumbent CEO age and
- tenure,
- availability of a capable successor and
- costs of hiring and firing managers.

Meager performance of managers is viewed as the main reason triggering their substitution. Most empirical studies from developed countries illustrate that the probability of managerial turnover is inversely related to firm performance which is considered as a proxy for managerial effort.⁶³

The exclusive surveying of firm performance is unlikely to suffice in assessing CEO performance accurately as there is a variety of aspects beyond managerial control like a general economic recession or an industry shock.⁶⁴

⁶¹ See Kim (1996)

⁶² See Muravyev (2003)

⁶³ See Muravyev (2003)

⁶⁴ See Muravyev (2003)

Economic literature demonstrates that there is a link between corporate control activities and managerial turnover. Empirical studies describe an increase in management turnover after successful takeovers. However, corporate control activities like mergers and tender offers do not inevitably emanate from poor company performance.⁶⁵

3.8 ARE INCENTIVES BASED ON ACCOUNTING OR STOCK MARKET RETURNS?

Boschen et al. study the long-run effects of unexpected firm performance on CEO compensation from 1959 to 1995. They find that unexpectedly good accounting performance at first correlates with increases in CEO pay. However, this initial effect reverses, and is followed by lower CEO pay in later years. This adds up to an insignificant long-run cumulative financial gain. In contrast, unexpectedly good stock price performance yields increases in CEO pay in the long-run.⁶⁶

3.9 SHAREHOLDER VALUE AND EXECUTIVE COMPENSATION

Shareholders who wish to constrain managers from pursuing their own goals will tie managerial compensation to shareholder wealth.⁶⁷

There are a lot of mechanisms through which compensation policy can provide shareholder value-increasing incentives:⁶⁸

- performance-based bonuses,
- salary revisions,
- stock options, and
- performance-based dismissal decisions.

CEO compensation is directly related to shareholder wealth through shareholdings and share options. In addition, CEO pay can be indirectly linked to shareholder

⁶⁵ See Muravyev (2003)

⁶⁶ See Boschen et al. (2003)

⁶⁷ See Mueller (2003), 88

⁶⁸ See Jensen, Murphy (1990)

wealth by means of accounting-based bonuses and through year-to-year adjustments in salary levels. Furthermore, CEO wealth is affected by performance since CEOs lose their jobs when their firms are performing poorly.⁶⁹

Jensen and Murphy estimate the magnitude of the incentives provided by each of these mechanisms. They find that CEO wealth changes \$3.25 for every \$1,000 change in shareholder wealth. Although the incentives generated by stock ownership are large relative to pay and dismissal incentives, most CEOs hold trivial fractions of their firm's stock. Managerial compensation contracts in the United States are almost pure insurance contracts that provide not enough monetary incentives for managers to increase shareholder wealth. The authors hypothesize that public and private political forces impose constraints that reduce the pay-performance sensitivity. Declines in both the pay-performance relation and the level of CEO pay since the 1930s are consistent with this hypothesis.⁷⁰

The authors' estimates suggest that dismissals are not a significant source of managerial incentives since the increase in dismissal probability due to poor performance and the penalties associated with dismissal are both small.⁷¹

The meta-analysis in the present thesis, however, arrives at a different conclusion.

⁶⁹ See Conyon, Murphy (2000)

⁷⁰ See Jensen, Murphy (1990)

⁷¹ See Jensen, Murphy (1990)

4. EMPIRICAL EVIDENCE OF INCENTIVES FOR EXECUTIVES

This section summarizes the empirical findings of various studies about incentives for executives focusing on different countries and industries. It does not address the issue of the countries' different corporate governance systems.

Furthermore, the present section gives a resume of empirical evidence on the relation between managerial incentives, particularly dismissal, and firm performance.

4.1 AMERICA

4.1.1 Canada

Zhou observes executive compensation in Canadian firms over the period 1991-1995. The findings are consistent with previous studies insofar as CEO pay increases with firm size and compensation is attached to company performance. While the probability of CEO turnover is generally negatively related to the firm's stock performance, the threat of dismissal seems to be less distinct in small firms.⁷²

4.1.2 US

Lewellen et al. analyze senior executive compensation in large industrial US firms from 1964 to 1973. They find that there is a relationship between remuneration and firm performance and that companies that pay better perform better.⁷³

Kaplan compares top executive turnover and compensation, and their relation to firm performance in the largest Japanese and US companies in the 1980s. The corporate governance system in Japan is generally said to differ significantly from the US system. The Japanese system is described as bank and relationship oriented and the US system as (stock) market oriented.⁷⁴

⁷² See Zhou (2000)

⁷³ See Lewellen et al. (1992)

⁷⁴ See Kaplan (1994a)

The author finds some evidence that the fortunes of Japanese executives are more sensitive to low operating income but less sensitive to stock returns than those of their US counterparts.⁷⁵

4.2 ASIA

4.2.1 China

Li and Zhou investigate the turnover of Chinese provincial leaders between 1979 and 1995. They find that the probability of promotion of provincial leaders rises with their economic performance, while the likelihood of termination declines with their economic performance. They also find that the turnover of provincial leaders is more sensitive to their average performance over their tenure than to their annual performance.⁷⁶

Firth et al. study the relation between CEO compensation and firm performance in Chinese listed firms which have a dominant or controlling shareholder from 1998 to 2000. The authors suggest that the individual types of controlling shareholders have disparate effects on the employment of incentive remuneration. One peculiar difference between listed firms in China and those in other countries is the existence of a dominant shareholder who has a say in the firm's control.⁷⁷

The authors find that firms that have a state agency as the major shareholder do not have a tendency to use performance related pay. In contrast, firms that have private blockholders as the major shareholders are likely to relate managerial remuneration to firm performance. Still, the pay-performance sensitivities for CEOs are low and this challenges the effectiveness of firms' incentive systems.⁷⁸

4.2.2 Japan

Abe studies CEO turnover and its relationship to firm performance in Japan from 1974 to 1990. The author finds that the long-run performance measurements of

⁷⁵ See Kaplan (1994a)

⁷⁶ See Li, Zhou (2005)

⁷⁷ See Firth et al. (2006)

⁷⁸ See Firth et al. (2006)

individual CEOs are significantly related to turnover. The turnover probability tends to be low at the early stage of a CEO's tenure and increases in the intermediate tenure durations. Moreover, the effect of firm performance on turnover probability is small.⁷⁹

Ang and Constand find from 1980 to 1992 that only a relatively small fraction of Japanese executives receives increased compensation from short-term share value rises. On the other hand, there is some indication of the existence of incentives to pursue long-term share value increases. Bonuses, however, are found to be more related to short-term performance. Furthermore, sales maximization takes a dominant role in setting executive compensation agreements.⁸⁰

From 1985 to 1990, Kang and Shivdasani find that the likelihood of non-routine turnover in Japan is significantly related to industry-adjusted return on assets, excess stock returns, and negative operating income, but is not related to industry performance.⁸¹

4.2.3 Korea

Kato et al. observe the pay-performance relations of Korean executives from 1998 to 2001. The authors find that executive compensation is significantly related to stock market performance and that the magnitude of the pay-performance sensitivity is comparable to that of the US and Japan.⁸²

4.2.4 The Philippines

Unite et al. examine the nature of the relation between executive compensation and firm performance in the Philippines from 2001 to 2003. The authors find a positive relation between executive compensation and firm performance for companies not affiliated to a corporate group. This relation does not hold for affiliated firms.⁸³

⁷⁹ See Abe (1997)

⁸⁰ See Ang, Constand (1997)

⁸¹ See Kang, Shivdasani (1995)

⁸² See Kato et al. (2007)

⁸³ See Unite et al. (2008)

4.3 EASTERN EUROPE

Jones and Kato study the determinants of CEO compensation in transitional economies from 1989 to 1993. Using standard specifications similar to those used in studies of managerial compensation in Western countries, they find that CEO pay is positively related to size⁸⁴, but not to profitability⁸⁵. In specifications adapted to transitional economies, CEO compensation is found to be positively related to size and productivity. The results show that productivity is an important determinant of CEO compensation in transitional economies. The relation between CEO pay and productivity is stronger in firms that are either privatized or corporatized than in firms that remain entirely state-owned and controlled.⁸⁶

The strong pay-size correlations, combined with the absence of pay-profitability relationships, imply that at the beginning of the 1990s, executive compensation in transitional economies was still largely structured so as to provide incentives for managers to increase size and to take no notice of profitability. Alternatively, the similarly strong pay-productivity rapport shows the existence of incentives to augment productivity.⁸⁷

4.3.1 Czech Republic

In the former socialist economies, state-owned enterprises practiced a choice of non-commercial objectives in addition to or instead of profit maximization. Privatization should restore profit maximization as the leading objective of firm activities. The efficiency improvements established by the new post-privatization owners can evolve either from incentives encouraging profit maximization or through appointment of new and better managers.⁸⁸

Fidrmuc and Fidrmuc compare the impact of these two types of efficiency-improving modifications on firm performance after privatization in the Czech Republic from 1993 to 1998.⁸⁹

⁸⁴ Measured by employment and sales

⁸⁵ Measured by return on assets and the profit margin

⁸⁶ See Jones, Kato (1996)

⁸⁷ See Jones, Kato (1996)

⁸⁸ See Fidrmuc, Fidrmuc (2007)

⁸⁹ See Fidrmuc, Fidrmuc (2007)

The authors find weak evidence for the existence of managerial incentives. However, substituting the managing director in a newly privatized firm enhances subsequent performance. Fidrmuc and Fidrmuc discover that institutional framework is relevant and that managerial turnover increases firm performance only if the management is closely interrelated with the board of directors and in consequence holds effective executive authority.⁹⁰

Claessens and Djankov study the effect of management turnover on changes in enterprise performance in the Czech Republic from 1993 to 1997. They find that the appointment of new managers is associated with improvements in profit margins and labor productivity. Equity holdings of general managers have a small positive effect on corporate performance.⁹¹

4.3.2 Russia

Muravyev reviews determinants of CEO turnover in Russian privatized firms from 1998 to 2000. He finds that inferior past company performance⁹² increases the chance of CEO replacement. The turnover of senior managers in Russian privatized firms is generally guided by the same forces as in developed economies. Managers of enterprises that underperform compared to other companies in their industry deal with a higher probability of replacement.⁹³

4.3.3 Ukraine

Muravyev et al. study executive turnover in the Ukraine from 2002 to 2006. They find a statistically significant negative association between the past firm performance and the likelihood of managerial turnover.⁹⁴

⁹⁰ See Fidrmuc, Fidrmuc (2007)

⁹¹ See Claessens, Djankov (1999)

⁹² Measured by labor productivity

⁹³ See Muravyev (2003)

⁹⁴ See Muravyev et al. (2009)

4.4 WESTERN EUROPE

4.4.1 Denmark

Lausten examines the relationship between the replacement of CEOs and corporate performance in Danish firms from 1992 to 1995 and tests the hypothesis that CEO turnover is inversely related to firm performance. The results are consistent with the principal-agent theory.⁹⁵

Although corporate governance in Denmark is claimed to be different from corporate governance in Japan and the US, the author discovers qualitatively similar outcomes on the CEO turnover-performance relation. The Danish corporate governance system is organized by a two-tier board system. It consists of a supervisory board as the legislative authority and a board of managers as the executive authority. Management is a mutual concern of the supervisory and the management boards – both are formally responsible.⁹⁶

Eriksson et al. find that the turnover risk of Danish CEOs increases with lower rates of solvency but is unaffected by profitability changes.⁹⁷

4.4.2 Finland

Maury investigates how firm performance affects top executive turnover in Finnish listed companies from 1993 to 2000. He finds that CEO turnover increases in response to poor stock price performance and operating losses.⁹⁸

4.4.3 Norway

Firth et al. explore the determinants of Norwegian chief executive compensation from 1986 to 1994. They find a positive relationship between CEO pay and corporate size but there is no significant association between compensation and corporate financial performance.⁹⁹

⁹⁵ See Lausten (2002)

⁹⁶ See Lausten (2002)

⁹⁷ See Eriksson et al. (2001)

⁹⁸ See Maury (2006)

⁹⁹ See Firth et al. (1996)

4.4.4 Germany

Kaplan studies executive turnover and its relation to firm performance in Germany from 1981 to 1989. He finds that turnover increases significantly with poor stock performance and poor earnings, but is unrelated to sales decline.¹⁰⁰

4.4.5 Italy

Brunello et al. examine the determinants of CEO pay in a sample of Italian firms from 1993 to 1996. The authors find evidence that supports their hypothesis postulating that the characteristics of the Italian capital market and corporate governance, as well as the specific relationship between banks and firms imply a low fraction of incentive pay over total compensation and a low sensitivity of incentive pay to firm performance.¹⁰¹

4.4.6 UK

Conyon finds an inverse relationship between CEO dismissal and firm performance from 1986 to 1994 in the UK.¹⁰²

Conyon and Nicolitsas study executive compensation and tenure from 1985 to 1992 in the UK. They find that CEO pay and tenure in small companies is sensitive to sales growth.¹⁰³

Cosh examines the structure of executive remuneration from 1969 to 1971 in the UK. He finds that company size is the major determinant of CEO compensation.¹⁰⁴

4.5 INCENTIVES OVER TIME

Hadlock and Lumer find that the rate of top management turnover and the sensitivity of turnover to stock returns were significantly smaller for a sample of large industrial

¹⁰⁰ See Kaplan (1994b)

¹⁰¹ See Brunello et al. (2001)

¹⁰² See Conyon (1998)

¹⁰³ See Conyon, Nicolitsas (1998)

¹⁰⁴ See Cosh (1975)

firms in the US from 1933 to 1941 than estimates reported for modern panels. They demonstrate that managerial compensation has become more sensitive to firm performance since the 1930s.¹⁰⁵

4.6 MERGERS AND ACQUISITIONS

Principal-agent approaches perceive executive compensation as a reward for managerial expertise and as an instrument to accomplish only those M&A agreements that contribute to shareholder value creation. Managerial power approaches on the contrary see mergers as the product of personal objectives such as empire building. Extant literature indicates a strong positive correlation between firm size and executive pay.¹⁰⁶

Coakley and Iliopoulou investigate the impact of mergers and acquisitions on bidder executive compensation in the UK and the US from 1998 to 2001. They find that subsequent to the completion of a merger, less independent and larger boards grant their CEOs significantly higher bonuses and salaries versus their more independent and smaller counterparts. In general, their findings corroborate the managerial power rather than the principal-agent theory.¹⁰⁷

4.7 NON-PROFIT ORGANIZATIONS

Non-profit establishments primarily represent organizations in health care, education, social services, and the arts. In spite of playing such an important role, little is known about methods of incentivizing managers in non-profit organizations.¹⁰⁸

The lack of ownership rules out stock-based compensation as well as the external market for corporate control. In addition, given the organizations' hard-to-observe

¹⁰⁵ See Hadlock, Lumer (1997)

¹⁰⁶ See Coakley, Iliopoulou (2006)

¹⁰⁷ See Coakley, Iliopoulou (2006)

¹⁰⁸ See Brickley, Van Horn (2002)

outputs, evaluating managerial performance and composing expedient incentive contracts is tricky.¹⁰⁹

Brickley and Van Horn look at the incentives of CEOs in a large sample of non-profit hospitals from 1991 to 1995. They compare CEO incentives in non-profit hospitals with CEO incentives in for-profit hospitals. They find that both turnover and compensation of CEOs in non-profit hospitals are significantly related to financial performance¹¹⁰. Nevertheless, this relation appears weaker in for-profit hospitals. The authors find no evidence that non-profit hospitals provide explicit incentives for their CEOs to focus on altruistic activities. The study suggests that managers of non-profit organizations encounter incentives to optimize financial performance as well. Threat of turnover, however, appears to be stronger in non-profit hospitals than in for-profit hospitals.¹¹¹

4.8 SUBSIDIARIES OF CONGLOMERATES

McNeil et al. contrast turnover of subsidiary managers inside conglomerate firms to turnover of CEOs of equivalent stand-alone firms from 1987 to 1998. The authors find that subsidiary manager turnover is significantly more sensitive to changes in performance and significantly more likely following poor performance. For subsidiary managers, the relation between turnover and performance is significantly stronger when the subsidiary operates in an industry that is related to the parent's primary industry.¹¹²

4.9 FINANCIALLY DISTRESSED FIRMS

Gilson and Vetsuypens study senior management compensation in publicly traded firms that filed for bankruptcy or privately restructured their debt from 1981 to 1987. Overall, firms systematically restructure their management compensation contracts when they experience grave financial difficulty. Almost one third of all CEOs are replaced, and those who keep their jobs often face substantial salary and bonus cuts.

¹⁰⁹ See Brickley, Van Horn (2002)

¹¹⁰ Measured by return on assets

¹¹¹ See Brickley, Van Horn (2002)

¹¹² See McNeil et al. (2004)

Newly appointed CEOs from inside the firm are paid 35% less than the CEOs they replace. In striking contrast, new CEOs from outside the firm are paid 36% more than their predecessors, and often receive large grants of stock options as part of their compensation.¹¹³

4.10 FUND MANAGERS

Kapur and Timmermann scrutinize the effects of performance-based contracts for fund managers. Their payment is attached to a fund's absolute and relative performance. This type of performance-based remuneration emerged in the 1990s when the stock markets performed fairly well. A fund's absolute performance hence did not suffice to evaluate the fund manager's ability. A contract based on relative performance evaluation encourages the manager to outperform the market while simultaneously defusing the fund's uncertainty.¹¹⁴

In their two-period model, Kapur and Timmermann let the investor allocate his capital across two assets: riskless bonds and risky equity shares. He can invest directly in these assets or assign the portfolio selection to a professional fund manager. The latter alternative evidently is attended by fees but then comes with the fund manager's access to better information about the relative payoff of the two assets. Delegating the portfolio choice to a fund manager, the investor designs the optimal performance-based fee arrangement which is hypothesized to be a linear function of absolute and relative performance comprising a fixed element that is independent of performance. The investor as well as the fund manager are assumed to be risk averse. The fee arrangement or delegation contract is subject to a participation constraint. If the delegating investor can set the parameters of the linear contract optimally, relative performance evaluation serves a limited purpose since it does not necessarily outstrip contracts built upon absolute performance alone.¹¹⁵

Furthermore, delegated portfolios are predisposed to contain more risky assets than direct investment portfolios. All the same, the fund manager's better information

¹¹³ See Gilson, Vetsuypens (1993)

¹¹⁴ See Kapur, Timmermann (2005)

¹¹⁵ See Kapur, Timmermann (2005)

decreases the risky asset's risk. This results in greater willingness to hold risky assets and reduces the required equilibrium risk premium.¹¹⁶

4.11 TEACHERS

Using US data, Figlio and Kenny examine the relationship between individual teacher performance incentives and student achievements in 2000. They discover that test scores are higher in schools that offer individual financial incentives to teachers. This relationship might exist as a result of teachers exerting more effort due to incentives or because of better schools adopting teacher incentives. The authors cannot discern whether the relationship is due to the incentives themselves or due to better schools implementing them.¹¹⁷

Lavy provides evidence on the causal effect of a program that introduced¹¹⁸ monetary incentives to schools and teachers in Israel in 1996 and 1997. The program had the main elements of a rank-order tournament, whereby only the top one-third performers were awarded monetary bonuses. The results suggest that the schools' performance incentives led to significant gains in all five achievement measures of high school graduates, including average test scores and the dropout rate from ninth to tenth grade. The program led to an increase in the proportion of students, especially among those from a disadvantaged background, who qualified for a matriculation certificate.¹¹⁹

Eberts et al. present case study evidence from a merit pay system to reward student retention from 1994 to 1999. Their results imply that merit pay increases retention and the percentage of students who failed but reduced average daily attendance rates and had no effect on grade point averages. The findings suggest that incentive systems within complex organizations with multiple tasks and outcomes, team production, and numerous stakeholders, may produce results that are unintended

¹¹⁶ See Kapur, Timmermann (2005)

¹¹⁷ See Figlio, Kenny (2007)

¹¹⁸ In 1995

¹¹⁹ See Lavy (2002)

and, at times, misdirected – unless they are carefully constructed and implemented.¹²⁰

4.12 THE RELATION BETWEEN INCENTIVES AND FIRM PERFORMANCE

The present section gives a resume of empirical evidence on the relation between managerial incentives, particularly dismissal, and firm performance.

It includes

- the effect of firm performance on executive turnover,
- the impact of executive turnover on firm performance, and
- the efficiency of managerial pay-for-performance

4.12.1 The Effect of Firm Performance on Executive Turnover

Kim studies the dynamics of CEO turnover and its relation with firm performance of US firms in the 1980s. The author finds that firm performance has a persistent effect on the CEO's future turnover, except the performance in the early years of the executive's tenure. Furthermore, the probability of CEO turnover is significantly lower in the beginning and after ten years of an executive's tenure.¹²¹

Parrino studies dynamics that affect the probabilities of voluntary and forced turnover of US firms in the 1970s and 1980s. The new CEOs are tested for being from inside the firm, from inside the industry, or from outside the industry. The author finds that in homogeneous industries, inadequate CEOs are easier to identify and less costly to replace than in heterogeneous industries. The likelihood of forced turnover and intra-industry appointment increases with industry homogeneity.¹²²

¹²⁰ See Eberts et al. (2002)

¹²¹ See Kim (1996)

¹²² See Parrino (1997)

4.12.2 The Impact of Executive Turnover on Firm Performance

Blackwell et al. document changes in compensation structure following CEO turnover and relate them to the performance of US companies from 1981 to 1992. Compared to outgoing CEOs, incoming CEOs receive a significantly larger fraction of their remuneration from options and new stock grants. These results hold even when differentiating between voluntary and forced turnover. There is a positive relation between new stock grants and future performance. The authors find a positive relation between option grants and future performance for the forced turnover sample as well.¹²³

Denis and Denis study whether management turnover leads to improved performance of US businesses in the 1980s. They find that forced resignations of top managers are heralded by large and significant declines in operating performance and followed by large improvements in performance. However, forced resignations happen rarely due to normal board monitoring.¹²⁴

4.12.3 The Efficiency of Managerial Pay-for-Performance

Mishra et al. study the connection between CEO pay and firm performance in US firms from 1974 to 1988 and question if there is a limit to the impact of increasing levels of pay-performance sensitivity on future firm performance. The normative agency literature suggests that too much compensation risk induces CEOs to pursue lower risk strategies that trim down firm performance.¹²⁵

The authors formulate two hypotheses:¹²⁶

- The relation between CEO pay-performance sensitivity and future performance is positive, but the marginal benefit declines as sensitivity rises.
- The relation between CEO pay-performance sensitivity and future firm performance is weaker in high-risk firms than it is in low-risk firms.

¹²³ See Blackwell et al. (2007)

¹²⁴ See Denis, Denis (1995)

¹²⁵ See Mishra et al. (2000)

¹²⁶ See Mishra et al. (2000)

The statistical analysis' results confirm that future firm performance is positively linked to CEO pay-performance sensitivity at low sensitivity levels. As the level of sensitivity rises, the link weakens and then turns negative. The reasons for the declining marginal benefit are CEO risk aversion and practical limits to improving performance monitoring.¹²⁷

¹²⁷ See Mishra et al. (2000)

5. META-ANALYSIS

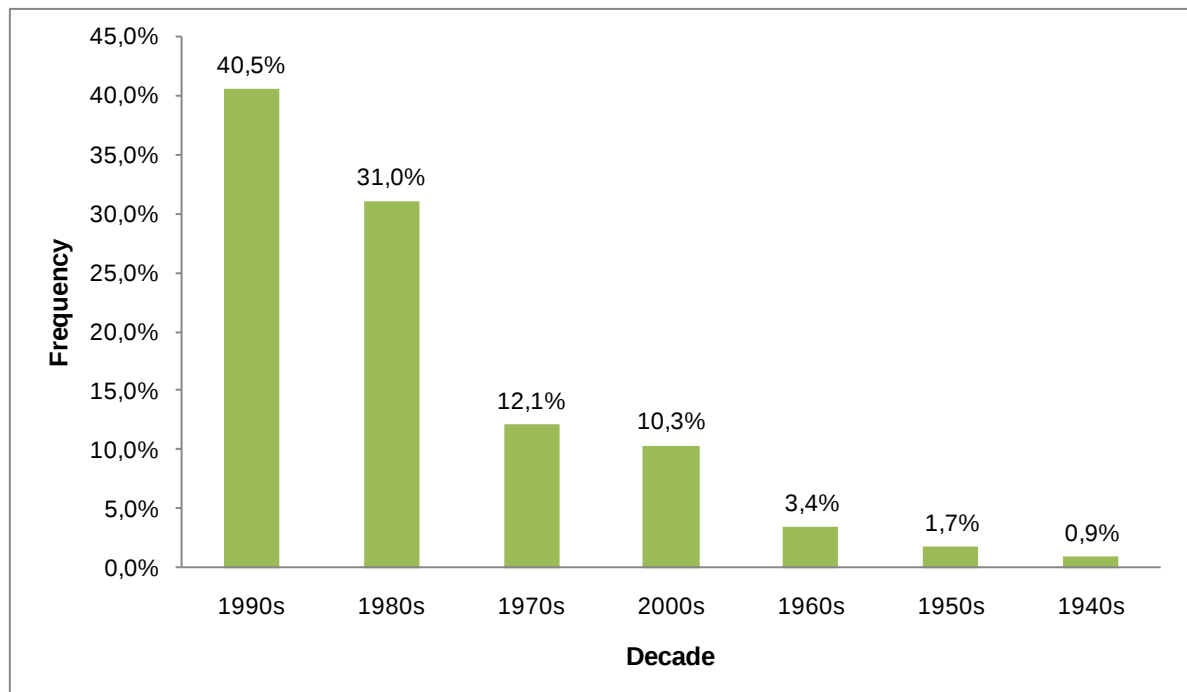
Because of heterogeneous proceedings regarding currencies employed to depict executive compensation and different objectives pursued in the studies, as well as numerous forms of performance measures used, I refrain from examining the correlations more closely. I rather aim at investigating effects impacting firm performance and executive incentives using the Cramer's V, phi, and eta correlation coefficients.

Additionally, I generate a logistic regression model to identify factors instigating the decision to employ negative or positive incentives. Another logistic regression model examines the impact of the two incentive frameworks on firm performance.

5.1 DESCRIPTIVE STATISTICS

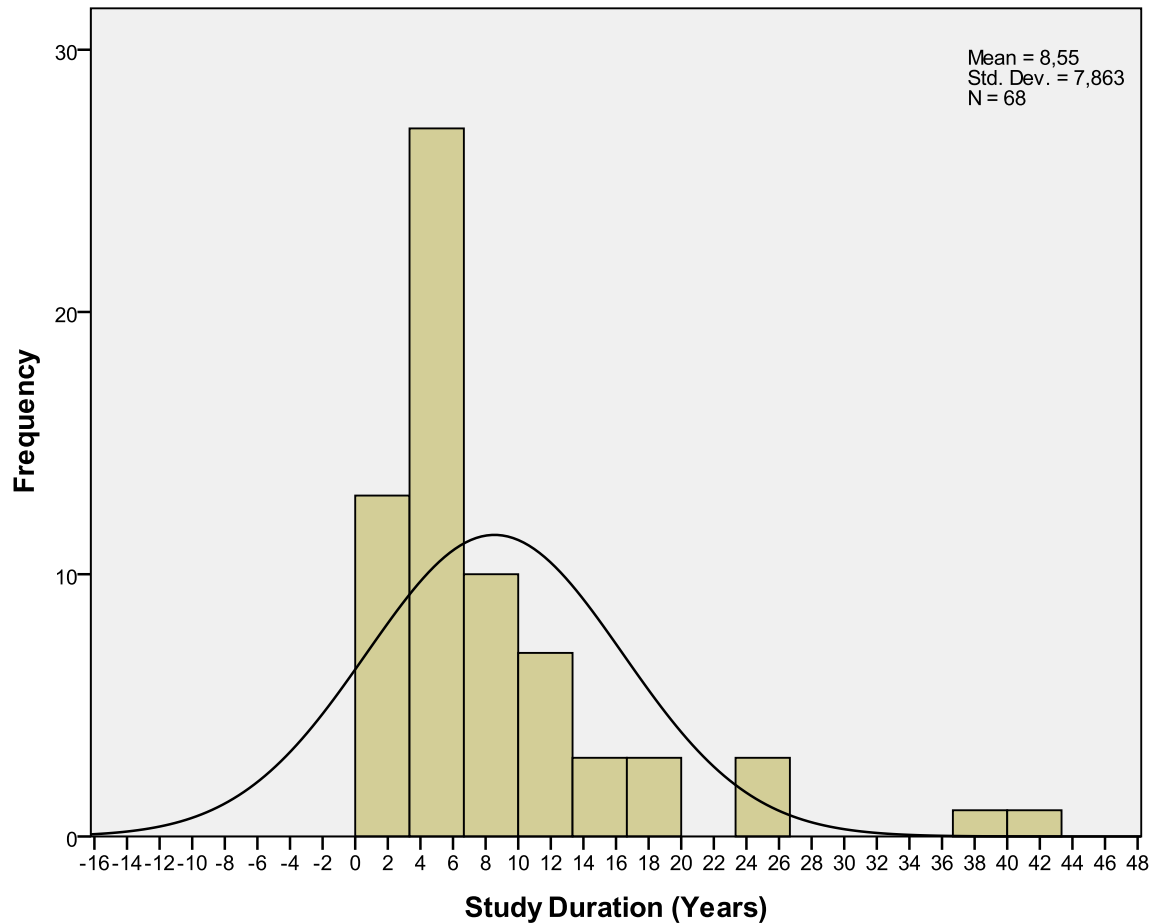
I study 59 papers covering a period of about 60 years from 1948 to 2006. Most of the studies were conducted in the 1990s and the 1980s.

Figure 1: Decade Frequencies



On average, the studies examine 589 businesses over a mean observation period of 8.5 years.

Figure 2: Histogram of Study Duration



There were slightly more studies conducted after the year 1990 than before.

Table 1: Era Frequencies

	Frequency	Percent
post 1990	38	55,9
pre 1990	30	44,1
Total	68	100,0

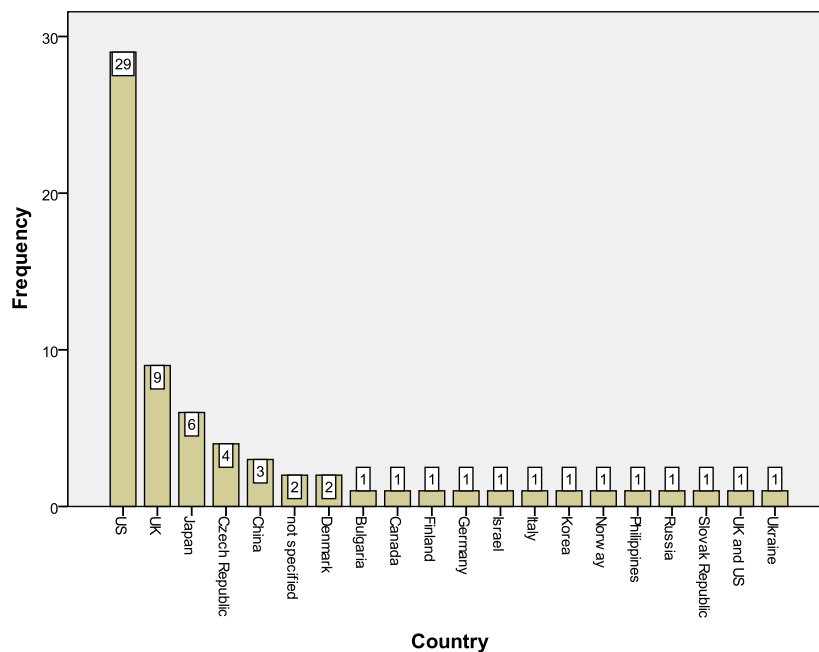
The studies comprise eleven industries, which I cluster in six concentrated industries¹²⁸. The majority of research papers monitors executive compensation between 1993 and 1995 in the US but does not select a special industry. The second most common industry analyzed is the financial sector.

Table 2: Concentrated Industry Frequencies

Concentrated Industry	Frequency	Percent
not specified	50	73,5
charitable/education/health/public	6	8,8
financial	6	8,8
commercial	3	4,4
sports	2	2,9
utility	1	1,5
Total	68	100,0

The research papers cover 20 countries and five continents¹²⁹:

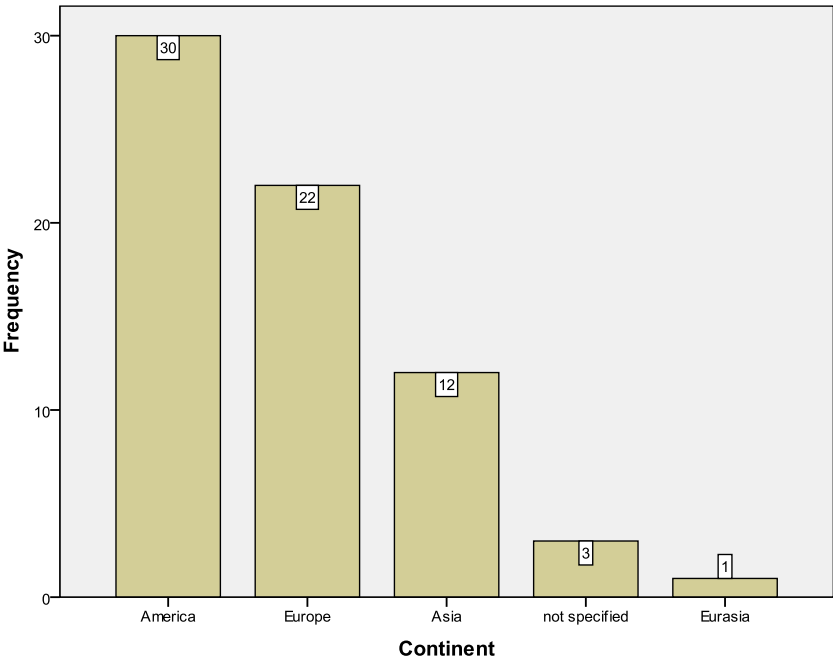
Figure 3: Country Frequencies



¹²⁸ Charitable/education/health care/public (charitable, hospitals, provincial leaders, schools), commercial (manufacturing), financial (banking, insurance), sports (basketball, soccer), utility, and not specified

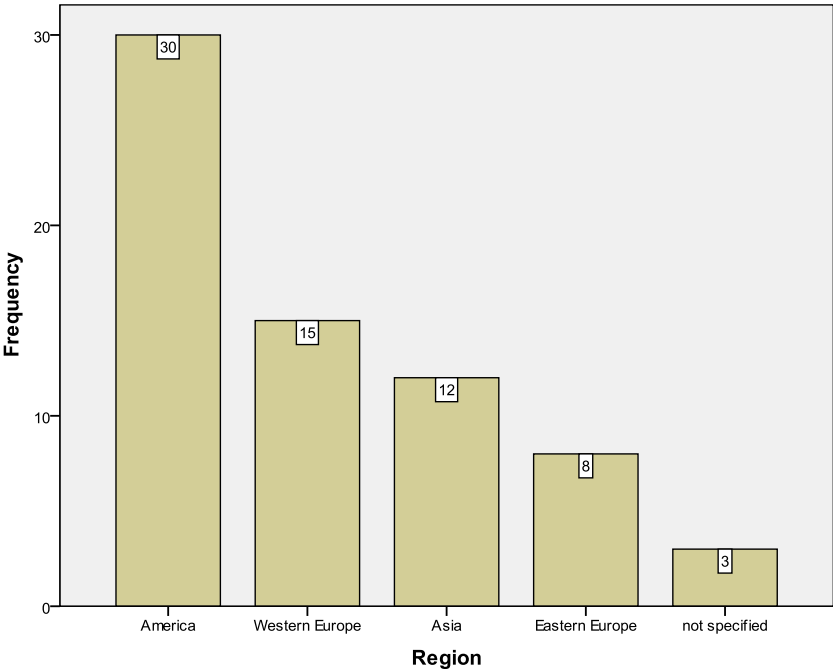
¹²⁹ America (Canada, US), Asia (China, Israel, Japan, Korea, Philippines), Eurasia (Russia), Europe (Bulgaria, Czech Republic, Denmark, Finland, Germany, Italy, Norway, UK, Ukraine), not specified (UK and US, not specified)

Figure 4: Continent Frequencies



Additionally, I unite the countries in regions¹³⁰:

Figure 5: Region Frequencies

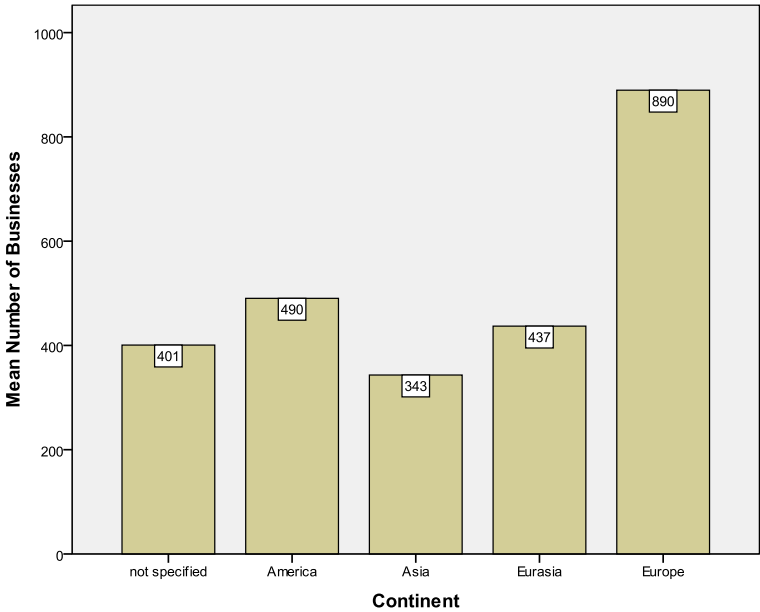


¹³⁰ America (Canada, US), Asia (China, Israel, Japan, Korea, Philippines), Eastern Europe (Bulgaria, Czech Republic, Russia, Ukraine), Western Europe (Denmark, Finland, Germany, Italy, Norway, UK), not specified (UK and US, not specified)

I perceive dissimilarities across continents, industries and decades concerning the study duration as well as the number of businesses examined.

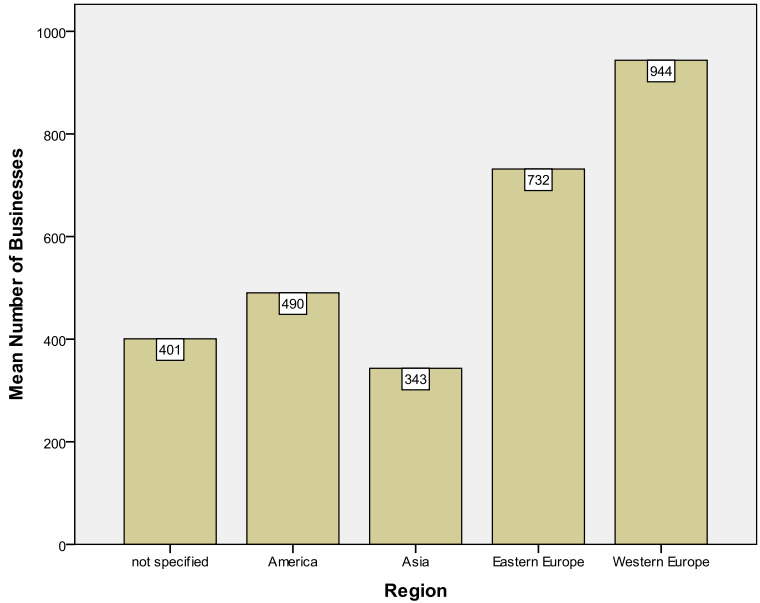
European studies survey a mean of 890 businesses, while on average, Asian research papers analyze only 343 companies.

Figure 6: Mean Number of Businesses by Continent



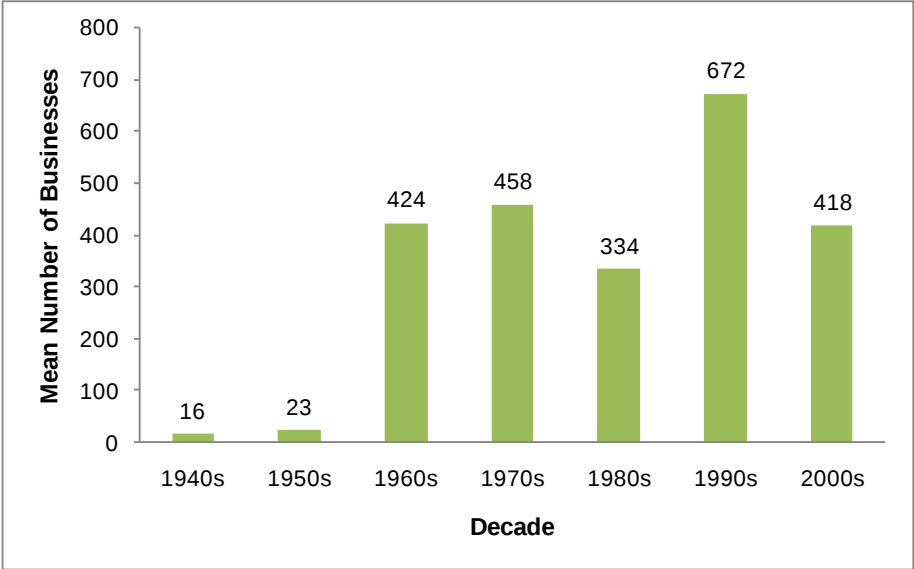
The mean number of businesses by region shows a similar picture.

Figure 7: Mean Number of Businesses by Region



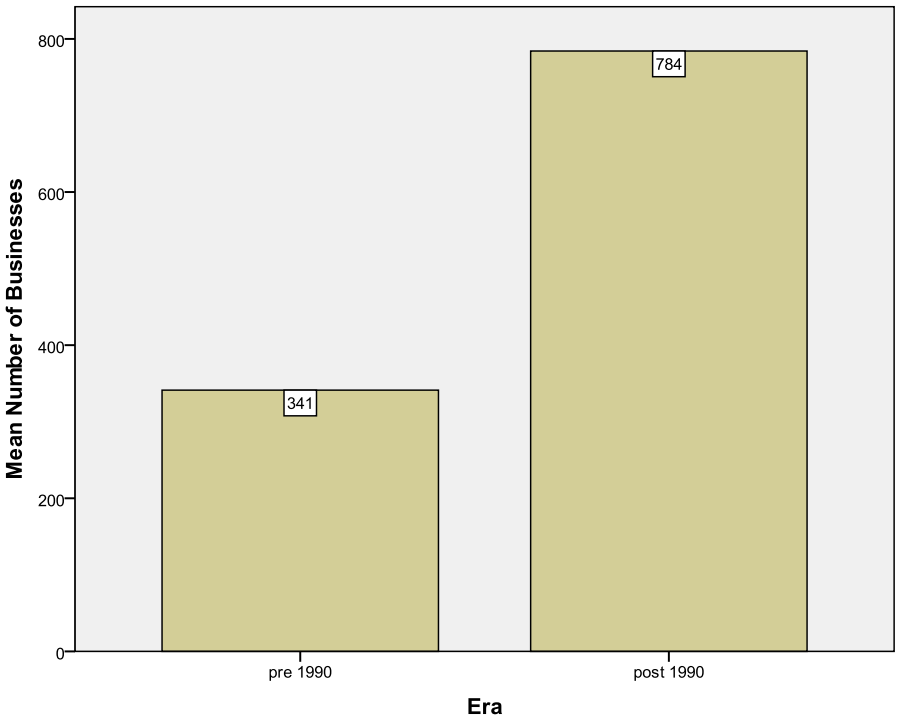
Studies of the 1990s investigate a mean of 672 businesses, while on average, reviews from the 1940s and the 1950s only analyze around 20 organizations.

Figure 8: Mean Number of Businesses by Decade



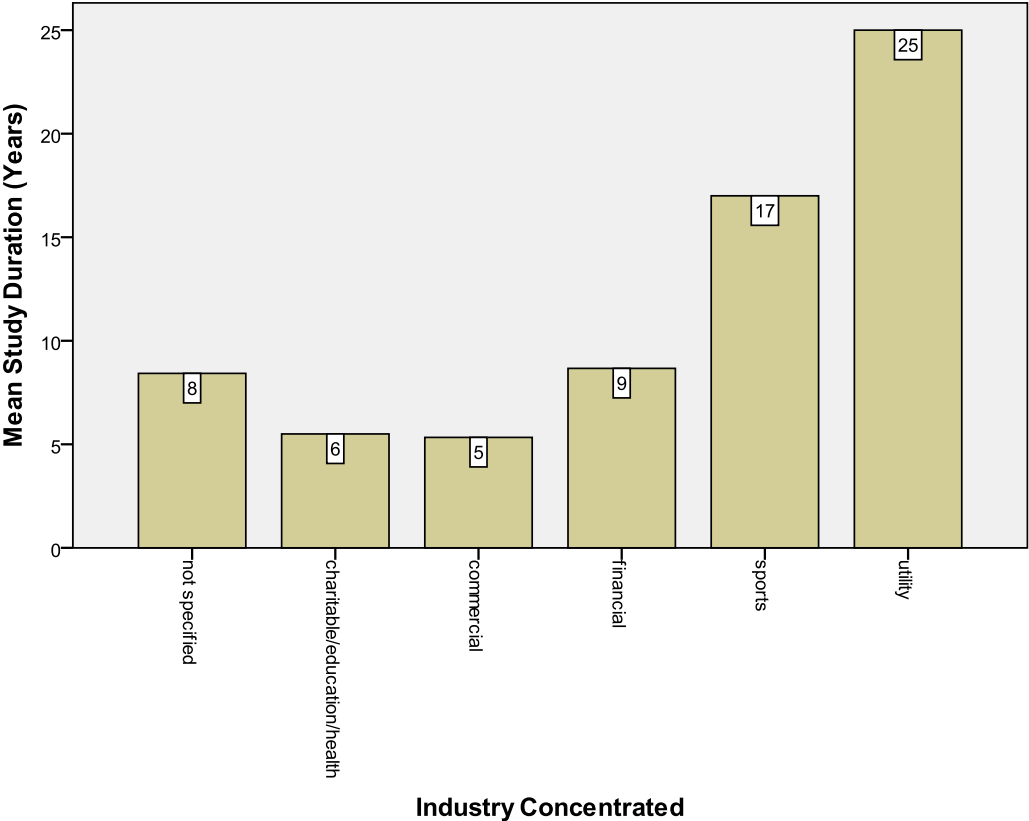
On average, papers that were conducted before the year 1990 merely studied 341 businesses, whereas more recent surveys examine a mean of 784 businesses.

Figure 9: Mean Number of Businesses by Era



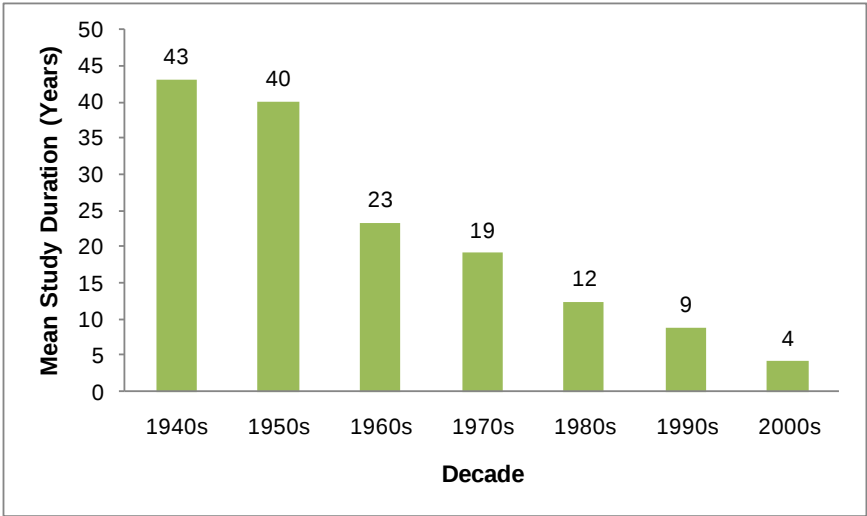
On average, studies of utility firms last 25 years, whereas surveys on commercial enterprises take a mean of only five years.

Figure 10: Mean Study Duration by Concentrated Industry



Predictably, the mean study duration is shorter for the more recent research papers.

Figure 11: Mean Study Duration by Decade

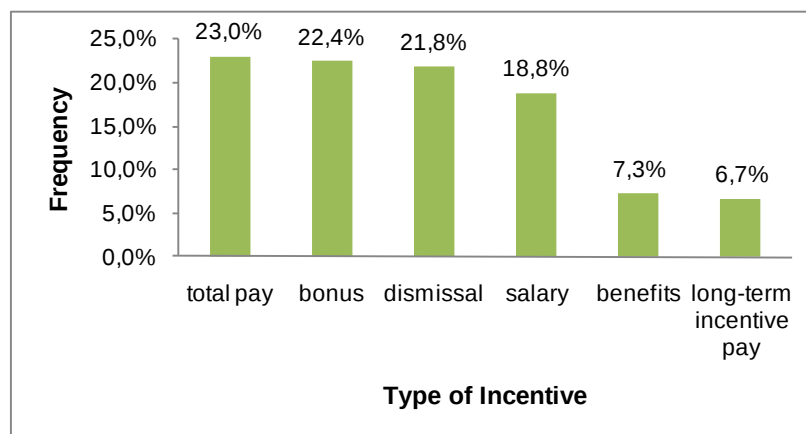


I identify five types of positive incentives

- total pay,
- salary,
- fringe benefits,
- bonus, and
- long-term incentive pay,

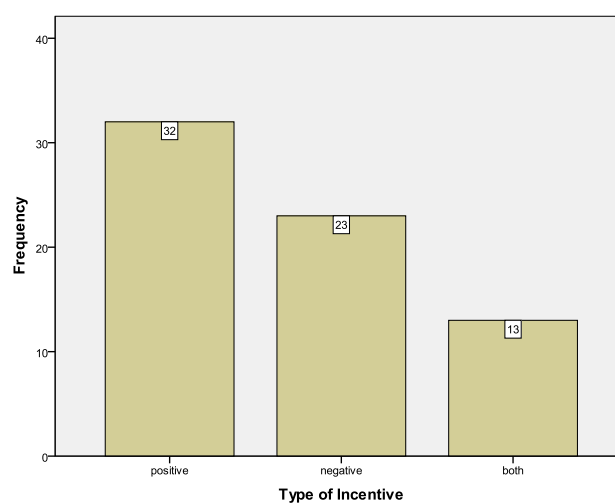
whereas dismissal is the only kind of disincentive analyzed in this thesis. Only eleven studies take long-term incentives into account.

Figure 12: Incentive Frequencies



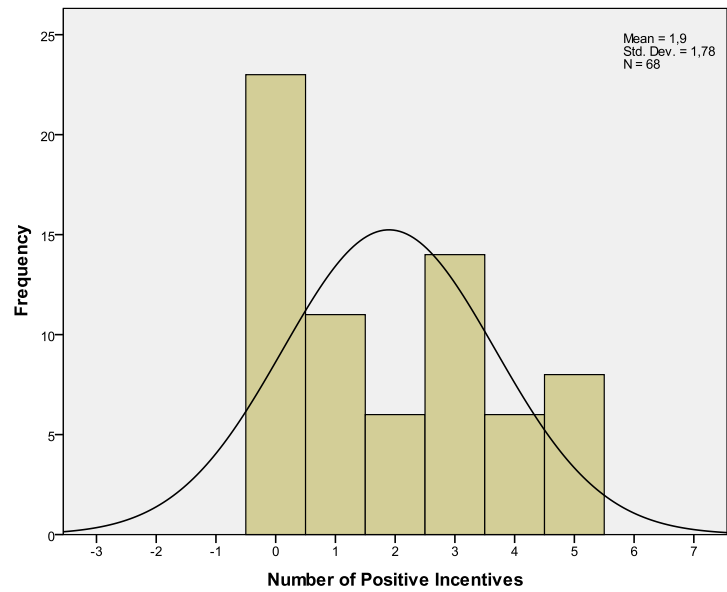
32 papers exclusively study the effect of positive incentives on firm performance, while 23 make use of solely negative incentives, and 13 employ both.

Figure 13: Type of Incentive Frequencies



At an average, there were 1.9 forms of positive incentives examined per study.

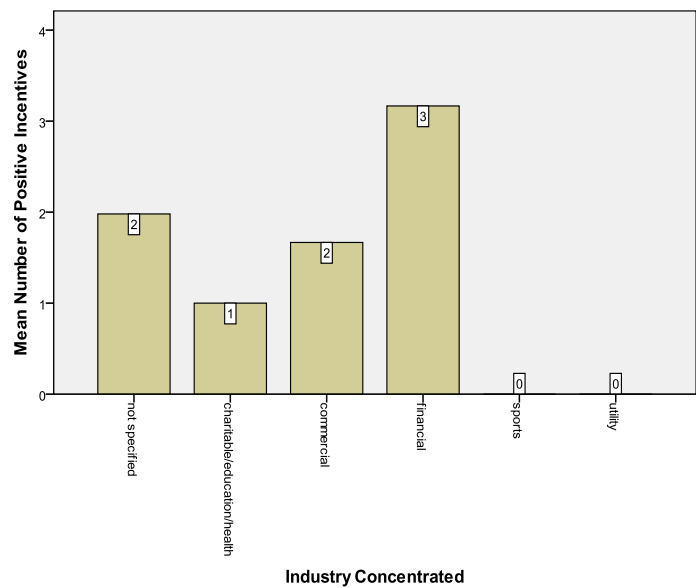
Figure 14: Histogram of Number of Positive Incentives



Again, I identify variations across industries regarding the number of positive incentives analyzed.

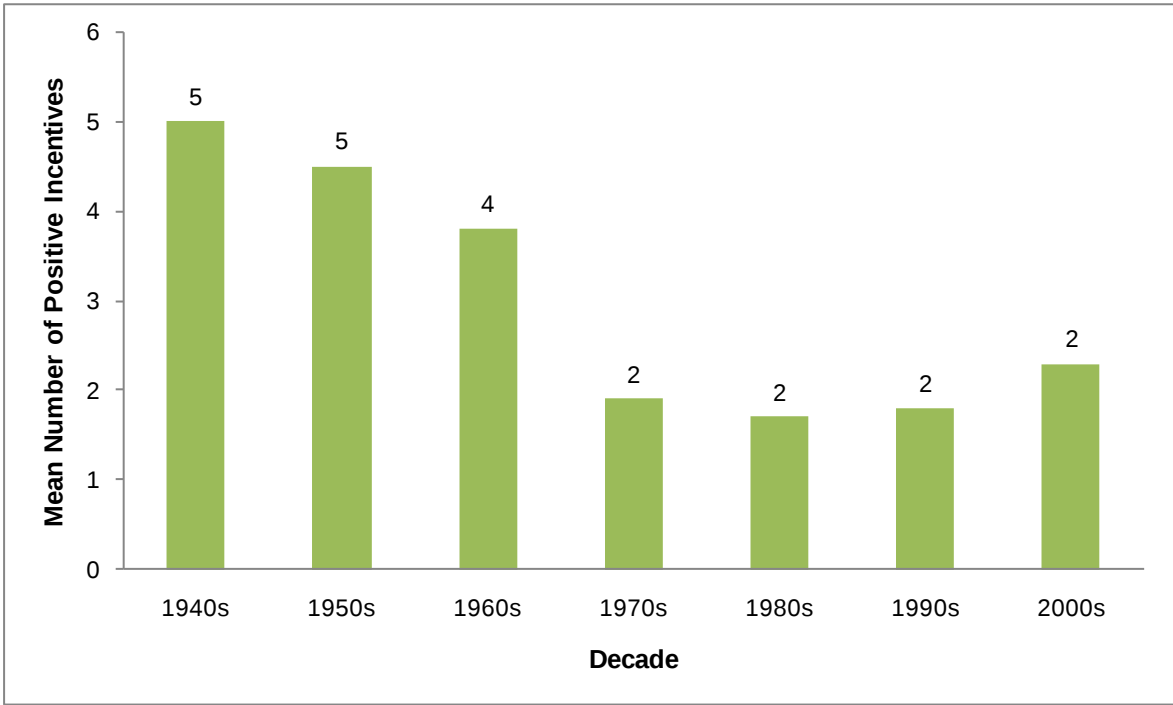
Research papers of financial companies report a mean of three types of positive incentives, whereas studies of sport and utility organizations on average observe no positive incentives since studies on these industries analyze the effect of negative incentives.

Figure 15: Mean Number of Positive Incentives by Concentrated Industry



In addition, I detect differences in the number of positive incentives studied depending on the decade¹³¹ the research paper was composed in. In reviews covering the 1940s, the 1950s, and the 1960s, on average four to five positive incentives are considered. In studies comprising the 1970s, the 1980s, the 1990s, and the 2000s, however, merely one to two types of positive incentives are regarded.

Figure 16: Mean Number of Positive Incentives by Decade

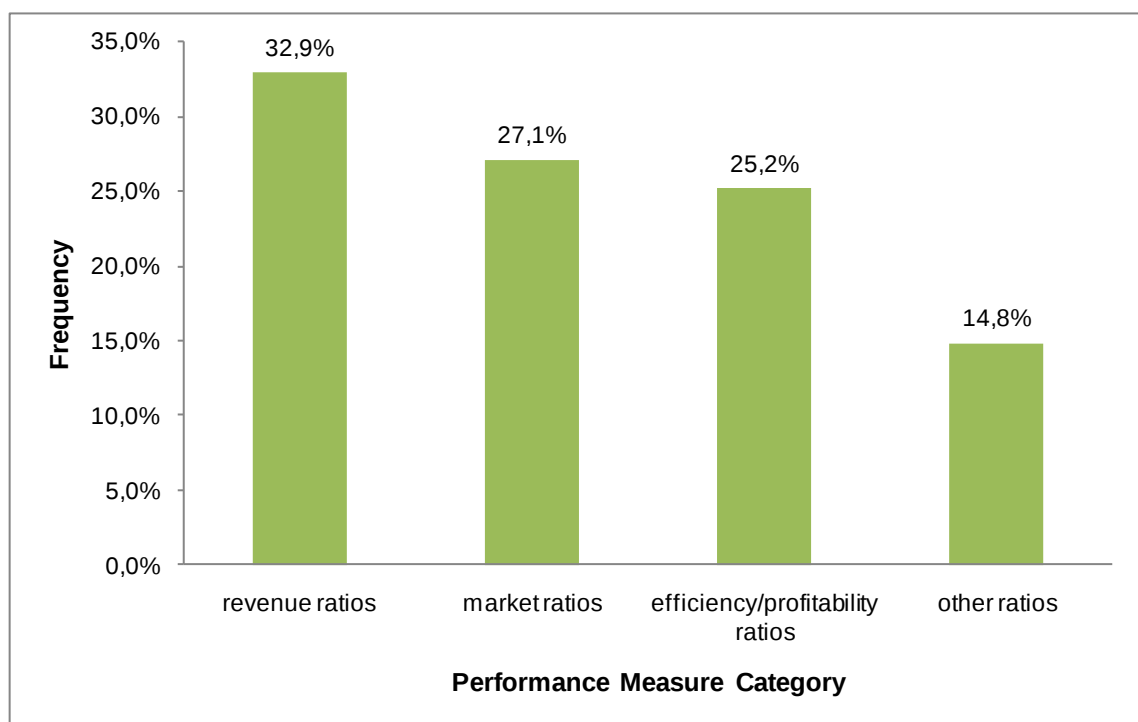


¹³¹ Some studies span several decades. Thus, my analysis includes them in every single decade they cover.

Corporate performance is rated by numerous different measures. These performance measures can be classified depending on the area of performance they specify. I cluster the various firm performance measures into four categories:

- efficiency/profitability ratios¹³²,
- market ratios¹³³,
- revenue ratios¹³⁴, and
- other ratios¹³⁵.

Figure 17: Performance Measure Category Frequencies



¹³² Labor productivity, return on assets, return on equity, return on sales

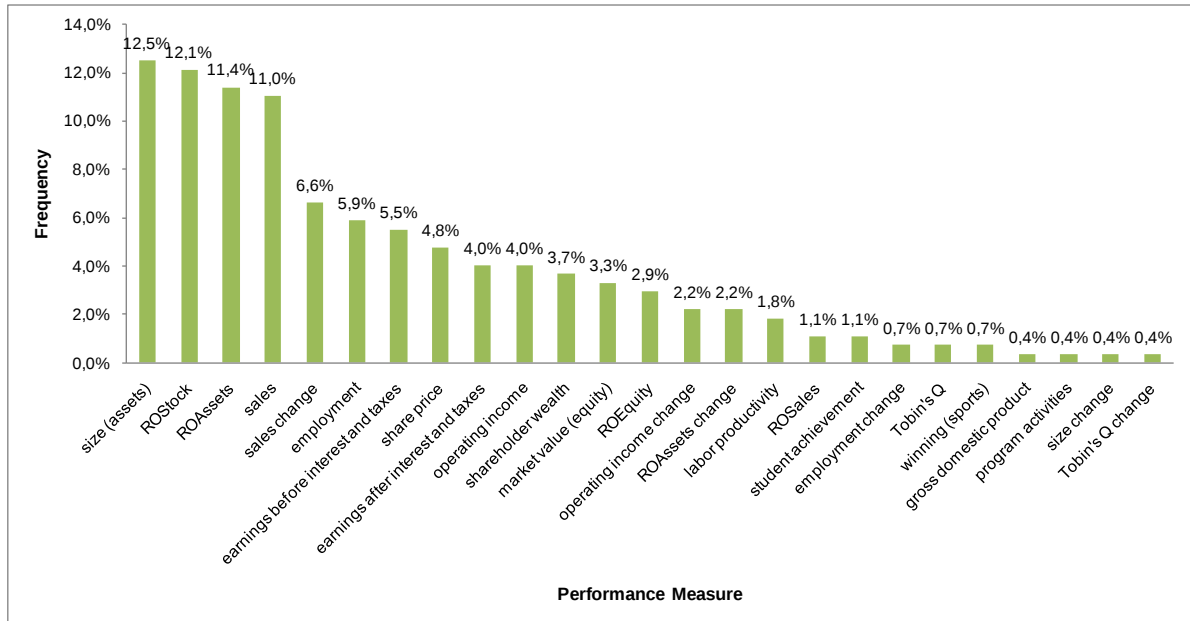
¹³³ Market value, return on stock, share price, shareholder wealth, Tobin's Q

¹³⁴ Asset size, earnings before interest and taxes, earnings after interest and taxes, gross domestic product, operating income, sales

¹³⁵ Employment, program activities (charitable organizations), student achievement, winning (sports)

Among firm performance measures, return on assets, return on stock, and asset size are particularly popular. Considering the four categories, revenue ratios are utilized by most studies. Performance measures falling in the category “other ratios” are not so prevalent, probably because they practically can be applied only to schools as well as charitable and sport organizations.

Figure 18: Performance Measure Frequencies



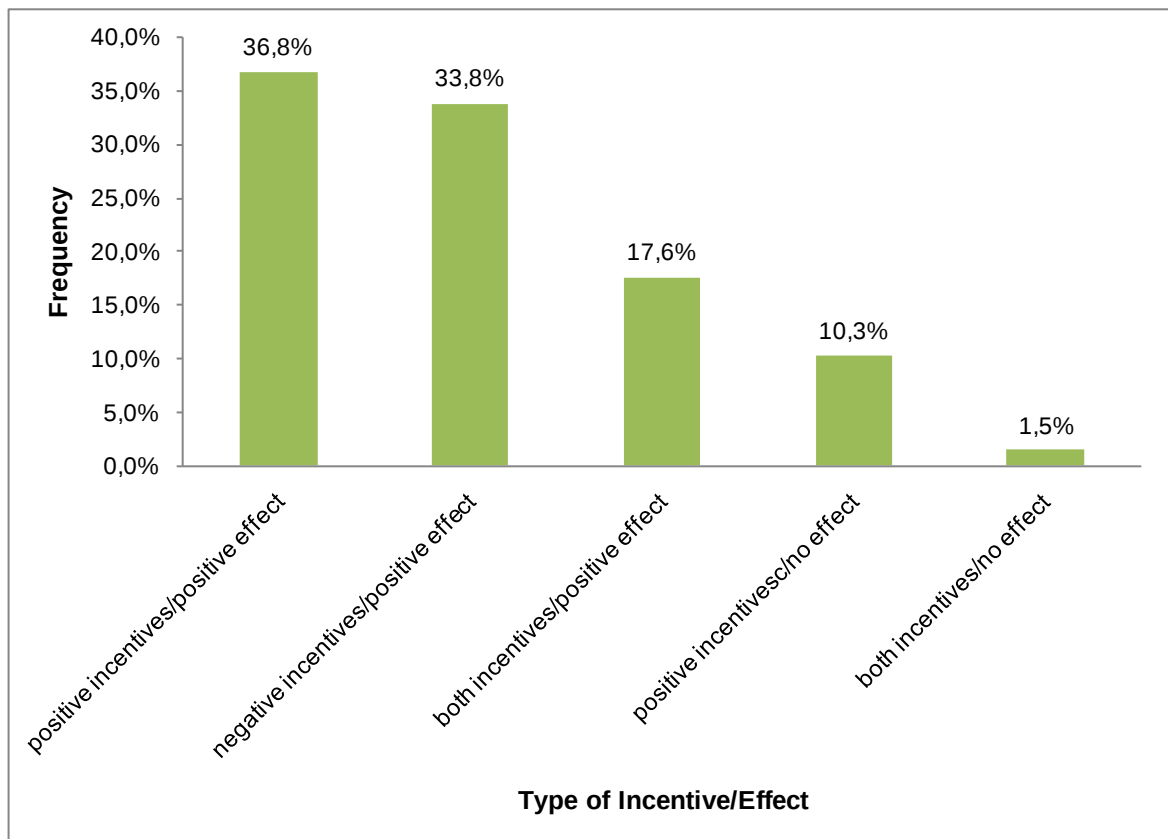
In 60 cases, incentives have a positive effect on firm performance, in 8 cases, I cannot detect any effect on firm performance, and there is no occurrence of a negative effect on firm performance.

Table 3: Effect Frequencies

Effect	Frequency	Percent
positive effect	60	88,2
no effect	8	11,8
Total	68	100,0

In 25 cases, positive incentives have a positive effect on firm performance, in 23 cases, negative incentives have a positive effect, and in twelve cases, both types of incentives have a positive effect. In seven cases, positive incentives have no effect, and in one case, both sorts of incentives have no effect.

Figure 19: Type of Incentive/Effect Frequencies



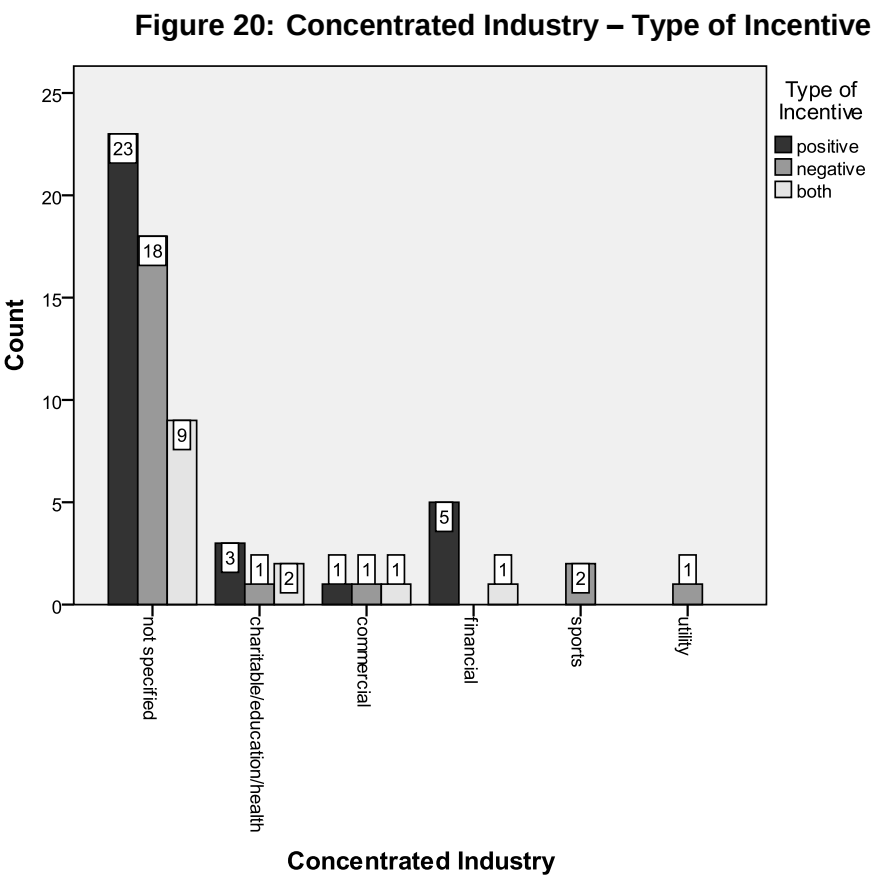
5.2 CORRELATION ANALYSIS

I hypothesize that the type of incentive employed, optionally the number of positive incentives, the category of performance measures applied, and the incentives' effect on firm performance is correlated to the industry or country the study deals with and the period it was compiled in. For this purpose, I conduct a correlation analysis. The crosstabulations always show the count and the percentage of the variable in the column within the variable in the row.

5.2.1 Industry

5.2.1.1 Type of Incentive

I notice that in research papers of sport and utility establishments, as well as in public organizations¹³⁶, only the effect of dismissal is investigated. On the contrary, there are no disincentives explored in studies about charitable and insurance businesses.



¹³⁶ Here: provincial leaders

Table 4: Crosstabulation Industry – Type of Incentive

		type of incentive			Total
		positive	negative	both	
industry	not specified	23 46,0%	18 36,0%	9 18,0%	50 100,0%
	banking	1 50,0%	0 0,0%	1 50,0%	2 100,0%
	basketball	0 0,0%	1 100,0%	0 0,0%	1 100,0%
	charitable	1 100,0%	0 0,0%	0 0,0%	1 100,0%
	hospitals	0 0,0%	0 0,0%	1 100,0%	1 100,0%
	insurance	4 100,0%	0 0,0%	0 0,0%	4 100,0%
	manufacturing	1 33,3%	1 33,3%	1 33,3%	3 100,0%
	provincial leaders	0 0,0%	1 100,0%	0 0,0%	1 100,0%
	schools	2 66,7%	0 0,0%	1 33,3%	3 100,0%
	soccer	0 0,0%	1 100,0%	0 0,0%	1 100,0%
	utility	0 0,0%	1 100,0%	0 0,0%	1 100,0%
	Total	32 47,1%	23 33,8%	13 19,1%	68 100,0%

There is a very strong correlation between the industry and the incentive type inspected in the studies (Cramer's $V = 0.4$).

Table 5: Industry – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,562	,369
	Cramer's V	,397	,369
N of Valid Cases		68	

There also is a strong association between the industry and the number of positive incentives employed ($\eta = 0.37$).

Table 6: Industry – Number of Positive Incentives

			Value
Nominal by Interval	Eta	industry Dependent	,240
		number of positive incentives Dependent	,370

Table 7: Concentrated Industry – Number of Positive Incentives

			Value
Nominal by Interval	Eta	industry concentrated Dependent	,244
		number of positive incentives Dependent	,349

5.2.1.2 Performance Measures

Looking at the data of Cramer's V and η , I diagnose very strong correlations between the industry and the category of performance measures applied and respectively, how many of these measures are consulted to evaluate firm performance.

Table 8: Industry – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,496	,081
	Cramer's V	,496	,081
N of Valid Cases		68	

Table 9: Concentrated Industry – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,419	,036
	Cramer's V	,419	,036
N of Valid Cases		68	

Table 10: Industry – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	industry Dependent	,325
		#EPR Dependent	,441

Table 11: Concentrated Industry – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	industry concentrated Dependent	,303
		#EPR Dependent	,408

Table 12: Industry – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,625	,003
	Cramer's V	,625	,003
N of Valid Cases		68	

Table 13: Concentrated Industry – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,555	,001
	Cramer's V	,555	,001
N of Valid Cases		68	

Table 14: Industry – Number of Market Ratios

			Value
Nominal by Interval	Eta	industry Dependent	,484
		#MR Dependent	,496

Table 15: Concentrated Industry – Number of Market Ratios

			Value
Nominal by Interval	Eta	industry concentrated Dependent	,349
		#MR Dependent	,451

Table 16: Industry – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,649	,001
	Cramer's V	,649	,001
N of Valid Cases		68	

Table 17: Concentrated Industry – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,562	,001
	Cramer's V	,562	,001
N of Valid Cases		68	

Table 18: Industry – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	industry Dependent	,541
		#RR Dependent	,537

Table 19: Concentrated Industry – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	industry concentrated Dependent	,496
		#RR Dependent	,495

Table 20: Industry – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,516	,053
	Cramer's V	,516	,053
N of Valid Cases		68	

Table 21: Concentrated Industry – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,423	,033
	Cramer's V	,423	,033
N of Valid Cases		68	

Table 22: Industry – Number of Other Ratios

			Value
Nominal by Interval	Eta	industry Dependent	,210
		#OR Dependent	,477

Table 23: Concentrated Industry – Number of Other Ratios

			Value
Nominal by Interval	Eta	industry concentrated Dependent	,080
		#OR Dependent	,389

5.2.1.3 Effect

Once more,

- charitable,
- utility and
- sport organizations along with
- hospitals,
- schools and
- commercial corporations

stand out: reviews of these industries discover a positive effect of incentives on firm performance in all cases.

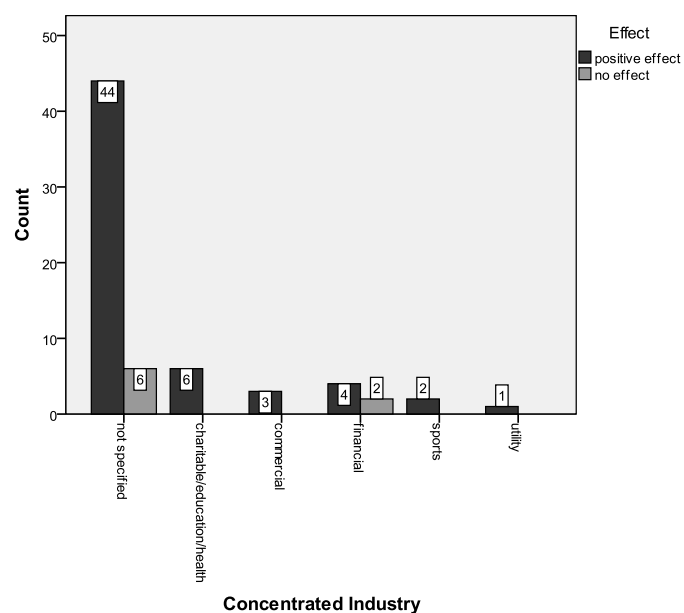
Figure 21: Concentrated Industry – Effect

Table 24: Crosstabulation Concentrated Industry – Effect

		effect		Total
		positive effect	no effect	
industry concentrated	not specified	44 88,0%	6 12,0%	50 100,0%
	charitable/education/ health/public	6 100,0%	0 0,0%	6 100,0%
	commercial	3 100,0%	0 0,0%	3 100,0%
	financial	4 66,7%	2 33,3%	6 100,0%
	sports	2 100,0%	0 0,0%	2 100,0%
	utility	1 100,0%	0 0,0%	1 100,0%
	Total	60 88,2%	8 11,8%	68 100,0%

The value of Cramer's V reveals a strong relationship between industries and the effect on firm performance.

Table 25: Industry – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	,332	,677
	Cramer's V	,332	,677
N of Valid Cases		68	

Table 26: Concentrated Industry – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	,251	,508
	Cramer's V	,251	,508
N of Valid Cases		68	

5.2.1.4 Incentives/Effect

The combination of positive incentives having a positive effect on company performance cannot be found in surveys on sport, utility or public establishments – in these industries, negative incentives have a positive effect on firm performance.

5.2.2 Country

5.2.2.1 Type of Incentive

Exclusively positive incentives are scrutinized in papers of

- Bulgaria,
- Israel,
- Italy,
- Korea,
- Norway, and
- the Philippines,

whereas studies of

- Denmark,
- Finland,
- Germany,
- Russia, and
- the Ukraine

investigate exclusively negative incentives.

Figure 22: Country – Type of Incentive

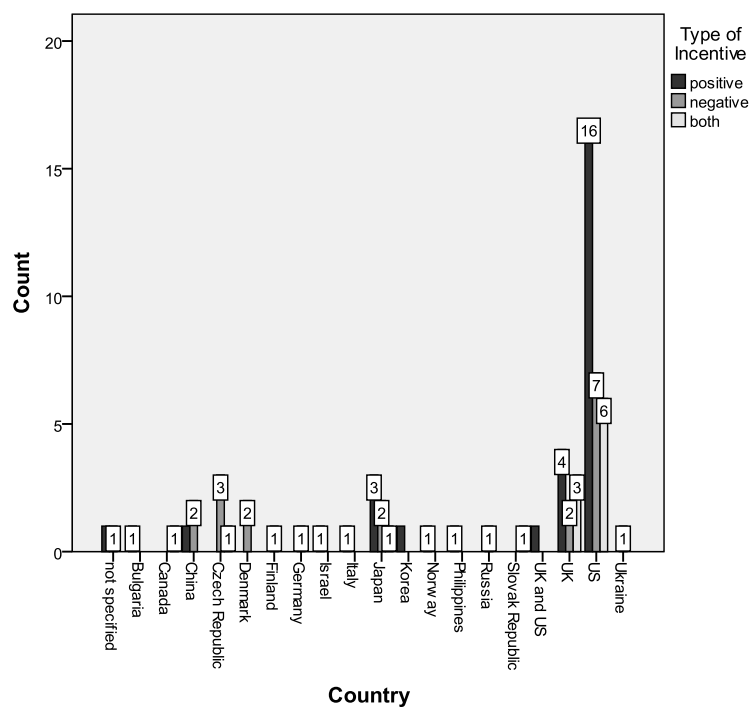


Table 27: Crosstabulation Country – Type of Incentive

		type of incentive			Total
		positive	negative	both	
country	not specified	1 50,0%	1 50,0%	0 0,0%	2 100,0%
	Bulgaria	1 100,0%	0 0,0%	0 0,0%	1 100,0%
	Canada	0 0,0%	0 0,0%	1 100,0%	1 100,0%
	China	1 33,3%	2 66,7%	0 0,0%	3 100,0%
	Czech Republic	0 0,0%	3 75,0%	1 25,0%	4 100,0%
	Denmark	0 0,0%	2 100,0%	0 0,0%	2 100,0%
	Finland	0 0,0%	1 100,0%	0 0,0%	1 100,0%
	Germany	0 0,0%	1 100,0%	0 0,0%	1 100,0%
	Israel	1 100,0%	0 0,0%	0 0,0%	1 100,0%
	Italy	1 100,0%	0 0,0%	0 0,0%	1 100,0%
	Japan	3 50,0%	2 33,3%	1 16,7%	6 100,0%
	Korea	1 100,0%	0 0,0%	0 0,0%	1 100,0%
	Norway	1 100,0%	0 0,0%	0 0,0%	1 100,0%
	Philippines	1 100,0%	0 0,0%	0 0,0%	1 100,0%
	Russia	0 0,0%	1 100,0%	0 0,0%	1 100,0%
	Slovak Republic	0 0,0%	0 0,0%	1 100,0%	1 100,0%
	UK and US	1 100,0%	0 0,0%	0 0,0%	1 100,0%
	UK	4 44,4%	2 22,2%	3 33,3%	9 100,0%
	US	16 55,2%	7 24,1%	6 20,7%	29 100,0%
	Ukraine	0 0,0%	1 100,0%	0 0,0%	1 100,0%
	Total	32 47,1%	23 33,8%	13 19,1%	68 100,0%

The value of Cramer's V demonstrates that there is a very strong correlation between the study's country and the incentive type looked at.

Table 28: Country – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,736	,524
	Cramer's V	,520	,524
N of Valid Cases		68	

In addition, there is a very strong association between the country and the number of positive incentives employed ($\eta = 0.57$).

Table 29: Country – Number of Positive Incentives

			Value
Nominal by Interval	Eta	country Dependent	,318
		number of positive incentives Dependent	,565

5.2.2.2 Performance Measures

Similar to industries, the relationships between the country and the category of performance measures applied and respectively, how many of these measures are consulted to evaluate firm performance, are very strong.

Table 30: Country – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,530	,451
	Cramer's V	,530	,451
N of Valid Cases		68	

Table 31: Country – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	country Dependent	,204
		#EPR Dependent	,682

Table 32: Country – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,653	,067
	Cramer's V	,653	,067
N of Valid Cases		68	

Table 33: Country – Number of Market Ratios

			Value
Nominal by Interval	Eta	country Dependent	,148
		#MR Dependent	,587

Table 34: Country – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,505	,565
	Cramer's V	,505	,565
N of Valid Cases		68	

Table 35: Country – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	country Dependent	,418
		#RR Dependent	,552

Table 36: Country – Other Ratios

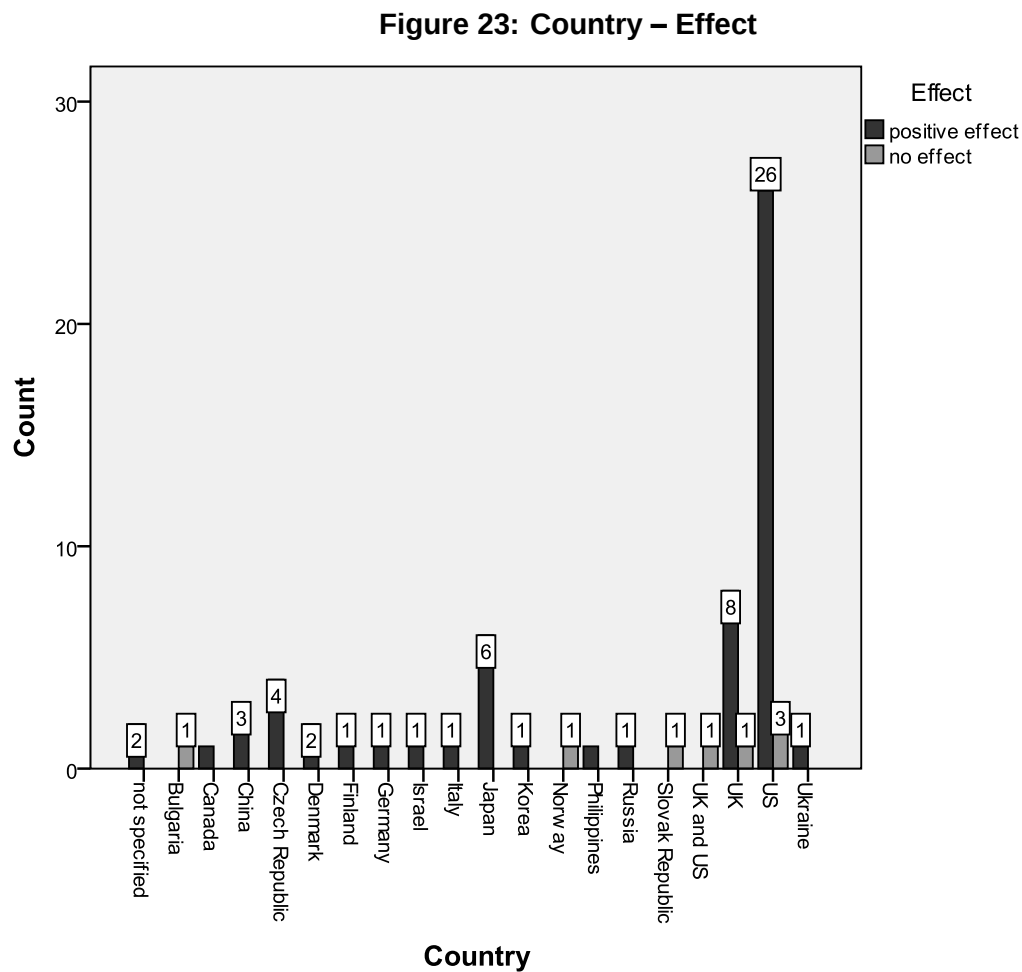
		Value	Approx. Sig.
Nominal by Nominal	Phi	,607	,158
	Cramer's V	,607	,158
N of Valid Cases		68	

Country – Number of Other Ratios

			Value
Nominal by Interval	Eta	country Dependent	,225
		#OR Dependent	,617

5.2.2.3 Effect

Due to a small sample size per country with the exception of the UK and the US, I discover either a positive or no effect of incentives on firm performance for most countries. I spot no effect of incentives on company performance in studies of Bulgaria, Norway, the Slovak Republic, the UK and the US.



Still, Cramer's V depicts a very strong correlation between the country and the effect of incentives on firm performance (Cramer's $V = 0.7$).

Table 37: Country – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	,702	,021
	Cramer's V	,702	,021
N of Valid Cases		68	

Table 38: Crosstabulation Country – Effect

		effect		Total
		positive effect	no effect	
country	not specified	2 100,0%	0 0,0%	2 100,0%
	Bulgaria	0 0,0%	1 100,0%	1 100,0%
	Canada	1 100,0%	0 0,0%	1 100,0%
	China	3 100,0%	0 0,0%	3 100,0%
	Czech Republic	4 100,0%	0 0,0%	4 100,0%
	Denmark	2 100,0%	0 0,0%	2 100,0%
	Finland	1 100,0%	0 0,0%	1 100,0%
	Germany	1 100,0%	0 0,0%	1 100,0%
	Israel	1 100,0%	0 0,0%	1 100,0%
	Italy	1 100,0%	0 0,0%	1 100,0%
	Japan	6 100,0%	0 0,0%	6 100,0%
	Korea	1 100,0%	0 0,0%	1 100,0%
	Norway	0 0,0%	1 100,0%	1 100,0%
	Philippines	1 100,0%	0 0,0%	1 100,0%
	Russia	1 100,0%	0 0,0%	1 100,0%
	Slovak Republic	0 0,0%	1 100,0%	1 100,0%
	UK and US	0 0,0%	1 100,0%	1 100,0%
	UK	8 88,9%	1 11,1%	9 100,0%
	US	26 89,7%	3 10,3%	29 100,0%
	Ukraine	1 100,0%	0 0,0%	1 100,0%
	Total	60 88,2%	8 11,8%	68 100,0%

5.2.3 Continent/Region

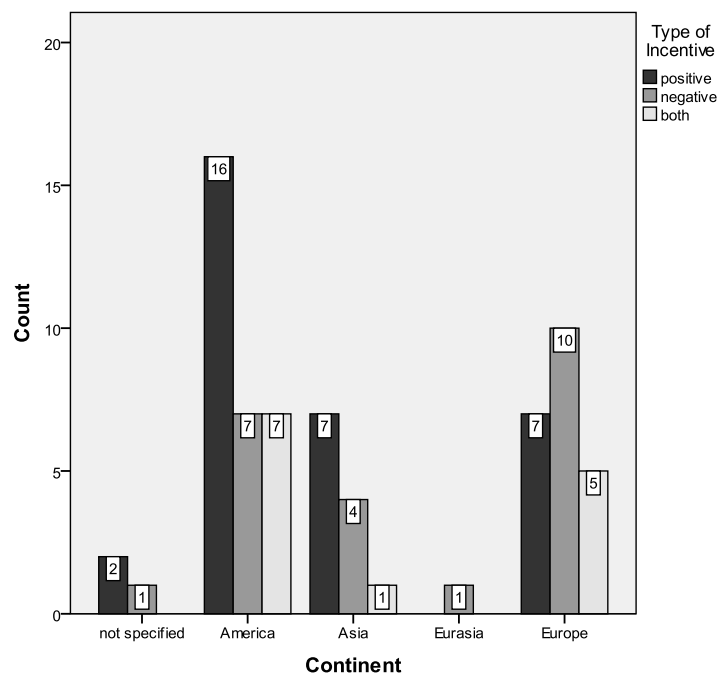
5.2.3.1 Type of Incentive

The allocation of the different incentive types with regard to continents gives a less diversified impression. Apart from Eurasia¹³⁷, I observe both positive and negative incentives as well as a combination of the two for all continents.

Table 39: Crosstabulation Continent – Type of Incentive

		type of incentive			Total
		positive	negative	both	
continent	not specified	2 66,7%	1 33,3%	0 0,0%	3 100,0%
	America	16 53,3%	7 23,3%	7 23,3%	30 100,0%
	Asia	7 58,3%	4 33,3%	1 8,3%	12 100,0%
	Eurasia	0 0,0%	1 100,0%	0 0,0%	1 100,0%
	Europe	7 31,8%	10 45,5%	5 22,7%	22 100,0%
Total		32 47,1%	23 33,8%	13 19,1%	68 100,0%

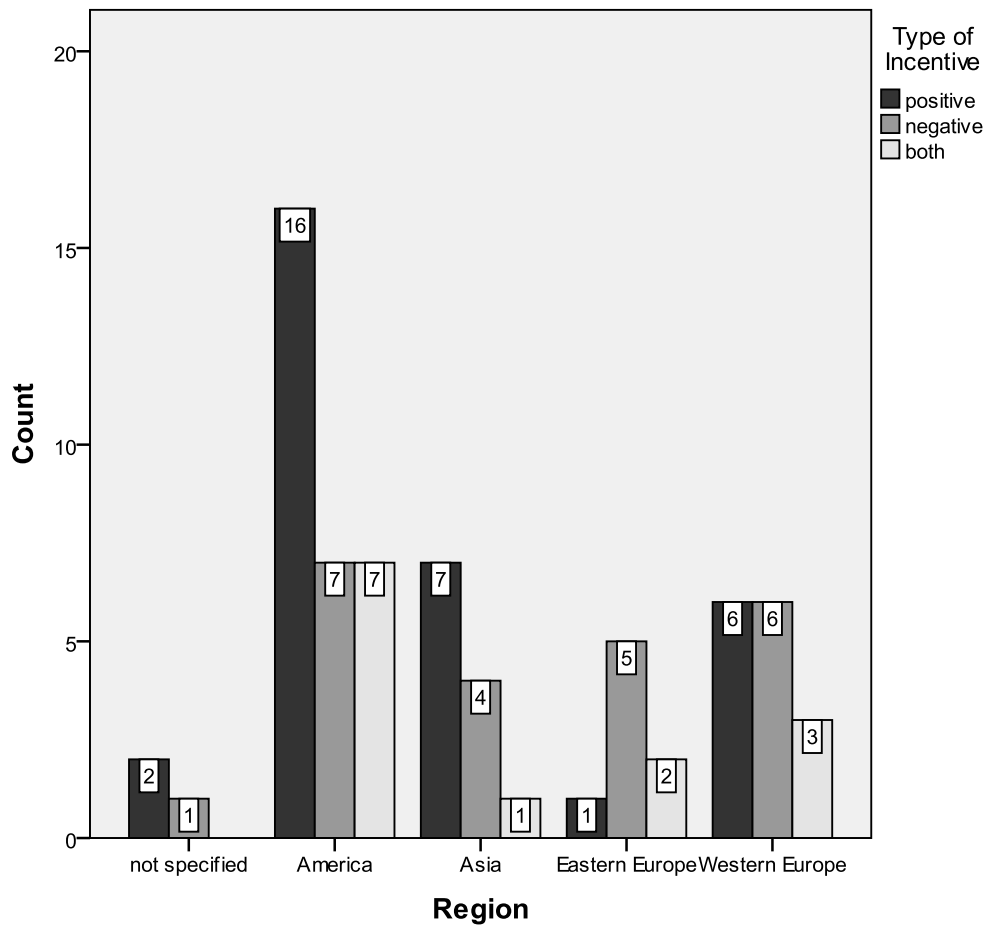
Figure 24: Continent – Type of Incentive



¹³⁷ As a result of a single Russian study being the only Eurasian research paper according to my classification.

Table 40: Crosstabulation Region – Type of Incentive

		type of incentive			Total
		positive	negative	both	
region	not specified	2 66,7%	1 33,3%	0 0,0%	3 100,0%
	America	16 53,3%	7 23,3%	7 23,3%	30 100,0%
	Asia	7 58,3%	4 33,3%	1 8,3%	12 100,0%
	Eastern Europe	1 12,5%	5 62,5%	2 25,0%	8 100,0%
	Western Europe	6 40,0%	6 40,0%	3 20,0%	15 100,0%
Total		32 47,1%	23 33,8%	13 19,1%	68 100,0%

Figure 25: Region – Type of Incentive

Correspondingly, the value of Cramer's V depicts a rather moderate association between the continent and respectively, the region the study can be assigned to and the type of incentive looked at.

Table 41: Continent – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,331	,489
	Cramer's V	,234	,489
N of Valid Cases		68	

Table 42: Region – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,339	,450
	Cramer's V	,240	,450
N of Valid Cases		68	

Additionally, there is a moderately strong relationship between the continent or the region and the number of positive incentives utilized ($\eta = 0.3$).

Table 43: Continent – Number of Positive Incentives

			Value
Nominal by Interval	Eta	continent Dependent	,300
		number of positive incentives Dependent	,296

Table 44: Region – Number of Positive Incentives

			Value
Nominal by Interval	Eta	region Dependent	,285
		number of positive incentives Dependent	,300

5.2.3.2 Performance Measures

I identify weak to very strong correlations between the continent and respectively, the region and the category of performance measures applied and respectively, how many of these measures are consulted to evaluate firm performance.

Table 45: Continent – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,151	,819
	Cramer's V	,151	,819
N of Valid Cases		68	

Table 46: Region – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,286	,235
	Cramer's V	,286	,235
N of Valid Cases		68	

Table 47: Continent – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	continent Dependent	,191
		#EPR Dependent	,136

Table 48: Region – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	region Dependent	,124
		#EPR Dependent	,367

Table 49: Continent – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,324	,128
	Cramer's V	,324	,128
N of Valid Cases		68	

Table 50: Region – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,408	,023
	Cramer's V	,408	,023
N of Valid Cases		68	

Table 51: Continent – Number of Market Ratios

			Value
Nominal by Interval	Eta	continent Dependent	,292
		#MR Dependent	,330

Table 52: Region – Number of Market Ratios

			Value
Nominal by Interval	Eta	region Dependent	,249
		#MR Dependent	,372

Table 53: Continent – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,257	,342
	Cramer's V	,257	,342
N of Valid Cases		68	

Table 54: Region – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,257	,344
	Cramer's V	,257	,344
N of Valid Cases		68	

Table 55: Continent – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	continent Dependent	,250
		#RR Dependent	,212

Table 56: Region – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	region Dependent	,245
		#RR Dependent	,218

Table 57: Continent – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,449	,008
	Cramer's V	,449	,008
N of Valid Cases		68	

Table 58: Region – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,498	,002
	Cramer's V	,498	,002
N of Valid Cases		68	

Table 59: Continent – Number of Other Ratios

			Value
Nominal by Interval	Eta	continent Dependent	,437
		#OR Dependent	,454

Table 60: Region – Number of Other Ratios

			Value
Nominal by Interval	Eta	region Dependent	,376
		#OR Dependent	,532

5.2.3.3 Effect

In terms of the impact of incentives on firm performance, Asia and Eurasia stand out: I ascertain a positive effect on firm performance for them in all cases.

Figure 26: Continent – Effect

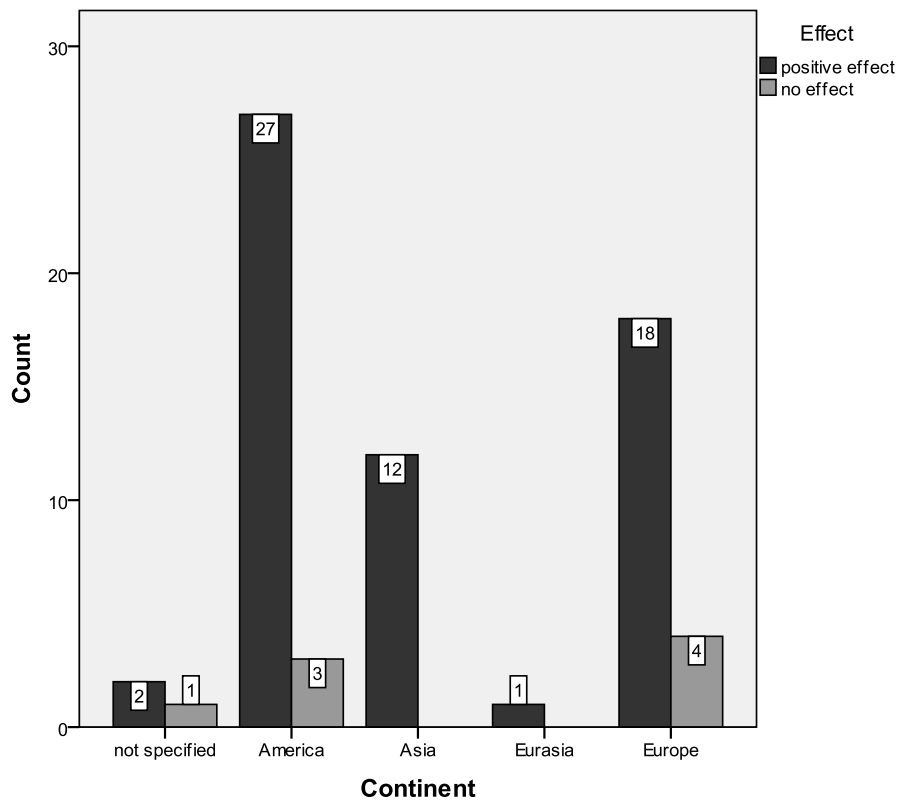
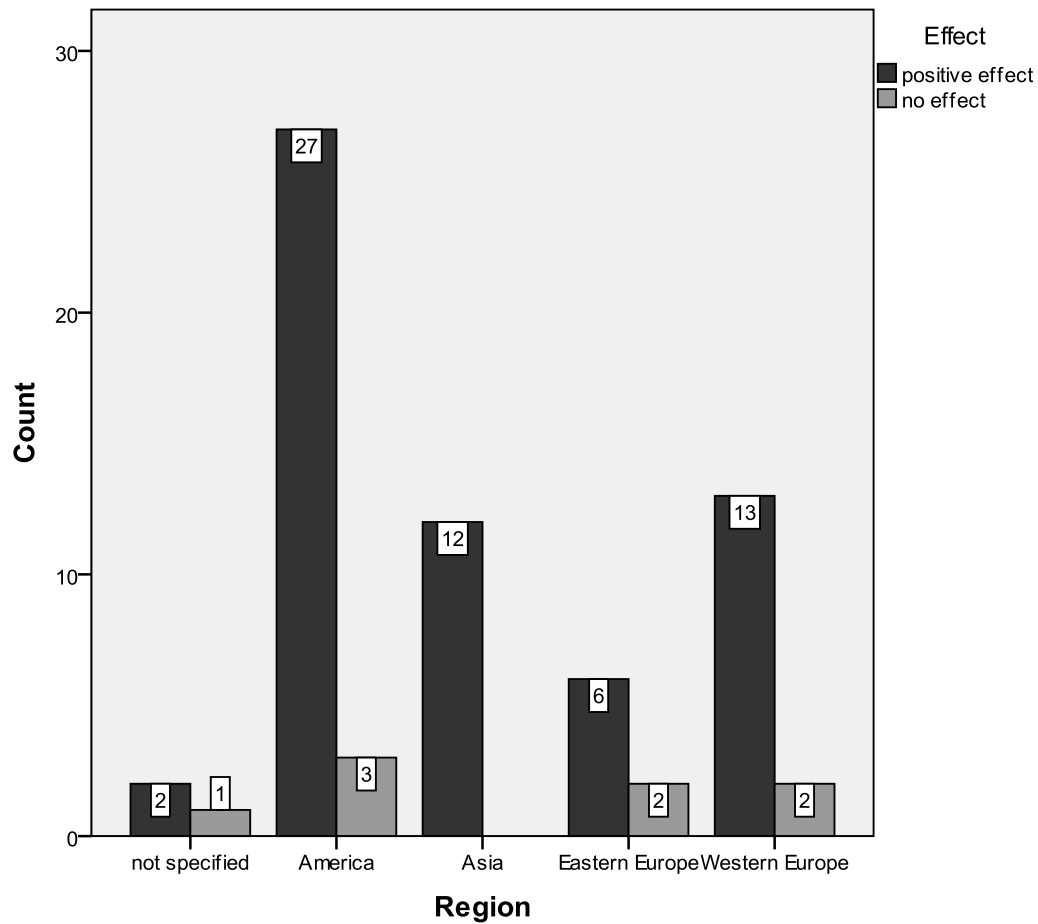


Table 61: Crosstabulation Continent – Effect

		effect		Total
		positive effect	no effect	
continent	not specified	2 66,7%	1 33,3%	3 100,0%
	America	27 90,0%	3 10,0%	30 100,0%
	Asia	12 100,0%	0 0,0%	12 100,0%
	Eurasia	1 100,0%	0 0,0%	1 100,0%
	Europe	18 81,8%	4 18,2%	22 100,0%
	Total	60 88,2%	8 11,8%	68 100,0%

Table 62: Crosstabulation Region – Effect

		effect		Total
		positive effect	no effect	
region	not specified	2 66,7%	1 33,3%	3 100,0%
	America	27 90,0%	3 10,0%	30 100,0%
	Asia	12 100,0%	0 0,0%	12 100,0%
	Eastern Europe	6 75,0%	2 25,0%	8 100,0%
	Western Europe	13 86,7%	2 13,3%	15 100,0%
	Total	60 88,2%	8 11,8%	68 100,0%

Figure 27: Region – Effect

Nevertheless, I find only a moderately strong association between the continent or the region and the incentives' effect on company performance.

Table 63: Continent – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	,244	,401
	Cramer's V	,244	,401
N of Valid Cases		68	

Table 64: Region – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	,255	,352
	Cramer's V	,255	,352
N of Valid Cases		68	

5.2.4 Decade/Era

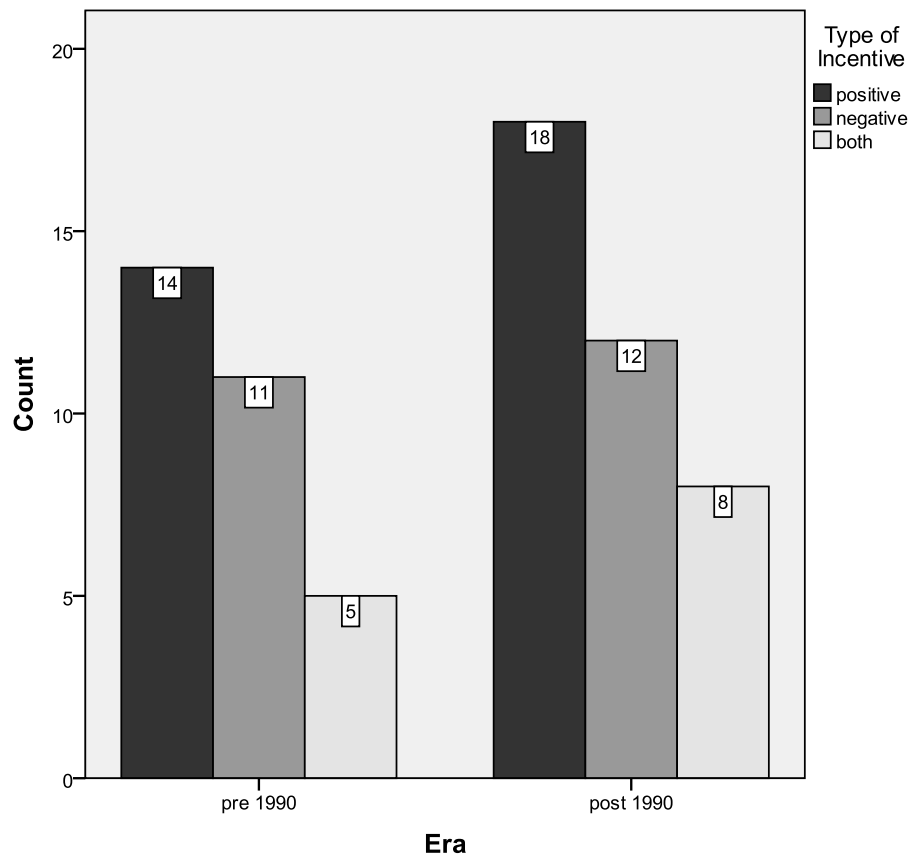
Several research papers I dealt with span multiple decades. As a consequence, my analysis includes them in every single decade they cover.

5.2.4.1 Incentive Type

The distribution of incentive types is very balanced across the two eras.

Table 65: Crosstabulation Era – Type of Incentive

		type of incentive			Total
		positive	negative	both	
era	pre 1990	14	11	5	30
		46,7%	36,7%	16,7%	100,0%
	post 1990	18	12	8	38
		47,4%	31,6%	21,1%	100,0%
Total		32	23	13	68
		47,1%	33,8%	19,1%	100,0%

Figure 28: Era – Type of Incentive

As a result, there is only a very weak correlation between the era the study was composed in and the incentive type, as well as the number of positive incentives (Cramer's $V = 0.07$, $\eta^2 = 0.001$).

Table 66: Era – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,066	,861
	Cramer's V	,066	,861
N of Valid Cases		68	

Table 67: Era – Number of Positive Incentives

			Value
Nominal by Interval	Eta	era Dependent	,307
		number of positive incentives Dependent	,001

I have only one study covering the 1940s in my pool. It investigates exclusively positive incentives. Needless to say, there is only a very weak correlation between a study covering the 1940s and the incentive type and correspondingly, how many sorts of positive incentives are adopted (Cramer's $V = 0.13$, $\eta = 0.22$).

Table 68: 1940s – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,130	,565
	Cramer's V	,130	,565
N of Valid Cases		68	

Table 69: 1940s – Number of Positive Incentives

			Value
Nominal by Interval	Eta	1940s Dependent	,335
		number of positive incentives Dependent	,215

For the 1950s, there are two research papers which as well evaluate exclusively positive incentives. Once more, I find a somewhat weak association between the decade and the sort of incentive and respectively, the number of positive incentives established (Cramer's $V = 0.19$, $\eta = 0.26$).

Table 70: 1950s – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,185	,314
	Cramer's V	,185	,314
N of Valid Cases		68	

Table 71: 1950s – Number of Positive Incentives

			Value
Nominal by Interval	Eta	1950s Dependent	,346
		number of positive incentives Dependent	,256

I discover a moderately strong relationship between reviews including the 1960s and the incentive type and accordingly, the number of positive incentives exerted (Cramer's $V = 0.27$, $\eta = 0.26$). 1960s papers also examine exclusively positive incentives.

Table 72: Crosstabulation 1960s – Type of Incentive

		type of incentive			Total
		positive	negative	both	
1960s	non-existent	28 43,8%	23 35,9%	13 20,3%	64 100,0%
	existent	4 100,0%	0 0,0%	0 0,0%	4 100,0%
Total		32 47,1%	23 33,8%	13 19,1%	68 100,0%

Table 73: 1960s – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,265	,092
	Cramer's V	,265	,092
N of Valid Cases		68	

Table 74: 1960s – Number of Positive Incentives

			Value
Nominal by Interval	Eta	1960s Dependent	,372
		number of positive incentives Dependent	,262

Although the 1970s, 1980s and 1990s samples are larger, the data of Cramer's V denote merely a weak correlation between the decade and the type of incentive applied, along with a very weak association between the decades and the number of positive incentives analyzed. Relatively, the studies of the 1970s are the ones that analyze negative incentives most frequently.

Table 75: 1970s – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,162	,411
	Cramer's V	,162	,411
N of Valid Cases		68	

Table 76: 1970s – Number of Positive Incentives

			Value
Nominal by Interval	Eta	1970s Dependent	,330
		number of positive incentives Dependent	,012

Table 77: 1980s – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,117	,628
	Cramer's V	,117	,628
N of Valid Cases		68	

Table 78: 1980s – Number of Positive Incentives

			Value
Nominal by Interval	Eta	1980s Dependent	,435
		number of positive incentives Dependent	,105

Table 79: 1990s – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,145	,488
	Cramer's V	,145	,488
N of Valid Cases		68	

Table 80: 1990s – Number of Positive Incentives

			Value
Nominal by Interval	Eta	1990s Dependent	,252
		number of positive incentives Dependent	,057

In the 1970s, 1980s, 1990s and 2000s, there are considered both positive and negative incentives, as well as a combination of the two.

For studies about the 2000s, I even find a very weak relationship between the decade and the type of incentive deployed, in addition to an equally weak association between the decade and the number of positive incentives probed (Cramer's $V = 0.1$, $\eta = 0.11$).

Table 81: 2000s – Type of Incentive

		Value	Approx. Sig.
Nominal by Nominal	Phi	,096	,731
	Cramer's V	,096	,731
N of Valid Cases		68	

Table 82: 2000s – Number of Positive Incentives

			Value
Nominal by Interval	Eta	2000s Dependent	,241
		number of positive incentives Dependent	,114

5.2.4.2 Performance Measures

There is a weak to moderately strong correlation between the era and the category of performance measures applied.

Table 83: Era – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,132	,276
	Cramer's V	,132	,276
N of Valid Cases		68	

Table 84: Era – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	era Dependent	,220
		#EPR Dependent	,204

Table 85: Era – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,212	,081
	Cramer's V	,212	,081
N of Valid Cases		68	

Table 86: Era – Number of Market Ratios

			Value
Nominal by Interval	Eta	era Dependent	,288
		#MR Dependent	,117

Table 87: Era – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,034	,778
	Cramer's V	,034	,778
N of Valid Cases		68	

Table 88: Era – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	era Dependent	,348
		#RR Dependent	,000

Table 89: Era – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,260	,032
	Cramer's V	,260	,032
N of Valid Cases		68	

Table 90: Era – Number of Other Ratios

			Value
Nominal by Interval	Eta	era Dependent	,268
		#OR Dependent	,268

The values of phi and eta also indicate a very weak to weak relationship between all decades and the category of performance measures applied and respectively, how many of these measures are deployed to evaluate firm performance.

In the 1970s nevertheless, there is a moderate correlation between the decade and revenue as well as other ratios (phi = 0.21, eta = 0.21)

Table 91: 1970s – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,210	,083
	Cramer's V	,210	,083
N of Valid Cases		68	

Table 92: 1970s – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,210	,083
	Cramer's V	,210	,083
N of Valid Cases		68	

Table 93: 1970s – Number of Other Ratios

			Value
Nominal by Interval	Eta	1970s Dependent	,212
		#OR Dependent	,211

For 1980s papers, I find a very strong correlation with market ratios (phi = 0.41).

Table 94: 1980s – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,410	,001
	Cramer's V	,410	,001
N of Valid Cases		68	

Studies covering the 1990s show a moderate association with other ratios, most likely because reviews in my pool dealing with charitable organizations or schools were composed in this decade ($\phi = 0.21$).

Table 95: 1990s – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,209	,085
	Cramer's V	,209	,085
N of Valid Cases		68	

Table 96: 1990s – Number of Other Ratios

			Value
Nominal by Interval	Eta	1990s Dependent	,214
		#OR Dependent	,214

For the 2000s, the value of eta signifies a moderately strong relationship with the number of efficiency/profitability ratios established ($\eta = 0.28$).

Table 97: 2000s – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	2000s Dependent	,340
		#EPR Dependent	,278

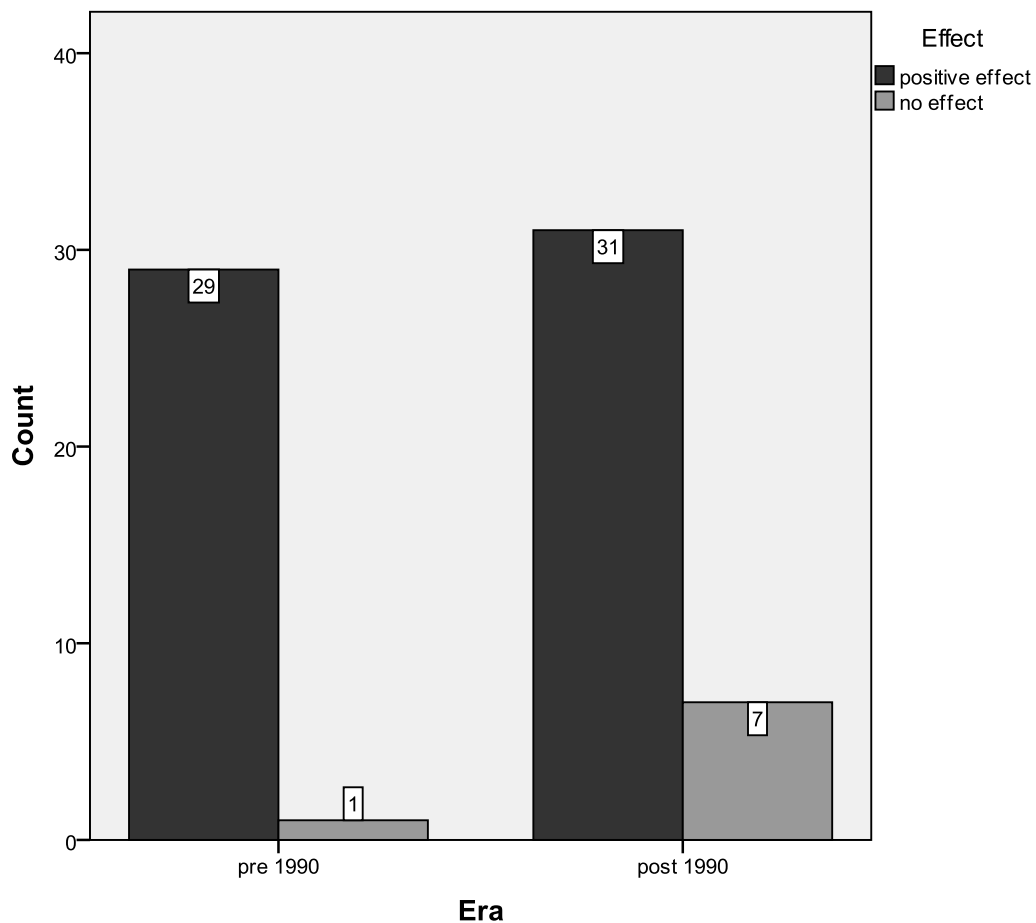
5.2.4.3 Effect

The distribution of effects is rather balanced across the two eras.

Table 98: Crosstabulation Era – Effect

		effect		
		positive effect	no effect	Total
era	pre 1990	29 96,7%	1 3,3%	30 100,0%
	post 1990	31 81,6%	7 18,4%	38 100,0%
Total		60 88,2%	8 11,8%	68 100,0%

Figure 29: Era – Effect



Therefore, the correlation between the era the study was composed in and the effect of incentives is moderate.

Table 99: Era – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	,233	,055
	Cramer's V	,233	,055
N of Valid Cases		68	

The small number of 1940s, 1950s, and 1960s studies shows that positive incentives have a positive effect on firm performance. Again, the data of phi imply a very weak correlation between a paper covering the 1940s, 1950s or 1960s and the impact on firm performance it illustrates.

Table 100: 1940s – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,045	,713
	Cramer's V	,045	,713
N of Valid Cases		68	

Table 101: 1950s – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,064	,600
	Cramer's V	,064	,600
N of Valid Cases		68	

Table 102: 1960s – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,091	,452
	Cramer's V	,091	,452
N of Valid Cases		68	

In reviews about the 1970s, the 1980s, and the 1990s, a positive as well as no effect of the three different incentive types on company performance can be measured.

Once again, I find a very weak association between these decades and the effect on firm performance.

Table 103: 1970s – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,073	,547
	Cramer's V	,073	,547
N of Valid Cases		68	

Table 104: 1980s – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,113	,352
	Cramer's V	,113	,352
N of Valid Cases		68	

Table 105: 1990s – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	,145	,231
	Cramer's V	,145	,231
N of Valid Cases		68	

For studies about the 2000s, I notice a strong correlation with the impact of incentives on firm performance ($\phi = 0.31$). Besides, the 2000s are the decade that experiences no effect of incentives on firm performance most frequently.

Table 106: 2000s – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	,310	,011
	Cramer's V	,310	,011
N of Valid Cases		68	

5.2.5 Type of Incentive

5.2.5.1 Effect

In my sample, negative incentives always have a positive effect on firm performance. Relatively, positive incentives are the type that most frequently has no effect on firm performance.

Table 107: Crosstabulation Type of Incentive – Effect

		effect		Total
		positive effect	no effect	
type of incentive	positive	25 78,1%	7 21,9%	32 100,0%
	negative	23 100,0%	0 0,0%	23 100,0%
	both	12 92,3%	1 7,7%	13 100,0%
Total		60 88,2%	8 11,8%	68 100,0%

I find a strong correlation between incentive type and effect (Cramer's $V = 0.31$). There also is a strong correlation between the effect on firm performance and the number of positive incentives employed ($\eta = 0.31$).

Table 108: Type of Incentive – Effect

		Value	Approx. Sig.
Nominal by Nominal	Phi	,307	,040
	Cramer's V	,307	,040
N of Valid Cases		68	

Table 109: Number of Positive Incentives – Effect

			Value
Nominal by Interval	Eta	effect Dependent	,376
		number of positive incentives Dependent	,305

5.3 LOGISTIC REGRESSION

5.3.1 Negative Incentives

By means of a logistic regression I intend to uncover the factors instigating the decision to use negative incentives. The usage of negative incentives is encoded by 1 (existent) and 0 (non-existent). Regressions with industry, country, and continent as the independent variable produced the poorest results, thus I selected concentrated industry, region, and era for the model. I chose Enter as the method for variable inclusion. For the concentrated industry and region variables, I chose a Deviation contrast with the first category being the reference category. For the era variable, I selected a Simple contrast with the first category being the reference category again.

The logistic equation is

$$\ln\left(\frac{P(y=1)}{1-P(y=1)}\right) = b_0 + b_1 \cdot indconc(1) + b_2 \cdot indconc(2) + b_3 \cdot indconc(3) \\ + b_4 \cdot indconc(4) + b_5 \cdot indconc(5) + b_6 \cdot region(1) \\ + b_7 \cdot region(2) + b_8 \cdot region(3) + b_9 \cdot region(4) + b_{10} \cdot era(1)$$

Table 110: Categorical Variables Codings

		Frequency	Parameter coding				
			(1)	(2)	(3)	(4)	(5)
industry concentrated	not specified	50	-1,000	-1,000	-1,000	-1,000	-1,000
	charitable/education/health	6	1,000	,000	,000	,000	,000
	commercial	3	,000	1,000	,000	,000	,000
	financial	6	,000	,000	1,000	,000	,000
	sports	2	,000	,000	,000	1,000	,000
	utility	1	,000	,000	,000	,000	1,000
region	not specified	3	-1,000	-1,000	-1,000	-1,000	
	America	30	1,000	,000	,000	,000	
	Asia	12	,000	1,000	,000	,000	
	Eastern Europe	8	,000	,000	1,000	,000	
	Western Europe	15	,000	,000	,000	1,000	
era	pre 1990	30	-,500				
	post 1990	38	,500				

Table 111: Dependent Variable Encoding

Original Value	Internal Value
non-existent	0
existent	1

The Omnibus Test of Model Coefficients shows an insignificant improvement in the goodness of fit when changing from the null model to the fitted model. The proportion of the total variance of the outcome that is accounted for by the model is 24.6%.

Table 112: Omnibus Test of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	13,853	10	,180
	Block	13,853	10	,180
	Model	13,853	10	,180

Table 113: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	80,179 ^a	,184	,246

a. Estimation terminated at iteration number 32
because maximum iterations has been reached.
Final solution cannot be found.

The insignificant Hosmer and Lemeshow Test indicates that there is no difference between observed and model-predicted values, thus the model's estimates fit the data at an acceptable level.

Table 114: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	3,638	6	,725

Table 115: Contingency Table for Hosmer and Lemeshow Test

		negative incentives = non-existent		negative incentives = existent		Total
		Observed	Expected	Observed	Expected	
Step 1	1	6	5,731	1	1,269	7
	2	6	4,557	1	2,443	7
	3	3	4,081	4	2,919	7
	4	3	4,175	5	3,825	8
	5	6	5,694	6	6,306	12
	6	4	4,701	6	5,299	10
	7	3	2,061	3	3,939	6
	8	1	1,000	10	10,000	11

Table 116: Classification Table^a

Step 1	Observed		Predicted		Percentage Correct
			negative incentives		
			non-existent	existent	
	negative incentives	non-existent	16	16	50,0
		existent	9	27	75,0
Overall Percentage			63,2		

a. The cut value is ,500

Table 117 shows that apart from region(3)¹³⁸, none of the coefficients are significant. The odds ratios for the concentrated industry variable are extremely low for indconc(1), indconc(2), as well as indconc(3), and extremely high for indconc(4) and indconc(5). These extreme values arise from the sparse data in the crosstabulation of the concentrated industry and incentive type variables.¹³⁹ The odds of negative incentives being investigated are insignificantly reduced by a factor of 0 if the study is about a commercial, financial, or public business. Conversely, the odds of negative incentives are insignificantly increased by a factor of 4,069,455,059.34 and 4,448,494,453.26 in papers about sports and utility organizations.

The odds of negative incentives being investigated are insignificantly reduced by 0.699 and 0.514 compared to other regions if the study is American or Asian. On the other hand, Eastern European papers significantly increase the odds of negative incentives being used by a factor of 6.905 compared to the overall effect. The odds

¹³⁸ Eastern Europe

¹³⁹ See Table 200

for Western European studies are by a factor of 1.112 insignificantly higher compared to the grand mean of all regions.

The odds of a study investigating negative incentives are insignificantly decreased by a factor of 0.638 if the study was composed after the year 1990 compared to a study from before 1990.

Table 117: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	indconc			2,416	5	,789			
	indconc(1)	-10,593	3314270,559	,000	1	1,000	,000	,000	.
	indconc(2)	-10,239	3314270,559	,000	1	1,000	,000	,000	.
	indconc(3)	-12,545	3314270,559	,000	1	1,000	,000	,000	.
	indconc(4)	22,127	11116401,397	,000	1	1,000	4069455059,341	,000	.
	indconc(5)	22,216	14541303,061	,000	1	1,000	4448494453,260	,000	.
	region			4,816	4	,307			
	region(1)	-,358	,524	,467	1	,495	,699	,250	1,953
	region(2)	-,666	,605	1,214	1	,270	,514	,157	1,680
	region(3)	1,932	,945	4,178	1	,041	6,905	1,083	44,032
	region(4)	,106	,571	,035	1	,853	1,112	,363	3,407
	era(1)	-,449	,604	,553	1	,457	,638	,195	2,084
	Constant	11,204	3314270,559	,000	1	1,000	73400,780		

a. Variable(s) entered on step 1: indconc, region, era.

To avoid the problem of sparse data in the second model, I left out the concentrated industry variable. Again, I chose Enter as the method for variable inclusion and a Deviation contrast for the region variable as well as a Simple contrast for the era variable with the first category being the reference category.

The logistic equation is

$$\ln\left(\frac{P(y=1)}{1-P(y=1)}\right) = b_0 + b_1 \cdot \text{region}(1) + b_2 \cdot \text{region}(2) + b_3 \cdot \text{region}(3) + b_4 \cdot \text{region}(4) + b_5 \cdot \text{era}(1)$$

Table 118: Dependent Variable Encoding

Original Value	Internal Value
non-existent	0
existent	1

Table 119: Categorical Variables Codings

		Frequency	Parameter coding			
			(1)	(2)	(3)	(4)
region	not specified	3	-1,000	-1,000	-1,000	-1,000
	America	30	1,000	,000	,000	,000
	Asia	12	,000	1,000	,000	,000
	Eastern Europe	8	,000	,000	1,000	,000
	Western Europe	15	,000	,000	,000	1,000
era	pre 1990	30	-,500			
	post 1990	38	,500			

According to the Omnibus Test of Model Coefficients, omitting the concentrated industry variable impairs the goodness of fit compared to the first model. The proportion of the total variance of the outcome that is accounted for by the model is 13.5%.

Table 120: Omnibus Test of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	7,239	5	,203
	Block	7,239	5	,203
	Model	7,239	5	,203

Table 121: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	86,794 ^a	,101	,135

a. Estimation terminated at iteration number 5
because parameter estimates changed by less than
,001.

The insignificant Hosmer and Lemeshow Test indicates that there is no difference between observed and model-predicted values, thus the model's estimates fit the data at an acceptable level.

Table 122: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	5,081	6	,533

Table 123: Contingency Table for Hosmer and Lemeshow Test

		negative incentives = non-existent		negative incentives = existent		Total
		Observed	Expected	Observed	Expected	
Step 1	1	7	5,213	1	2,787	8
	2	1	1,256	1	,744	2
	3	6	7,364	6	4,636	12
	4	1	2,531	4	2,469	5
	5	10	8,636	8	9,364	18
	6	4	4,423	6	5,577	10
	7	2	1,577	3	3,423	5
	8	1	1,000	7	7,000	8

Table 124: Classification Table^a

Step 1	Observed		Predicted		Percentage Correct
			negative incentives		
	negative incentives	non-existent	existent		
		non-existent	15	17	46,9
		existent	12	24	66,7
Overall Percentage		57,4			

a. The cut value is ,500

Table 125: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	region			5,480	4	,241			
	region(1)	-,479	,481	,992	1	,319	,620	,242	1,589
	region(2)	-,584	,589	,985	1	,321	,557	,176	1,768
	region(3)	1,930	,935	4,262	1	,039	6,890	1,103	43,051
	region(4)	,216	,557	,150	1	,698	1,241	,417	3,695
	era(1)	-,544	,548	,985	1	,321	,581	,198	1,699
	Constant	,288	,374	,593	1	,441	1,333		

a. Variable(s) entered on step 1: region, era.

Again, apart from region(3)¹⁴⁰, none of the coefficients are significant. The odds of negative incentives being investigated are insignificantly reduced by 0.620 and 0.557 compared to other regions if the study is American or Asian. On the other hand, Eastern European papers significantly increase the odds of negative incentives being used by a factor of 6.890 compared to the overall effect. The odds for Western

¹⁴⁰ Eastern Europe

European studies are by a factor of 1.241 insignificantly higher compared to the grand mean of all regions.

The odds of a study investigating negative incentives are insignificantly decreased by a factor of 0.581 if the study was composed after the year 1990 compared to a study from before 1990.

5.3.2 Positive Incentives

In addition, I intend to find out if there is a difference in the factors instigating the decision to use positive incentives compared to negative incentives. The usage of positive incentives is encoded by 1 (existent) and 0 (non-existent). Again, I chose Enter as the method for variable inclusion. For the concentrated industry and region variables I chose a Deviation contrast with the first category being the reference category. For the era variable I selected a Simple contrast with the first category being the reference category again.

The logistic equation is

$$\ln\left(\frac{P(y=1)}{1-P(y=1)}\right) = b_0 + b_1 \cdot indconc(1) + b_2 \cdot indconc(2) + b_3 \cdot indconc(3) \\ + b_4 \cdot indconc(4) + b_5 \cdot indconc(5) + b_6 \cdot region(1) \\ + b_7 \cdot region(2) + b_8 \cdot region(3) + b_9 \cdot region(4) + b_{10} \cdot era(1)$$

Table 126: Categorical Variables Codings

		Frequency	Parameter coding				
			(1)	(2)	(3)	(4)	(5)
industry concentrated	not specified	50	-1,000	-1,000	-1,000	-1,000	-1,000
	charitable/education/health	6	1,000	,000	,000	,000	,000
	commercial	3	,000	1,000	,000	,000	,000
	financial	6	,000	,000	1,000	,000	,000
	sports	2	,000	,000	,000	1,000	,000
	utility	1	,000	,000	,000	,000	1,000
region	not specified	3	-1,000	-1,000	-1,000	-1,000	
	America	30	1,000	,000	,000	,000	
	Asia	12	,000	1,000	,000	,000	
	Eastern Europe	8	,000	,000	1,000	,000	
	Western Europe	15	,000	,000	,000	1,000	
era	pre 1990	30	-,500				
	post 1990	38	,500				

Table 127: Dependent Variable Encoding

Original Value	Internal Value
non-existent	0
existent	1

The Omnibus Test of Model Coefficients shows an insignificant improvement in the goodness of fit when changing from the null model to the fitted model. The proportion of the total variance of the outcome that is accounted for by the model is 30.1%.

Table 128: Omnibus Test of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	16,634	10	,083
	Block	16,634	10	,083
	Model	16,634	10	,083

Table 129: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	70,386 ^a	,217	,301

a. Estimation terminated at iteration number 32 because maximum iterations has been reached.
Final solution cannot be found.

The insignificant Hosmer and Lemeshow Test indicates that there is no difference between observed and model-predicted values, thus the model's estimates fit the data at an acceptable level.

Table 130: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	2,048	5	,842

Table 131: Contingency Table for Hosmer and Lemeshow Test

		positive incentives = non-existent		positive incentives = existent		Total
		Observed	Expected	Observed	Expected	
Step 1	1	8	8,000	3	3,000	11
	2	3	3,521	5	4,479	8
	3	5	3,942	7	8,058	12
	4	1	1,796	5	4,204	6
	5	3	3,143	8	7,857	11
	6	3	2,116	7	7,884	10
	7	0	,482	10	9,518	10

Table 132: Classification Table^a

Step 1	Observed		Predicted		Percentage Correct
			positive incentives		
			non-existent	existent	
	positive incentives	non-existent	8	15	34,8
		existent	3	42	93,3
Overall Percentage		73,5			

a. The cut value is ,500.

Table 133 shows that none of the coefficients are significant. The odds ratios for the concentrated industry variable are, unlike the values for negative incentives, extremely high for indconc(1), indconc(2), as well as indconc(3), and extremely low for indconc(4) and indconc(5). These extreme values arise from the sparse data in the crosstabulation of the concentrated industry and incentive type variables.¹⁴¹ The odds of positive incentives being investigated are insignificantly increased by a factor of 377.97, 30,850,814,133,403,200, and 585.86 for studies of commercial, financial, and public businesses. In contrast, the odds of positive incentives are insignificantly reduced by a factor of 0 if the study is about sports or utility organizations.

The odds of positive incentives being investigated are insignificantly reduced by 0.287 compared to other regions if the study is based on Eastern Europe data. On the other hand, American papers insignificantly increase the odds of positive incentives being used by a factor of 2.126 compared to the overall effect. The odds of

¹⁴¹ See Table 200

Asian and Western European studies are by a factor of 1.134 and 1.018 insignificantly higher compared to the grand mean of all regions.

The odds of a study investigating positive incentives are insignificantly increased by a factor of 1.78 if the study was composed after the year 1990 compared to a study from before 1990.

Table 133: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	region			3,921	4	,417			
	region(1)	,754	,558	1,825	1	,177	2,126	,712	6,349
	region(2)	,125	,607	,043	1	,836	1,134	,345	3,724
	region(3)	-1,249	,730	2,927	1	,087	,287	,069	1,199
	region(4)	,018	,570	,001	1	,975	1,018	,333	3,110
	era(1)	,576	,672	,736	1	,391	1,780	,477	6,643
	indconc			,166	5	,999			
	indconc(1)	6,373	3587119,667	,000	1	1,000	585,856	,000	.
	indconc(2)	5,935	3587119,667	,000	1	1,000	377,967	,000	.
	indconc(3)	37,968	6297407,292	,000	1	1,000	30850814133403200,000	,000	.
	indconc(4)	-27,924	10328858,854	,000	1	1,000	,000	,000	.
	indconc(5)	-28,230	14165175,884	,000	1	1,000	,000	,000	.
	Constant	-5,427	3587119,667	,000	1	1,000	,004		

a. Variable(s) entered on step 1: region, era, indconc.

Again, I left out the concentrated industry variable and chose Enter as the method for variable inclusion as well as a Deviation contrast for the region variable and a Simple contrast for the era variable with the first category being the reference category for the second model.

The logistic equation is

$$\ln\left(\frac{P(y=1)}{1-P(y=1)}\right) = b_0 + b_1 \cdot \text{region}(1) + b_2 \cdot \text{region}(2) + b_3 \cdot \text{region}(3) + b_4 \cdot \text{region}(4) + b_5 \cdot \text{era}(1)$$

Table 134: Dependent Variable Encoding

Original Value	Internal Value
non-existent	0
existent	1

Table 135: Categorical Variables Codings

		Frequency	Parameter coding			
			(1)	(2)	(3)	(4)
region	not specified	3	-1,000	-1,000	-1,000	-1,000
	America	30	1,000	,000	,000	,000
	Asia	12	,000	1,000	,000	,000
	Eastern Europe	8	,000	,000	1,000	,000
	Western Europe	15	,000	,000	,000	1,000
era	pre 1990	30	-,500			
	post 1990	38	,500			

According to the Omnibus Test of Model Coefficients, omitting the concentrated industry variable impairs the goodness of fit compared to the first model. The proportion of the total variance of the outcome that is accounted for by the model is 13%.

Table 136: Omnibus Test of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	6,703	5	,244
	Block	6,703	5	,244
	Model	6,703	5	,244

Table 137: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	80,317 ^a	,094	,130

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

The insignificant Hosmer and Lemeshow Test indicates that there is no difference between observed and model-predicted values, thus the model's estimates fit the data at an acceptable level.

Table 138: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	1,643	5	,896

Table 139: Contingency Table for Hosmer and Lemeshow Test

		positive incentives = non-existent		positive incentives = existent		Total
		Observed	Expected	Observed	Expected	
Step 1	1	5	5,000	3	3,000	8
	2	2	2,714	3	2,286	5
	3	4	3,031	3	3,969	7
	4	4	3,286	6	6,714	10
	5	5	5,256	13	12,744	18
	6	1	1,758	6	5,242	7
	7	2	1,956	11	11,044	13

Table 140: Classification Table^a

Step 1	Observed		Predicted		Percentage Correct
			positive incentives		
			non-existent	existent	
	positive incentives	non-existent	7	16	30,4
		existent	6	39	86,7
Overall Percentage		67,6			

a. The cut value is ,500.

Table 141: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	region			5,942	4	,204			
	region(1)	,895	,508	3,102	1	,078	2,447	,904	6,623
	region(2)	,216	,595	,132	1	,716	1,241	,387	3,981
	region(3)	-1,387	,720	3,708	1	,054	,250	,061	1,025
	region(4)	-,162	,544	,089	1	,766	,850	,293	2,471
	era(1)	,886	,618	2,055	1	,152	2,425	,722	8,139
	Constant	,434	,345	1,582	1	,209	1,543		

a. Variable(s) entered on step 1: region, era.

Again, none of the coefficients are significant. The odds of positive incentives being investigated are insignificantly increased by 2.447 and 1.241 compared to other regions if the study is American or Asian. On the other hand, Eastern and Western

European papers insignificantly reduce the odds of positive incentives being used by a factor of 0.25 and 0.85 compared to the overall effect.

The odds of a study investigating positive incentives are insignificantly increased by a factor of 2.425 if the study was composed after the year 1990 compared to a study from before 1990.

5.3.3 Positive Effect

By means of a logistic regression I intend to uncover which type of incentive is more likely to result in a positive effect on firm performance. The occurrence of a positive effect is encoded by 1 (existent) and 0 (non-existent). I chose Enter as the method for variable inclusion and an Indicator contrast for the incentive type with the category “both” being the reference category.

The logistic equation is

$$\ln\left(\frac{P(y=1)}{1-P(y=1)}\right) = b_0 + b_1 \cdot \text{incentivetype}(1) + b_2 \cdot \text{incentivetype}(2)$$

Table 142: Dependent Variable Encoding

Original Value	Internal Value
non-existent	0
existent	1

Table 143: Categorical Variables Codings

		Frequency	Parameter coding	
			(1)	(2)
type of incentive	positive	32	1,000	,000
	negative	23	,000	1,000
	both	13	,000	,000

The Omnibus Test of Model Coefficients shows a significant improvement in the goodness of fit when changing from the null model to the fitted model. The proportion of the total variance of the outcome that is accounted for by the model is 23%.

Table 144: Omnibus Test of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	8,589	2	,014
	Block	8,589	2	,014
	Model	8,589	2	,014

Table 145: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	40,671 ^a	,119	,230

a. Estimation terminated at iteration number 32
because maximum iterations has been reached.
Final solution cannot be found.

The insignificant Hosmer and Lemeshow Test indicates that there is no difference between observed and model-predicted values, thus the model's estimates fit the data at an acceptable level.

Table 146: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	,000	1	1,000

Table 147: Contingency Table for Hosmer and Lemeshow Test

		positive effect = non-existent		positive effect = existent		Total
		Observed	Expected	Observed	Expected	
Step 1	1	7	7,000	25	25,000	32
	2	1	1,000	12	12,000	13
	3	0	,000	23	23,000	23

Table 148: Classification Table^a

Step 1	Observed	Predicted		Percentage Correct	
		positive effect			
		non-existent	existent		
	positive effect	non-existent	0	8	,0
		existent	0	60	100,0
	Overall Percentage	88,2			

a. The cut value is ,500

Table 149 shows that none of the coefficients are significant. The odds of a positive effect are insignificantly reduced by a factor of 0.298 if positive incentives are employed. On the contrary, the odds of a positive effect are insignificantly increased by a factor of 21,910,522,612,363.1 if negative incentives are used.

Table 149: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	<i>incentivetype</i>			1,160	2	,560			
	<i>incentivetype(1)</i>	-1,212	1,125	1,160	1	,281	,298	,033	2,701
	<i>incentivetype(2)</i>	30,718	3393841,130	,000	1	1,000	21910522612363,100	,000	.
	Constant	2,485	1,041	5,700	1	,017	12,000		

a. Variable(s) entered on step 1: *incentivetype*.

5.3.4 No Effect

In addition, I aim to find out which type of incentive is more likely to cause no effect on firm performance. The occurrence of no effect is encoded by 1 (existent) and 0 (non-existent). I chose Enter as the method for variable inclusion and an Indicator contrast for the incentive type with the category “both” being the reference category.

The logistic equation is

$$\ln\left(\frac{P(y=1)}{1-P(y=1)}\right) = b_0 + b_1 \cdot \text{incentivetype}(1) + b_2 \cdot \text{incentivetype}(2)$$

Table 150: Dependent Variable Encoding

Original Value	Internal Value
non-existent	0
existent	1

Table 151: Categorical Variables Codings

		Frequency	Parameter coding	
			(1)	(2)
type of incentive	positive	32	1,000	,000
	negative	23	,000	1,000
	both	13	,000	,000

The Omnibus Test of Model Coefficients shows a significant improvement in the goodness of fit when changing from the null model to the fitted model. The proportion of the total variance of the outcome that is accounted for by the model is 23%.

Table 152: Omnibus Test of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	8,589	2	,014
	Block	8,589	2	,014
	Model	8,589	2	,014

Table 153: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	40,671	,119	,230

a. Estimation terminated at iteration number 32
because maximum iterations has been reached.
Final solution cannot be found.

The insignificant Hosmer and Lemeshow Test indicates that there is no difference between observed and model-predicted values, thus the model's estimates fit the data at an acceptable level.

Table 154: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	,000	1	1,000

Table 155: Contingency Table for Hosmer and Lemeshow Test

		no effect = non-existent		no effect = existent		Total
		Observed	Expected	Observed	Expected	
Step 1	1	23	23,000	0	,000	23
	2	12	12,000	1	1,000	13
	3	25	25,000	7	7,000	32

Table 156: Classification Table

Step 1	Observed		Predicted		Percentage Correct
			no effect		
	no effect	non-existent	existent		
	non-existent	60	0	100,0	
	existent	8	0	,0	
Overall Percentage				88,2	

a. The cut value is ,500

Table 157 shows that none of the coefficients are significant. The odds of no effect on firm performance are insignificantly increased by a factor of 3.36 if positive incentives are employed. On the contrary, the odds of no effect are insignificantly reduced by a factor of 0 if negative incentives are used.

Table 157: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1a	incentivetype			1,160	2	,560			
	incentivetype(1)	1,212	1,125	1,160	1	,281	3,360	,370	30,490
	incentivetype(2)	-30,718	3381061,522	,000	1	1,000	,000	,000	.
	Constant	-2,485	1,041	5,700	1	,017	,083		

a. Variable(s) entered on step 1: incentivetype.

6. SUMMARY

By means of a meta-analysis of sixty studies, the thesis investigated the efficiency of the two major incentive systems positive vs. negative incentives, i.e. bonus vs. dismissal. Its major aim was to identify the more useful framework from an economic point of view and bring to light which one leads to better firm performance.

Interestingly, disincentives always have a positive effect on firm performance according to the analysis. Relatively, positive incentives are the type that most frequently has no effect on firm performance. There is a strong correlation between the incentive type and its effect on firm performance.

The estimates of the logistic regression confirm that positive incentives reduce the odds of a positive effect on firm performance. They increase the odds of no effect.

Conversely, negative incentives increase the odds of a positive effect whereas they decrease the odds of no effect.

According to the present analysis, dismissal seems to be the more useful framework of incentives from an economic point of view in order to achieve a positive effect on firm performance.

Additionally, the thesis intended to identify the relevant factors affecting the implementation of a particular incentive scheme. Consistent with Chapter 4, the correlation analysis finds associations and differences across industries, countries, continents, regions, and time periods regarding the incentive type, its effect on firm performance, and how company performance is measured.

According to the correlation analysis, the country and the industry of a study show the strongest correlations with the type of incentive and performance measures used, as well as the effect on firm performance detected.

On the other hand, there are no or merely weak correlations between the continent as well as the time period the paper was composed in and the incentive type and performance measures employed or the effect measured.

Predictably, the factors that increase the odds of negative incentives being employed reduce the odds of positive incentives being used and vice versa.

The commercial, financial and public industries reduce the odds of negative incentives while they increase the odds of positive incentives being employed. The

sports and utility industries increase the odds of negative incentives whereas they decrease the odds of positive incentives being used.

The odds of negative incentives are reduced and the odds of positive incentives are increased if a study is American or Asian. An Eastern or Western European paper increases the odds of negative incentives being employed while it decreases the odds of positive incentives.

Post-1990s studies result in reduced odds of negative incentives being investigated whereas they cause increased odds of positive incentives.

This thesis omits notions such as fairness, equity, morale, trust, social responsibility, and culture. In the real world, however, considering incentives from an exclusively economic standpoint is insufficient.

“Rewards are what your employees think they are.”¹⁴²

In terms of an integrated notion of incentive compensation for executives it will become increasingly important to find out what rewards are to them. This may include flexible working hours and facilitating the reconciliation of career and family life. Personalized and long-term incentive schemes will probably become more popular as decision makers become aware of the fact that pecuniary incentives alone are not enough.

¹⁴² Havranek, Mauhart (2010), 10

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Figure 30: Mean Number of Businesses by Industry

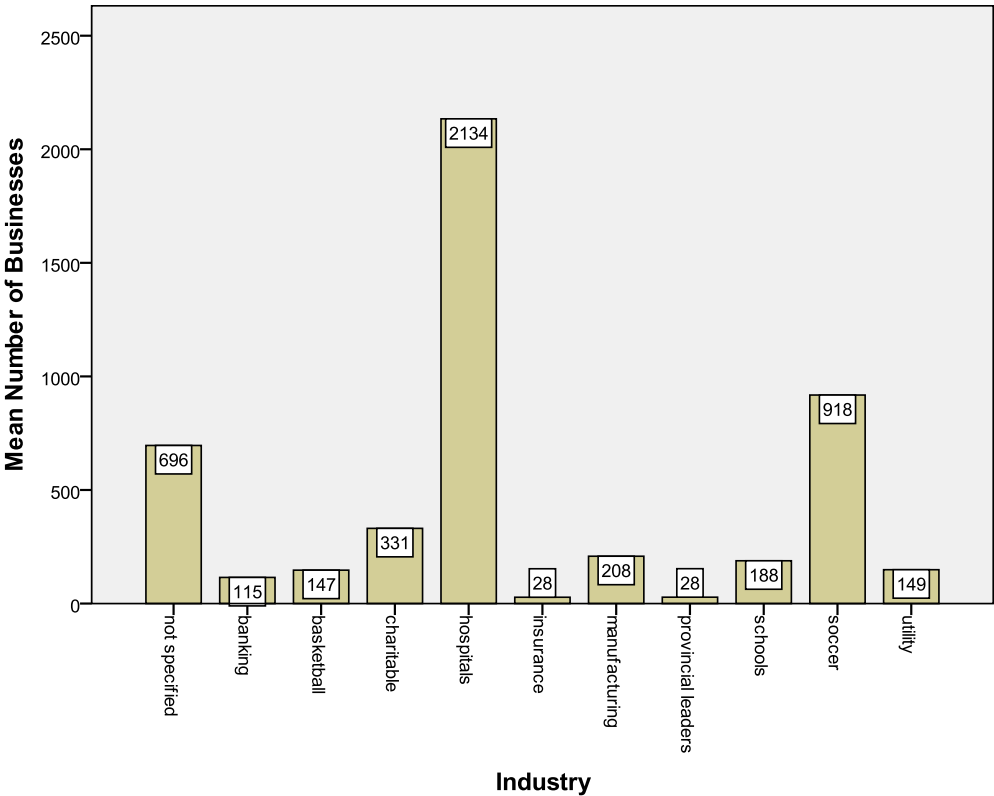


Figure 31: Mean Number of Businesses by Concentrated Industry

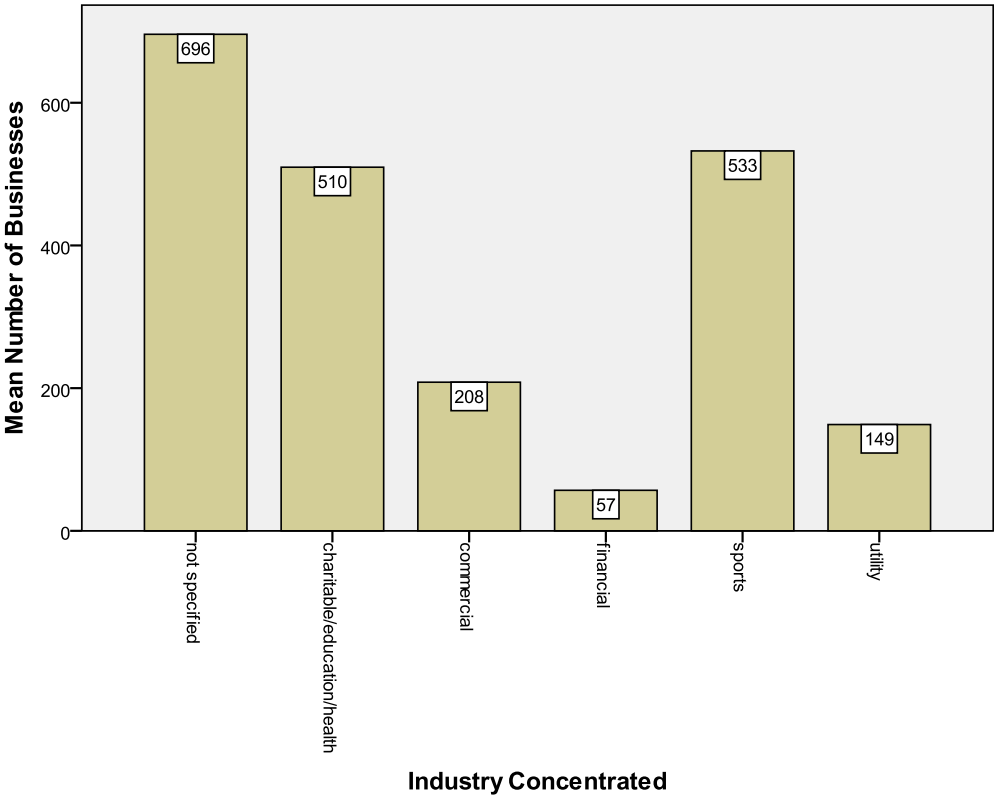


Figure 32: Mean Number of Businesses by Country

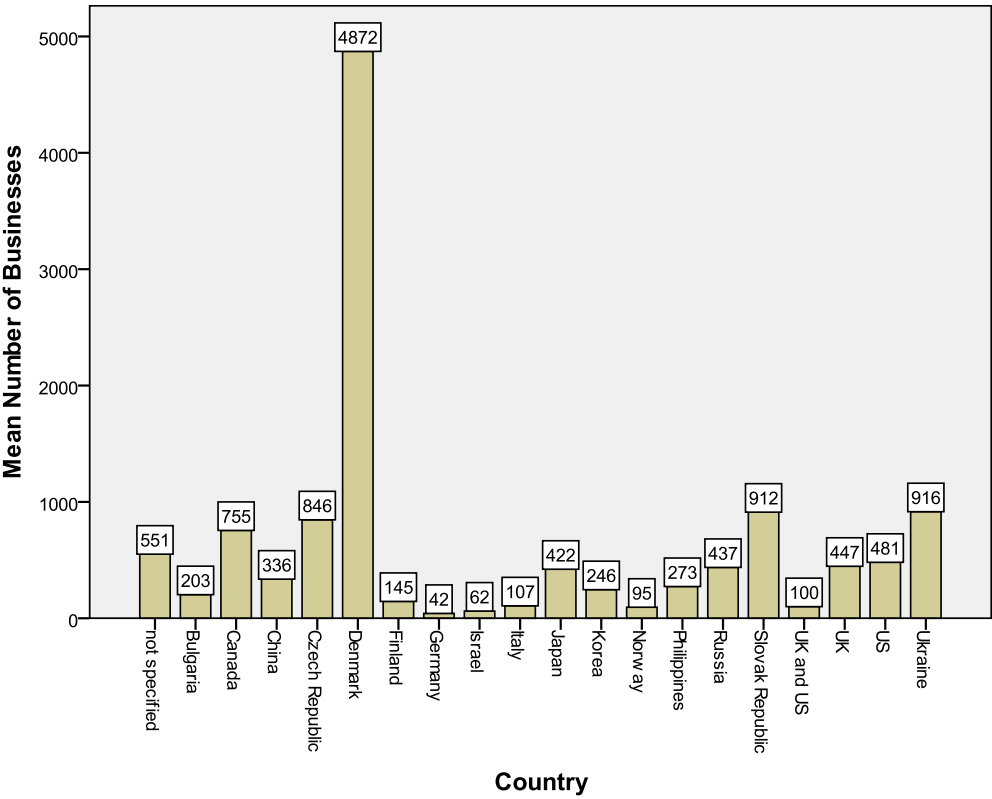


Figure 33: Mean Study Duration by Industry

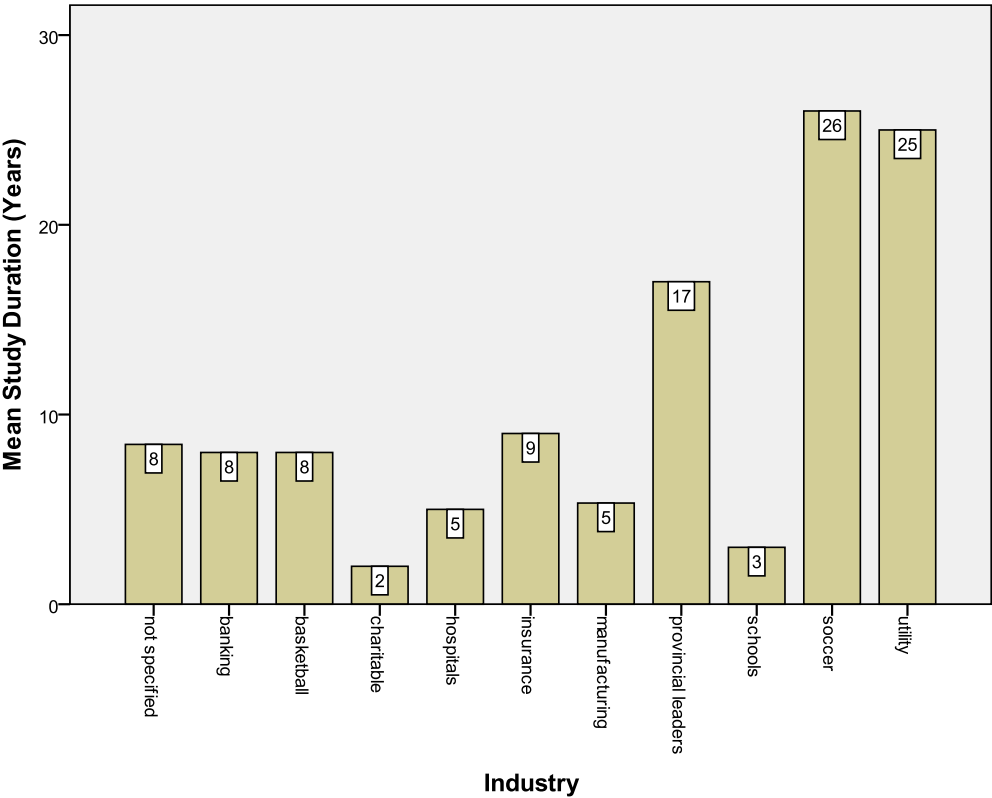


Figure 34: Mean Study Duration by Country

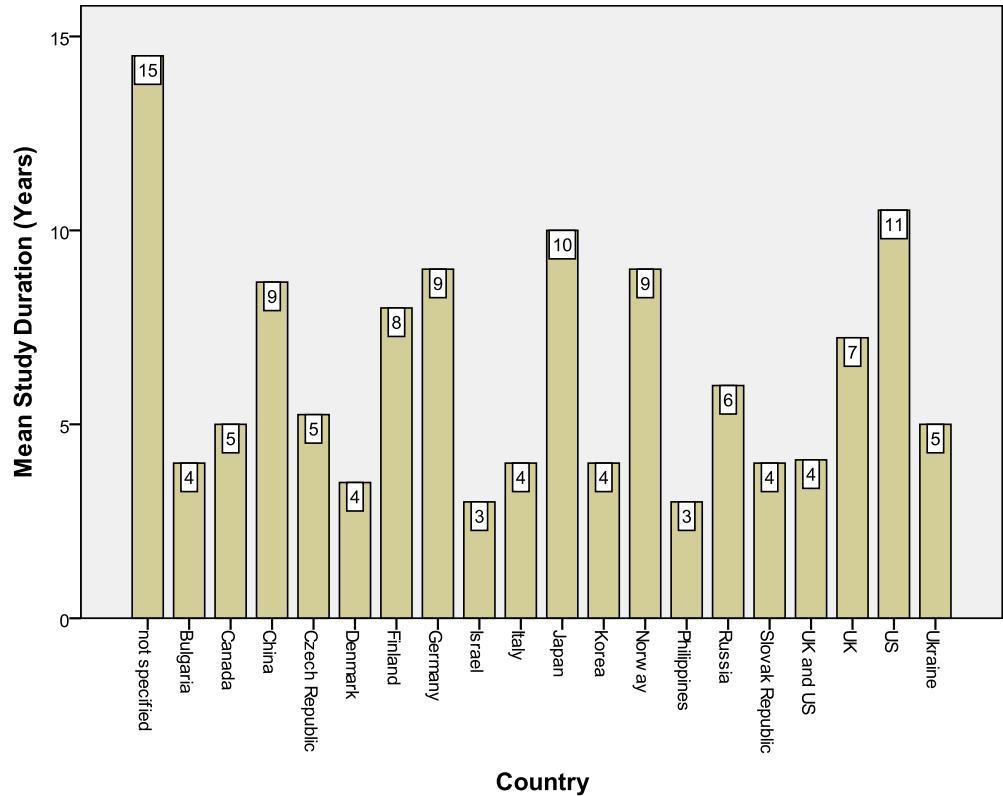


Figure 35: Mean Study Duration by Continent

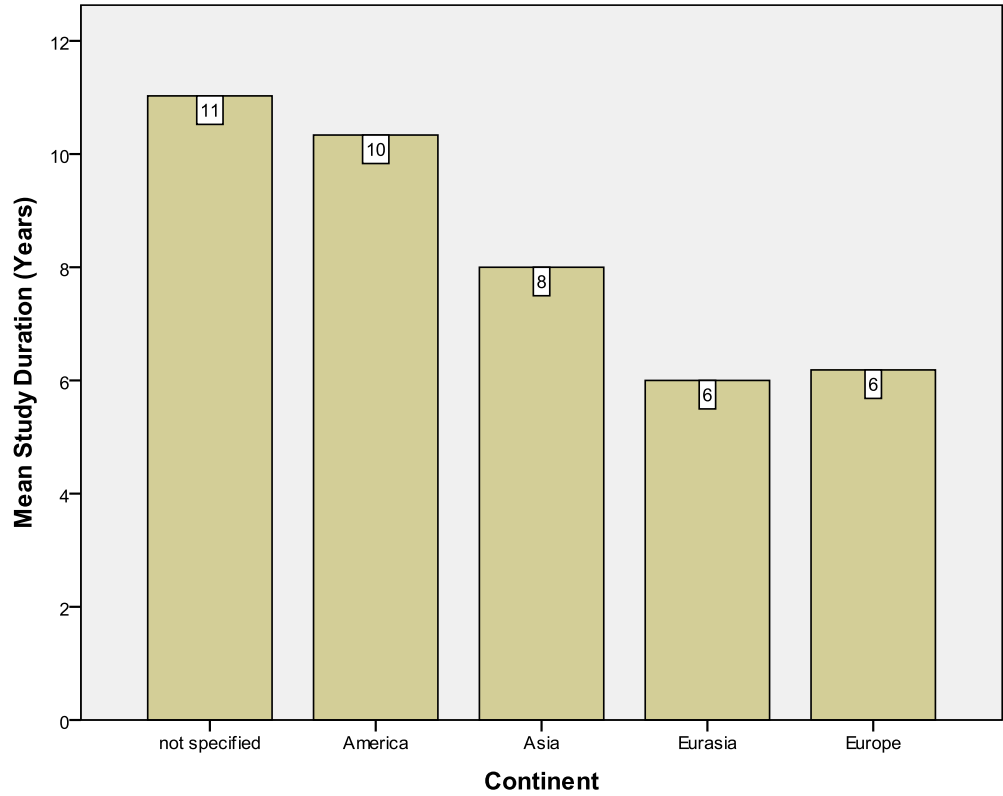


Figure 36: Mean Study Duration by Region

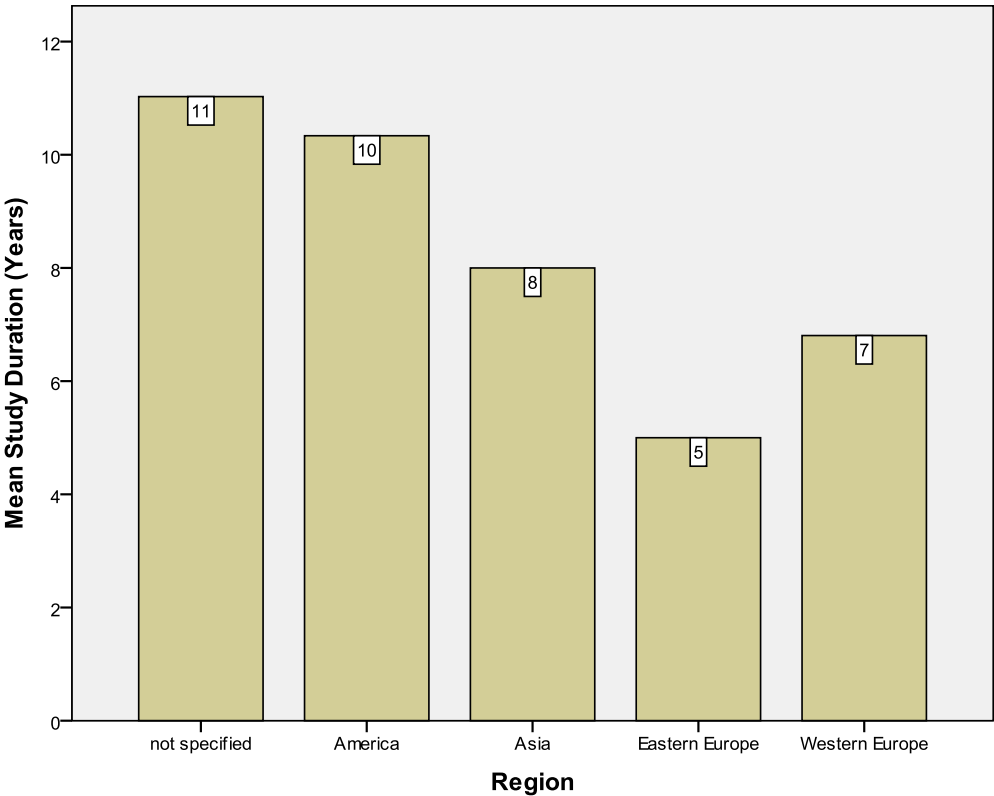


Figure 37: Mean Number of Positive Incentives by Industry

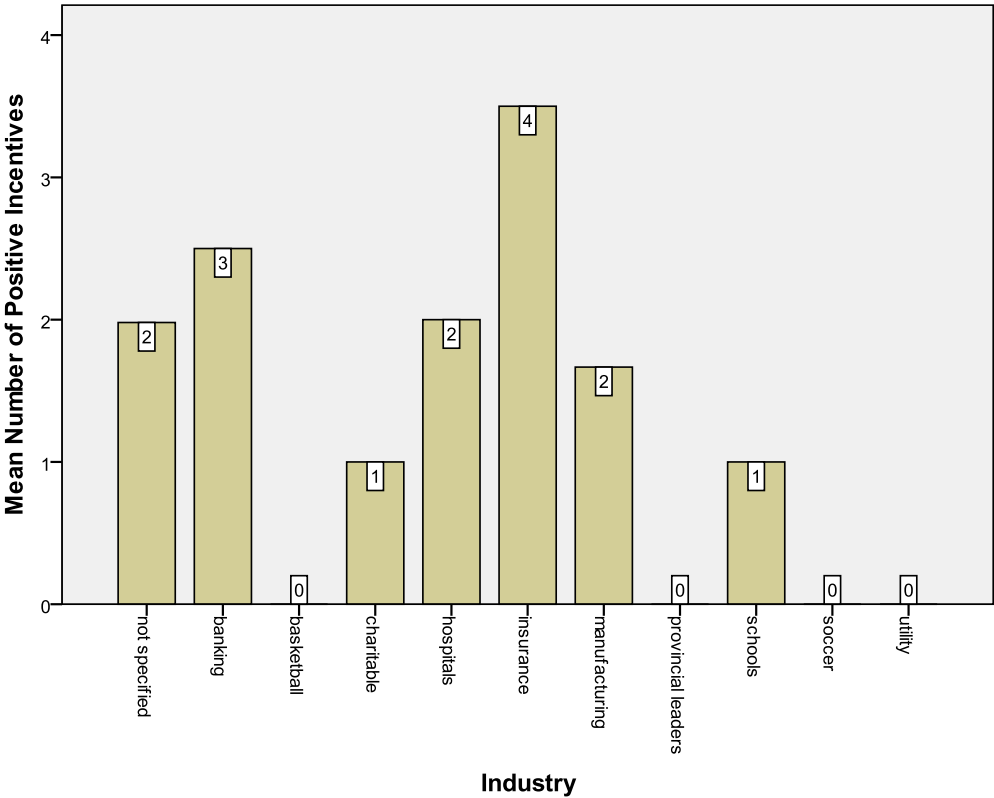


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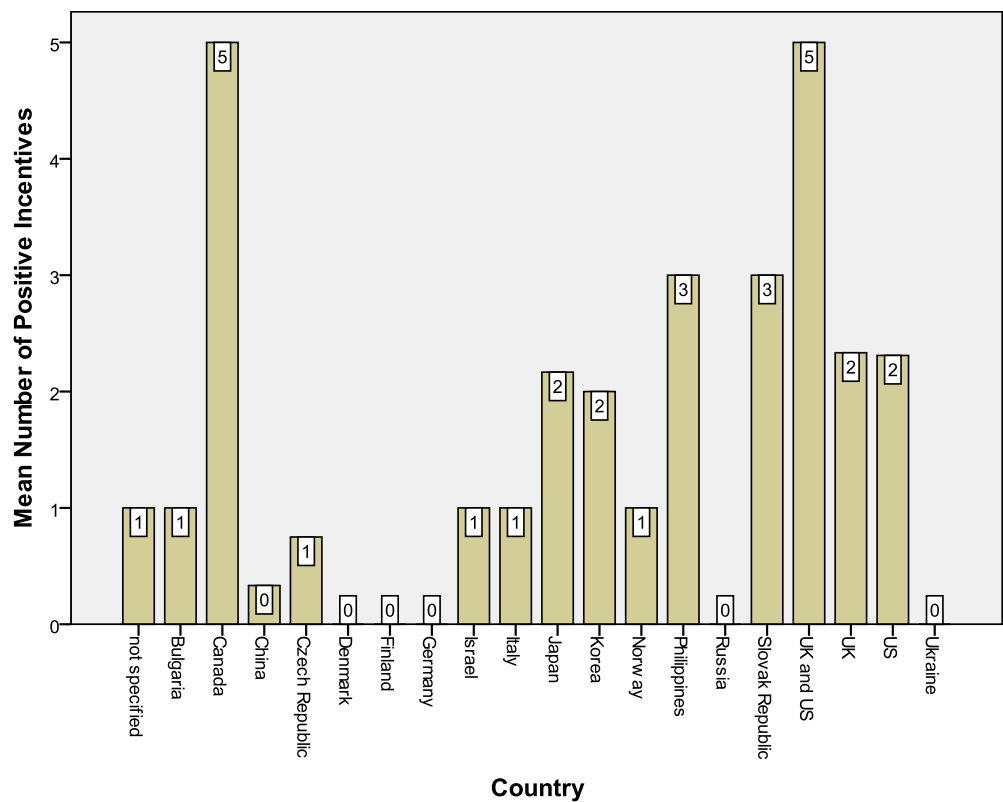


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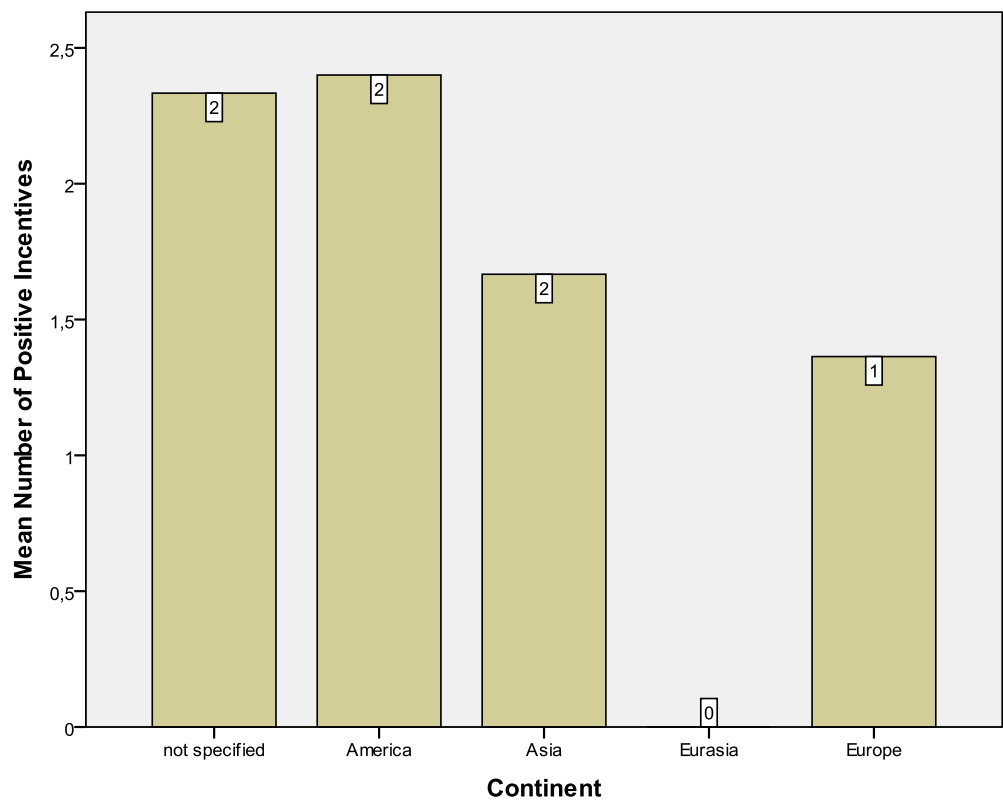


Figure 40: Mean Number of Positive Incentives by Region

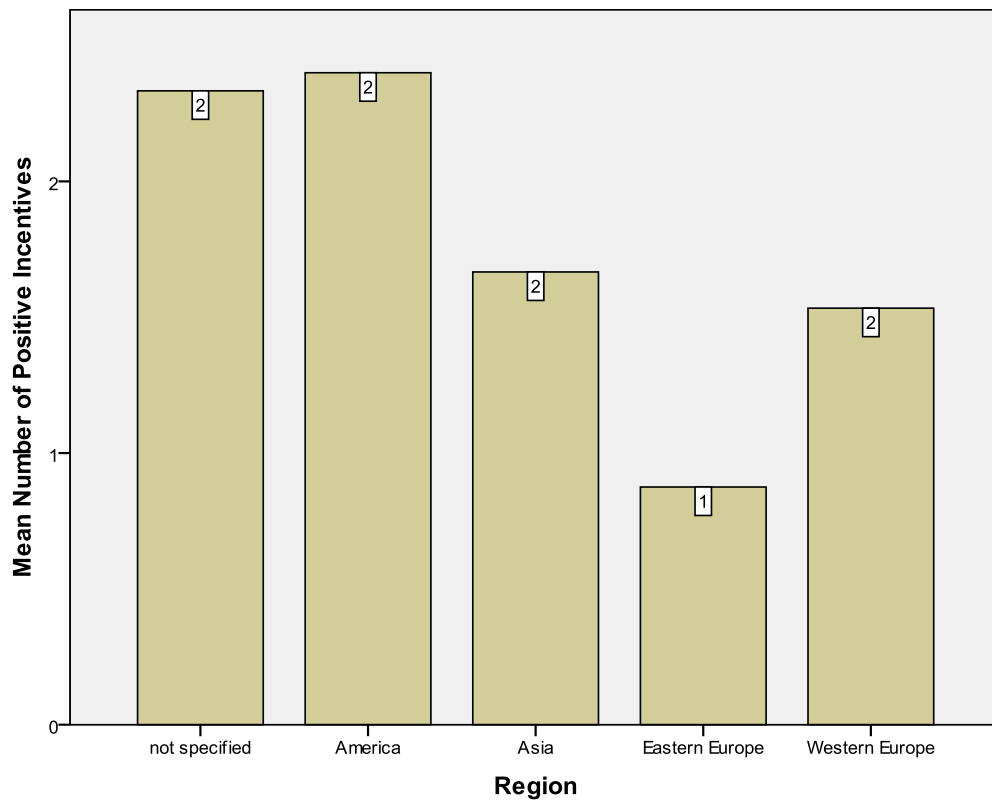


Figure 41: Performance Measure/Incentives Frequencies

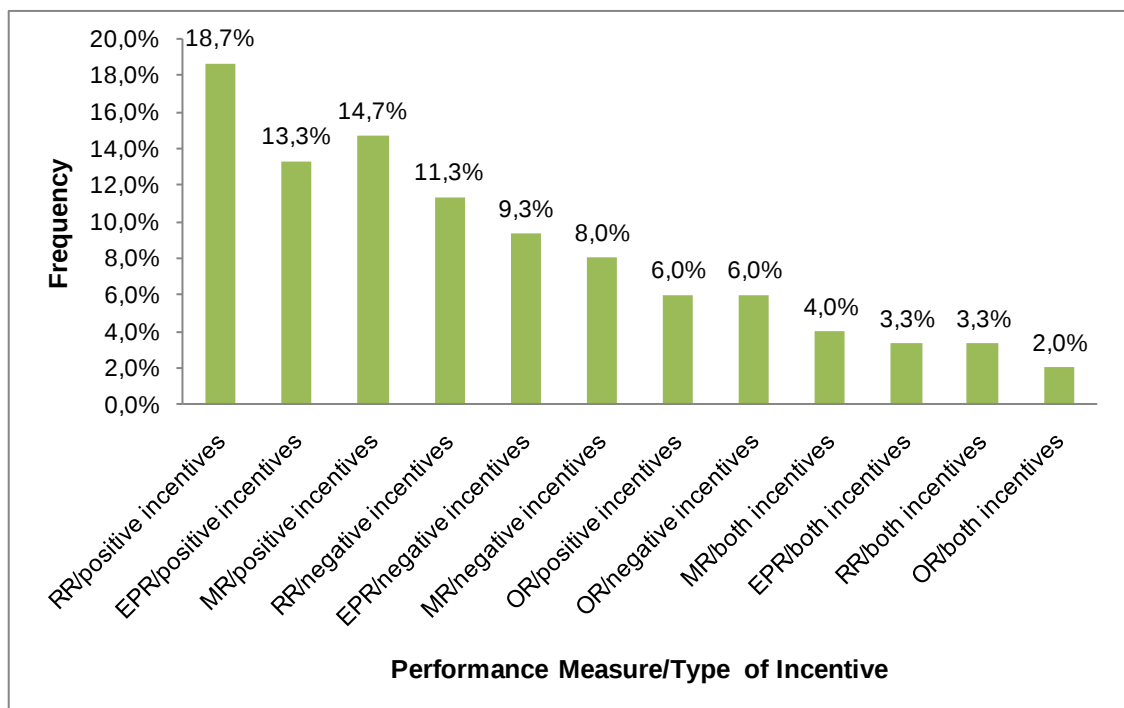


Figure 42: Performance Measure/Effect Frequencies

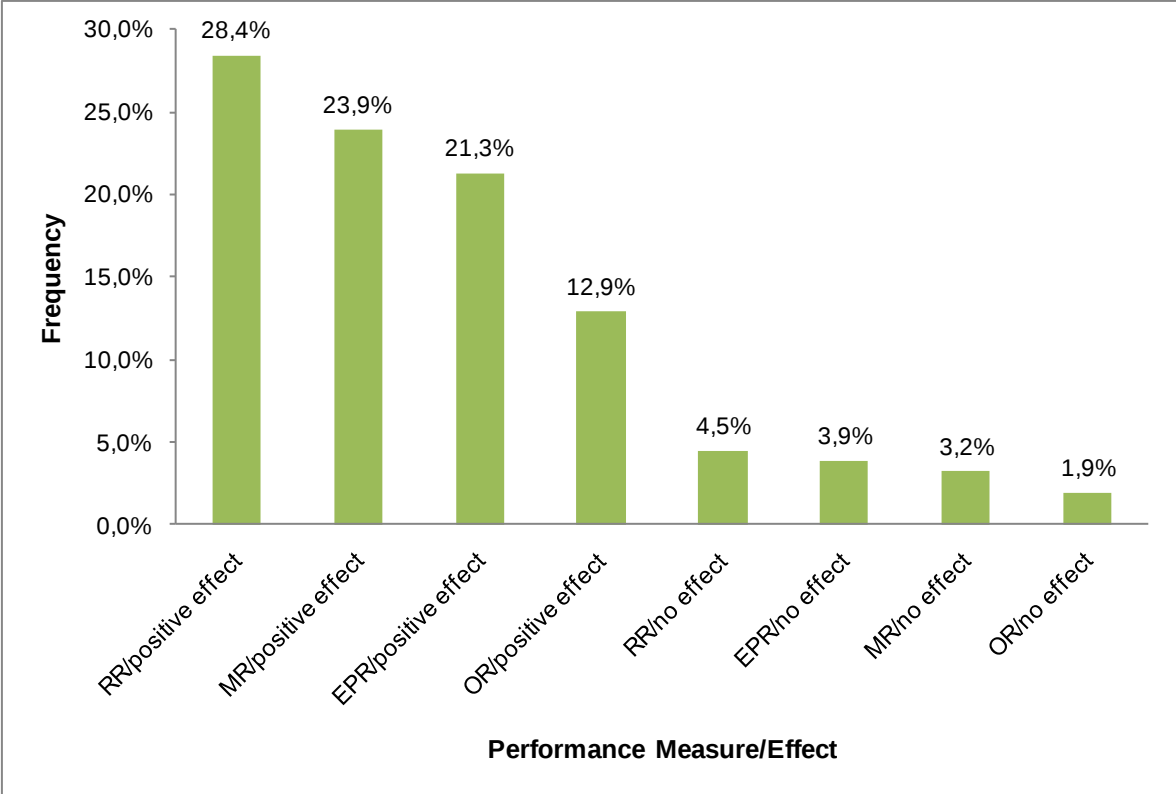


Figure 43: Performance Measure/Type of Incentive/Effect Frequencies

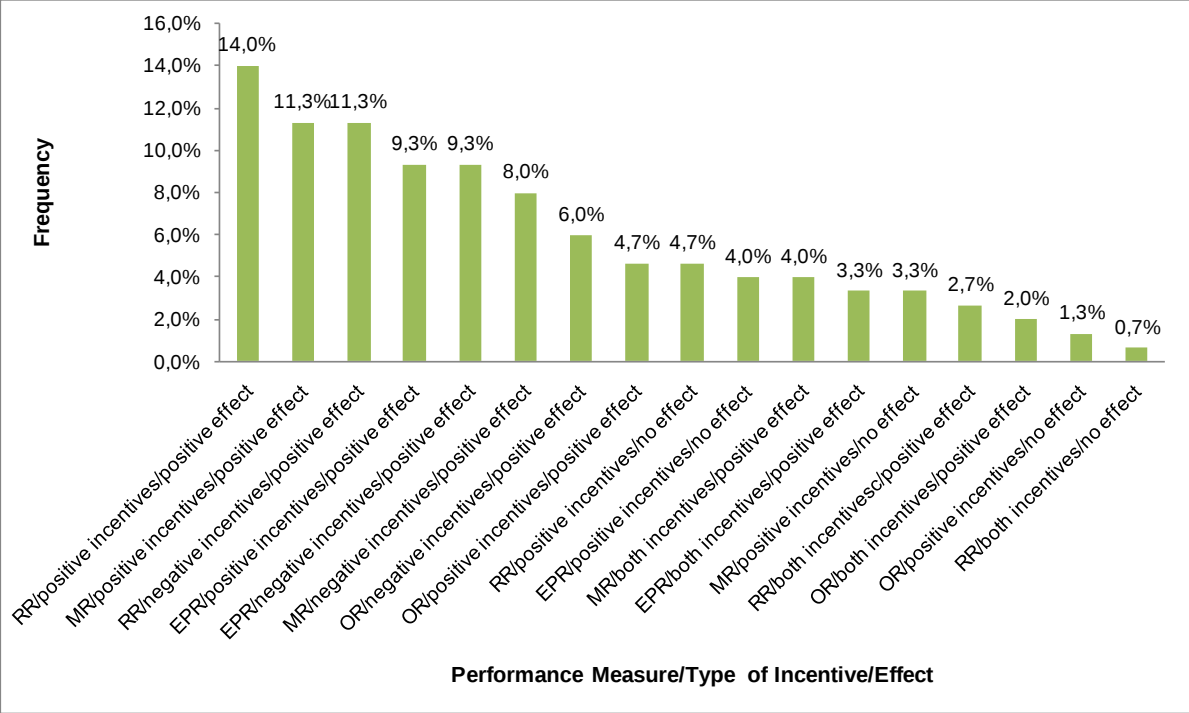


Figure 44: Industry – Era

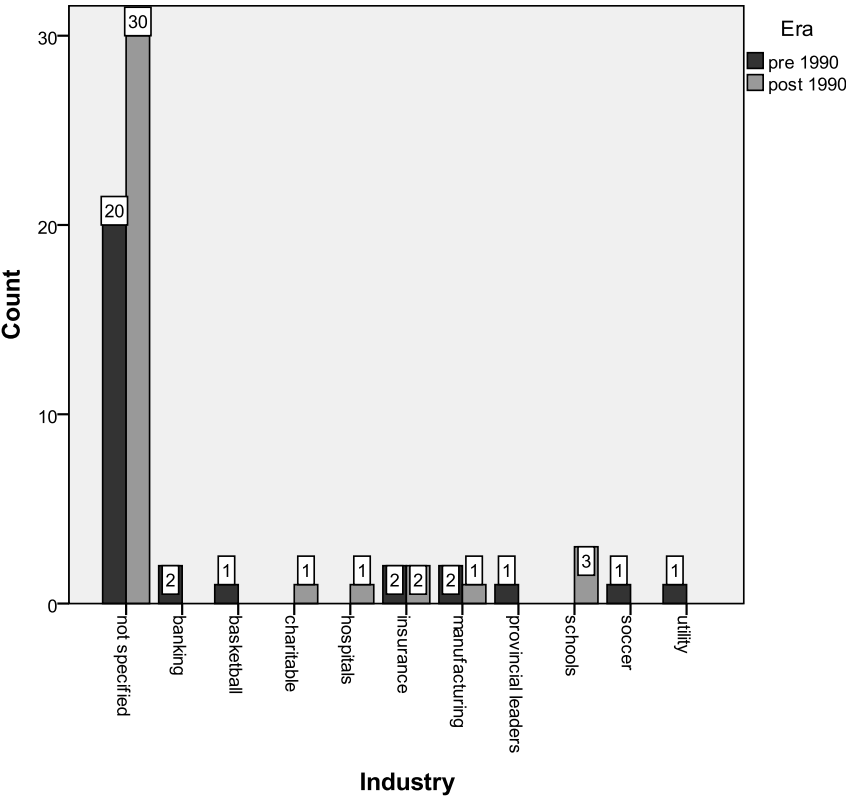


Figure 45: Industry – Type of Incentive

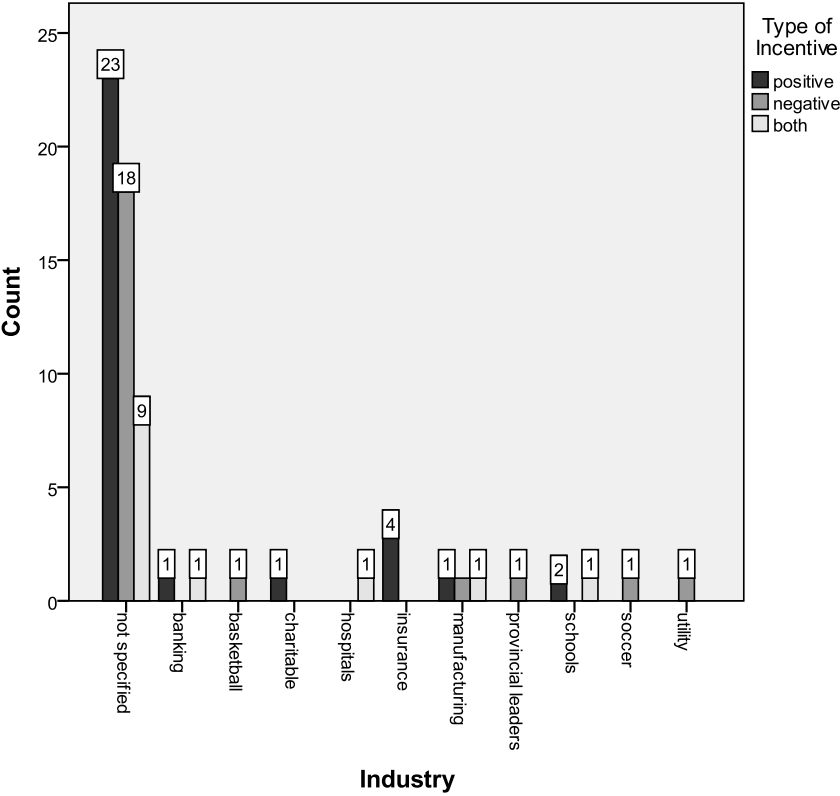


Figure 46: Industry – Effect

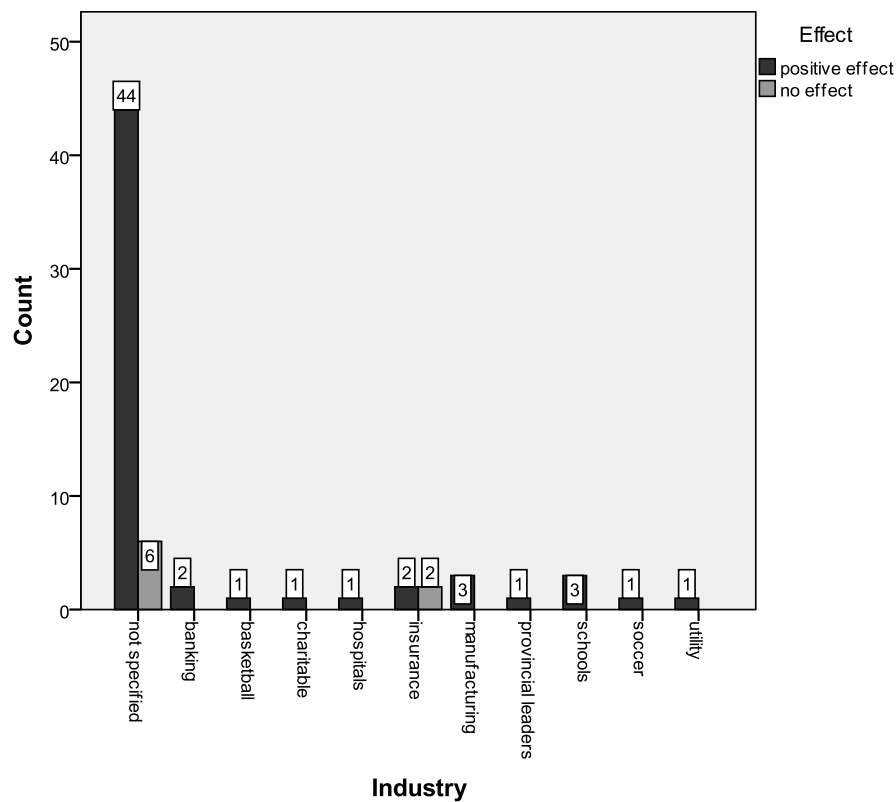


Figure 47: Concentrated Industry – Era

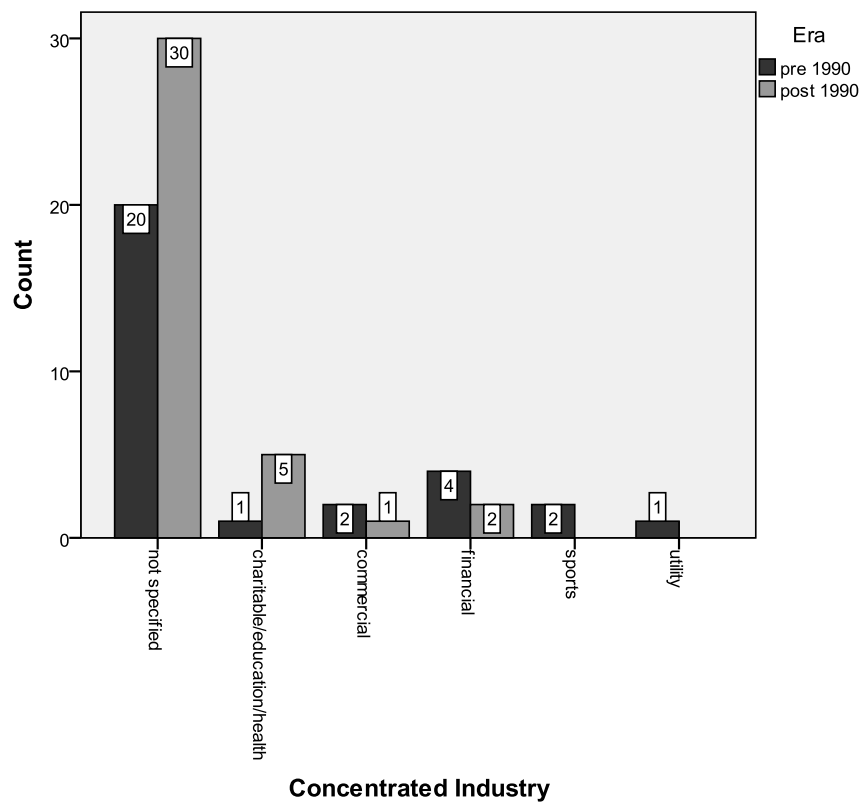


Figure 48: Country – Era

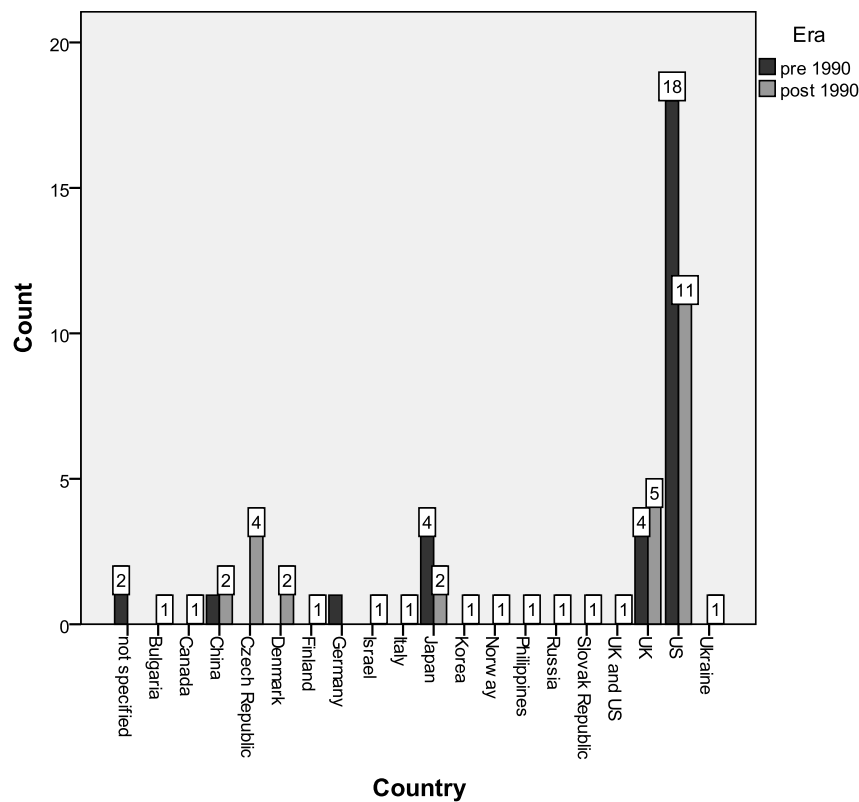


Figure 49: Continent – Era

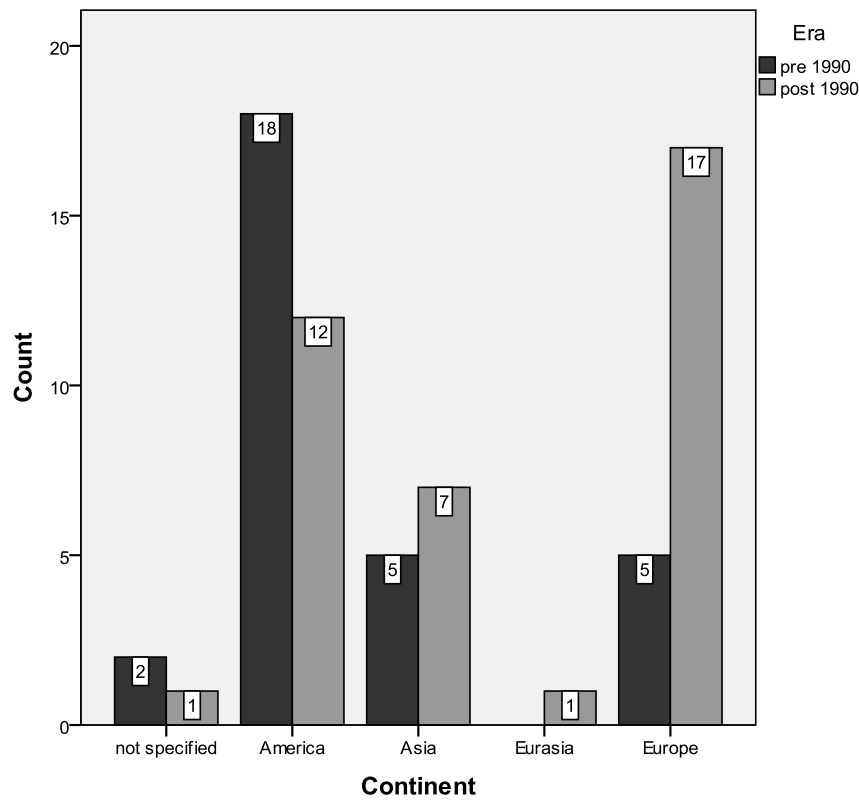


Figure 50: Region – Era

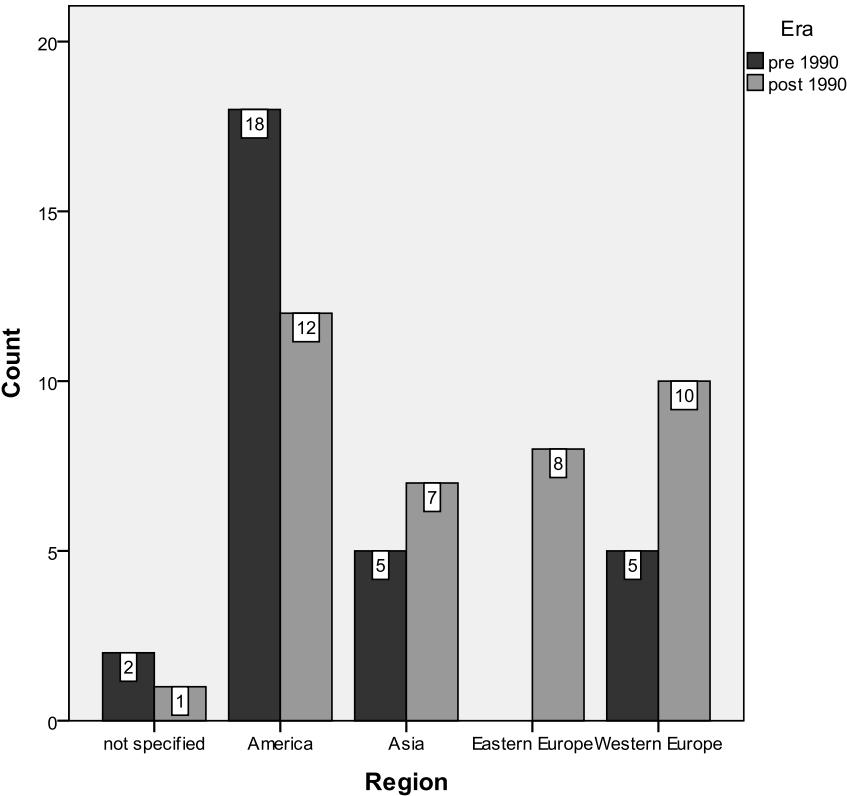


Table 158: Descriptive Statistics

	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
number of businesses	1	9500	40037	588,78	1224,674	1499827,518
study duration (years)	1	43	581	8,5478	7,86321	61,830
number of positive incentives	0	5	129	1,90	1,780	3,168
number of EPR	0	3	53	,78	,789	,622
number of MR	0	4	68	1,00	1,022	1,045
number of RR	0	6	127	1,87	1,515	2,296
number of OR	0	2	24	,35	,512	,262

Table 159: Industry Frequencies

Industry	Frequency	Percent
not specified	50	73,5
insurance	4	5,9
manufacturing	3	4,4
schools	3	4,4
banking	2	2,9
basketball	1	1,5
charitable	1	1,5
hospitals	1	1,5
provincial leaders	1	1,5
soccer	1	1,5
utility	1	1,5
Total	68	100,0

Table 160: Continent Frequencies

Continent	Frequency	Percent
America	30	44,1
Europe	22	32,4
Asia	12	17,6
not specified	3	4,4
Eurasia	1	1,5
Total	68	100,0

Table 161: Country Frequencies

Country	Frequency	Percent
US	29	42,6
UK	9	13,2
Japan	6	8,8
Czech Republic	4	5,9
China	3	4,4
not specified	2	2,9
Denmark	2	2,9
Bulgaria	1	1,5
Canada	1	1,5
Finland	1	1,5
Germany	1	1,5
Israel	1	1,5
Italy	1	1,5
Korea	1	1,5
Norway	1	1,5
Philippines	1	1,5
Russia	1	1,5
Slovak Republic	1	1,5
UK and US	1	1,5
Ukraine	1	1,5
Total	68	100,0

Table 162: Date Statistics

N		beginning date	end date
		68	68
	Missing	0	0
Mean		38,99 ^a	46,62 ^b
Mode		46 ^c	48 ^d
Std. Deviation		10,718	6,428
Variance		114,880	41,314
Minimum		1 ^e	24 ^f
Maximum		55 ^g	59 ^h

a. 1986

b. 1994

c. 1993

d. 1995

e. 1948

f. 1971

g. 2002

h. 2006

Table 163: Beginning Date Frequencies

Beginning Date	Frequency	Percent
1993	7	10,3
1981	6	8,8
1998	5	7,4
1974	4	5,9
1994	4	5,9
1997	4	5,9
1971	3	4,4
1980	3	4,4
1984	3	4,4
1985	3	4,4
1986	3	4,4
1979	2	2,9
1982	2	2,9
1988	2	2,9
1991	2	2,9
1992	2	2,9
1996	2	2,9
1948	1	1,5
1959	1	1,5
1964	1	1,5
1969	1	1,5
1972	1	1,5
1987	1	1,5
1989	1	1,5
1995	1	1,5
2000	1	1,5
2001	1	1,5
2002	1	1,5
Total	68	100,0

Table 164: End Date Frequencies

End Date	Frequency	Percent
1995	8	11,8
1997	8	11,8
2000	6	8,8
1989	5	7,4
1988	4	5,9
1996	4	5,9
1998	4	5,9
1986	3	4,4
1990	3	4,4
1992	3	4,4
2002	3	4,4
1987	2	2,9
1991	2	2,9
1993	2	2,9
1994	2	2,9
1999	2	2,9
1971	1	1,5
1973	1	1,5
1980	1	1,5
1985	1	1,5
2001	1	1,5
2003	1	1,5
2006	1	1,5
Total	68	100,0

Table 165: Source Frequencies

Sources	Frequency	Percent
company financial statements	57	83,8
pre-tax accounting profits	3	4,4
scholastic achievement criteria	3	4,4
survey data	3	4,4
winning percentages	2	2,9
Total	68	100,0

Table 166: Incentive Frequencies

Type of Incentive	Frequency	Percent
positive	32	47,1
negative	23	33,8
both	13	19,1
Total	68	100,0

Table 167: Number of Positive Incentives - Frequencies

Number of Positive Incentives	Frequency	Percent
0	23	33,8
3	14	20,6
1	11	16,2
5	8	11,8
2	6	8,8
4	6	8,8
Total	68	100,0

Table 168: Decades

Decade	Sum	Percent
1990s	47	40,5%
1980s	36	31,0%
1970s	14	12,1%
2000s	12	10,3%
1960s	4	3,4%
1950s	2	1,7%
1940s	1	0,9%

Table 169: Types of Incentives

Incentives	Sum	Percent
total pay	38	23,0%
bonus	37	22,4%
turnover	36	21,8%
salary	31	18,8%
benefits	12	7,3%
long-term incentive pay	11	6,7%

Table 170: Performance Measure Categories

Performance Measure Categories	Sum	Percent
revenue ratios	51	32,9%
market ratios	42	27,1%
efficiency/profitability ratios	39	25,2%
other ratios	23	14,8%

Table 171: Performance Measures

Performance Measures	Sum	Percent
size (assets)	34	12,5%
ROStock	33	12,1%
ROAssets	31	11,4%
sales	30	11,0%
sales change	18	6,6%
employment	16	5,9%
earnings before interest and taxes	15	5,5%
share price	13	4,8%
earnings after interest and taxes	11	4,0%
operating income	11	4,0%
shareholder wealth	10	3,7%
market value (equity)	9	3,3%
ROEquity	8	2,9%
operating income change	6	2,2%
ROAssets change	6	2,2%
labor productivity	5	1,8%
ROSales	3	1,1%
student achievement	3	1,1%
employment change	2	0,7%
Tobin's Q	2	0,7%
winning (sports)	2	0,7%
gross domestic product	1	0,4%
program activities	1	0,4%
size change	1	0,4%
Tobin's Q change	1	0,4%

Table 172: Incentives/Effect

Incentives/Effect	Sum	Percent
positive incentives/positive effect	25	36,8%
negative incentives/positive effect	23	33,8%
both incentives/positive effect	12	17,6%
positive incentives/no effect	7	10,3%
both incentives/no effect	1	1,5%

Table 173: Performance Measures/Incentives

Performance Measures/Incentives	Sum	Percent
RR/positive incentives	28	18,7%
EPR/positive incentives	20	13,3%
MR/positive incentives	22	14,7%
RR/negative incentives	17	11,3%
EPR/negative incentives	14	9,3%
MR/negative incentives	12	8,0%
OR/positive incentives	9	6,0%
OR/negative incentives	9	6,0%
MR/both incentives	6	4,0%
EPR/both incentives	5	3,3%
RR/both incentives	5	3,3%
OR/both incentives	3	2,0%

Table 174: Performance Measures/Effect

Performance Measures/Effect	Sum	Percent
RR/positive effect	44	28,4%
MR/positive effect	37	23,9%
EPR/positive effect	33	21,3%
OR/positive effect	20	12,9%
RR/no effect	7	4,5%
EPR/no effect	6	3,9%
MR/no effect	5	3,2%
OR/no effect	3	1,9%

Table 175: Performance Measures/Incentives/Effect

Performance Measures/Incentives/Effect	Sum	Percent
RR/positive incentives/positive effect	21	14,0%
MR/positive incentives/positive effect	17	11,3%
RR/negative incentives/positive effect	17	11,3%
EPR/positive incentives/positive effect	14	9,3%
EPR/negative incentives/positive effect	14	9,3%
MR/negative incentives/positive effect	12	8,0%
OR/negative incentives/positive effect	9	6,0%
OR/positive incentives/positive effect	7	4,7%
RR/positive incentives/no effect	7	4,7%
EPR/positive incentives/no effect	6	4,0%
MR/both incentives/positive effect	6	4,0%
EPR/both incentives/positive effect	5	3,3%
MR/positive incentives/no effect	5	3,3%
RR/both incentives/positive effect	4	2,7%
OR/both incentives/positive effect	3	2,0%
OR/positive incentives/no effect	2	1,3%
RR/both incentives/no effect	1	0,7%

Table 176: Number of Businesses by Industry

Industry		Statistic	Std. Error
not specified	Mean	695,98	195,659
	95% Lower Bound	302,79	
	Confidence Upper Bound	1089,17	
	Interval for Mean		
	5% Trimmed Mean	482,86	
	Median	271,50	
	Variance	1914115,571	
	Std. Deviation	1383,516	
	Minimum	16	
	Maximum	9500	
	Range	9484	
	Interquartile Range	786	
	Skewness	5,522	,337
	Kurtosis	34,749	,662
banking	Mean	115,00	32,000
	95% Lower Bound	-291,60	
	Confidence Upper Bound	521,60	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	115,00	
	Variance	2048,000	
	Std. Deviation	45,255	
	Minimum	83	
	Maximum	147	
	Range	64	
	Interquartile Range	.	
	Skewness	.	.
	Kurtosis	.	.
insurance	Mean	27,75	6,047
	95% Lower Bound	8,51	
	Confidence Upper Bound	46,99	
	Interval for Mean		
	5% Trimmed Mean	27,33	
	Median	24,00	
	Variance	146,250	
	Std. Deviation	12,093	
	Minimum	18	
	Maximum	45	
	Range	27	
	Interquartile Range	22	
	Skewness	1,469	1,014
	Kurtosis	2,031	2,619
manufacturing	Mean	208,33	116,494
	95% Lower Bound	-292,90	
	Confidence Upper Bound	709,57	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	153,00	
	Variance	40712,333	
	Std. Deviation	201,773	
	Minimum	40	
	Maximum	432	
	Range	392	
	Interquartile Range	.	
	Skewness	1,141	1,225
	Kurtosis	.	.
schools	Mean	188,33	157,819
	95% Lower Bound	-490,71	
	Confidence Upper Bound	867,37	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	62,00	
	Variance	74720,333	
	Std. Deviation	273,350	
	Minimum	1	
	Maximum	502	
	Range	501	
	Interquartile Range	.	
	Skewness	1,636	1,225
	Kurtosis	.	.

Table 177: Number of Businesses by Concentrated Industry

Industry Concentrated			Statistic	Std. Error
not specified	Mean		695,98	195,659
	95% Lower Bound		302,79	
	Confidence Upper Bound		1089,17	
	Interval for Mean			
	5% Trimmed Mean		482,86	
	Median		271,50	
	Variance		1914115,571	
	Std. Deviation		1383,516	
	Minimum		16	
	Maximum		9500	
	Range		9484	
	Interquartile Range		786	
	Skewness		5,522	,337
	Kurtosis		34,749	,662
charitable/education/health/public	Mean		509,67	334,743
	95% Lower Bound		-350,82	
	Confidence Upper Bound		1370,15	
	Interval for Mean			
	5% Trimmed Mean		447,69	
	Median		196,50	
	Variance		672317,867	
	Std. Deviation		819,950	
	Minimum		1	
	Maximum		2134	
	Range		2133	
	Interquartile Range		889	
	Skewness		2,148	,845
	Kurtosis		4,782	1,741
commercial	Mean		208,33	116,494
	95% Lower Bound		-292,90	
	Confidence Upper Bound		709,57	
	Interval for Mean			
	5% Trimmed Mean		.	
	Median		153,00	
	Variance		40712,333	
	Std. Deviation		201,773	
	Minimum		40	
	Maximum		432	
	Range		392	
	Interquartile Range		.	
	Skewness		1,141	1,225
	Kurtosis		.	.
financial	Mean		56,83	20,524
	95% Lower Bound		4,08	
	Confidence Upper Bound		109,59	
	Interval for Mean			
	5% Trimmed Mean		53,98	
	Median		36,00	
	Variance		2527,367	
	Std. Deviation		50,273	
	Minimum		18	
	Maximum		147	
	Range		129	
	Interquartile Range		79	
	Skewness		1,460	,845
	Kurtosis		1,564	1,741
sports	Mean		532,50	385,500
	95% Lower Bound		-4365,74	
	Confidence Upper Bound		5430,74	
	Interval for Mean			
	5% Trimmed Mean		.	
	Median		532,50	
	Variance		297220,500	
	Std. Deviation		545,179	
	Minimum		147	
	Maximum		918	
	Range		771	
	Interquartile Range		.	
	Skewness		.	.
	Kurtosis		.	.

Table 178: Number of Businesses by Country

Country			Statistic	Std. Error
not specified	Mean		551,00	426,000
	95% Lower Bound		-4861,84	
	Confidence Upper Bound		5963,84	
	Interval for			
	Mean			
	5% Trimmed Mean		.	
	Median		551,00	
	Variance		362952,000	
	Std. Deviation		602,455	
	Minimum		125	
	Maximum		977	
	Range		852	
	Interquartile Range		.	
	Skewness		.	.
	Kurtosis		.	.
China	Mean		336,33	157,823
	95% Lower Bound		-342,72	
	Confidence Upper Bound		1015,39	
	Interval for			
	Mean			
	5% Trimmed Mean		.	
	Median		432,00	
	Variance		74724,333	
	Std. Deviation		273,358	
	Minimum		28	
	Maximum		549	
	Range		521	
	Interquartile Range		.	
	Skewness		-1,382	1,225
	Kurtosis		.	.
Czech Republic	Mean		846,25	50,513
	95% Lower Bound		685,50	
	Confidence Upper Bound		1007,00	
	Interval for			
	Mean			
	5% Trimmed Mean		849,78	
	Median		878,00	
	Variance		10206,250	
	Std. Deviation		101,026	
	Minimum		706	
	Maximum		923	
	Range		217	
	Interquartile Range		182	
	Skewness		-1,263	1,014
	Kurtosis		,793	2,619
Denmark	Mean		4871,50	4628,500
	95% Lower Bound		-53939,17	
	Confidence Upper Bound		63682,17	
	Interval for			
	Mean			
	5% Trimmed Mean		.	
	Median		4871,50	
	Variance		42846024,500	
	Std. Deviation		6545,687	
	Minimum		243	
	Maximum		9500	
	Range		9257	
	Interquartile Range		.	
	Skewness		.	.
	Kurtosis		.	.
Japan	Mean		421,50	160,052
	95% Lower Bound		10,07	
	Confidence Upper Bound		832,93	
	Interval for			
	Mean			
	5% Trimmed Mean		403,72	
	Median		317,00	
	Variance		153699,500	
	Std. Deviation		392,045	
	Minimum		51	
	Maximum		1112	
	Range		1061	
	Interquartile Range		636	
	Skewness		1,265	,845
	Kurtosis		1,348	1,741
UK	Mean		446,89	169,506
	95% Lower Bound		56,01	
	Confidence Upper Bound		837,77	
	Interval for			
	Mean			
	5% Trimmed Mean		405,43	
	Median		241,00	
	Variance		258590,111	
	Std. Deviation		508,518	
	Minimum		40	
	Maximum		1600	
	Range		1560	
	Interquartile Range		586	
	Skewness		1,797	,717
	Kurtosis		2,941	1,400
US	Mean		481,17	132,790
	95% Lower Bound		209,16	
	Confidence Upper Bound		753,18	
	Interval for			
	Mean			
	5% Trimmed Mean		404,01	
	Median		149,00	
	Variance		511364,433	
	Std. Deviation		715,097	
	Minimum		1	
	Maximum		2399	
	Range		2398	
	Interquartile Range		441	
	Skewness		1,846	,434
	Kurtosis		2,219	,845

Table 179: Number of Businesses by Continent

Continent		Statistic	Std. Error
not specified	Mean	400,67	288,257
	95% Lower Bound	-839,60	
	Confidence Upper Bound	1640,94	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	125,00	
	Variance	249276,333	
	Std. Deviation	499,276	
	Minimum	100	
	Maximum	977	
	Range	877	
	Interquartile Range	.	
	Skewness	1,727	1,225
	Kurtosis	.	.
America	Mean	490,30	128,612
	95% Lower Bound	227,26	
	Confidence Upper Bound	753,34	
	Interval for Mean		
	5% Trimmed Mean	414,35	
	Median	151,00	
	Variance	496230,562	
	Std. Deviation	704,436	
	Minimum	1	
	Maximum	2399	
	Range	2398	
	Interquartile Range	524	
	Skewness	1,821	,427
	Kurtosis	2,222	,833
Asia	Mean	343,25	89,117
	95% Lower Bound	147,10	
	Confidence Upper Bound	539,40	
	Interval for Mean		
	5% Trimmed Mean	318,06	
	Median	271,50	
	Variance	95302,023	
	Std. Deviation	308,710	
	Minimum	28	
	Maximum	1112	
	Range	1084	
	Interquartile Range	444	
	Skewness	1,453	,637
	Kurtosis	2,603	1,232
Europe	Mean	889,55	419,795
	95% Lower Bound	16,53	
	Confidence Upper Bound	1762,56	
	Interval for Mean		
	5% Trimmed Mean	498,27	
	Median	243,00	
	Variance	3877009,498	
	Std. Deviation	1969,012	
	Minimum	40	
	Maximum	9500	
	Range	9460	
	Interquartile Range	781	
	Skewness	4,348	,491
	Kurtosis	19,723	,953

Table 180: Number of Businesses by Region

Region		Statistic	Std. Error
not specified	Mean	400,67	288,257
	95% Lower Bound	-839,60	
	Confidence Interval for		
	Upper Bound	1640,94	
	Mean		
	5% Trimmed Mean	.	
	Median	125,00	
	Variance	249276,333	
	Std. Deviation	499,276	
	Minimum	100	
	Maximum	977	
	Range	877	
	Interquartile Range	.	
	Skewness	1,727	1,225
	Kurtosis	.	.
America	Mean	490,30	128,612
	95% Lower Bound	227,26	
	Confidence Interval for		
	Upper Bound	753,34	
	Mean		
	5% Trimmed Mean	414,35	
	Median	151,00	
	Variance	496230,562	
	Std. Deviation	704,436	
	Minimum	1	
	Maximum	2399	
	Range	2398	
	Interquartile Range	524	
	Skewness	1,821	,427
	Kurtosis	2,222	,833
Asia	Mean	343,25	89,117
	95% Lower Bound	147,10	
	Confidence Interval for		
	Upper Bound	539,40	
	Mean		
	5% Trimmed Mean	318,06	
	Median	271,50	
	Variance	95302,023	
	Std. Deviation	308,710	
	Minimum	28	
	Maximum	1112	
	Range	1084	
	Interquartile Range	444	
	Skewness	1,453	,637
	Kurtosis	2,603	1,232
Eastern Europe	Mean	731,63	95,987
	95% Lower Bound	504,65	
	Confidence Interval for		
	Upper Bound	958,60	
	Mean		
	5% Trimmed Mean	750,36	
	Median	875,50	
	Variance	73707,411	
	Std. Deviation	271,491	
	Minimum	203	
	Maximum	923	
	Range	720	
	Interquartile Range	413	
	Skewness	-1,395	,752
	Kurtosis	,811	1,481
Western Europe	Mean	943,60	620,532
	95% Lower Bound	-387,31	
	Confidence Interval for		
	Upper Bound	2274,51	
	Mean		
	5% Trimmed Mean	518,44	
	Median	213,00	
	Variance	5775907,543	
	Std. Deviation	2403,312	
	Minimum	40	
	Maximum	9500	
	Range	9460	
	Interquartile Range	415	
	Skewness	3,687	,580
	Kurtosis	13,902	1,121

Table 181: Number of Businesses by Era

Era		Statistic	Std. Error
pre 1990	Mean	341,27	75,659
	95% Lower Bound	186,53	
	Confidence Interval for		
	Upper Bound	496,01	
	Mean		
	5% Trimmed Mean	298,35	
	Median	148,00	
	Variance	171728,064	
	Std. Deviation	414,401	
	Minimum	16	
	Maximum	1600	
	Range	1584	
	Interquartile Range	396	
	Skewness	1,613	,427
	Kurtosis	1,823	,833
post 1990	Mean	784,18	256,105
	95% Lower Bound	265,27	
	Confidence Interval for		
	Upper Bound	1303,10	
	Mean		
	5% Trimmed Mean	529,90	
	Median	302,00	
	Variance	2492418,857	
	Std. Deviation	1578,740	
	Minimum	1	
	Maximum	9500	
	Range	9499	
	Interquartile Range	752	
	Skewness	4,834	,383
	Kurtosis	26,367	,750

Table 182: Study Duration by Industry

Industry		Statistic	Std. Error
not specified	Mean	8,4250	1,13137
	95% Lower Bound	6,1514	
	Confidence Upper Bound	10,6986	
	Interval for Mean		
	5% Trimmed Mean	7,2389	
	Median	6,0000	
	Variance	64,000	
	Std. Deviation	7,99999	
	Minimum	1,00	
	Maximum	43,00	
	Range	42,00	
	Interquartile Range	5,25	
	Skewness	2,848	,337
	Kurtosis	9,237	,662
banking	Mean	8,0000	2,00000
	95% Lower Bound	-17,4124	
	Confidence Upper Bound	33,4124	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	8,0000	
	Variance	8,000	
	Std. Deviation	2,82843	
	Minimum	6,00	
	Maximum	10,00	
	Range	4,00	
	Interquartile Range	.	
	Skewness	.	.
	Kurtosis	.	.
insurance	Mean	9,0000	3,46410
	95% Lower Bound	-2,0243	
	Confidence Upper Bound	20,0243	
	Interval for Mean		
	5% Trimmed Mean	9,0000	
	Median	9,0000	
	Variance	48,000	
	Std. Deviation	6,92820	
	Minimum	3,00	
	Maximum	15,00	
	Range	12,00	
	Interquartile Range	12,00	
	Skewness	,000	1,014
	Kurtosis	-6,000	2,619
manufacturing	Mean	5,3333	1,76383
	95% Lower Bound	-2,2558	
	Confidence Upper Bound	12,9225	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	6,0000	
	Variance	9,333	
	Std. Deviation	3,05505	
	Minimum	2,00	
	Maximum	8,00	
	Range	6,00	
	Interquartile Range	.	
	Skewness	-,935	1,225
	Kurtosis	.	.
schools	Mean	3,0000	1,15470
	95% Lower Bound	-1,9683	
	Confidence Upper Bound	7,9683	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	3,0000	
	Variance	4,000	
	Std. Deviation	2,00000	
	Minimum	1,00	
	Maximum	5,00	
	Range	4,00	
	Interquartile Range	.	
	Skewness	,000	1,225
	Kurtosis	.	.

Table 183: Study Duration by Concentrated Industry

Industry Concentrated		Statistic	Std. Error
not specified	Mean	8,4250	1,13137
	95% Lower Bound	6,1514	
	Confidence Upper Bound	10,6986	
	Interval for Mean		
	5% Trimmed Mean	7,2389	
	Median	6,0000	
	Variance	64,000	
	Std. Deviation	7,99999	
	Minimum	1,00	
	Maximum	43,00	
	Range	42,00	
	Interquartile Range	5,25	
	Skewness	2,848	,337
	Kurtosis	9,237	,662
charitable/education/ health/public	Mean	5,5000	2,39096
	95% Lower Bound	-,6461	
	Confidence Upper Bound	11,6461	
	Interval for Mean		
	5% Trimmed Mean	5,1111	
	Median	4,0000	
	Variance	34,300	
	Std. Deviation	5,85662	
	Minimum	1,00	
	Maximum	17,00	
	Range	16,00	
	Interquartile Range	6,25	
	Skewness	2,047	,845
	Kurtosis	4,513	1,741
commercial	Mean	5,3333	1,76383
	95% Lower Bound	-2,2558	
	Confidence Upper Bound	12,9225	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	6,0000	
	Variance	9,333	
	Std. Deviation	3,05505	
	Minimum	2,00	
	Maximum	8,00	
	Range	6,00	
	Interquartile Range	.	
	Skewness	-,935	1,225
	Kurtosis	.	.
financial	Mean	8,6667	2,26078
	95% Lower Bound	2,8552	
	Confidence Upper Bound	14,4782	
	Interval for Mean		
	5% Trimmed Mean	8,6296	
	Median	8,0000	
	Variance	30,667	
	Std. Deviation	5,53775	
	Minimum	3,00	
	Maximum	15,00	
	Range	12,00	
	Interquartile Range	12,00	
	Skewness	,225	,845
	Kurtosis	-2,280	1,741
sports	Mean	17,0000	9,00000
	95% Lower Bound	-97,3558	
	Confidence Upper Bound	131,3558	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	17,0000	
	Variance	162,000	
	Std. Deviation	12,72792	
	Minimum	8,00	
	Maximum	26,00	
	Range	18,00	
	Interquartile Range	.	
	Skewness	.	.
	Kurtosis	.	.

Table 184: Study Duration by Country

Country		Statistic	Std. Error
not specified	Mean	14,5000	4,50000
	95% Lower Bound	-42,6779	
	Confidence Upper Bound	71,6779	
	Interval for Mean	.	
	5% Trimmed Mean	.	
	Median	14,5000	
	Variance	40,500	
	Std. Deviation	6,36396	
	Minimum	10,00	
	Maximum	19,00	
	Range	9,00	
	Interquartile Range	.	
	Skewness	.	
	Kurtosis	.	
		.	
China	Mean	8,6667	4,25572
	95% Lower Bound	-9,6442	
	Confidence Upper Bound	26,9775	
	Interval for Mean	.	
	5% Trimmed Mean	.	
	Median	6,0000	
	Variance	54,333	
	Std. Deviation	7,37111	
	Minimum	3,00	
	Maximum	17,00	
	Range	14,00	
	Interquartile Range	.	
	Skewness	1,415	
	Kurtosis	.	
		.	
Czech Republic	Mean	5,2500	,47871
	95% Lower Bound	3,7265	
	Confidence Upper Bound	6,7735	
	Interval for Mean	.	
	5% Trimmed Mean	5,2778	
	Median	5,5000	
	Variance	,917	
	Std. Deviation	,95743	
	Minimum	4,00	
	Maximum	6,00	
	Range	2,00	
	Interquartile Range	1,75	
	Skewness	-,855	
	Kurtosis	-1,289	
		.	
Denmark	Mean	3,5000	,50000
	95% Lower Bound	-2,8531	
	Confidence Upper Bound	9,8531	
	Interval for Mean	.	
	5% Trimmed Mean	.	
	Median	3,5000	
	Variance	,500	
	Std. Deviation	,70711	
	Minimum	3,00	
	Maximum	4,00	
	Range	1,00	
	Interquartile Range	.	
	Skewness	.	
	Kurtosis	.	
		.	
Japan	Mean	10,0000	1,82574
	95% Lower Bound	5,3068	
	Confidence Upper Bound	14,6932	
	Interval for Mean	.	
	5% Trimmed Mean	9,8889	
	Median	9,5000	
	Variance	20,000	
	Std. Deviation	4,47214	
	Minimum	5,00	
	Maximum	17,00	
	Range	12,00	
	Interquartile Range	8,25	
	Skewness	,604	
	Kurtosis	-,363	
		.	
UK	Mean	7,2315	2,50839
	95% Lower Bound	1,4471	
	Confidence Upper Bound	13,0158	
	Interval for Mean	.	
	5% Trimmed Mean	6,5350	
	Median	6,0000	
	Variance	56,628	
	Std. Deviation	7,52516	
	Minimum	1,00	
	Maximum	26,00	
	Range	25,00	
	Interquartile Range	6,00	
	Skewness	2,309	
	Kurtosis	6,018	
		.	
US	Mean	10,5201	1,90092
	95% Lower Bound	6,6263	
	Confidence Upper Bound	14,4140	
	Interval for Mean	.	
	5% Trimmed Mean	9,3480	
	Median	7,0000	
	Variance	104,791	
	Std. Deviation	10,23677	
	Minimum	1,00	
	Maximum	43,00	
	Range	42,00	
	Interquartile Range	8,96	
	Skewness	1,930	
	Kurtosis	3,640	
		.	

Table 185: Study Duration by Continent

Continent		Statistic	Std. Error
not specified	Mean	11,0278	4,33663
	95% Lower Bound	-7,6312	
	Confidence Upper Bound	29,6868	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	10,0000	
	Variance	56,419	
	Std. Deviation	7,51126	
	Minimum	4,08	
	Maximum	19,00	
	Range	14,92	
	Interquartile Range	.	
	Skewness	,604	1,225
	Kurtosis	.	.
America	Mean	10,3361	1,84566
	95% Lower Bound	6,5613	
	Confidence Upper Bound	14,1109	
	Interval for Mean		
	5% Trimmed Mean	9,1512	
	Median	6,5000	
	Variance	102,194	
	Std. Deviation	10,10909	
	Minimum	1,00	
	Maximum	43,00	
	Range	42,00	
	Interquartile Range	8,48	
	Skewness	1,983	,427
	Kurtosis	3,874	,833
Asia	Mean	8,0000	1,50756
	95% Lower Bound	4,6819	
	Confidence Upper Bound	11,3181	
	Interval for Mean		
	5% Trimmed Mean	7,7778	
	Median	6,0000	
	Variance	27,273	
	Std. Deviation	5,22233	
	Minimum	3,00	
	Maximum	17,00	
	Range	14,00	
	Interquartile Range	9,00	
	Skewness	,850	,637
	Kurtosis	-,642	1,232
Europe	Mean	6,1856	1,05981
	95% Lower Bound	3,9816	
	Confidence Upper Bound	8,3896	
	Interval for Mean		
	5% Trimmed Mean	5,4537	
	Median	5,0000	
	Variance	24,710	
	Std. Deviation	4,97094	
	Minimum	1,00	
	Maximum	26,00	
	Range	25,00	
	Interquartile Range	4,00	
	Skewness	3,205	,491
	Kurtosis	12,690	,953

Table 186: Study Duration by Region

Region		Statistic	Std. Error
not specified	Mean	11,0278	4,33663
	95% Lower Bound	-7,6312	
	Confidence Interval for		
	Upper Bound	29,6868	
	Mean		
	5% Trimmed Mean	.	
	Median	10,0000	
	Variance	56,419	
	Std. Deviation	7,51126	
	Minimum	4,08	
	Maximum	19,00	
	Range	14,92	
	Interquartile Range	.	
	Skewness	,604	
	Kurtosis	.	
America	Mean	10,3361	1,84566
	95% Lower Bound	6,5613	
	Confidence Interval for		
	Upper Bound	14,1109	
	Mean		
	5% Trimmed Mean	9,1512	
	Median	6,5000	
	Variance	102,194	
	Std. Deviation	10,10909	
	Minimum	1,00	
	Maximum	43,00	
	Range	42,00	
	Interquartile Range	8,48	
	Skewness	1,983	
	Kurtosis	3,874	
Asia	Mean	8,0000	1,50756
	95% Lower Bound	4,6819	
	Confidence Interval for		
	Upper Bound	11,3181	
	Mean		
	5% Trimmed Mean	7,7778	
	Median	6,0000	
	Variance	27,273	
	Std. Deviation	5,22233	
	Minimum	3,00	
	Maximum	17,00	
	Range	14,00	
	Interquartile Range	9,00	
	Skewness	,850	
	Kurtosis	-,642	
Eastern Europe	Mean	5,0000	,32733
	95% Lower Bound	4,2260	
	Confidence Interval for		
	Upper Bound	5,7740	
	Mean		
	5% Trimmed Mean	5,0000	
	Median	5,0000	
	Variance	,857	
	Std. Deviation	,92582	
	Minimum	4,00	
	Maximum	6,00	
	Range	2,00	
	Interquartile Range	2,00	
	Skewness	,000	
	Kurtosis	-2,100	
Western Europe	Mean	6,8056	1,53676
	95% Lower Bound	3,5095	
	Confidence Interval for		
	Upper Bound	10,1016	
	Mean		
	5% Trimmed Mean	6,0617	
	Median	6,0000	
	Variance	35,424	
	Std. Deviation	5,95183	
	Minimum	1,00	
	Maximum	26,00	
	Range	25,00	
	Interquartile Range	6,00	
	Skewness	2,590	
	Kurtosis	8,322	

Table 187: Study Duration by Era

Era		Statistic	Std. Error
pre 1990	Mean	12,9667	1,79494
	95% Lower Bound	9,2956	
	Confidence Interval for Upper Bound	16,6377	
	Mean		
	5% Trimmed Mean	12,0185	
	Median	9,5000	
	Variance	96,654	
	Std. Deviation	9,83128	
	Minimum	2,00	
	Maximum	43,00	
	Range	41,00	
	Interquartile Range	11,00	
	Skewness	1,579	
	Kurtosis	2,464	
			,427
			,833
post 1990	Mean	5,0592	,45524
	95% Lower Bound	4,1368	
	Confidence Interval for Upper Bound	5,9816	
	Mean		
	5% Trimmed Mean	4,8406	
	Median	4,5417	
	Variance	7,875	
	Std. Deviation	2,80630	
	Minimum	1,00	
	Maximum	14,00	
	Range	13,00	
	Interquartile Range	3,00	
	Skewness	1,331	
	Kurtosis	2,322	
			,383
			,750

Table 188: Number of Positive Incentives by Industry

Industry		Statistic	Std. Error
not specified	Mean	1,98	,269
	95% Lower Bound	1,44	
	Confidence Upper Bound	2,52	
	Interval for Mean		
	5% Trimmed Mean	1,92	
	Median	1,50	
	Variance	3,612	
	Std. Deviation	1,900	
	Minimum	0	
	Maximum	5	
	Range	5	
	Interquartile Range	3	
	Skewness	,364	,337
	Kurtosis	-1,379	,662
banking	Mean	2,50	,500
	95% Lower Bound	-3,85	
	Confidence Upper Bound	8,85	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	2,50	
	Variance	,500	
	Std. Deviation	,707	
	Minimum	2	
	Maximum	3	
	Range	1	
	Interquartile Range	.	
	Skewness	.	.
	Kurtosis	.	.
insurance	Mean	3,50	,289
	95% Lower Bound	2,58	
	Confidence Upper Bound	4,42	
	Interval for Mean		
	5% Trimmed Mean	3,50	
	Median	3,50	
	Variance	,333	
	Std. Deviation	,577	
	Minimum	3	
	Maximum	4	
	Range	1	
	Interquartile Range	1	
	Skewness	,000	1,014
	Kurtosis	-6,000	2,619
manufacturing	Mean	1,67	,882
	95% Lower Bound	-2,13	
	Confidence Upper Bound	5,46	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	2,00	
	Variance	2,333	
	Std. Deviation	1,528	
	Minimum	0	
	Maximum	3	
	Range	3	
	Interquartile Range	.	
	Skewness	-,935	1,225
	Kurtosis	.	.

Table 189: Number of Positive Incentives by Concentrated Industry

Industry Concentrated		Statistic	Std. Error
not specified	Mean	1,98	,269
	95% Lower Bound	1,44	
	Confidence Upper Bound	2,52	
	Interval for Mean		
	5% Trimmed Mean	1,92	
	Median	1,50	
	Variance	3,612	
	Std. Deviation	1,900	
	Minimum	0	
	Maximum	5	
	Range	5	
	Interquartile Range	3	
	Skewness	,364	,337
	Kurtosis	-1,379	,662
charitable/education/ health/public	Mean	1,00	,258
	95% Lower Bound	,34	
	Confidence Upper Bound	1,66	
	Interval for Mean		
	5% Trimmed Mean	1,00	
	Median	1,00	
	Variance	,400	
	Std. Deviation	,632	
	Minimum	0	
	Maximum	2	
	Range	2	
	Interquartile Range	1	
	Skewness	,000	,845
	Kurtosis	2,500	1,741
commercial	Mean	1,67	,882
	95% Lower Bound	-2,13	
	Confidence Upper Bound	5,46	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	2,00	
	Variance	2,333	
	Std. Deviation	1,528	
	Minimum	0	
	Maximum	3	
	Range	3	
	Interquartile Range	.	
	Skewness	-,935	1,225
	Kurtosis	.	.
financial	Mean	3,17	,307
	95% Lower Bound	2,38	
	Confidence Upper Bound	3,96	
	Interval for Mean		
	5% Trimmed Mean	3,19	
	Median	3,00	
	Variance	,567	
	Std. Deviation	,753	
	Minimum	2	
	Maximum	4	
	Range	2	
	Interquartile Range	1	
	Skewness	-,313	,845
	Kurtosis	-,104	1,741

Table 190: Number of Positive Incentives by Country

Country		Statistic	Std. Error
not specified	Mean	1,00	1,000
	95% Lower Bound	-11,71	
	Confidence Upper Bound	13,71	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	1,00	
	Variance	2,000	
	Std. Deviation	1,414	
	Minimum	0	
	Maximum	2	
	Range	2	
	Interquartile Range	.	
	Skewness	.	
	Kurtosis	.	
China	Mean	,33	,333
	95% Lower Bound	-1,10	
	Confidence Upper Bound	1,77	
	Interval for Mean		
	5% Trimmed Mean	.	
	Median	,00	
	Variance	,333	
	Std. Deviation	,577	
	Minimum	0	
	Maximum	1	
	Range	1	
	Interquartile Range	.	
	Skewness	1,732	1,225
	Kurtosis	.	
Czech Republic	Mean	,75	,750
	95% Lower Bound	-1,64	
	Confidence Upper Bound	3,14	
	Interval for Mean		
	5% Trimmed Mean	,67	
	Median	,00	
	Variance	2,250	
	Std. Deviation	1,500	
	Minimum	0	
	Maximum	3	
	Range	3	
	Interquartile Range	2	
	Skewness	2,000	1,014
	Kurtosis	4,000	2,619
Japan	Mean	2,17	,703
	95% Lower Bound	,36	
	Confidence Upper Bound	3,97	
	Interval for Mean		
	5% Trimmed Mean	2,19	
	Median	3,00	
	Variance	2,967	
	Std. Deviation	1,722	
	Minimum	0	
	Maximum	4	
	Range	4	
	Interquartile Range	3	
	Skewness	-,731	,845
	Kurtosis	-1,731	1,741
UK	Mean	2,33	,667
	95% Lower Bound	,80	
	Confidence Upper Bound	3,87	
	Interval for Mean		
	5% Trimmed Mean	2,31	
	Median	2,00	
	Variance	4,000	
	Std. Deviation	2,000	
	Minimum	0	
	Maximum	5	
	Range	5	
	Interquartile Range	4	
	Skewness	,254	,717
	Kurtosis	-1,647	1,400
US	Mean	2,31	,330
	95% Lower Bound	1,64	
	Confidence Upper Bound	2,99	
	Interval for Mean		
	5% Trimmed Mean	2,29	
	Median	3,00	
	Variance	3,150	
	Std. Deviation	1,775	
	Minimum	0	
	Maximum	5	
	Range	5	
	Interquartile Range	4	
	Skewness	,028	,434
	Kurtosis	-1,322	,845

Table 191: Number of Positive Incentives by Continent

Continent	Statistic	Std. Error
not specified	Mean	2,33
	95% Lower Bound	1,453
	Confidence Upper Bound	-3,92
	Interval for	8,58
	Mean	
	5% Trimmed Mean	.
	Median	2,00
	Variance	6,333
	Std. Deviation	2,517
	Minimum	0
	Maximum	5
	Range	5
	Interquartile Range	.
	Skewness	,586
	Kurtosis	1,225
America	Mean	2,40
	95% Lower Bound	,331
	Confidence Upper Bound	1,72
	Interval for	3,08
	Mean	
	5% Trimmed Mean	2,39
	Median	3,00
	Variance	3,283
	Std. Deviation	1,812
	Minimum	0
	Maximum	5
	Range	5
	Interquartile Range	3
	Skewness	-,013
	Kurtosis	,427
Asia	Mean	1,67
	95% Lower Bound	,432
	Confidence Upper Bound	,72
	Interval for	2,62
	Mean	
	5% Trimmed Mean	1,63
	Median	1,50
	Variance	2,242
	Std. Deviation	1,497
	Minimum	0
	Maximum	4
	Range	4
	Interquartile Range	3
	Skewness	,101
	Kurtosis	,637
Europe	Mean	1,36
	95% Lower Bound	,364
	Confidence Upper Bound	,61
	Interval for	2,12
	Mean	
	5% Trimmed Mean	1,24
	Median	1,00
	Variance	2,909
	Std. Deviation	1,706
	Minimum	0
	Maximum	5
	Range	5
	Interquartile Range	3
	Skewness	1,080
	Kurtosis	,491
		-,077
		,953

Table 192: Number of Positive Incentives by Region

Region		Statistic	Std. Error
not specified	Mean	2,33	1,453
	95% Lower Bound	-3,92	
	Confidence Interval for		
	Upper Bound	8,58	
	Mean		
	5% Trimmed Mean	.	
	Median	2,00	
	Variance	6,333	
	Std. Deviation	2,517	
	Minimum	0	
	Maximum	5	
	Range	5	
	Interquartile Range	.	
	Skewness	,586	1,225
	Kurtosis	.	.
America	Mean	2,40	,331
	95% Lower Bound	1,72	
	Confidence Interval for		
	Upper Bound	3,08	
	Mean		
	5% Trimmed Mean	2,39	
	Median	3,00	
	Variance	3,283	
	Std. Deviation	1,812	
	Minimum	0	
	Maximum	5	
	Range	5	
	Interquartile Range	3	
	Skewness	-,013	,427
	Kurtosis	-1,356	,833
Asia	Mean	1,67	,432
	95% Lower Bound	,72	
	Confidence Interval for		
	Upper Bound	2,62	
	Mean		
	5% Trimmed Mean	1,63	
	Median	1,50	
	Variance	2,242	
	Std. Deviation	1,497	
	Minimum	0	
	Maximum	4	
	Range	4	
	Interquartile Range	3	
	Skewness	,101	,637
	Kurtosis	-1,728	1,232
Eastern Europe	Mean	,88	,479
	95% Lower Bound	-,26	
	Confidence Interval for		
	Upper Bound	2,01	
	Mean		
	5% Trimmed Mean	,81	
	Median	,00	
	Variance	1,839	
	Std. Deviation	1,356	
	Minimum	0	
	Maximum	3	
	Range	3	
	Interquartile Range	3	
	Skewness	1,210	,752
	Kurtosis	-,470	1,481
Western Europe	Mean	1,53	,477
	95% Lower Bound	,51	
	Confidence Interval for		
	Upper Bound	2,56	
	Mean		
	5% Trimmed Mean	1,43	
	Median	1,00	
	Variance	3,410	
	Std. Deviation	1,846	
	Minimum	0	
	Maximum	5	
	Range	5	
	Interquartile Range	3	
	Skewness	1,039	,580
	Kurtosis	-,328	1,121

Table 193: Number of Positive Incentives by Era

Era		Statistic	Std. Error
pre 1990	Mean	1,90	,323
	95% Lower Bound	1,24	
	Confidence Interval for		
	Upper Bound	2,56	
	Mean		
	5% Trimmed Mean	1,83	
	Median	2,00	
	Variance	3,128	
	Std. Deviation	1,768	
	Minimum	0	
	Maximum	5	
	Range	5	
	Interquartile Range	3	
	Skewness	,242	,427
	Kurtosis	-1,446	,833
post 1990	Mean	1,89	,294
	95% Lower Bound	1,30	
	Confidence Interval for		
	Upper Bound	2,49	
	Mean		
	5% Trimmed Mean	1,83	
	Median	1,00	
	Variance	3,286	
	Std. Deviation	1,813	
	Minimum	0	
	Maximum	5	
	Range	5	
	Interquartile Range	3	
	Skewness	,539	,383
	Kurtosis	-1,054	,750

Table 194: Mean Number of Businesses, Study Duration, and Number of Positive Incentives by 1950s

1950s		Statistic	Std. Error
#businesses	Mean	23,00	7,000
	95% Lower Bound	-65,94	
	Confidence Upper Bound	111,94	
	Interval for		
	Mean		
	5% Trimmed Mean	.	
	Median	23,00	
	Variance	98,000	
	Std. Deviation	9,899	
	Minimum	16	
	Maximum	30	
	Range	14	
	Interquartile Range	.	
	Skewness	.	
	Kurtosis	.	
study duration	Mean	40,0000	3,00000
	95% Lower Bound	1,8814	
	Confidence Upper Bound	78,1186	
	Interval for		
	Mean		
	5% Trimmed Mean	.	
	Median	40,0000	
	Variance	18,000	
	Std. Deviation	4,24264	
	Minimum	37,00	
	Maximum	43,00	
	Range	6,00	
	Interquartile Range	.	
	Skewness	.	
	Kurtosis	.	
# positive incentives	Mean	4,50	,500
	95% Lower Bound	-1,85	
	Confidence Upper Bound	10,85	
	Interval for		
	Mean		
	5% Trimmed Mean	.	
	Median	4,50	
	Variance	,500	
	Std. Deviation	,707	
	Minimum	4	
	Maximum	5	
	Range	1	
	Interquartile Range	.	
	Skewness	.	
	Kurtosis	.	

Table 195: Mean Number of Businesses, Study Duration, and Number of Positive Incentives by 1960s

1960s			Statistic	Std. Error
#businesses	Mean		423,75	392,142
	95% Lower Bound		-824,22	
	Confidence Upper Bound		1671,72	
	Interval for			
	Mean			
	5% Trimmed Mean		381,06	
	Median		39,50	
	Variance		615100,250	
	Std. Deviation		784,283	
	Minimum		16	
	Maximum		1600	
	Range		1584	
	Interquartile Range		1193	
	Skewness		1,998	1,014
	Kurtosis		3,994	2,619
study duration	Mean		23,2500	9,85203
	95% Lower Bound		-8,1036	
	Confidence Upper Bound		54,6036	
	Interval for			
	Mean			
	5% Trimmed Mean		23,2778	
	Median		23,5000	
	Variance		388,250	
	Std. Deviation		19,70406	
	Minimum		3,00	
	Maximum		43,00	
	Range		40,00	
	Interquartile Range		36,75	
	Skewness		-,028	1,014
	Kurtosis		-4,945	2,619
# positive incentives	Mean		3,75	,946
	95% Lower Bound		,74	
	Confidence Upper Bound		6,76	
	Interval for			
	Mean			
	5% Trimmed Mean		3,83	
	Median		4,50	
	Variance		3,583	
	Std. Deviation		1,893	
	Minimum		1	
	Maximum		5	
	Range		4	
	Interquartile Range		3	
	Skewness		-1,659	1,014
	Kurtosis		2,615	2,619

Table 196: Mean Number of Businesses, Study Duration, and Number of Positive Incentives by 1970s

1970s			Statistic	Std. Error
#businesses	Mean		457,86	146,186
	95% Lower Bound		142,04	
	Confidence Upper Bound		773,67	
	Interval for			
	Mean			
	5% Trimmed Mean		418,95	
	Median		151,00	
	Variance		299185,824	
	Std. Deviation		546,979	
	Minimum		16	
	Maximum		1600	
	Range		1584	
	Interquartile Range		967	
	Skewness		,918	,597
	Kurtosis		-,631	1,154
study duration	Mean		19,0714	3,07679
	95% Lower Bound		12,4244	
	Confidence Upper Bound		25,7184	
	Interval for			
	Mean			
	5% Trimmed Mean		18,6905	
	Median		17,0000	
	Variance		132,533	
	Std. Deviation		11,51230	
	Minimum		2,00	
	Maximum		43,00	
	Range		41,00	
	Interquartile Range		13,00	
	Skewness		,586	,597
	Kurtosis		,314	1,154
# positive incentives	Mean		1,86	,553
	95% Lower Bound		,66	
	Confidence Upper Bound		3,05	
	Interval for			
	Mean			
	5% Trimmed Mean		1,79	
	Median		1,00	
	Variance		4,286	
	Std. Deviation		2,070	
	Minimum		0	
	Maximum		5	
	Range		5	
	Interquartile Range		4	
	Skewness		,525	,597
	Kurtosis		-1,637	1,154

Table 197: Mean Number of Businesses, Study Duration, and Number of Positive Incentives by 1980s

1980s			Statistic	Std. Error
#businesses	Mean		333,53	75,058
	95% Lower Bound		181,15	
	Confidence Upper Bound		485,90	
	Interval for			
	Mean			
	5% Trimmed Mean		273,38	
	Median		168,50	
	Variance		202810,713	
	Std. Deviation		450,345	
	Minimum		16	
	Maximum		2227	
	Range		2211	
	Interquartile Range		265	
	Skewness		2,635	,393
	Kurtosis		8,246	,768
study duration	Mean		12,3889	1,51777
	95% Lower Bound		9,3077	
	Confidence Upper Bound		15,4701	
	Interval for			
	Mean			
	5% Trimmed Mean		11,4136	
	Median		9,0000	
	Variance		82,930	
	Std. Deviation		9,10660	
	Minimum		2,00	
	Maximum		43,00	
	Range		41,00	
	Interquartile Range		9,00	
	Skewness		1,807	,393
	Kurtosis		3,520	,768
# positive incentives	Mean		1,72	,278
	95% Lower Bound		1,16	
	Confidence Upper Bound		2,29	
	Interval for			
	Mean			
	5% Trimmed Mean		1,66	
	Median		1,50	
	Variance		2,778	
	Std. Deviation		1,667	
	Minimum		0	
	Maximum		5	
	Range		5	
	Interquartile Range		3	
	Skewness		,312	,393
	Kurtosis		-1,430	,768

Table 198: Mean Number of Businesses, Study Duration, and Number of Positive Incentives by 1990s

1990s		Statistic	Std. Error
#businesses	Mean	672,09	210,302
	95% Lower Bound	248,77	
	Confidence Upper Bound	1095,40	
	Interval for		
	Mean		
	5% Trimmed Mean	446,48	
	Median	243,00	
	Variance	2078664,993	
	Std. Deviation	1441,758	
	Minimum	1	
	Maximum	9500	
	Range	9499	
	Interquartile Range	660	
	Skewness	5,275	,347
	Kurtosis	31,743	,681
study duration	Mean	8,8989	1,30147
	95% Lower Bound	6,2792	
	Confidence Upper Bound	11,5187	
	Interval for		
	Mean		
	5% Trimmed Mean	7,7175	
	Median	6,0000	
	Variance	79,610	
	Std. Deviation	8,92242	
	Minimum	1,00	
	Maximum	43,00	
	Range	42,00	
	Interquartile Range	6,00	
	Skewness	2,320	,347
	Kurtosis	5,504	,681
# positive incentives	Mean	1,83	,273
	95% Lower Bound	1,28	
	Confidence Upper Bound	2,38	
	Interval for		
	Mean		
	5% Trimmed Mean	1,76	
	Median	1,00	
	Variance	3,492	
	Std. Deviation	1,869	
	Minimum	0	
	Maximum	5	
	Range	5	
	Interquartile Range	3	
	Skewness	,530	,347
	Kurtosis	-1,188	,681

Table 199: Mean Number of Businesses, Study Duration, and Number of Positive Incentives by 2000s

2000s		Statistic	Std. Error
#businesses	Mean	418,25	95,029
	95% Lower Bound	209,09	
	Confidence Upper Bound	627,41	
	Interval for Mean		
	5% Trimmed Mean	412,33	
	Median	355,00	
	Variance	108366,023	
	Std. Deviation	329,190	
	Minimum	27	
	Maximum	916	
	Range	889	
	Interquartile Range	655	
	Skewness	,487	,637
	Kurtosis	-1,252	1,232
study duration	Mean	4,1875	,48927
	95% Lower Bound	3,1106	
	Confidence Upper Bound	5,2644	
	Interval for Mean		
	5% Trimmed Mean	4,1528	
	Median	4,0417	
	Variance	2,873	
	Std. Deviation	1,69488	
	Minimum	1,00	
	Maximum	8,00	
	Range	7,00	
	Interquartile Range	1,52	
	Skewness	,586	,637
	Kurtosis	2,263	1,232
# positive incentives	Mean	2,33	,569
	95% Lower Bound	1,08	
	Confidence Upper Bound	3,58	
	Interval for Mean		
	5% Trimmed Mean	2,31	
	Median	2,50	
	Variance	3,879	
	Std. Deviation	1,969	
	Minimum	0	
	Maximum	5	
	Range	5	
	Interquartile Range	4	
	Skewness	,213	,637
	Kurtosis	-1,441	1,232

Table 200: Crosstabulation Concentrated Industry – Type of Incentive

		type of incentive			Total
		positive	negative	both	
industry concentrated	not specified	23 46,0%	18 36,0%	9 18,0%	50 100,0%
	charitable/education/health/public	3 50,0%	1 16,7%	2 33,3%	6 100,0%
	commercial	1 33,3%	1 33,3%	1 33,3%	3 100,0%
	financial	5 83,3%	0 0,0%	1 16,7%	6 100,0%
	sports	0 0,0%	2 100,0%	0 0,0%	2 100,0%
	utility	0 0,0%	1 100,0%	0 0,0%	1 100,0%
Total		32 47,1%	23 33,8%	13 19,1%	68 100,0%

Table 201: Crosstabulation Industry – Efficiency/Profitability Ratios

		efficiency/profitability ratios		Total
		non-existent	existent	
industry	not specified	16 32,0%	34 68,0%	50 100,0%
	banking	2 100,0%	0 0,0%	2 100,0%
	basketball	1 100,0%	0 0,0%	1 100,0%
	charitable	1 100,0%	0 0,0%	1 100,0%
	hospitals	0 0,0%	1 100,0%	1 100,0%
	insurance	2 50,0%	2 50,0%	4 100,0%
	manufacturing	2 66,7%	1 33,3%	3 100,0%
	provincial leaders	1 100,0%	0 0,0%	1 100,0%
	schools	3 100,0%	0 0,0%	3 100,0%
	soccer	1 100,0%	0 0,0%	1 100,0%
	utility	0 0,0%	1 100,0%	1 100,0%
Total		29 42,6%	39 57,4%	68 100,0%

Table 202: Crosstabulation Concentrated Industry – Efficiency/Profitability Ratios

		efficiency/profitability ratios		Total
		non-existent	existent	
industry concentrated	not specified	16 32,0%	34 68,0%	50 100,0%
	charitable/education/health/public	5 83,3%	1 16,7%	6 100,0%
	commercial	2 66,7%	1 33,3%	3 100,0%
	financial	4 66,7%	2 33,3%	6 100,0%
	sports	2 100,0%	0 0,0%	2 100,0%
	utility	0 0,0%	1 100,0%	1 100,0%
	Total	29 42,6%	39 57,4%	68 100,0%

Table 203: Crosstabulation Industry – Market Ratios

		market ratios		Total
		non-existent	existent	
industry	not specified	12 24,0%	38 76,0%	50 100,0%
	banking	0 0,0%	2 100,0%	2 100,0%
	basketball	1 100,0%	0 0,0%	1 100,0%
	charitable	1 100,0%	0 0,0%	1 100,0%
	hospitals	1 100,0%	0 0,0%	1 100,0%
	insurance	4 100,0%	0 0,0%	4 100,0%
	manufacturing	2 66,7%	1 33,3%	3 100,0%
	provincial leaders	1 100,0%	0 0,0%	1 100,0%
	schools	3 100,0%	0 0,0%	3 100,0%
	soccer	1 100,0%	0 0,0%	1 100,0%
	utility	0 0,0%	1 100,0%	1 100,0%
	Total	26 38,2%	42 61,8%	68 100,0%

Table 204: Crosstabulation Concentrated Industry – Market Ratios

		market ratios		Total
		non-existent	existent	
industry concentrated	not specified	12 24,0%	38 76,0%	50 100,0%
	charitable/education/health/public	6 100,0%	0 0,0%	6 100,0%
	commercial	2 66,7%	1 33,3%	3 100,0%
	financial	4 66,7%	2 33,3%	6 100,0%
	sports	2 100,0%	0 0,0%	2 100,0%
	utility	0 0,0%	1 100,0%	1 100,0%
	Total	26 38,2%	42 61,8%	68 100,0%

Table 205: Crosstabulation Industry – Revenue Ratios

		revenue ratios		Total
		non-existent	existent	
industry	not specified	8 16,0%	42 84,0%	50 100,0%
	banking	0 0,0%	2 100,0%	2 100,0%
	basketball	1 100,0%	0 0,0%	1 100,0%
	charitable	0 0,0%	1 100,0%	1 100,0%
	hospitals	1 100,0%	0 0,0%	1 100,0%
	insurance	0 0,0%	4 100,0%	4 100,0%
	manufacturing	2 66,7%	1 33,3%	3 100,0%
	provincial leaders	0 0,0%	1 100,0%	1 100,0%
	schools	3 100,0%	0 0,0%	3 100,0%
	soccer	1 100,0%	0 0,0%	1 100,0%
	utility	1 100,0%	0 0,0%	1 100,0%
	Total	17 25,0%	51 75,0%	68 100,0%

Table 206: Crosstabulation Concentrated Industry – Revenue Ratios

		revenue ratios		
		non-existent	existent	Total
industry concentrated	not specified	8 16,0%	42 84,0%	50 100,0%
	charitable/education/health/public	4 66,7%	2 33,3%	6 100,0%
	commercial	2 66,7%	1 33,3%	3 100,0%
	financial	0 0,0%	6 100,0%	6 100,0%
	sports	2 100,0%	0 0,0%	2 100,0%
	utility	1 100,0%	0 0,0%	1 100,0%
	Total	17 25,0%	51 75,0%	68 100,0%

Table 207: Crosstabulation Industry – Other Ratios

		other ratios		
		non-existent	existent	Total
industry	not specified	35 70,0%	15 30,0%	50 100,0%
	banking	2 100,0%	0 0,0%	2 100,0%
	basketball	0 0,0%	1 100,0%	1 100,0%
	charitable	0 0,0%	1 100,0%	1 100,0%
	hospitals	1 100,0%	0 0,0%	1 100,0%
	insurance	4 100,0%	0 0,0%	4 100,0%
	manufacturing	1 33,3%	2 66,7%	3 100,0%
	provincial leaders	1 100,0%	0 0,0%	1 100,0%
	schools	0 0,0%	3 100,0%	3 100,0%
	soccer	0 0,0%	1 100,0%	1 100,0%
	utility	1 100,0%	0 0,0%	1 100,0%
	Total	45 66,2%	23 33,8%	68 100,0%

Table 208: Crosstabulation Concentrated Industry – Other Ratios

		other ratios		Total
		non-existent	existent	
industry concentrated	not specified	35 70,0%	15 30,0%	50 100,0%
	charitable/education/health/public	2 33,3%	4 66,7%	6 100,0%
	commercial	1 33,3%	2 66,7%	3 100,0%
	financial	6 100,0%	0 0,0%	6 100,0%
	sports	0 0,0%	2 100,0%	2 100,0%
	utility	1 100,0%	0 0,0%	1 100,0%
Total		45 66,2%	23 33,8%	68 100,0%

Table 209: Crosstabulation Industry – Effect

		effect		Total
		positive effect	no effect	
industry	not specified	44 88,0%	6 12,0%	50 100,0%
	banking	2 100,0%	0 0,0%	2 100,0%
	basketball	1 100,0%	0 0,0%	1 100,0%
	charitable	1 100,0%	0 0,0%	1 100,0%
	hospitals	1 100,0%	0 0,0%	1 100,0%
	insurance	2 50,0%	2 50,0%	4 100,0%
	manufacturing	3 100,0%	0 0,0%	3 100,0%
	provincial leaders	1 100,0%	0 0,0%	1 100,0%
	schools	3 100,0%	0 0,0%	3 100,0%
	soccer	1 100,0%	0 0,0%	1 100,0%
	utility	1 100,0%	0 0,0%	1 100,0%
Total		60 88,2%	8 11,8%	68 100,0%

Table 210: Crosstabulation Country – Efficiency/Profitability Ratios

		efficiency/profitability ratios		Total
		non-existent	existent	
country	not specified	1 50,0%	1 50,0%	2 100,0%
	Bulgaria	0 0,0%	1 100,0%	1 100,0%
	Canada	0 0,0%	1 100,0%	1 100,0%
	China	2 66,7%	1 33,3%	3 100,0%
	Czech Republic	0 0,0%	4 100,0%	4 100,0%
	Denmark	1 50,0%	1 50,0%	2 100,0%
	Finland	1 100,0%	0 0,0%	1 100,0%
	Germany	1 100,0%	0 0,0%	1 100,0%
	Israel	1 100,0%	0 0,0%	1 100,0%
	Italy	1 100,0%	0 0,0%	1 100,0%
	Japan	1 16,7%	5 83,3%	6 100,0%
	Korea	0 0,0%	1 100,0%	1 100,0%
	Norway	0 0,0%	1 100,0%	1 100,0%
	Philippines	0 0,0%	1 100,0%	1 100,0%
	Russia	0 0,0%	1 100,0%	1 100,0%
	Slovak Republic	1 100,0%	0 0,0%	1 100,0%
	UK and US	0 0,0%	1 100,0%	1 100,0%
	UK	5 55,6%	4 44,4%	9 100,0%
	US	14 48,3%	15 51,7%	29 100,0%
	Ukraine	0 0,0%	1 100,0%	1 100,0%
	Total	29 42,6%	39 57,4%	68 100,0%

Table 211: Crosstabulation Country – Market Ratios

	market ratios		Total
	non-existent	existent	
country	not specified	0 0,0%	2 100,0%
	Bulgaria	0 0,0%	1 100,0%
	Canada	0 0,0%	1 100,0%
	China	2 66,7%	1 33,3%
	Czech Republic	4 100,0%	0 0,0%
	Denmark	2 100,0%	0 0,0%
	Finland	0 0,0%	1 100,0%
	Germany	0 0,0%	1 100,0%
	Israel	1 100,0%	0 0,0%
	Italy	1 100,0%	0 0,0%
	Japan	0 0,0%	6 100,0%
	Korea	0 0,0%	1 100,0%
	Norway	0 0,0%	1 100,0%
	Philippines	0 0,0%	1 100,0%
	Russia	1 100,0%	0 0,0%
	Slovak Republic	1 100,0%	0 0,0%
	UK and US	0 0,0%	1 100,0%
	UK	3 33,3%	6 66,7%
	US	10 34,5%	19 65,5%
	Ukraine	1 100,0%	0 0,0%
	Total	26 38,2%	42 61,8%
			68 100,0%

Table 212: Crosstabulation Country – Revenue Ratios

		revenue ratios		Total
		non-existent	existent	
country	not specified	0 0,0%	2 100,0%	2 100,0%
	Bulgaria	0 0,0%	1 100,0%	1 100,0%
	Canada	0 0,0%	1 100,0%	1 100,0%
	China	1 33,3%	2 66,7%	3 100,0%
	Czech Republic	0 0,0%	4 100,0%	4 100,0%
	Denmark	0 0,0%	2 100,0%	2 100,0%
	Finland	0 0,0%	1 100,0%	1 100,0%
	Germany	0 0,0%	1 100,0%	1 100,0%
	Israel	1 100,0%	0 0,0%	1 100,0%
	Italy	0 0,0%	1 100,0%	1 100,0%
	Japan	0 0,0%	6 100,0%	6 100,0%
	Korea	0 0,0%	1 100,0%	1 100,0%
	Norway	0 0,0%	1 100,0%	1 100,0%
	Philippines	0 0,0%	1 100,0%	1 100,0%
	Russia	0 0,0%	1 100,0%	1 100,0%
	Slovak Republic	1 100,0%	0 0,0%	1 100,0%
	UK and US	0 0,0%	1 100,0%	1 100,0%
	UK	3 33,3%	6 66,7%	9 100,0%
	US	11 37,9%	18 62,1%	29 100,0%
	Ukraine	0 0,0%	1 100,0%	1 100,0%
	Total	17 25,0%	51 75,0%	68 100,0%

Table 213: Crosstabulation Country – Other Ratios

		other ratios		Total
		non-existent	existent	
country	not specified	2 100,0%	0 0,0%	2 100,0%
	Bulgaria	0 0,0%	1 100,0%	1 100,0%
	Canada	1 100,0%	0 0,0%	1 100,0%
	China	2 66,7%	1 33,3%	3 100,0%
	Czech Republic	1 25,0%	3 75,0%	4 100,0%
	Denmark	1 50,0%	1 50,0%	2 100,0%
	Finland	1 100,0%	0 0,0%	1 100,0%
	Germany	1 100,0%	0 0,0%	1 100,0%
	Israel	0 0,0%	1 100,0%	1 100,0%
	Italy	0 0,0%	1 100,0%	1 100,0%
	Japan	4 66,7%	2 33,3%	6 100,0%
	Korea	1 100,0%	0 0,0%	1 100,0%
	Norway	0 0,0%	1 100,0%	1 100,0%
	Philippines	1 100,0%	0 0,0%	1 100,0%
	Russia	0 0,0%	1 100,0%	1 100,0%
	Slovak Republic	0 0,0%	1 100,0%	1 100,0%
	UK and US	1 100,0%	0 0,0%	1 100,0%
	UK	5 55,6%	4 44,4%	9 100,0%
	US	24 82,8%	5 17,2%	29 100,0%
	Ukraine	0 0,0%	1 100,0%	1 100,0%
	Total	45 66,2%	23 33,8%	68 100,0%

Table 214: Crosstabulation Continent – Market Ratios

		market ratios		Total
		non-existent	existent	
continent	not specified	0 0,0%	3 100,0%	3 100,0%
	America	10 33,3%	20 66,7%	30 100,0%
	Asia	3 25,0%	9 75,0%	12 100,0%
	Eurasia	1 100,0%	0 0,0%	1 100,0%
	Europe	12 54,5%	10 45,5%	22 100,0%
	Total	26 38,2%	42 61,8%	68 100,0%

Table 215: Crosstabulation Continent – Revenue Ratios

		revenue ratios		Total
		non-existent	existent	
continent	not specified	0 0,0%	3 100,0%	3 100,0%
	America	11 36,7%	19 63,3%	30 100,0%
	Asia	2 16,7%	10 83,3%	12 100,0%
	Eurasia	0 0,0%	1 100,0%	1 100,0%
	Europe	4 18,2%	18 81,8%	22 100,0%
	Total	17 25,0%	51 75,0%	68 100,0%

Table 216: Crosstabulation Continent – Other Ratios

		other ratios		Total
		non-existent	existent	
continent	not specified	3 100,0%	0 0,0%	3 100,0%
	America	25 83,3%	5 16,7%	30 100,0%
	Asia	8 66,7%	4 33,3%	12 100,0%
	Eurasia	0 0,0%	1 100,0%	1 100,0%
	Europe	9 40,9%	13 59,1%	22 100,0%
	Total	45 66,2%	23 33,8%	68 100,0%

Table 217: Crosstabulation 1940s – Type of Incentive

		type of incentive			Total
		positive	negative	both	
1940s	non-existent	31 46,3%	23 34,3%	13 19,4%	67 100,0%
	existent	1 100,0%	0 0,0%	0 0,0%	1 100,0%
Total		32 47,1%	23 33,8%	13 19,1%	68 100,0%

Table 218: Crosstabulation 1950s – Type of Incentive

		type of incentive			Total
		positive	negative	both	
1950s	non-existent	30 45,5%	23 34,8%	13 19,7%	66 100,0%
	existent	2 100,0%	0 0,0%	0 0,0%	2 100,0%
Total		32 47,1%	23 33,8%	13 19,1%	68 100,0%

Table 219: Crosstabulation 1970s – Type of Incentive

		type of incentive			Total
		positive	negative	both	
1970s	non-existent	25 46,3%	17 31,5%	12 22,2%	54 100,0%
	existent	7 50,0%	6 42,9%	1 7,1%	14 100,0%
Total		32 47,1%	23 33,8%	13 19,1%	68 100,0%

Table 220: Crosstabulation 1980s – Type of Incentive

		type of incentive			Total
		positive	negative	both	
1980s	non-existent	16 50,0%	9 28,1%	7 21,9%	32 100,0%
	existent	16 44,4%	14 38,9%	6 16,7%	36 100,0%
Total		32 47,1%	23 33,8%	13 19,1%	68 100,0%

Table 221: Crosstabulation 1990s – Type of Incentive

		type of incentive			Total
		positive	negative	both	
1990s	non-existent	11	5	5	21
		52,4%	23,8%	23,8%	100,0%
	existent	21	18	8	47
		44,7%	38,3%	17,0%	100,0%
Total		32	23	13	68
		47,1%	33,8%	19,1%	100,0%

Table 222: Crosstabulation 2000s – Type of Incentive

		type of incentive			Total
		positive	negative	both	
2000s	non-existent	26	20	10	56
		46,4%	35,7%	17,9%	100,0%
	existent	6	3	3	12
		50,0%	25,0%	25,0%	100,0%
Total		32	23	13	68
		47,1%	33,8%	19,1%	100,0%

Table 223: 1940s – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,142	,243
	Cramer's V	,142	,243
N of Valid Cases		68	

Table 224: 1940s – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	1940s Dependent	,142
		#EPR Dependent	,122

Table 225: 1940s – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,096	,428
	Cramer's V	,096	,428
N of Valid Cases		68	

Table 226: 1940s – Number of Market Ratios

			Value
Nominal by Interval	Eta	1940s Dependent	,171
		#MR Dependent	,000

Table 227: 1940s – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,071	,561
	Cramer's V	,071	,561
N of Valid Cases		68	

Table 228: 1940s – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	1940s Dependent	,313
		#RR Dependent	,070

Table 229: 1940s – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,087	,471
	Cramer's V	,087	,471
N of Valid Cases		68	

Table 230: 1940s – Number of Other Ratios

			Value
Nominal by Interval	Eta	1940s Dependent	,087
		#OR Dependent	,085

Table 231: 1950s – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,026	,831
	Cramer's V	,026	,831
N of Valid Cases		68	

Table 232: 1950s – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	1950s Dependent	,085
		#EPR Dependent	,062

Table 233: 1950s – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,137	,259
	Cramer's V	,137	,259
N of Valid Cases		68	

Table 234: 1950s – Number of Market Ratios

			Value
Nominal by Interval	Eta	1950s Dependent	,243
		#MR Dependent	,000

Table 235: 1950s – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,101	,407
	Cramer's V	,101	,407
N of Valid Cases		68	

Table 236: 1950s – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	1950s Dependent	,224
		#RR Dependent	,043

Table 237: 1950s – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,124	,305
	Cramer's V	,124	,305
N of Valid Cases		68	

Table 238: 1950s – Number of Other Ratios

			Value
Nominal by Interval	Eta	1950s Dependent	,124
		#OR Dependent	,121

Table 239: 1960s – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,089	,462
	Cramer's V	,089	,462
N of Valid Cases		68	

Table 240: 1960s – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	1960s Dependent	,196
		#EPR Dependent	,009

Table 241: 1960s – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,068	,574
	Cramer's V	,068	,574
N of Valid Cases		68	

Table 242: 1960s – Number of Market Ratios

			Value
Nominal by Interval	Eta	1960s Dependent	,114
		#MR Dependent	,000

Table 243: 1960s – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,000	1,000
	Cramer's V	,000	1,000
N of Valid Cases		68	

Table 244: 1960s – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	1960s Dependent	,289
		#RR Dependent	,144

Table 245: 1960s – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,179	,141
	Cramer's V	,179	,141
N of Valid Cases		68	

Table 246: 1960s – Number of Other Ratios

			Value
Nominal by Interval	Eta	1960s Dependent	,179
		#OR Dependent	,174

Table 247: 1970s – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,002	,986
	Cramer's V	,002	,986
N of Valid Cases		68	

Table 248: 1970s – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	1970s Dependent	,171
		#EPR Dependent	,089

Table 249: 1970s – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,026	,828
	Cramer's V	,026	,828
N of Valid Cases		68	

Table 250: 1970s – Number of Market Ratios

			Value
Nominal by Interval	Eta	1970s Dependent	,154
		#MR Dependent	,036

Table 251: 1970s – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	1970s Dependent	,485
		#RR Dependent	,124

Table 252: 1980s – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,158	,193
	Cramer's V	,158	,193
N of Valid Cases		68	

Table 253: 1980s – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	1980s Dependent	,203
		#EPR Dependent	,190

Table 254: 1980s – Number of Market Ratios

			Value
Nominal by Interval	Eta	1980s Dependent	,478
		#MR Dependent	,203

Table 255: 1980s – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,068	,575
	Cramer's V	,068	,575
N of Valid Cases		68	

Table 256: 1980s – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	1980s Dependent	,355
		#RR Dependent	,035

Table 257: 1980s – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,136	,264
	Cramer's V	,136	,264
N of Valid Cases		68	

Table 258: 1980s – Number of Other Ratios

			Value
Nominal by Interval	Eta	1980s Dependent	,173
		#OR Dependent	,157

Table 259: 1990s – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,003	,981
	Cramer's V	,003	,981
N of Valid Cases		68	

Table 260: 1990s – Number of Efficiency/Profitability Ratios

			Value
Nominal by Interval	Eta	1990s Dependent	,228
		#EPR Dependent	,015

Table 261: 1990s – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,133	,273
	Cramer's V	,133	,273
N of Valid Cases		68	

Table 262: 1990s – Number of Market Ratios

			Value
Nominal by Interval	Eta	1990s Dependent	,254
		#MR Dependent	,125

Table 263: 1990s – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,018	,880
	Cramer's V	,018	,880
N of Valid Cases		68	

Table 264: 1990s – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	1990s Dependent	,352
		#RR Dependent	,101

Table 265: 2000s – Efficiency/Profitability Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,165	,173
	Cramer's V	,165	,173
N of Valid Cases		68	

Table 266: 2000s – Market Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	-,033	,788
	Cramer's V	,033	,788
N of Valid Cases		68	

Table 267: 2000s – Number of Market Ratios

			Value
Nominal by Interval	Eta	2000s Dependent	,136
		#MR Dependent	,076

Table 268: 2000s – Revenue Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,089	,463
	Cramer's V	,089	,463
N of Valid Cases		68	

Table 269: 2000s – Number of Revenue Ratios

			Value
Nominal by Interval	Eta	2000s Dependent	,310
		#RR Dependent	,041

Table 270: 2000s – Other Ratios

		Value	Approx. Sig.
Nominal by Nominal	Phi	,077	,527
	Cramer's V	,077	,527
N of Valid Cases		68	

Table 271: 2000s – Number of Other Ratios

			Value
Nominal by Interval	Eta	2000s Dependent	,266
		#OR Dependent	,134

Table 272: Crosstabulation 1940s – Effect

		effect		Total
		positive effect	no effect	
1940s	non-existent	59 88,1%	8 11,9%	67 100,0%
	existent	1 100,0%	0 0,0%	1 100,0%
Total		60 88,2%	8 11,8%	68 100,0%

Table 273: Crosstabulation 1950s – Effect

		effect		Total
		positive effect	no effect	
1950s	non-existent	58 87,9%	8 12,1%	66 100,0%
	existent	2 100,0%	0 0,0%	2 100,0%
Total		60 88,2%	8 11,8%	68 100,0%

Table 274: Crosstabulation 1960s – Effect

		effect		Total
		positive effect	no effect	
1960s	non-existent	56 87,5%	8 12,5%	64 100,0%
	existent	4 100,0%	0 0,0%	4 100,0%
Total		60 88,2%	8 11,8%	68 100,0%

Table 275: Crosstabulation 1970s – Effect

		effect		Total
		positive effect	no effect	
1970s	non-existent	47 87,0%	7 13,0%	54 100,0%
	existent	13 92,9%	1 7,1%	14 100,0%
Total		60 88,2%	8 11,8%	68 100,0%

Table 276: Crosstabulation 1980s – Effect

		effect		Total
		positive effect	no effect	
1980s	non-existent	27 84,4%	5 15,6%	32 100,0%
	existent	33 91,7%	3 8,3%	36 100,0%
Total		60 88,2%	8 11,8%	68 100,0%

Table 277: Crosstabulation 1990s – Effect

		effect		Total
		positive effect	no effect	
1990s	non-existent	20 95,2%	1 4,8%	21 100,0%
	existent	40 85,1%	7 14,9%	47 100,0%
Total		60 88,2%	8 11,8%	68 100,0%

Table 278: Crosstabulation 2000s – Effect

		effect		Total
		positive effect	no effect	
2000s	non-existent	52 92,9%	4 7,1%	56 100,0%
	existent	8 66,7%	4 33,3%	12 100,0%
Total		60 88,2%	8 11,8%	68 100,0%

ABSTRACT

Executive compensation is often rumored to be unrelated to firm performance or to be connected with short-term rather than long-term profitability. Business companies face the challenge of implementing effective incentives for their executives that have a positive impact on firm performance.

Inferior firm performance can be based on incompetence of managers, insufficient incentives for managers, or both. Antidotes include replacing incumbents with more skilled managers, establishing the right incentives or a combination of the two. These amendments are often considered as complementary.

By means of a meta-analysis of sixty studies, the thesis investigated the efficiency of the two major incentive systems positive vs. negative incentives, i.e. bonus vs. dismissal. Its major aim was to identify the more useful framework from an economic point of view and bring to light which one leads to better firm performance.

Interestingly, disincentives always have a positive effect on firm performance according to the analysis. Relatively, positive incentives are the type that most frequently has no effect on firm performance. There is a strong correlation between the incentive type and its effect on firm performance.

The estimates of the logistic regression confirm that positive incentives reduce the odds of a positive effect on firm performance. They increase the odds of no effect.

Conversely, negative incentives increase the odds of a positive effect whereas they decrease the odds of no effect.

According to the present analysis, dismissal seems to be the more useful framework of incentives from an economic point of view in order to achieve a positive effect on firm performance.

Additionally, the thesis intended to identify the relevant factors affecting the implementation of a particular incentive scheme. The correlation analysis finds associations and differences across industries, countries, continents, regions, and time periods regarding the incentive type, its effect on firm performance, and how company performance is measured.

According to the correlation analysis, the country and the industry of a study show the strongest correlations with the type of incentive and performance measures used, as well as the effect on firm performance detected.

On the other hand, there are no or merely weak correlations between the continent as well as the time period the paper was composed in and the incentive type and performance measures employed or the effect measured.

Predictably, the factors that increase the odds of negative incentives being employed reduce the odds of positive incentives being used and vice versa.

The commercial, financial and public industries reduce the odds of negative incentives while they increase the odds of positive incentives being employed. The sports and utility industries increase the odds of negative incentives whereas they decrease the odds of positive incentives being used.

The odds of negative incentives are reduced and the odds of positive incentives are increased if a study is American or Asian. An Eastern or Western European paper increases the odds of negative incentives being employed while it decreases the odds of positive incentives.

Post-1990s studies result in reduced odds of negative incentives being investigated whereas they cause increased odds of positive incentives.

ABSTRACT

Managerboni wird oft nachgesagt, nichts mit der durch den Manager erbrachten Leistung gemeinsam zu haben. Es ist eine große Herausforderung für Unternehmen Anreizsysteme, die das Unternehmensergebnis verbessern, zu implementieren.

Da zu diesem Thema bereits zahlreiche Literatur erschienen ist, wurde versucht, anhand einer Metaanalyse über sechzig Studien die Effizienz von positiven und negativen Anreizen, also Prämien und Kündigung, festzustellen. Die Absicht der Arbeit war es, das zweckdienlichere System zu ermitteln, also jenes, das zu einem besseren Unternehmensergebnis führt.

Interessanterweise haben negative Anreize in den untersuchten Studien immer einen positiven Effekt auf das Unternehmensergebnis, wohingegen positive Anreize relativ gesehen am öftesten gar keinen Effekt haben. Es gibt eine starke Korrelation zwischen dem verwendeten Anreizschema und dem Effekt auf das Unternehmensergebnis.

Die Ergebnisse der logistischen Regression bestätigen, dass positive Anreize die Chancen auf einen positiven Effekt verringern; sie erhöhen hingegen die Chancen auf keinen Effekt auf das Unternehmensergebnis. Im Gegensatz dazu steigern negative Anreize die Wahrscheinlichkeit für einen positiven Effekt auf das Unternehmensergebnis, während sie die Wahrscheinlichkeit für keinen Effekt senken.

Der vorliegenden Analyse zufolge ist also die Androhung von Kündigung rein wirtschaftlich betrachtet das nützlichere System, wenn ein positiver Effekt von Anreizen auf das Unternehmensergebnis erreicht werden soll.

Zusätzlich beabsichtigte die Diplomarbeit festzustellen, welche Faktoren die Umsetzung eines bestimmten Anreizschemas begünstigen. Mit Hilfe einer Korrelationsanalyse wurden Zusammenhänge und Unterschiede zwischen Branchen, Ländern, Kontinenten, Regionen und Zeitabschnitten, in denen die Primärstudien erstellt wurden, in Hinsicht auf die verwendeten Anreizsysteme und Kennzahlen, anhand derer das Unternehmensergebnis gemessen wurde, als auch den gemessenen Effekt von Anreizen, ermittelt.

Der Korrelationsanalyse zufolge korrelieren das Land und die Branche einer Studie am stärksten mit dem Anreizsystem, den Unternehmenskennzahlen und dem gemessenen Effekt auf das Unternehmensergebnis.

Andererseits gibt es keine oder nur schwache Korrelationen zwischen dem Kontinent und dem Zeitabschnitt einer Studie und dem Anreizsystem, den verwendeten Unternehmenskennzahlen und dem Effekt auf das Unternehmensergebnis.

Wie vorherzusehen war, verringern Faktoren, die die Wahrscheinlichkeit erhöhen, dass negative Anreize implementiert werden, die Chancen auf positive Anreize und umgekehrt.

Gewerbliche, finanzielle und öffentliche Branchen verringern die Wahrscheinlichkeit, dass negative Anreize verwendet werden, während sie die Chancen auf positive Anreize steigern. Im Gegensatz dazu erhöhen die Branchen Sport und Energieversorgungsunternehmen die Wahrscheinlichkeit, dass negative Anreize angewandt werden, wohingegen sie die Chancen auf positive Anreize verkleinern.

Handelt es sich um eine amerikanische oder asiatische Studie, werden die Chancen auf positive Anreize erhöht und die Chancen auf negative Anreize verringert. Ost- oder westeuropäische Studien hingegen erhöhen die Wahrscheinlichkeit, dass negative Anreize implementiert werden, während sie die Wahrscheinlichkeit für positive Anreize verkleinern.

Studien, die nach dem Jahr 1990 verfasst wurden, unterliegen eher der Wahrscheinlichkeit, dass positive Anreize untersucht werden und haben eine geringere Chance auf negative Anreize.

ACADEMIC CURRICULUM VITAE

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