

Human Resource Accounting: Measuring the Value of Human Assets and the Need for Information Management

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Abstract

The rapid changes of the post-industrial society to a knowledge society become more important day by day. In times of collapsing stock exchange markets people try to find a way to select between companies of high and low value. Traditional accounting methods are normally unable to make precise statements about one of the most important asset of modern companies – their human asset. During the 60s and 70s there were quite a few attempts to evaluate this intangible asset. None of them could really reach their challenging aims. With the development of new technologies in information management and more practical approaches this field of research becomes interesting again. With this paper the author gives a brief overview of the different approaches of Human Resource Accounting in the past and today's measurement models. After that a new model of evaluation for the worth of employees is presented which is developed within a project of the University Witten/Herdecke with Esprit Consulting, a German consulting company. The project focuses on expected future contributions. In addition an important goal of the project is to consider employees not only as an asset but first of all as human beings with free decisions. Therefore the model is built on people's will to stay with or to leave the organization they are working for.

1 Introduction

Today's economy is more and more established by corporations and organizations, which turn to account the possibilities of the mergers and acquisition of companies. The messages of modifications in one of the basic structures of an organization, the partner structure, flood the media day by day. The central issue, which places itself in the context of the transition of a business share to another owner, is the question about the value of such a proportion of the company and therefore about the value of the enterprise in its whole. This central issue becomes more complex since moving away from the view that the value of an enterprise represents adhering, objective size to it. It is a little astonishing that in the course of the last few decades, many different

approaches for the determination of the value of an enterprise were developed in practical experience as well as in the economical theory. However, in times of the knowledge society, many of the evaluation methods used today supply only insufficient information.

It has become generally accepted that the critical success factor of an enterprise is to be seen in the company's staff with all the knowledge and abilities. For this reason, in the 60's and 70's different concepts already dealt with the measurement of the value of the personnel resources (human resources, human assets). These discussions grew silent due to problems with data acquisition and evaluation. However, in the beginning of the 90's, many scientists saw human resource accounting just becoming fashion. Meanwhile, the concepts were taken up again in the Anglo-American and Scandinavian areas. It seems that the theories of human resource accounting lived to see a resurgence and the advancements to practicable models started up again. This can be seen especially in the tertiary sector, and even more within the consulting business as a part of this sector. In this business human resources are the most substantial value driver and valuation of companies has to deal with this insight.

2 Human Capital and Human Resource Accounting

There is no uniform use of the term human capital. The terms human resources and human assets are often used synonymously as in the bibliographies. Beyond that there are also many different uses and allocation of the terms knowledge capital, intellectual capital, intangible assets, structural capital, and some further terms, those for the research area of the measurement and evaluation of values, which do not find an input in the classical assessment of a company's value. Generally spoken, the term human capital can be defined as the potential capacity of a certain group of people or an individual person.¹ The term human resource accounting was then originated by Brummet/Flamholtz/Pyle, which worked for the first time under this term on measurement of the human values in an enterprise in the year 1968:

"Human resource accounting is the process of identifying, measuring, and communicating information about human resources to facilitate effective management within an organization."
Brummet, R. L./Flamholtz, E. G./Pyle, C. P. (1968b), S. 20.

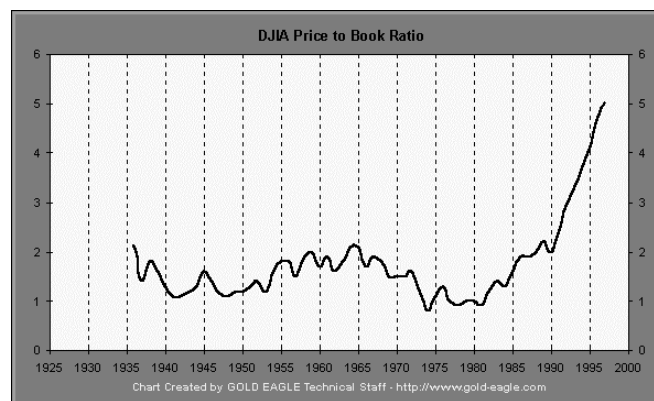
3 History of Human Resource Accounting

Human resource accounting represents a still quite little matured discipline, although it was already seen in the bibliography at the beginning of the 60's.² In this first phase it represented a derivative from different disciplines like the human capital theory and the organization psychology. In the second phase, from the middle of the 60's through the beginning of the 70's, the research began with the development of approaches on the basis of historical and replacement costs as well as monetary and non-monetary values. The third phase, from the beginning through the middle of the 70's, was characterized by broad attempts to bring the developed approaches of human resource accounting into operation in different organizations. In the fourth phase, the time from the middle 70's through the beginning of the 80's, the development and research in human resource accounting clearly leveled off. The methods of human resource accounting had become so complex that only few people at all had the necessary qualifications for execution.³

However, at the end of the 70's the topic aroused multiple interests again. Especially US-American enterprises found themselves in an increasing competition with Japanese large-scale companies. The Japanese, contrary to the American "hire and fire"-philosophy, preferred a lifelong engagement in one enterprise. The competitive edge in productivity of the Japanese corporations was seen in the protection of the human capital by this completely different approach. Moreover, the industrial nations were on their way from an industry society to a service society. Thus the meaning of the term "human" in economics grew. Although it has been stated that the evaluation of human capital makes sense, at the end of the 80's, the statement remained that the existing problems with the applications of human resource accounting were not yet solved.⁴

Nevertheless the need for more information about the constitutive factors for the value of a company rose on. This resulted from the ever more increasing gap between the book values and the market values of many companies.

Figure 1: Market / Book Price Ratios⁵



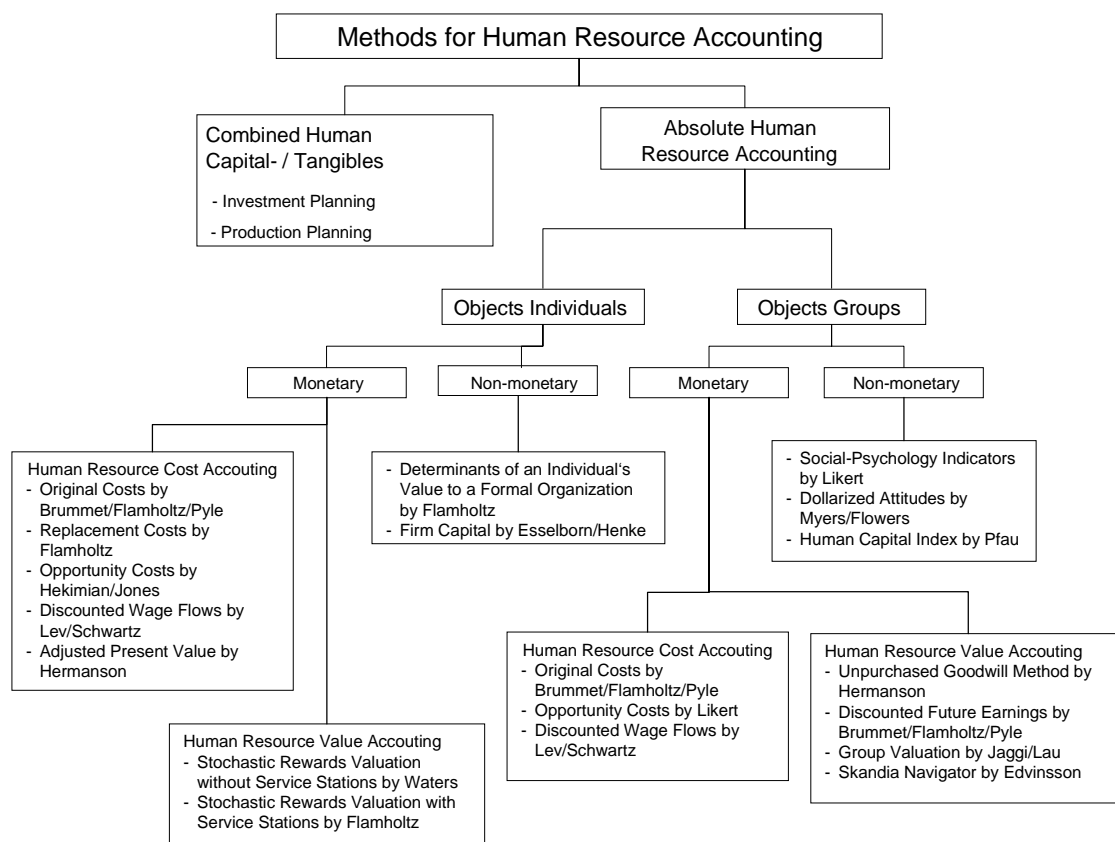
As examined here, it has been shown that the relation of market prices to the book prices of the companies oscillated over decades between 1 and 2. Only in the beginning of the 90's, a strong rise of this relationship is detected. An assertion of this development cannot be supplied here reliably. But does such a development occur? A beginning for assertion can be seen in a rising interest of all society members in the capital markets. But even with validity of such an acceptance the question remains, why rational people pay prices for business shares, which clearly deviates from the values, which prove these companies in their balance sheets? Since, assuming these are rational human beings, these market prices rest upon the basis of a benefit calculation for the respective investor, then a further assertion approach is thus situated in the fact that these investors obtain an equivalent for the paid market price, which is situated clearly over the book value. Thus there are assets in the respective organization, which do not become visible in the balance sheet of the company.

Newer approaches concerning the improvement of information supply by annual reports are publicized under the designation of, but not limited to, human resource accounting. They not only focus on human assets, but also on other values that are not included in the total assets of the balance sheets. This is for example the customer capital or a brand name. These approaches are termed intangible assets or intellectual capital.⁶

4 Methods of Human Resource Accounting

Human resource accounting set itself to the target to contribute to clarifying the gap between the market and the book value and thus to execute the evaluation of enterprises on the basis of a substantial factor, the available personnel. The procedures can be divided into different categories. First, the methods of absolute human resource accounting can be differentiated by combined human capital- / tangibles-methods and with those not stated here in greater detail. In the context of the methods of absolute human resource accounting, a first distinction appears regarding the evaluation object. Here, some methods target the evaluation of individuals, other methods are aligned to observe the evaluation by means of groups.

Figure 2: Methods of Human Resource Accounting



On the next level, we find the distinctive feature of monetary and non-monetary evaluation of human capital. The non-monetary methods direct at the determination of percentage numbers or at a number on an especially created scale. However, it is noted, that these non-monetary key figures implicate some problems. A monetary size is self-explanatory, which permits ones own interpretations or further calculations, without deep-going concentration on the scale, on which it is illustrated.

This is not mandatory with non-monetary sizes. In order to be able to meet predictions about non-monetary sizes, it is mostly necessary to attain knowledge of the scale that has been used. Thus, non-monetary sizes do not form a standard. Comparisons with

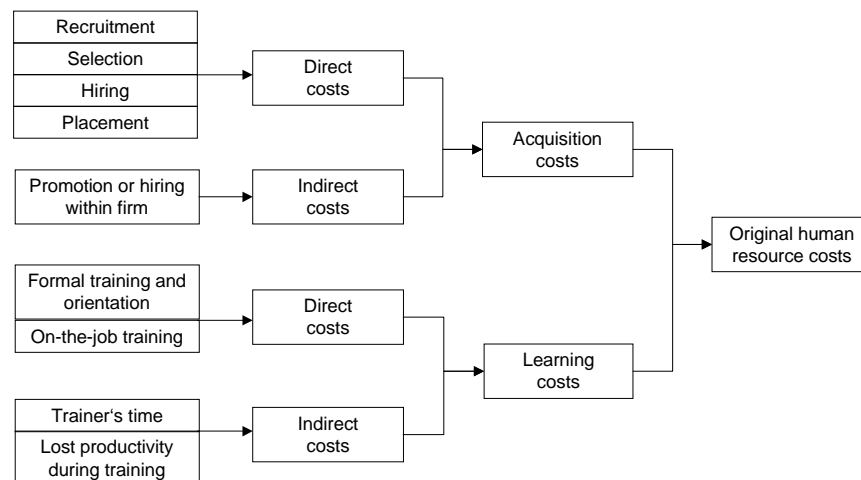
other results, maybe calculated with a different method, will be hardly feasible. Beyond that, the danger of the manipulation is larger, since there are usually no definitions and control mechanisms for such key figures. This is frequently given with monetary sizes, i.e. with the certification of a financial statement. Furthermore, non-monetary key figures usually produce an additional expenditure. Many of the monetary key figures must be determined for legal or competitive reasons. There is often no obligation for non-monetary key figures to calculate them.

The monetary methods can be differentiated in cost and value-based methods.⁷ The cost-based methods used for valuation of the human capital parameters include spending, payoffs and expenses. These costs can be actually resulted or calculated. Likewise, the costs can be incurred in the past or prognosticated for the future. Value-based methods used for the determination return-based conception are usually rather benefit-oriented.

5 Human Resource Cost Accounting (HRCA)

To present all approaches of HRCA would go beyond the scope of this article. The approach of "original costs" as described by Brummet/Flamholtz/Pyle is illustrated here in a nutshell. They try to seize the human capital on the basis of invested spending for staff.

Figure 3: Measurement Model for Original Costs⁸



Within the area of invested spending for staff they name the positions acquisition and learning. The acquisition costs result from costs of recruitment, selection, hiring and placement. Brummet/Flamholtz/Pyle, for example, sum up the cost for a help-wanted advertisement, the expenditure to select between job applications, the writing of a contract and the finding of the right position for a new employee. The development costs include the costs for the adjustment to a new job, the gaining of experience, the training of abilities and the organizational development.

At that time, all partners of the research project knew that this system was an embryonic solution. They clearly put out that this represents the lowest level on the development to more global and more informative systems. However, this project

supplied a first practicable approach to capitalize investments into that staff as well as it was usual to do so with other investments i.e. in buildings.

There are quite a few more cost-oriented approaches for human resource accounting. In another approach of HRCA, the "replacement cost model", Flamholtz uses calculatory costs for the filling of vacant positions. He also adds separation costs like compensation pays.⁹ Assuming that there is only a value for something that has an alternative use, Hekimian/Jones suggest in their "opportunity cost model" the building of virtual internal labor markets.¹⁰ The human capital of a division then is the sum of money that is bidden for the staff of the division, no matter if the division "bought" the employee or another division made the bid for an employee, but couldn't win this virtual competition.

In contrast, Lev/Schwarz believe that the calculated future earnings of the staff are sufficient as an approximate value for the human capital.¹¹ Therefore, in their model of "discounted future wage flows", they try to determine probabilities for the destination of employees in the organization. The basis for the computation of the human capital in the "adjusted present value" model by Hermanson, is the calculation of an efficiency rate that is built on comparisons of the organizations ROI with average ROIs of the industrial sector.¹² This efficiency rate is then combined with future wages of the staff.

6 Human Resource Value Accounting (HRVA)

As many approaches as there are for cost-based human resource accounting, there are more for value-based human resource accounting. Tied up to the conclusion that the value of the organization's human capital cannot be measured by spending, but by the future contributions, the "stochastic rewards valuation model," created by Flamholtz, can be used to describe an example of HRVA. The determination of the human capital with the assistance of this model takes place within a five-stage process.¹³ First of all, Flamholtz states all potential future hierarchy levels for each employee and then he identifies the contribution of the particular individual hierarchy level for the total output of the enterprise. In the next step he determines the destination times for each employee on its future hierarchy levels. Thereupon, Flamholtz allocates the potential passes of an employee through the company with probabilities. Finally, he sums up the calculated values and therefore determines the value of an employee to the company.

In contrast to the former approach, Jaggi/Lau try to classify the employees in their "group valuation" model to different homogenous groups. With assistance of a rank transition matrix, they can show typical promotions through an organization.¹⁴ A newer approach is seated in the area of intellectual capital. The "Scandia Navigator" by Edvinsson determines efficiency rates for the factors finance, customers, processes, innovation, and human resources.¹⁵ Likerts "social-psychology indicators"¹⁶ and Flamholtz "determinants of an individual's value to a formal organization"¹⁷ are non-monetary approaches to identify the causes for performance of employees. There are additional approaches for HRVA; however, these models are mostly a variation or combination of the former approaches.

7 Problems of Human Resource Accounting

There is still a need for research in the area of human resource accounting. First of all there is no unique approach, because there are too many different goals. The cost-

based models seem to be a better choice to implement human resource accounting into financial reporting. Investments in staff could be handled similar to investments in property plant and equipment. The value-based models seem to be suitable for the valuation of companies, because they are closer to the methods like discounted cash flow and therefore integrate future regards. Today, there is no reasonable chance for a unique approach to human resource accounting.

If the goal setting is fixed, there are more detailed problems in using the models of Human Resource Accounting. Because employees are not property of the organization, an individual can decide to leave and there isn't a legal recourse the organization can do to stop it.¹⁸ Therefore, even cost-based approaches of human resource accounting have a problem in measuring the value of the human capital. The value-based approaches have to deal with the supplementary problem to find the right surrogate for the valuation of the human capital. Even if there are surrogates that are accepted for the valuation of human capital, the operationalization will not be solved.

One of the most important problems with human resource accounting is the fact that there is an enormous need for data to get valid results for an evaluation. The data has to be collected, analyzed and processed. In today's world of computerization, information management will be a great help in solving the data problems.

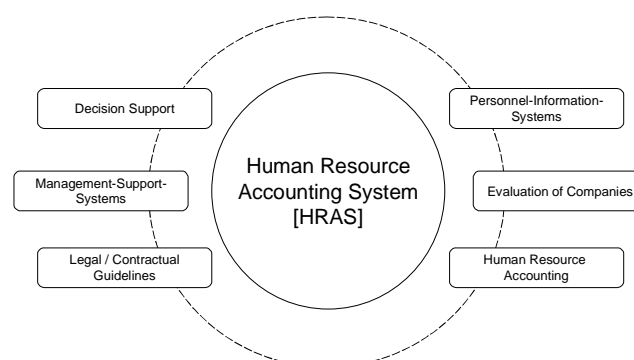
8 Information Management on Human Resource Accounting

As mentioned above, an operating human resource accounting system needs a lot of data. Therefore, the support of information management and the design of a management information system will help to insure that the costs of a human resource accounting system won't exceed the benefit.

Concept and design of the model are important factors for the usefulness of such a system, as Roslander and Dyson emphasize clearly: „*The information must be reliable, it must be useful in the decision-making context and it must be relatively easy to understand and employ. The history of accounting for the worth of employees is littered with highly sophisticated but impractical measurement models.*“ Roslander, R./Dyson, J. R. (1992), S. 324.

The project is embedded in a mixture of different areas that influence the concept, the model and the design of the human resource accounting system. Management-support and decision-support systems will have an influence as well as personnel-information systems. Furthermore, the theory of the valuation of companies and human resource accounting itself will have an influence on the project.

Figure 4: Classification of the project



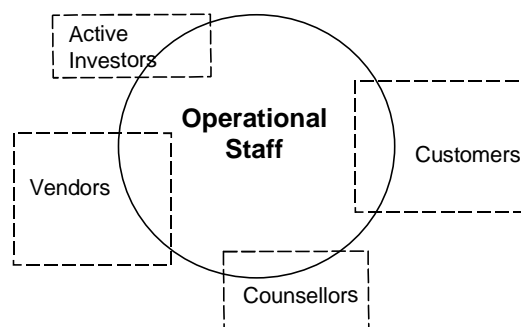
Especially in areas that need to register, to save and to process personnel data electronically, there are a lot of either legal or contractual guidelines. In this case, you have to follow the regulations of the legislator as well as collective or individual agreements and rules.

9 Integrated Human Resource Accounting System

The objective of the project “Human Resource Accounting” of the University Witten/Herdecke with the collaboration of Esprit Consulting, Munich, is the valuation of companies on the basis of the available human capital for argumentation reasons to external addressees. Due to this goal, the result will be expressed in form of a monetary size. Beyond that, networking purposes should be integrated into the approach. The evaluation object is limited to the area of “professional services”. In the context of this staff-intensive sector, we try to find, as much as possible, the universally valid model.

As the evaluation object, human capital is to be regarded in the broader sense for this project. Past methods of human resource accounting were mostly limited to the operational personnel. This approach, however, seems to be insufficient. The direct market partners of the enterprise are often involved in projects and therefore a part of the capital that the company is able to use. Good relations to the market partners can be a crucial part of the value drivers. The market partners can be customers as well as suppliers, investors that are active in the operational business of the company or people from boards that consult the company in their business.

Figure 5: Human Resource Network



With the use of this definition for human capital, in the area of “professional services”, the possibility exists for an integration of the most important value drivers used in newer approaches, namely “intellectual capital”.

The basic assumption of the approach is the free will of the people. Therefore, it is difficult to bring together the terms human and capital. In fact, it is impossible to discuss capital while discussing human beings. As a surrogate for this, the project will develop profiles of employees and their promotions within the company with historical data. The average destination of an employee on different levels of the company then is surrogate for the available capital for the company. Also, the project has the concluding goal to develop a prototype software tool for human resource accounting.

10 Conclusion

In times of the knowledge society, human resource accounting can yield important indicators for the evaluation of companies. Still there is a need for further research. No approach of human resource accounting can handle employees as their property. Therefore, the models have to focus on different measurement models rather than the traditional evaluation of companies. The enormous need for data collection and processing requires support from information management. As technology grows and the assistance of hardware and software increases, there will be new ways of analyzing and solving the problems of human resource accounting.

Notes

¹ Flamholtz, E. G. (1974), p. 3. Caplan, E. H./Landekich, S. (1974), p. 6-7.

² Already in the 20's some people recognized that the human resources were one of the most valuable parts in the company. As an example General Motors paid for the acquisition of the German car manufacturer Adam Opel AG 33 Mio. US\$ instead of the book value of 18 Mio. US\$. The reason for this was named in the high potential staff of Opel. See Sloan, A. P. (1963), p. 380-382.

³ Flamholtz, E. G. (1985), p. 1-3.

⁴ Scarpello, V./Theeke, H. A. (1989), p. 266 and p. 275.

⁵ Deutsch, R./Vornsky (1997).

⁶ Lev, B. (2001) as a comprehensive survey. Bontis, M. (2000) with the description of the Skandia Navigator and the Celemi Intangible Asset Monitor.

⁷ Sackmann, S. A./Flamholtz, E. G./ Bullen, M. L. (1989), p. 239-243.

⁸ Flamholtz, E. G. (1985), p. 63.

⁹ Flamholtz, E. G. (1985), p. 68-69.

¹⁰ Hekimian, J. S./Jones, C. (1967), p. 108-110.

¹¹ Lev, B./Schwartz, A. (1971), p. 104-106.

¹² Hermanson, R. H. (1964), p. 16-17.

¹³ Flamholtz, E. G. (1971), p. 255-259.

¹⁴ Jaggi, B./Lau, H. (1974), p. 324-327.

¹⁵ Edvinsson, L./Malone, M. S. (1997).

¹⁶ Likert, R. M. (1967), p. 75-77.

¹⁷ Flamholtz, E. G. (1974), p. 114-126.

¹⁸ Accept for the particular case of professional sports that has to be ignored here.

Literature

- Bontis, M. (2000) Assessing Knowledge Assets: A Review of the Models Used to Measure Intellectual Capital, in: *International Journal of Management Reviews*, Vol 3, 2001, S. 41-60 oder <http://www.business.mcmaster.ca/mktg/nbontis/research.htm>. Accessible: 2001-06-20.
- Brummet, R. L./ Flamholtz, E. G./ Pyle, C. P. (1968) Accounting for Human Resources, in: *Michigan Business Review*, Vol. 20, No. 2/1968, S. 20-25.
- Caplan, E. H./ Landekich, S. (1974) Human Resource Accounting: Past, Presence and Future, New York 1974.
- Deutsch, R./Vornsky (1997) Nach traditionellen Bewertungsmethoden sind Aktien derzeit extrem überbewertet (U.S.A.). http://www.gold-eagle.com/analysis/stocks_over-valued_german.html. Accessible: 2001-10-18.
- Edvinsson, L./Malone, M. S. (1997) Intellectual Capital: The Proven Way to Establish Your Company's Real Value by Measuring its Hidden Brainpower, New York 1997.
- Flamholtz, E. G. (1971) A Model for Human Resource Valuation: A Stochastic Process with Service Rewards, in: *The Accounting Review*, Vol. 46, No. 2/1971, S. 253-267.
- Flamholtz, E. G. (1974) Human Resource Accounting, Encino 1974.
- Flamholtz, E. G. (1985) Human Resource Accounting, Advances in Concepts, Methods, and Applications, San Francisco 1985.
- Hekimian, J. S./Jones, C. (1967) Put people on your balance sheet, in: *Harvard Business Review*, Jan./Feb./1967, S. 105-111.
- Hermanson, R. H. (1964) Accounting for Human Assets. Occasional Paper No. 14, Graduate School of Business Administration, East Lansing Michigan 1964.
- Jaggi, B./Lau, H. (1974) Toward a Model for Human Resource Valuation, in: *The Accounting Review*, Apr./1974, S. 321-329.
- Lev, B. (2001) Intangibles: Management, Measurement, and Reporting, Harrisonburg 2001.
- Lev, B./Schwartz, A. (1971) On the Use of the Economic Concept of Human Capital in Financial Statements, in: *The Accounting Review*, Jan. 1971, S. 103-112.
- Likert, R. M. (1967) The Human Organization, New York 1967.
- Roslander, R./Dyson, J. R. (1992) Accounting for the Worth of Employees: A New Look at an Old Problem, in: *British Accounting Review*, 1992, Vol. 24, S. 311-329.
- Sackmann, S. A./ Flamholtz, E. G./ Bullen, M. L. (1989) Human Resource Accounting: a state of the review, in: *Journal of accounting literature*, 1989, Vol. 8, S. 235-264.
- Scarpello, V./Theeke, H. A. (1989) Human Resource Accounting: a measured critique, in: *Journal of accounting literature*, 1989, Vol. 8, S. 265-280.
- Sloan, A. P. (1963) My years with General Motors, New York 1963.