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Discussion Paper WI-281

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by

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in: M. Nelson, M. Shaw, T. Strader, eds., Value Creation in E-Business
Management - 15th Americas Conference on Information Systems, AMCIS, SIGEBIZ
track, San Francisco, California, August 2009, p. 259-270



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ABSTRACT

Although theoretically necessary, social capital is not considered within the process of asset allocation for private investors. Both the lack of appropriate practical valuation concepts and the effort of providing and processing the required information as input for a valuation were obstacles to include social capital in this process. However, first theoretical financial models for the evaluation of social capital recently have become available. Moreover, the fast growth of business community websites and the technological progress in Web 2.0 tools that allow and acquire the active involvement of users, facilitate the provision and processing of valuation relevant information. In this paper we focus on the second aspect and propose a social software-based concept that allows for an integration of social capital in the asset allocation process.

Keywords

Web 2.0, Social Software, Data Management, Strategic Asset Allocation, Social Capital, Private Investor, Financial Advice

INTRODUCTION

Within the scope of the private asset allocation in typical advisory processes in the financial services sector, information is mainly considered with respect to the *current* income and *existing* assets of a specific customer. Information about *expected* income and *expected* asset components is already regarded considerable less frequently. Generally not considered at all are assets that are more difficult to quantify monetarily, such as human or social capital. Nonetheless, it is beyond dispute in literature that an optimization of the asset allocation for the financial capital of an investor requires the consideration of the total capital (e. g. Bodie, Merton and Samuelson, 1992; Boscaljon 2004). Total capital not only includes financial capital but also other capital types such as human or social capital. Total capital has to be considered due to the notion that the risk properties in particular of these two types of capital can have a significant influence on the allocation of the financial capital of a private investor. Moreover, these risk properties cannot be easily changed in contrast to the risk properties of financial capital, where one can decide easily on an appropriate mixture of risk-free and risky investments. Apparently, if human and social capital are not considered, this can lead to systematically wrong investment advice. Therefore, taking both types of capital additionally into account can enhance the quality of output of the advisory process as well as in the long term also augment customer satisfaction. Thus, the inclusion can become a competitive advantage for a financial services provider.

So far, the effort of information provision and processing has been disproportionately high with respect to the integration of human and especially social capital within the asset allocation process of a private investor. However, the fast growth of business community websites (e. g. LinkedIn or XING) providing for rich information about customers and their social networks and new technical possibilities of standardized data extraction from social networks – such as the ones implemented in the scope of the OPENSOCIAL project – now ease an economic and practical implementation. Nonetheless, the necessary effort in subsequent analysis tasks remains still high, which limits – for the time being – a profitable implementation to the private banking customer segment, which disposes of an annual income well above average and usually constitutes a high-margin customer segment.

The objective of this paper is to propose and discuss a conceptual approach from a design science oriented perspective (Hevner, March, Park and Ram, 2004) for an integration of social capital in a generic advisory process for financial services provider based on existent social software-based data sources. Thereby, specific emphasis is devoted to an adequate operationalization of information provision and processing. This contains the identification and measuring of appropriate indices for characterizing individual social networks, e. g. the number of ties an actor disposes of, the strength of the individual ties etc. what is recognized in literature under the topic of *social network analysis* (SNA). The paper is organized as follows. First, the relevance of social capital within in the scope of the asset allocation based on a formal theoretical model is illustrated. Subsequently, a concept for including social capital within an advisory process of a financial services provider is proposed. We conclude with a summary.

SOCIAL CAPITAL WITHIN THE ASSET ALLOCATION

First, we describe and determine our understanding of social capital with respect to the objective of this paper. Based on this, we discuss in the relevance of social capital in the scope of the asset allocation of private investors.

Definition of Social Capital

(Coleman, 1988) and (Gabbay and Leenders, 1999) understand social capital as the set of present and future facilitations and limitations that arise from the network of a person and can positively influence the way he can act. Thus, social capital is described as a resulting from the tightly knit structure within a group. A similar and complement definition comes from (Burt, 1992) who derives a person's social capital from his individual network position. In the scope of this paper we follow primarily the definition of (Burt, 1992) even though there are also some aspects of the definitions of (Coleman, 1988) and (Gabbay and Leenders, 1999) taken into account. All named authors formulate a qualitative value expression based on which it is not possible to quantify monetarily the individual value of social capital. Determining this value is indeed a challenging task due to the central property of this type of capital: Social capital is part of a relation *between* two actors. Hence, it is difficult to delimit, to locate and finally to valueate (Burt, 1992, p. 9). Indeed, there are some contributions on the valuation of social capital, but they usually refer to social capital on an organizational level (e. g. Kazienco and Katarzyna, 2006) and not on an individual level.

Still, without an appropriate measurement and valuation it is not possible to consider social capital in the scope of the asset allocation. A starting point to measure and valueate social capital is the individual network structure of an actor, also called the *social network structure* (SNS). The SNS describes how an actor is connected within his social network to other actors. This includes a measurement of the absolute number of ties an actor disposes of and the characterization of the strength of each tie as well. The objective is to evaluate if an actor's network position is favorable or unfavorable with respect to the attainment

of his personal and professional targets from a structural point of view (Burt, 1992, p. 11ff.). The (potential) benefits resulting from the SNS are called *social resources* and are the core of a valuation of social capital. The benefits are based on the access to resources of other actors, e. g. capital and knowledge, to which he maintains relations. Moreover, relations contain benefits themselves, e. g. in terms of information about and control over other actors (Burt, 1992, p. 13ff.). However, the influence of the SNS at a given point in time can also limit the actions of an actor (Gabbay and Leenders 1999, p. 3ff.). Obligations can arise from the SNS that can have different negative consequences. Fostering and maintaining (social) relations demand for time and money (Bourdieu, 1983, p. 193). Given scarce resources an actor can be hindered to create new useful relations because he is still engaged in his existing relations. Moreover, strong individual social relations can limit the available options of action of an investor as far as these relations stand in conflict with other relations and cause therefore negative consequences, respectively.

The SNS of a private investor is typically characterized by the simultaneous existence of influences that facilitate and limit the way how a person can act (Gabbay and Leenders, 1999, p. 4). A person is not necessarily able to avoid these limitations in each situation, e. g. by a one-sided termination of a relation rated as useless. Such a termination of a relation can cause a sustainable loss in confidence and reputation of the considered actor in his network. Moreover, it can evoke sanctions (Gargiulo and Benassi, 1999, p. 303).

The simultaneous existence of facilitations and limitations with respect to the way a person can act stems from the difference between SNS and social capital. The SNS provides a certain amount of resources that influence the actions of a person in the scope of a *specified context*. If the required resources match with the resources that are provided by the SNS, social capital does have a positive effect to a person's actions *in this context*. Otherwise, limitations result because a person invests into social relations without receiving any benefits with respect to the specific context (Gabbay and Leenders, 1999, p. 3f.). The SNS and the context of a person usually change over time, what influences the value of social capital, too (Gargiulo and Benassi, 1999, p. 317ff.). Consequently, each valuation of social capital on an individual basis has to evaluate the usefulness of the SNS for differing contexts at different points in time. This circumstance increases the complexity of determining social capital's influence and includes the necessity to compare the resources provided by a certain SNS with the needs of the facilitations resulting of a specific working context.

Considering Social Capital in the Asset Allocation

The determination of an adequate asset allocation strategy is the primary output of financial advice for private investors. Within the consulting process, the individual preferences of the investor with respect to the expected return, the related risk and the cash availability at different point in times should be considered. However, there are additional influence factors that should be taken into account. For a theoretically sound recommendation it is important to consider the complete income and assets of an investor. These comprise also the human capital – generally understood as present value of the future expected income – and social capital, in particular.

Consequently, linking human capital and portfolio theory is an issue that different contributions focus on (e. g. Bodie, Merton and Samuelson, 1992; Boscaljon 2004; Spremann and Winhart, 1997). For instance, the normative model of (Bodie, Merton and Samuelson, 1992) shows amongst others the importance of considering human capital in order to explain an investor's consumption and asset allocation decision making behavior during his life cycle. Because younger people usually have a higher human capital than people that are near retirement, human capital specifically has a substantial influence on the asset allocation decisions of an investor who is at the beginning of his working life. Moreover, this effect is augmented and diminished by the individual riskiness of his human capital, respectively. An entrepreneur usually has a high but very risky human capital while a civil servant has a lower but quite certain human capital. These effects typically imply a counterbalancing of the risk influence of human capital by an appropriate asset allocation strategy in the financial capital. The mentioned contributions can be taken as indications that financial services provider should adapt their consulting process, which is generally focused just on the age and the income of an investor. This includes that the proposed proportions of risky investments of private investors are usually too low during the early employment phase.

Whereas the integration of human capital in the scope of the asset allocation has been granted a certain focus in literature, social capital has remained widely unconsidered so far. This is due to the properties of social capital already described that lead to some challenges with respect to the measuring and valuation of social capital. The coherence between human and social capital is already qualitatively postulated, e. g. by the contributions of (Burt, 1997) and (Lin and Huang, p. 191ff.). A first empirical based approach that allows a quantitative measurement of social capital is proposed by (Seibert, Kraimer and Liden, 2001). There, the positive influence of social capital is modeled on the one hand by a higher salary profile – leading to a higher human capital – and on the other hand by a less risky human capital, since unemployment is less probable and the time span without job is shorter compared to a person that does not possess social capital c. p. Evidently, social capital has a

multiplier effect on human capital and, thereby finally also on the financial capital (Bourdieu, 1983, 191). Thus, an indirect measurement of social capital seems to be promising. By indirect measurement we point to the issue that, in essence, we propose a more precise way of determining the value and risk properties of human capital by making use of the concept of social capital. Of course, if the absolute value of social capital is also of interest, which is not the case in the asset allocation process, one can separate the social capital effects on human and financial capital from non-social capital effects. However, this is not our focus here.

An approach to evaluate social capital recently proposed can be found in (Kundisch and Zorzi, 2008), which is an extension of the model of (Spremann and Winhart, 1997). The scenario calculations provided by the authors suggest that social capital may influence an investor's asset allocation beyond the already known effects of human capital. Therefore, a consideration of social capital seems advisable, at least as far as there is evidence of its existence justifying the additional effort of collecting and processing the necessary data sets. (Kundisch and Zorzi, 2008) build their model also on the assumed positive relationship between social capital and human capital proposed by (Seibert, Kraimer and Liden, 2001). Specifically, they model the influence of social capital on human capital using two parameters:

1. a short-term oriented parameter that represents the current influence on the risk of human capital (RHC) and
2. a long-term oriented parameter that represents the sustainability of a premium on the salary that is attributable to social capital (POS).

Being the first-of-its kind model to determine social capital, we will adopt their view and focus on the determination of these two parameters in the following by making use of Web 2.0 tools and business community websites such as LINKEDIN or XING. Many business community websites make standardized application programming interfaces (APIs) available that allow an easy extraction of data about persons, their relationships to others etc. that characterizes an actor's network. What still remains is an adequate processing of these data. Therefore, we consider in the following a concept how these findings can be operationalized to the practical consultancy in the financial services sector.

CHALLENGES AND IMPLICATIONS TO THE CONSULTANCY

The practical challenges arising from the consideration of social capital in the scope of the consultancy in the financial services sector are due to the costly provision and processing of the necessary information. As presented in the previous section social capital cannot be measured directly. Thus, appropriate methods for describing and characterizing a person's SNS are needed. Moreover, concepts are necessary that allow for an efficient matching between the SNS and the specific context a person acts in. Firstly, we discuss basic approaches in the field of SNA that are appropriate with respect to the objective of this contribution. Secondly, we propose a concept for providing and collecting information in order to determine the influence of social capital to an investor's asset allocation.

Social Network Analysis

SNA is defined by (Wellmann, Wetherell and Plakans, 1994, p. 645) as:

“Most broadly, social network analysis (1) conceptualises social structures as a network with ties connecting members and channelling resources, (2) focuses on the characteristics of the individual members, and (3) views communities as personal communities, that is, as networks of individual relations that people foster, maintain, and use in the course of their daily lives.”

Most contributions to the subject of SNA focus on a quantitative structural consideration and analysis of networks. Hence, there are also tight links towards the social capital theory which contains extensive literature that focuses on structural characteristics of networks (e. g. Burt, 1992; Hansen, 1999).

So far, there are a couple of various (statistical) approaches for the evaluation and description of networks. Typical measures used to evaluate the favorableness of specific network structures consider different forms of centrality of persons and different measures that capture the distance between different persons within networks, respectively. This mainly happens by considering structural, quantitative network properties (many general contributions to the subject network analysis, which can be transferred in part to the field of SNA, are listed in e. g. (Brandes and Erlebach, 2005)). These approaches allow propositions with respect to the individual access to information and knowledge of persons and the way how they can influence the creation of information and knowledge. Besides the network position it is mainly the strength of the ties that has a considerable influence on the current information flows within a company (Hansen, 1999). The structural perspective is based on the assumption that facilitations and limitations that arise from a person's SNA are primarily dependent on the network position of the considered person. If a person disposes of a favorable network position this is equal to the fact that

this person has access to resources that support him with respect of the fulfillment of his professional tasks and targets. However, this does not include any specification of the type of resources.

An approach that reaches beyond a structural consideration of networks is formulated by (Cross, Parker, Prusak and Borgatti, 2001). They propose a (qualitative) questioning of persons in order to identify effective and ineffective ties between persons within a company. Thereby, an effective tie is characterized from the perspective of the considered person by the following four dimensions: *Knowledge* (Knowing what another person knows and therefore knowing who is the right contact that can be addressed), *Access* (Having an access to information and knowledge of other persons all-time), *Engagement* (Willingness of other persons to support and to pay actively attention), and *Safety* (Existence of a certain level of confidence that encourages a productive learning relationship). This approach has advantages compared to methods that just focus on structural network properties, since it takes a multi-dimensional view on relations. However, if the financial advisor goes thoroughly through these formulated criteria by (Cross et al., 2001) together with the investor one-by-one for each relation the process will incur prohibitive costs.

In the scope of this contribution, we propose a modified approach that primarily builds on structural network properties but considers also non structural aspects by specifying the nature of resources that are accessible to a person and matching them to his needs arising from his professional context. In doing so, we comply with the knowledge dimension of (Cross et al., 2001). Moreover, our proposed approach leaves the opportunity to look also at the other three criteria.

Integration of Social Capital within a Consultancy Process

In order to generate sound advice, a financial advisor needs an adequate and sufficient data base. Such a data base has to include personal information and information about the income and wealth of an investor at a specific point in time. Moreover this comprises also the collection of information with regard to the valuation of an investor's human and social capital. Obviously this denotes a considerable challenge because the required information is uncertain. In addition, the data for the valuation of human and especially social capital is mostly qualitative in nature and there are dependencies between both types of capital. Therefore the valuation of human and social capital cannot be dealt with separately. From a practical point of view this denotes no limitation since the result of a consultancy process should be a recommendation about the optimal ratio of risk-free and risky investments. The data collection identifying an optimal ratio of risky investments considering an investor's human and social capital can be accomplished in four steps (see Figure 1):

- Step 1: Identification of an anticipated salary profile as an extrapolation of the salary today and an assessment of the risk properties of the human capital without taking into account social capital.
- Step 2: Identification of the current context a person is acting in (2a) and the current SNS (2b) to determine influence of social capital on the risk properties of the human capital in the short term (2c). In this step the basis to determine the parameter RHC is created.
- Step 3: Determination of the sustainability and development of a person's context and matching with the anticipated SNS to determine the long term influence of social capital on human capital. In this step the basis to determine the parameter POS is created.
- Step 4: Determination of an adapted salary profile and the risk properties of an investor's human capital (4b) using the parameters RHC and POS (4a).

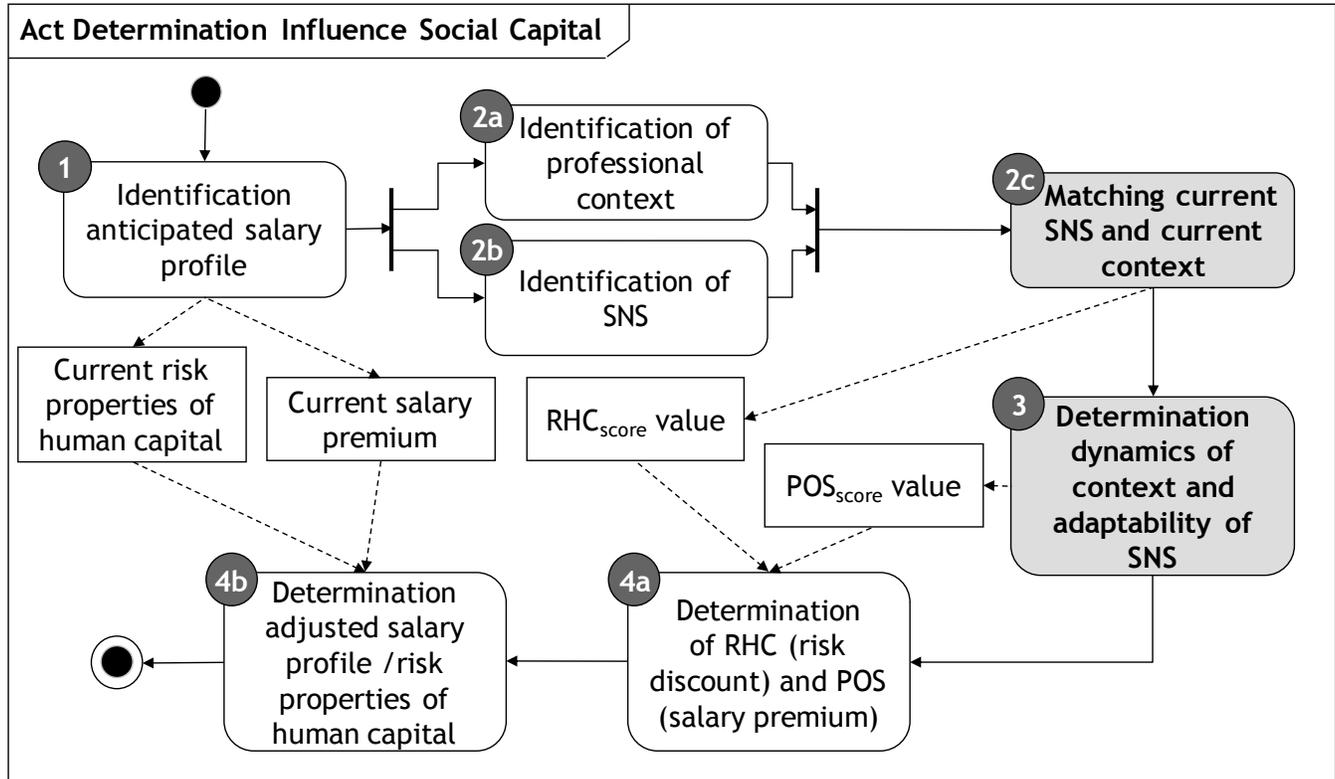


Figure 1: Identification of social capital's influence to an investor's asset allocation

Step 1: An anticipated individual salary profile is considered as starting point for collecting data. Therefore the current salary statement (for graduates the average starting salary chart) in combination with terms of the working contract concerning future salary enhancements, bonuses and other extraordinary payments can be used as an appropriate estimator. Moreover available empirical salary profiles including their deviation that are dependent on the job and position of an employee may be used complementarily. This allows for the identification of a salary profile of an average (model) investor that is representative for the considered (real) investor and therefore for the identification of a salary premium the considered investor currently enjoys. Moreover, the general (and social capital independent) riskiness of the human capital (current risk properties of human capital) for the type of profession and position of the investor can be determined based on empirical salary profiles. At least in the German financial services market, some of the established financial services providers already possess these data.

Step 2a: In order to describe the context an investor is acting in, we propose the consideration of the necessary resources an investor needs accomplishing his central working tasks. The central working tasks or projects can be determined based on a direct interview of the investor. The terms of the working contract or the job description may also provide for some hints here.

Step 2b: The identification of the resources that are provided by the SNS can be extracted from business community websites, e. g. XING (www.xing.com) or LINKEDIN (www.linkedin.com). Typically, members of such community websites describe themselves in terms of interests, personnel abilities, job descriptions, professional experience etc. If the investor is connected within a business community website to other actors, we interpret this as an indicator of the resources provided by the SNS of this investor. The semi-structured information that can be found within the individual address books of members of such websites can already be conveniently extracted by proprietary software tools or using standardized APIs. Moreover, it is also possible to combine and integrate the information provided by different communities as far as these websites use a standardized syntax to tag the data and offer a standardized API. A widespread API in this context is defined in the OPENSOCIAL project (<http://www.opensocial.org>). OPENSOCIAL aims at facilitating the data exchange between different web-based social applications. Many important players in the industry, such as XING, MYSPACE, LINKEDIN, FRIENDSTER, are already participating in this initiative. Apparently, this allows for a fast and convenient transfer of semi-structured information into an application that supports the matching process.

Step 2c: In order to determine the parameter RHC, a matching between the current context and the current SNS is necessary. The basis for such a determination is visualized schematically in Figure 2. This can also be used as a preliminary proposal for the design of a corresponding front-end of a consultancy application. On the left hand side in Figure 2 there is a drill-down schedule with the central working tasks that can be regarded as an investor’s context. If a specific resource is needed (e. g. project management skills, project valuation expertise) to successfully accomplish a task, on mouse click a keyword search is automatically triggered on the right hand side. The corresponding result set of this search is depicted in the upper right part of figure 2. On mouse click on the keywords in the result set, the corresponding actors can be visualized (here, three contacts are exemplarily listed). Based on the number of relations found in the data that match with the keywords, the system suggests a valuation on the ordinal scale that ranges between “++” (= very good match between context and resources) and “--” (= very bad match between context and resources). This valuation can be modified by the consultant together with his client based on the additional criteria of e. g. (Cross et al., 2001). The individual valuation can be aggregated using an adequate scoring model to get an overall valuation of the matching between the context and the SNS. If there is a good match, this is interpreted as an indicator for a positive short term influence of social capital and therefore for a less risky human capital. The result of this step is a score value RHC_{score} .

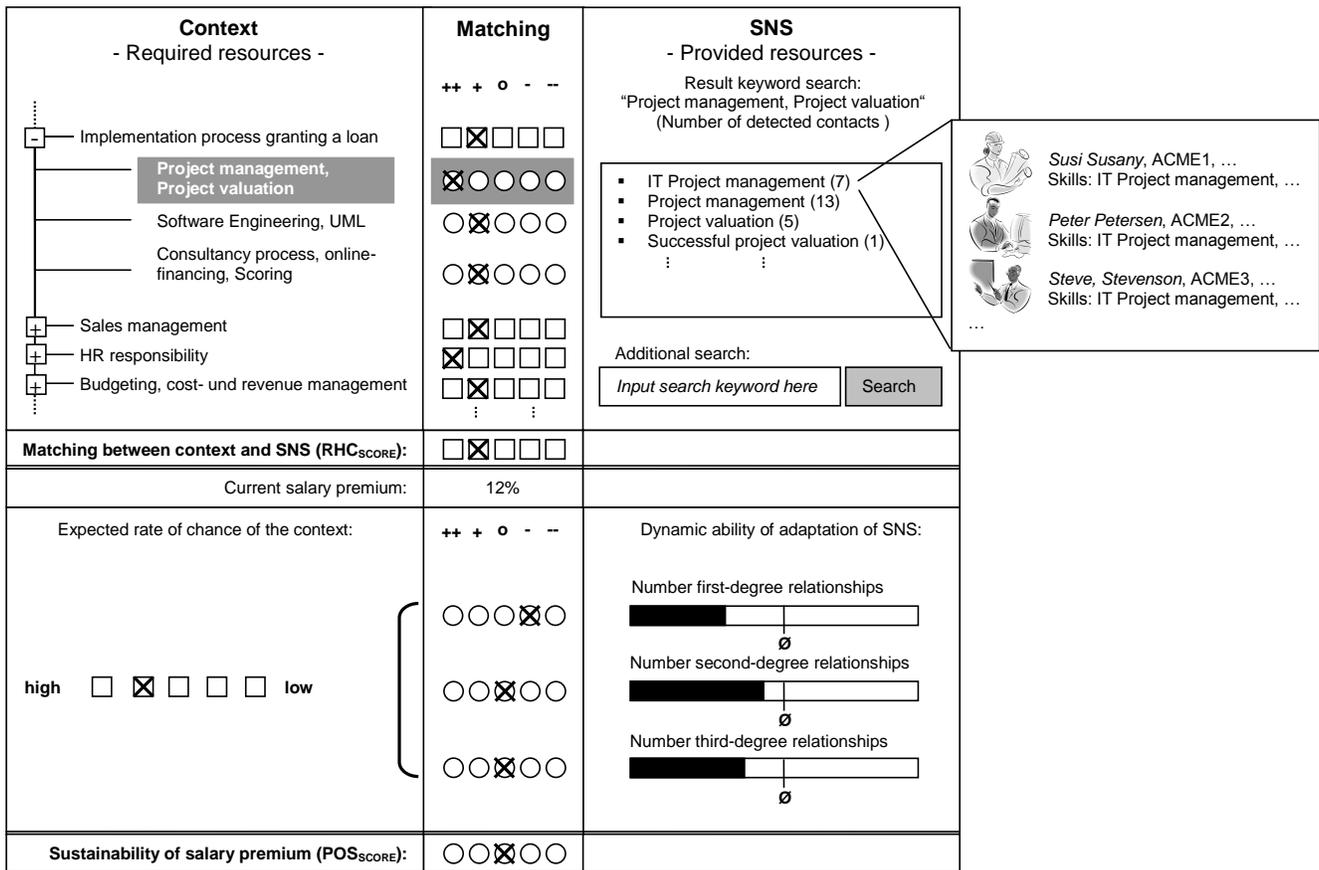


Figure 2: Schematic matching between context and SNS

Step 3: Starting point for the identification of the proposed long term influence parameter of social capital is the current salary premium that has already been determined in step 1. This premium may have to be corrected before an extrapolation into the future. The anticipation how an investor is able to adapt his SNS dynamically to a changing context – if such an adaptation is necessary – can be interpreted as whether he will be up to his professional challenges in the future and if a sustainable salary premium can be expected from this point of view. First, the rate of change of context in the future has to be determined. An interview of the investor seems to be the best method to accomplish this task. Moreover, empirical career paths can also provide for some hints here. This is visualized in the lower left box of Figure 2. At the lower right box of Figure 2 structural properties of a network, e. g. the number of first-degree, second degree, third degree relationships are described. They can serve as rough estimators for the dynamic ability to adapt the SNS. This procedure is based on the assumption that the larger an individual SNS is the easier it is for the investor to generate a good matching with respect to his

professional context. As soon as the rate of change of the context is assessed on the one hand and the number of relationships of a private investor is assessed being below or above average on the other hand, additional information that may help specifying the salary profile may be derived. E. g. if the structural indices show below average values and the expected rate of change is high, this is an indicator that the current salary premium might be too high and is not sustainable. In analogy to Step 2c, the parameter POS_{score} is determined using a scoring model.

Step 4: The translation of the score values of RHC_{score} into a risk discount and for POS_{score} into an adjusted salary premium is currently done using a table that simply assigns percentage values to score values (Step 4a). The validation and further development of this process is still a topic for further research. With RHC and POS as percentage values, the risk properties of the human capital and the salary profile can be determined (Step 4b) as described in (Kundisch and Zorzi, 2008). Based on the information collected in this way and further information the optimal ratio of risk-free and risky investments under consideration of human and social capital can be determined (not shown in Figures 1 and 2.).

It should be emphasized that this process causes substantial effort both for the customer as well as for the financial service provider. Therefore, only if there is strong evidence that social capital might have a relevant influence on the human capital, this process should be started. So what can be considered as evidence in this sense? Generally speaking, two issues have to be fulfilled: The investor has to earn a lot in absolute terms and at the same time he has to earn a salary well above the average of his peers.

CONCLUSION

Social capital can be a substantial proportion of a private investor's total capital. Therefore, if neglected this can lead to systematically wrong recommendations with respect to an asset allocation strategy. A precondition for considering social capital within the consultancy process is the individual measurement and valuation of a private investor's social capital. In this contribution an operationalization for this task is proposed utilizing information provided by current social software web sites and lending from SNA and social capital literature. However, this approach can be only understood as first attempt because easily accessible information about social networks has just become available recently. Still, there are some limitations that should be mentioned. First, the concept is based on the assumption that a person's social network is (approximately) completely represented within the considered business community websites. If this is not the case, the deduced figures may be distorted and thus result in wrong recommendations. Second, it is not for sure that the concept leads indeed to an increase in customer satisfaction and therefore indirectly to a competitive advantage from the perspective of a financial services provider. A customer might even feel some disutility since he has to invest time upfront and the hardly separately noticeable benefits may turn out sometime later in the future. Apart from this economical consideration it has to be mentioned that an implementation of the presented approach needs also a consideration of further aspects, such as privacy issues that are not discussed in this contribution. Consequently, the research in the field of the valuation of individual social capital is still in its infancy. As next important step the further development of the prototype is planned, that shall be validated in laboratory experiments. Simultaneously an empirical survey is under way in order to expand the understanding of a monetary valuation of social capital and its influence on human capital on the level of an individual person.

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