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Professionals in Investment Banks - Sharing an Epistemic Practice or an Occupational Community?

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Abstract

The circumstances in contemporary society have created new conditions for how the organising and legitimising of contemporary 'knowledge workers' develop. It seems like the today's practice and expertise of knowledge workers is hard to comprehend in studies merely based in the prevailing theory of professions. In this paper the epistemic practice of investment banks is analysed, showing how the knowledge of finance, divided between expert categories, becomes linked again – in practice.

Keywords: epistemic practice, knowledge workers, investment banks, the machinery of financial practice.

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The need for expertise in the business life of today is so crucial, that some researchers say that we are living 'in the age of experts' (Brint, 1994). Consequently, researchers have shown an increasing interest in knowledge workers and professions during the last decades. The professionalisation process has been one theme of interest. Larson's (1977) study of the professionalisation of the medical profession is widely spread, as is Abbot's (1988) brother analysis of three cases. In the latter work also the interdependence among professions and the interprofessional competition is discussed. That the professionalisation process never becomes static is highlighted in Hellberg, Saks and Benoit's (1999) book, treating the theme of how professional identities changes over time.

In organisational theory, the discussion about professions often focus the tension between managers and experts (e.g. Boreham, 1983; Barley and Tolbert, 1991). The tension is caused by differences in organisational logic, and by the both groups striving for influence. A number of field studies have been made, illustrating the strive of power between the two groups (e.g. Bacharch et al, 1991; Sitcim and Suthcliffe, 1991; Denis et al, 1996). The introduction of management to professional organisations like universities (Gherardi and Strati, 1995), hospitals (Denis et al, 1996; Bentsen et al, 1999), and other public organisations (Olson et al, 1998), has also been a theme of interest. Furthermore, there are studies showing how management is introduced into traditional professional firms, like accounting firms (Hinings et al, 1991), and law firms (Cooper et al, 1996; Morris and Empson, 1998; Brock et al, 1999; Winroth, 1999). The research interest also focuses on the role that associations play for the professionals – when institutions change (Greenwood et al, 2002), and when body of knowledge in a field grows (Lounsbury, 2002).

However, contemporary expert knowledge is described as changing, and for instance Reed (1996) claims that it has become more fragmented than earlier. Knowledge workers in the expanding industries of finance, IT-technology, media, and biotechnology, do reveal some characteristics well known from the traditional professions, but also other traits. One such trait is that the market orientation among them is very accentuated, and rarely, if at all, do they mention societal missions. Following the thesis of more fragmented expert knowledge, Reed (1996) distinguishes three types of contemporary expertise.

The first type of expertise is the well-known category of the independent traditional professions[1]. Their basic power strategy has long been described as the most prestigious model: to monopolise and police abstract knowledge and technical skills applied in the area of expertise. Claims of cultural and technical authority by traditional professionals' are usually connected to the existence of an association and a formalised occupational. Typical examples of this category are lawyers and doctors.

The second type discussed is the managerial or organisational professions, located in large private- or public-sector bureaucracies. They have not been able to monopolise positions or control a knowledge base in the way the traditional professionals have. Instead, they have been forced to rely on a more fragmented and diverse knowledge base and task repertoire. Their strategy for acquiring and maintaining power is described as 'credentialism' (reliability). Since they are both creators and beneficiaries of bureaucratic rationalisation, they generate new control systems to further strengthen their position. At the same time, this continuous bureaucratisation threatens the 'areas of uncertainty' opened by skilful craft expertise, which sometimes leads to the tension discussed earlier in this section. Examples of this category are technical and economic experts, often situated in managerial positions.

The third type of expertise Reed introduces is 'knowledge workers' (also called 'entrepreneurial professions'). He describes them as new arrivals on the labour market. They depend on a highly esoteric and intangible knowledge base, a sophisticated combination of theoretical knowledge, analytical tools and tacit knowledge, and are less concerned with formal education. In Reed's description, they focus on specialised cognitive and technical skills that will give them political advantage. They maximise their political and economic advantages by aggressively marketing their refined and portable knowledge/skill base. In this group, Reed includes financial/business consultants, R&D engineers and IT analysts, among others.

Also Van Maanen and Barley (1984) take interest in how knowledge is developed and reproduced within an occupation, underlining the importance of the 'occupational communitites'. They argue that the behaviour in organisations often have been viewed out of an organisational lens, and support an alternative for this, namely viewing behaviour out of an occupational lens. An occupational lens focuses closely on the practice and culture within an occupation. The authors mean that a member of an occupation often experience work as more than just a living. The membership in the occupation also offers a membership in a 'community', in a group of peers. There are codes for how to practice the occupation, and a

[1] Reed (1996) does, however, name this group 'liberal professions'.

newcomer needs this knowledge to be included in the group. Consequently, the occupational community is bound to it's practice, and their culture has to be understood in this context. 'Occupational community' is defined as a group of people who consider themselves to be engaged in the same sort of work; who identify with this work, who share a set of norms, values, and perspectives that apply to, but extend beyond work related matters; and whose social relationship meld the realms of work and leisure (ibid, 294-295). Professions are viewed as the most developed of occupational communities. In contrast to the definitions of knowledge workers above, occupations are not necessarily defined by theoretical knowledge. The definition of occupations rather emphasises the knowledge of practice and culture shared by a group.

My field study of the business of finance brought to the fore issues of practices, knowledge and connections between knowledge workers. The example discussed in this paper is taken from investment banks, and concerns the four categories of specialists working within them: i.e. traders, brokers, analysts and experts in corporate finance (Winroth, 2002). How then, are these specialists to be seen? Can they be seen as representatives of a profession? Should they rather be described as knowledge workers or members of an occupation?

One trait often emphasised as a characteristic of a profession, is that all its members have similar education and practical experience, and therefore are sharing the same body of knowledge. This does not correctly describe the specialists of investment banks: their education varies. Furthermore, for some positions it is openly said that success in this position depends on the possession of certain personal traits, and not of education. This is, for instance, the case of Traders. Nevertheless, employees of investment banks must share some knowledge, since in their daily practice they work closely together. In practice, they are all closely intertwined into the *machinery of finance business* – a complex network containing numerous specialists. Finance workers are to some degree socialised into a specific occupation, but they also usually change this occupation during their career. Many of these specialists see the demands of their tasks as too arduous to work in the same occupation for far more than a decade. The lifelong involvement, still possible to find in professions like law or medicine, does not seem to be common in the field of finance. A financial expert often stays within the business of finance, however, changing only positions and tasks (Winroth, 2002).

During the study of work organisation of in investment banks (Winroth, 2002), I have become interested in the interconnection and close co-operation between the various specialist categories. Under the periods of a strong time pressure, the specialists communicated constantly with people belonging to the same specialist category, but also with people belonging to other categories (they were all sharing the same room). At the same time, they continually made trading decisions, or gave advice to clients, which mean that their actions had considerable financial consequences. In order to be able to work so closely, these people must share at least some body of knowledge. The knowledge of each expert group must also be complementary to the others (otherwise they wouldn't need to talk to one another). The specialists in investment banks do not fit into the category of a profession. They can rather be seen as occupations, though they appear as being occupations closely linked to each other. It seems that the practice and expertise of today is hard to comprehend merely on the basis of the prevailing theory of professions. New concepts and added perspectives would aid the understanding of the contemporary developing knowledge worker. By analysing the professionals in investment banks, and the business field they work in, this paper intends to open a discussion of epistemic practice and its relevance for developments in occupational groups.

How to Understand the Practice of Knowledge Workers

There are several concepts trying to grasp the nature of group practices. Wenger (1998) uses Lave's term 'communities of practice' to conceptualise how meaning is created in everyday life. The association of practice and community has two aspects, Wenger says. First, it yields a more tractable characterisation of the concept of practice – in particular, by distinguishing it from such terms like culture, activity, or structure. Secondly, it defines a special type of community – a community of practice. Wenger is, however, rather general in his definition of a community – which can be a family as well as an organisation.

In order to understand knowledge workers, a definition allowing a nuanced view of knowledge interwoven into practice is needed. Berger and Luckman (1995) use the term 'communities of meaning' in their discussion of modernity and meaning. One form of these 'communities of meaning' is professions or occupations. However, also in this case, the use of the term is rather abstract, and does not allow a specific inquiry of the situations within occupations.

According to Van Maanen and Barley (1984), the role performance in an occupation has a strong communicative power among the occupational community's members. The social identity of being a member of a given occupational group is learned by the socialisation into the occupation. As a result of this socialisation, the already accepted members of the occupation become the natural reference group. Through the daily practice, the central and peripheral features of the occupational role are carved out. The authors emphasise three domains of role performance, which they view as direct reflections upon the knowledge base of the occupation. One domain is the knowledge of a would-be member of the occupation, as acquired during the learning, socialisation, practising, training etc. The second domain is application, the ability to apply the basic knowledge and skill to the varying working tasks. The third domain of role performance involves the discarding and upgrading of sets of skills and practical routines. Here, innovation becomes a natural part of the practice. Van Maanen and Barley enrich the debate on professions showing a distinct relevance of the work practices within an occupational group. However, their discussion does not extend to the issue how practices can be analysed.

Epistemic Practice

In her discussion of how knowledge is produced, reproduced and represented, Knorr Cetina (1999) introduced the concepts of *epistemic culture* and *practice*. Her study of scientists revealed the machinery of knowledge production, and its by-product: a reproduction of an epistemic culture. The study describes the work and culture of science in the field of experimental high energy physics and in the field of molecular biology.

Epistemic culture are:

> …those amalgams of arrangements and mechanisms – bonded through the affinity, necessity, and historical co-incidence – which, in a given field, make up *how we know what we know*. Epistemic culture are cultures that create and warrant knowledge…(Knorr Cetina, 1999: 1).

Bringing up the theme of epistemic culture, there are two problem areas Knorr Cetina wants to emphasise. First, she underlines our present lack of understanding of the contemporary machineries of knowing, both in depth and in diversity. Distancing herself from the view of knowledge as a 'discipline', and seeing it instead as technical, symbolic and social dimensions interwoven into an expert system, she enlarges the scope of the perspective on knowledge bodies. Another result of this kind of reasoning is that knowledge areas do not have to be homogenous systems. The fragmentation and diversity of knowledge fields becomes obvious. In a later text, Knorr Cetina (2001) emphasizes that knowledge practice will always remain in motion as it is characterised by a 'lack of completeness of being'. Expert practitioners are characterised by the fact that they continually develop their knowledge base. This is not only the case of scientists, but also of other knowledge workers, such as experts working in investment banks, computer consultants, or lawyers. Knorr Cetina says that the objects of knowledge can never be fully attained, they are never 'quite themselves', because of their changing and unfolding nature (2001: 184). The *unfolding ontology* becomes a characteristic of knowledge fields. This unfolding ontology creates complex relations within the knowledge field. Knowledge objects become elementary units creating a complex link which extends a practical sequence. The concept of *framing* is used to describe this linking, and how objects or pieces of information of the field are related to one another (Knorr Cetina, 1999). Examples of this will be given later in the paper.

The second problem that Knorr Cetina (1999) brings to the fore concerns the transition of contemporary society to a knowledge society. In this knowledge society, epistemtic cultures and cultures of knowledge settings become a structural feature. The literature of the subjects often acknowledges this thick interweaving of professional knowledge and other aspects of social life. However, according to Knorr Cetina, the concepts used in such analyses remain eclectic, as the analysts tend to see knowledge as an intellectual or technical product, rather than a production context in its own right. Consequently, in order to understand the change to a knowledge society, it is crucial to analyse the contemporary knowledge machinery of various specific knowledge settings.

Underlining the unfolding nature of knowledge fields, Knorr Cetina (2001) stresses that the concept of practice has to be understood as including creative tasks, especially when used for describing knowledge workers. According to her, the current use of the concept has often emphasised the habitual and rule-goverend features of practice. Contrary to this definition, the knowledge workers have to continually keep learning and adjusting their practice to experience and new knowledge. It is a creative and constructive practice that is characteristic for knowledge fields.

The concepts of practice and culture are close in Knorr Cetinas work. She uses the notion of practice to shift the attention away from 'mental objects', and toward the re-ordered conditions and dynamics of the chains of action in collective life. Epistemic culture foregrounds the machineries of knowing as composed of epistemic practice. The notion of culture permits to put under light some aspects of practice that according to Knorr Cetina are important to acknowledge. First, it implies ruptures in the uniformity of practice, suggesting the fragmentation of knowledge fields. Second, 'culture' hints at the richness of the process of practice , and how different patterns are related to one another. Third, the concept of culture highlights the symbolic-expressive aspects of human behaviour.

In the present text, the concept of 'culture' and 'practice' follow the understanding of Knorr Cetina. The discussion will concern epistemic practice, however, as it is the practical machinery of finance that is under scrutiny. Together with the concept of practice, certain supplementary concepts become interesting. As a complementary perspective for organisational studies, Czarniawska (2000) suggested the idea of analysing 'action-nets' – a concept close enough to Knorr Cetina's 'chains of actions', but permitting more connections than only linear. Action-nets are interconnected collective actions within a field of practice, involving various practitioners. Those practitioners are not necessarily expected to be acting within the same organisation. Instead, the idea with this perspective is to open it up for understanding of what is happening within a field of practice or a business domain, of how various actions become linked to each other. This paper is inspired of the action-net approach in the meaning of describing the practice and how the various practitioners are related to each other in their work.

In her work Knorr Cetina underlines the relation between the people she studies and their knowledge object (1999; 2001; Knorr Cetina and Breuggers, 2000). As the object of knowledge is characteristically seen as open, question-generating and complex, the relation between the subject and the knowledge object will always be of a constructive character. In contrast to what in ordinary life is called an object, a knowledge object will be under continual reconstruction. The knowledge object seems to have the capacity to unfold indefinitely. The assumptions on the knowledge object will in this article follow the line of Knorr Cetina's. However, the focus here will not primarily be the various subjects' relation to their knowledge object. Instead this article will illustrate how the knowledge objects of the various expert groups are related to each other in the chain of action.

'The construction of the machineries of knowledge construction' is the focus in Knorr Cetinas study of scientists (1999). In some aspects, the epistemic cultures of high energy physics and molecular biology can be described as closed universes, to be really understood only by the participants of these special worlds. However, they are not totally unified universes or worlds. As technical equipment within the area of high-energy physics is very sophisticated, not everybody can utilise it. On the contrary, specific persons become identified by the technical expertise they supply.

In her final chapter (written as a dialog with a reader), Knorr Cetina points out that domains of knowledge do not necessarily have to be ontologically homogeneous. The communitarian co-operation can nevertheless work effectively. The observation of Knorr Cetina is of importance for my study, as it concerned the relationship between four specialist groups, and between them and a more generally understood the practice of finance, of which they are but a part. Whether this practice can be seen as ontologically homogenous is not the issue here, although an underlying assumption is that it does not have to be. The purpose of my study was to search after 'the construction of the machinery of finance practice'.

THE MARKET OF SECURITIES

The market of finance is an institution described as having three main functions:
- distributing savings to business,

- handling and spreading risk,
- supplying the economy with means of payment (Viotti & Wisén, 1991 p 10).

The flow of transactions between different markets or between different securities are executed by financial intermediaries, that is banks and investment banks. One market of finance will be of specific interest in this paper, and that is the market for securities.

The existence of a market for securities depends on an emission system, creating a primary market. Even if this primary market is a prerequisite for the secondary market, it is the latter that is central and worth special attention. A well functioning secondary market is of great economic value, not least for mediating capital between businesses and spreading risk. The market for securities also has certain characteristics making it 'smoother' than, for instance, the one for consumer products, as securities have low transaction costs, especially with the computer technology of today.

A mediator who is always on the market offering buy- and sell- prices is called a 'market-maker' (Viotti & Wissén, 1991). For this 'market-making' to be profitable, the transaction costs must be low. As the profit comes from offering a number of securities at a given price, the 'market-maker' must be able to judge a 'reasonable' price at which to buy as well as sell. If the transaction cost were considerable, the profit for intermediaries would be lost in those costs. These type of transactions do not only demand low transaction costs, but also standardised instruments. Securities suitable for market trade by 'market-makers' have to be standardised, in the sense of being easily characterised in terms of risk and value. If they were not, the transactions would be fewer and thereby not making the intermediary a profitable practice.

Activities at the Stockholm Stock Exchange

The market for shares is in Sweden connected to the Stockholm Stock Exchange. The practice started in 1863 and was converted into an independent subsidiary company in 1993 (Stockholm Fondbörs, 1999 URL). The members of the Stock Exchange – banks and investment banks – are allowed to take part in the trading, nowadays by means of an electronic trade system called SAX. The basic purpose of the share market is usually presented as mediating venture capital – mediating between people who have savings and people who have ideas (Viotti & Urwitz, 1988).

In a world without uncertainty, allocation of savings would be the only task for the capital market. Then the secondary market for shares would not have any purpose. However, as there is a strong need to handle risk in the economy, the role of the market for shares is obvious. A share can be seen as a legitimate claim on the company having issued the share.

The value amount of this claim depends on the future cash flow of the company. By virtue of the limited responsibility coming with a share, the shareholder only risks invested capital, not the remainder of his/her fortune. The market for shares, and especially the secondary market for shares, has made it possible for investors to change their holdings of investments, and by that also their risk situation, without considerable costs. When it comes to the handling of risk, there are a number of instruments on the capital market that can be used, but shares have one unique attribute. Having a share also means the right to a vote at the shareholders general meeting.

For the share market to be effective in allocating savings and distributing risk, there have to be regular price quotations, guiding various decision makers (Viotti & Urwitz, 1988). In a market economy, it is of great importance to try to create a 'system' that gives correct information. However, even if a well functioning share market is comparatively close to an ideal market, the information describes a situation too complex to be explained only in a price. Signals from a market are far too difficult to interpret, and depend on too many scenarios to be possible to explain and predict easily. Therefore, the market is important for spreading information (price) from informed to uninformed persons. Nevertheless, this information is neither complete nor perfect, making it profitable to specialise and revise direct information and distribute it to interested investors, something brokers and analysts are aware of.

The market for securities went through a renaissance in the 1980s (Boman, 1988). The intensified trade depended on a complex development, where deregulation in the trade of securities, liberalisation of currency restrictions and a considerable amount of new corporations introduced on the market, can be mentioned among others factors. During this period, the volume of shares issued more than doubled in relation to the late 1970s, which generated more risk capital on the market. The increase in financial trade became even more accentuated during the 1990s, as illustrated in the figures below.

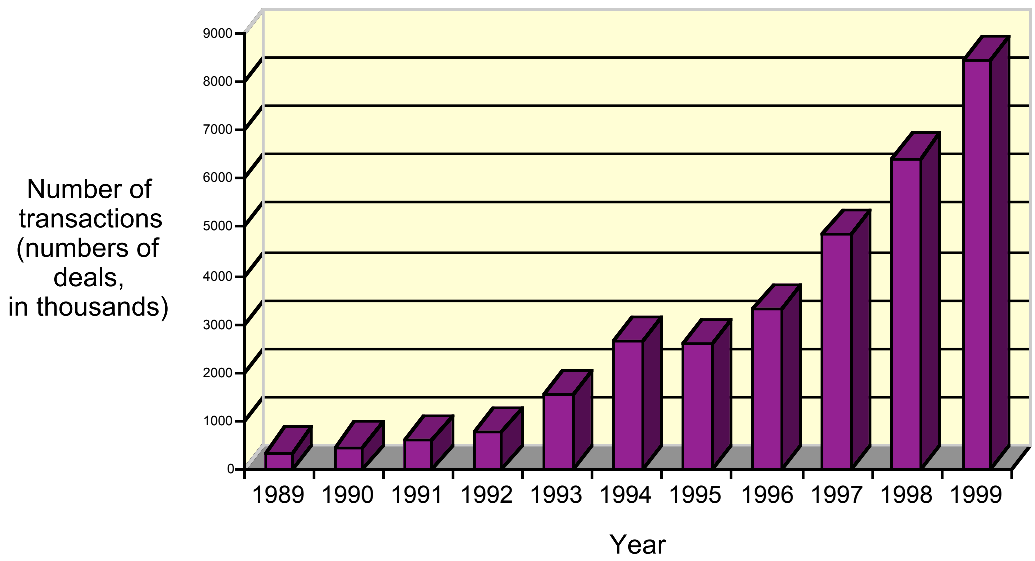

Figure 1: Transactions on the Stockholm Stock Exchange 1989-1999. Source: Stockholm Fondbors Factbook 1999 (including the A-, the OTC and the O-list).

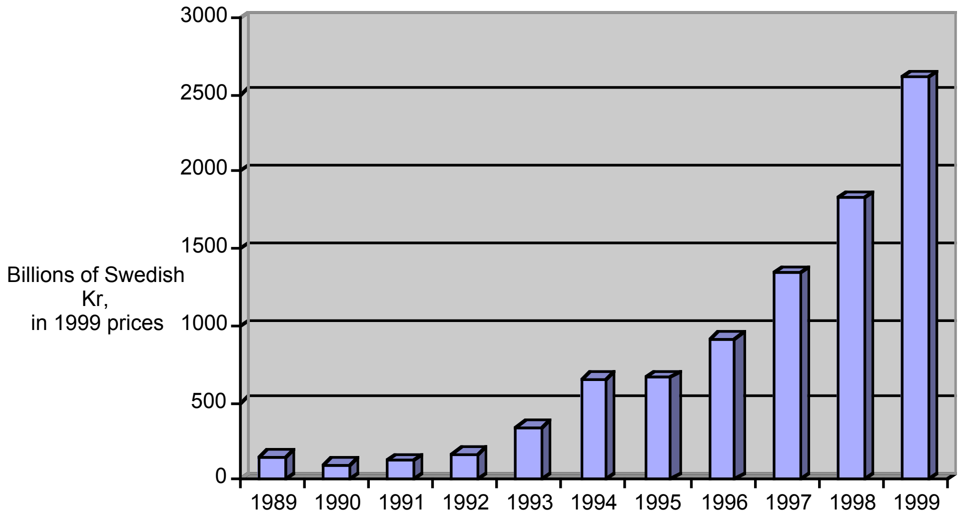

Figure 2: Transactions on the Stockholm Stock Exchange 1989-1999. Source: Stockholm Fondbors Factbook 1999 (including the A-, the OTC and the O-list. SBI-list not included).

This increase in trade was made possible by the need for capital in business, and the intensified interest from investors. The importance of a vital intermediary in the shape of investment banks is also mentioned by Boman, (1988), who describes it as a business characterised by creativity and flourish in the 1980s. There were a number of new firms that were established in these years, and in addition, some business and saving banks received permission to trade in securities. The organisation of the firms changed, and the services they offered became more specialised. Some brokers showed interest in mediating large blocks of shares, and therefore were seen as having an institutional orientation to clients. The increase in volume of securities traded also made the income from brokerage more important for the firms (Hallvarsson, 1988). In addition, the traditions of the business changed. Earlier, fewer persons were involved, with the market clearly divided among them (Algott, 1963; Hallvarsson, 1988)[2]. The new generation in business became more active in contacting investors themselves, and the number of brokers increased dramatically.

The Business of Investment Banking

The trading of shares on the Stockholm Stock Exchange is mediated through investment banks, for the primary market as well as the more intense secondary one. The number of direct actors on the market is limited to members of the Exchange, that is banks and investment banks. Describing the branch of investment banking is however not an easy task. The branch has changed a lot during the last decade, and the pace of change does not seem to decrease. The number of members of the Exchange started to increase during the 1980s, developing to an even more accentuated trend during the 1990s.

As the number of members of the Exchange increased, so did the size of the firms. They started to develop more sophisticated services, a direction that was to continue. The growth of the firms is now even more intensified, and there are signs of more diverse profiles of the various firms. Some of the houses specialise in only one type of expertise (instead of the usual four). Another alternative for creating a profitable niche, is to focus on a limited line of customers, and offer them specialised service. Also, trade on Internet is increasing, creating a somehow different situation for the possibilities of trading. Consequently, the coming decade is expected to bring as much change within the branch, as the last decade did.

In general, the largest investment banks in Sweden can be described as primarily active in three lines of business (which is also the case for the international investment banks). First, they mediate transactions on the Stockholm Stock Exchange, transmitting contacts between buyers and sellers, in a line of business called 'Equities' or 'Securities'. They are primarily active with in the secondary market of sequrites. The second line of business is expertise in corporate finance. Here the service provided by experts in financial restructuring is financial

[2] The story of how a family business develop into one of the largest American investment banks, is told by Endlich (1999).

advices for top managers. As introducing companies on the Exchange is one of the big services provided, the business line of corporate finance is very much involved in the primary market of shares. A third line of business is called 'Asset managment'. Here advice for managing larger assets is supplied, for instance advice on insurance broking, pension structuring or tax issues. As this line of business is less directly involved with the transactions on the market, this line of business will not be further discussed. Also the services of corporate finance will be described only briefly.

This study has been conducted primarily within some of the largest investment banks in Sweden. Initially, interviews were conducted with financial managers. These interviews helped me to understand the business and led to further contacts and interviews with the specialists, who were the most interesting category to me. I was also able to gain permission to conduct observations later. The interviews were equally distributed between the specialist categories: Traders, Brokers, Analysts and experts in corporate finance. The Brokers are called 'Sales' in the field, and have chosen to also use this term for them in the continuation of this paper. The Sales and Analysts permitted me to take part in some meetings, make shorter visits in the place of work in Equities, and gave me the opportunity to study their reports and prospects. Interviews have also been conducted in their offices at New York and San Francisco. In addition, I have interviewed some US bankers.

The situation in the Swedish banks is very similar to those in the international investment banks. To begin with, the model the Swedish investment banks use to develop their new services or products, is the one of the international big investment banks. This model is easy to track in the way they organise their firms, in the specialities they develop, but also in the labelling of departments and products. Business lines, specialist groups and product areas, have all names in English, and these are used also in Swedish conversations. The management of the firms is also very much like that described in case of US firms (Eccles and Creane, 1988). Even the work conditions of traders in Swiss banks (Bruegger, 1999; Knorr Cetina and Brueggers, 2001), of traders on the New York Exchange (Abolafia, 1996), and of traders in international investment banks in London (Williams et al, 2001; 2002) are similar to those of Swedish traders. US brokers face a situation similar to the Swedish brokers, and try to cope with it with alike strategies (Smith, 1981). General problems discussed in the US firms, like questions of inside information (Hayward and Boeker, 1998) are also acknowledged on the Swedish market. Thus the financial business, at least Europe and North America, show large similarities.

THE EPISTEMIC PRACTICE OF INVESTMENT BANKS

As I mentioned above, Knorr Cetina (1999) presented high energy physics as a closed universe. The machinery of finance can not be described in the like manner. It is rather an open universe where production sites, labour market, states and politics, are all involved. Traders themselves declare that the market is 'everything' (Knorr Cetina and Breuggers, 2000), everything from world politics to a local trend. In the securities market, however, the focus is on the flow of money, and on financial transactions. Corporations, primary products, refined products and gold, become important background aspects. The machinery of finance is about transferring capital between investors and capitalists, between various sectors and markets, and for some, about the possibility to make a fortune though buying and selling at the right time. If 'everything' affects the market, the shape of it will continually change. Consequently, the defining characteristic of such an object has been presented as being it's lack of 'objectivity' and completeness of being (Knorr Cetina and Brueggers, 2000).

By analysing the professionals in investment banks, and the business field they work in, I intend to continue a discussion of epistemic practice and its relevance for understanding knowledge work and professional firms. In what follows I describe four professional groups in investment banks, showing the differences in the ways the four groups relate to the knowledge body of finance. Discussing financial practice, instead of focusing on only a specific occupation, expands the possibilities of understanding the reconstruction and practice of the financial field.

The world of investment banks is an abstract world. Changes of the market are shown in numbers on the various computer screens. Enormous amount of information is transacted, and used to produce information in another format. Flows of capital are shown in numbers, like GNP, corporation activities, sector forecasts, etc. The financial world is a world of flows and changes in the ways nobody have ever seen, other than as modelled in figures and tables. Consequently, the world of bankers is a social construction visible only on the screens, and the transactions of millions of kronor or dollars transferred within the firm, are never touched. They are only notations on a paper.

Michael Abolafia (1996) chooses to study traders, because he saw them as the centre of market mechanism. However, my interviews in Swedish firms showed that other experts within the investment banks were perceived as equally important. The work of Sales, Analysts, and experts of corporate finance were presented as of vital importance for providing the expected service to the clients.

The Place of Work

Sales and traders are placed in one big room, around long desks. Every person has his/her own section of a desk, equipped with screens, computers and a number of telephones. There are screens around the walls of the room, showing the prices of often traded shares. The analysts are placed in a setting nearby, with their own equipment, but in an area slightly calmer. Because many people are working in a small space, talking on the phone or with colleagues, there is always noise and persons moving in the room, and the noise is sometimes quite loud. But the lively place of work does not seem to bother the people working there:

> It is nice to work with people around. I do not want to sit in a corridor again, like I did at my earlier position at a pharmaceutical industry. There are so many small things you have to ask people about, and I am not disturbed by them. You save a lot of time, which is just taken for granted. (Analyst)

These experts describe their situation as autonomous, but their need for a close social setting is explicit. The quotation above hints at the continual flow of information between the colleagues in the room. These continual discussions become important for distributing information about trends on the market, and the testing of new ideas. The need of a close setting also indicates the need of rapid action when necessary. Phone lines become very busy when movements on the financial market are intensified, and sales need quick communication with analysts as well as traders. The experts in Equities are all involved in the process of providing services. The following presentation will describe how each expert group relate to the knowledge field of finance, and how they contribution to the machinery of financial transaction.

Traders

In an ethnographic study of Traders, Bruegger (1999) compared the situation of a Trader with the one of a test pilot in the US Air Force. Pilots are described as either having 'it' or not, needing to be made out of 'the right stuff', something also characterising Traders. Maybe the Traders could be seen as the most exotic experts at the brokerage firms, given the leading role in movies ('Wall Street') as well as being an object of ethnographic studies (Abolafia, 1996; Bruegger, 1999). Traders are, however, not only found in investment banks. Abolafia's (1996) book presents three categories of traders, two of them working in investment banks and one at the New York Stock Exchange. Bruegger's (1999) study was done in a global bank. The occupation is similar in those various organisations, however, and the working tasks are quite the same. Traders can broadly be described as being either proprietary Traders or arbitrage Traders (market makers).

The proprietary Traders execute the orders from customers, generated by contacts with sales. To being able to conduct a transaction, though, the customers need a price for the security they are interested in trading. As the price for a certain security can vary through the day, the Trader has to set the price, at which the customer is offered to sell or buy. As the Traders are trusted to have knowledge of the 'right' pricing at a market, they are also allowed to trade for the house. The arbitrage Traders focus on transactions made only for the investment bank. They analyse the setting of prices between various security markets, for instance options and derivatives, and when they find securities priced over or under its expected value, they trade.

Technology has become of increasing importance for the work of Traders. First, the trading is nowadays conducted in cyberspace. The trading floor is for most Traders only a story from the past. The 'natural' contemporary market is presented on screens that can be read globally. The second reason why technology had developed significantly is the increasing complexity of the composition of the various financial instruments that are traded. The mathematical models are described like chemical formula, mixed together fore 'creating' a product. The formula explains how the value can be realised, making it possible for the Trader to develop a strategy for handling the instrument.

There is a need for being competitive to be able to become successful in the work of trading, according to the Traders themselves. The competitiveness supports their lust for gains and their ability to bear also larger losses, when those occur. For a person who needs to integrate considerable amount of information during time pressure, it is necessary to be analytic. The information can concern order flows in the market, which necessitates creating patterns possible to analyse. These patterns involve options and derivatives, making the information rather complex to understand. The Traders analyse these patterns seeking for a movement to predict. Substantial value is to be gained by transacting at the right moment.

One of the Traders I interviewed described the market as being a creature of its own (see also Knorr Cetina and Brueggers, 2000). According to him, there were so many various aspects influencing the price on a certain market that it is not possible to judge movements in a market only by analyses. Instead of predicable analyses, the Trader needs a 'feeling' for the market, an intuition for how this 'animal' will be moving. The talent needed for being a Trader is never described in educational terms (even though quite a few have a PhD in physics). It is rather a feeling for the market, and the ability to handle the risk and stress of the work, which are described as crucial.

There are also other studies underlining the dual need of knowledge among Traders. Willman et al (2001) makes an illustrative example, presenting how Traders use the financial theories of the markets for understanding 'how the world works' (2001, 893). In addition, and in contrast to these financial theories, the Traders also need knowledge how to use the mathematical knowledge in everyday practice, i.e. 'how to work the (financial) world'. The theories about how the financial market works become crucial for understanding the instruments on the market, and for communicating in the 'financial language'. However, the 'real world' does not act according to theories, but has to be understood by practical experience. For the latter, an intuition and flair for the market are required. This is sometimes presented as 'psychology of Traders'. To understand the market, you have to be able to predict how other Traders will act.

The actions of the Traders can be seen as the core of the business line of Equities. The trading for the house, and the arbitrage of transactions ordered by clients, constitutes the income of this line of business. However, there are also other specialists involved in this practice.

Sales

The task of Sales is to keep customers informed about news or expected changes on the market, and to make it easy for the customer to change their investment portfolio according to this information. As the income of equities is arbitrage of trade, the goal is to create as many transactions as possible. The working day of Sales is structured by a few fixed time points. The early morning is spent reading various financial papers, national as well as international. The first point of time of importance is at 8.30, when there is a video-conference in which the analysts from various offices present their view of the market. The analysts dominate the meeting, giving their perspective of recommendable transactions for the day. Thereby Sales are given ideas for what to recommend to their customers. The analyses can be more closely studied in reports or shorter written comments after the meeting. The Stockholm Stock Exchange opens at 09.00 and closes at 17.30, the other two points of time structuring the day of Sales. Between these hours the Salespeople keep in contact with their clients by phone, communicating with some of them several times a day, and with others only some times a week.

The educational background of Sales varies. Quite a few have a degree in business administration. This is, however, not needed. A number of Sales have started their career within banks, where they developed the needed knowledge about the financial market. The employees who are Sales are sometimes described as being just like any other salesperson – having a talent for handling customers. In this particular case, their goal is to make the customers change their investment portfolio. However, this must be done in a trustworthy manner, as the relation is to be maintained in a long time perspective. Like any other salesperson, they need to have an understanding of the product they are offering. How well founded this knowledge of the product or market is varies, however, according to the Sales themselves:

> Various customers prefer various Sales, and as a chief I have to match them. The Sales and the customer must differ in the right way. Some Sales are extremely trading oriented, and use their considerable knowledge about the market in the contact with their customer. Other Sales are very service oriented, arranging dinner at nights, lunches, making the customer talk to the right analyst etc. Some are very knowledgeable, others are extremely nice persons. (Sales chief)

Like Traders, Sales seem to divide their knowledge along a polarised scale. The two endpoints of the scale are technical knowledge and the social skill in contact with customers. Both skills are important for success, but whether you focus on social or technical skill is up to the person him/herself (see also Smith, 1981).

The focus of interest in the financial market differs between Sales and Traders. Traders focus on the direct transactions and changes on a certain market, trying to find the right moment to sell or buy. Sales take larger interest in brother scenarios, since many factors influence the price of a share. Tendencies on the labour market, general interest rate levels, and other general aspects on the economy, become of interest. Overall, the discussion with a customer has to be credible, if the Sales are to persuade them to transact.

The internal competition between Sales is described as very intense, and the atmosphere in the workplace, sometimes as aggressive. Tension in the room varies with movements on the market. People have outbursts of anger, which is seen as part of the culture. A Sales comments:

> It is a tremendous competition between the Sales. The ideal, I think, being brought up in team sports, would be to have it 'all for one', but that is not the case in this business. On the other hand it can be quite good. When I was working at the bank, I saw how a situation without pressure made people understimulated. Here we have straight and honest manners. It is stressing, so the adrenaline can start flowing, but it is cleared out at once. There are a lot of people with temperament in this business. Outbursts are a natural part of the practise.
>
> One of my colleagues actually keeps a cap by the desk and sometimes, when discussions getting more intense, he puts it on saying; 'it is starting to get chilly in here…'. Sensitive persons shouldn't work here. It can be really tough some times.

The strong pressure for generating trade creates a competitive atmosphere, where performance becomes of vital importance. Even thought customer relations have a long time perspective, the Sales are expected to continuously generate trade. As the knowledge and information around the financial scenario has become an even more important part of the service the house provide, a special research support has been developed.

Analysts

The Analysts have acquired a more important role in the service of the investment banks during the last decade. Initially, they were doing deeper analyses to support the Sales, but as years went by, the Analysts came more and more in focus. Nowadays the annual evaluation of the service in investment banks, made by customers, is seen as important, and becomes well-known as it is published in magazines and papers. These evaluations focus mostly on Analysts and their service, and have made them the most visible public 'stars' of the business.

The Analysts are divided into two subcategories. One category is called macro Analysts, focusing on broader scenarios and strategies for various sectors. In the larger global scenario, the financial development in the United States and Europe become of importance. The general scenario in the different Nordic countries is predicted, by the macro Analysts, on the basis of information concerning for example rate of tax, labour market, price levels, and rate of exchange for the coming two years. These aspects influence each other in various ways, which have to be taken into consideration. For instance, if the interest rate rise, considerable cash flow will be invested in the bond market, and less in the market for shares.

The second category of Analysts is called share Analysts. Their research focuses on the scenario within specific businesses, and how they are affected by the larger economic activities. Mergers and acquisitions within a business, can be of vital importance for how share value develops. Changes in expected result of specific firms are analysed, and what these changes can entail. New products that emerge on the market can be vital for the surviving in certain businesses. This is for instance the case of pharmaceuticals. Such information of product development can therefor have considerable impact on the valuation of a share. Consequently, an unexpected closure of research projects can also affect the interest for investors in a specific firm.

The Analysts are specialists in reading the information about changes in the financial business, and representing it in a format suitable for the Sales and the customers. The Analysts are to serve both Sales and clients. The Analyst continually gives Sales an updated information in the form of general reports, specific business analyses, news letters, and a large amount of short e-mails. The strategy for advice given by the specific investment bank, is decided by the Analysts. This strategy becomes continually adjusted to new information. An increasing trend is that the Analysts become also involved in the advice giving and servicing of customers directly. They participate in dinners, lunches and keep in frequent contact with customers that so wish.

The focus of the financial body of knowledge differs also between the Analysts and the Sales. Sales focus on the shorter time prediction, during which profitable investment is to be made. They have a general interest for profitable business, and an understanding for how financial factors affect the price of shares or bonds. The Analysts often have a larger time scope of interest. They analyse the global scenario, setting the terms for the economy over all. They also more specifically and in detail analyse certain business or even corporations, and by models evaluate the coming value of a firm. Their analyses are to a larger degree based on detailed information, and the use of financial models. Consequently, the Analysts usually have a university degree. Many of them are trained in economics or business administration. There are also a considerable number who have been active within the specific business they analyse, for instance pharmaceuticals or telecom.

Corporate Finance

In Corporate Finance the service provided is expert advice on financial transactions for top managers. This business has its roots in the banking industry, since the clients use to take advice from bank managers when restructuring or refinancing their business. In most contemporary investment banks of any size, however, this line of businesses is also represented.

The experts in Corporate Finance are divided into four groups. The largest of these groups is called 'Equity Capital Market'. This group offer expertise in transactions on the equity market. They are responsible for the financial analyses and advise for firms that intend to finance their practice by going public. The experts also provide advice to managers of firms that are already public, but are interested in new emissions or other similar financial solutions. One of my informers described the relation between 'Equities' and 'Corporate Finance' as a successful combination:

> 'In 'Equities' they do transactions with shares. So what they need is new materials to sell on the market. In that way we live in a successful symbiosis. We provide them with the new 'products'.'

Even if this is a simplified description of the relationship, it does inform about the practical linking of the line of corporate finance, for the everyday work at 'Equities'.

There are also three other groups in Corporate Finance, here presented only briefly. The other large group is the experts providing advice on Mergers and Acquisitions. The directors of this group all have well established contacts among the business elite. Through these contacts it becomes possible to arrange meetings for presentations of future plans for the corporations. Added to these two groups, there are also two smaller sections, sometimes described as ‘centres of excellence’. Here the financial instruments used in the two groups mentioned earlier are constructed. 'The Structure Finance' group tailors financial instruments for customers. The experts focus on the financing of a corporation, and the arrangement of various forms of loans, or combinations of loans and private founding. The experts in this group describe their work as 'financial engineering'. The experts in last of the four groups work under the label of 'Restructure and Valuation'. They develop the standards for evaluation of corporations, later used by the experts in 'Equity Capital Market' and 'Mergers & Acquisitions'.

THE MUTABLE WORLD OF FINANCE

By financial specialists, the financial market is presented like a changing object, mutable in form and shape. Traders described it as a greater being, having a life of its own. Sometimes they see it as a 'large beast' – as powerful, fascinating, dangerous, able to bring incredible fortune, but also bankruptcy. The capacity of understanding this 'beast', gives traders their status within their profession, and their eventual fortune.

Framing in the Financial Machinery

The specific knowledge of Traders is the competence of understanding the movements on the financial market. This understanding is expressed in their trading for the house, knowing when it is advantageous to sell or to buy. This knowledge is also expressed in the prices given to Sales, when one of their customers wishes to consider a transaction. The price of a share can vary from second to second. Still, a specific price must be set for the customer to be able to judge if the transaction is desirable.

Having the specified price given by a trader is vital for the Sales in the performance of their work. Even though they have some insight in the value of various securities, they are not allowed to interfere in the pricing. As they are calling their customers, though, they must be able to present a sell or buy price at any time. While the success in their work depends on the number of deals effected, getting a price in any moment of the day becomes necessary for the service to be conducted. The piece of information linking the traders with Sales is the price setting, and consequently this number can be seen as the *framing*, that is the link from one knowledge field to an other. The price becomes the specific information brought out of one context to be used in another context. The judgement of the value is made by a combination of intuition and mathematical models, and can be formulated in a specific number. This number makes it possible to engage another link of financial mechanisms, supporting the maintenance of the financial machinery over all.

However, the Sales also need other information than a price for carrying out their task. They need ideas of how to advise their customers to change their portfolio. Certainly, they do have some ideas of profitable transactions themselves to suggest to their clients. But to be better informed of the changes on the market, they need the research support. The analysts scrutinise large amount of information, representing them in a form easier to comprehend for the Sales and the clients. Statistics from various countries, the expected growth in certain sectors, general rate level, is among many aspects influencing the future of the market. The specific *framing*, the linking of the knowledge from Analysts to Sales, take various forms. There are larger reports, newsletters, and a continual flow of e-mails, the latter telling the latest news for the moment. As they work closely in the work setting, a conversation is also possible for mediating repacked knowledge. The research is presented in its compact form, easy for the Sales to use.

A primary market is a requisite for having a secondary market for shares. Giving a simplified picture, the experts in corporate finance support the supply of shares at the primary market. Their function as advisers for the financing corporations on the public market supports the trust and stability of firms introduced. One of their links to the work of Sales, accordingly, is their competence resulting in more shares available to transact with.

In an epistemic practice, the *framing* of knowledge becomes essential for understanding the machinery of the practice. The various experts are linked to each other through the packing of knowledge in a format that can be understood also outside the specific expert area. The knowledge object can be expressed through these pieces of information. They signify and symbolise movements of 'the beast'. As the financial market is not to be seen or touched, it can only be experienced in these symbols. In order to take part in the practice of finance, a person has to be thoroughly socialised into an economic universe, learning how a rational agent is expected to act in this world (Callon, 1998). He or she must learn how the various institutions related to finance are intertwined. In the closer setting, however, the body of knowledge will always be more complicated. The general view of the field becomes illusive, and the fragmentation is obvious. For the machinery to continue, the different parts of the machine have to be experienced as stable, at least for a specific moment. The pricing of a share, the reports from analysts, or the prospect of introduction from experts in corporate finance, are all experienced as valid information for a specific time. Those pieces of information create the *framing* of the specific task of Sales, reproducing their financial universe. It is also those framing aspects of the information that permit the machinery to continue to wheel.

Knowledge of Work:Technical and Social Aspects

Theoretical discussions of knowledge workers often subcategorise knowing in explicit and tacit knowledge. In the field, however, practitioners often differentiate between technical and social/psychological knowledge. This is at least the case where the knowledge work requires both of these aspects. For example, Traders divide themselves as being either technically (mathematically) oriented towards the market, or understanding the psychology of other traders (see also Willman et al, 2001). Sales divide themselves by being very knowledgeable about the market, or very competent in the managing of customers (see also Smith, 1981). Similar sub-categorisation also appeared during my earlier research on lawyers (Winroth, 1999). The lawyers talked about 'rain-makers', who were excellent in their client relations and thereby attracted cases to the firm. Their contrast was the technically oriented lawyer, prominent in the detail scrutiny of a legal problem, but who, in the worst case, had to be 'locked into the library' (see also Nelson, 1988).

Many of the contemporary knowledge workers have a technical and a social dimension in their occupation. Most of the traditional professions include both these dimensions in their work, for instance lawyers, accountants, doctors, and psychologists. So is also the case for a number of the newer knowledge workers, like the consultants in finance, IT, media, and computers. Only knowledge workers who practice within large firms, who do not need direct customer contact, would not find the differentiation between technical and social competence very useful.

Understanding Epistemic Practice

When a body of knowledge is continually unfolding, the practitioners working in the field will continually develop their base of knowledge. The everyday practice and the use of new models, presented by scientists or other practitioners, will support the knowledge enlargement of the field. However, the knowledge of a field contains many lateral branches, creating a complex diversity in of links. What is seen as a black-boxed piece of information (i.e. a price) in one place of the financial machinery, is the outcome of a very complex and collective judgement made at an other place of it. The linking of the various knowledge workers keeps the machinery of an abstract global financial business going.

The study of epistemic practices adds an interesting perspective to the analysis of knowledge workers. Epistemic practice includes an interest for the specific knowledge of an occuaption, and how the circumstances connected to this knowledge effect the members working conditions. It emphasises the activities of the knowledge workers, and how practices relate to one another, and to the field of knowledge. This perspective must be seen as an important contribution to already more common theoretical frameworks for understanding the changes among knowledge workers and contemporary business life.

As was mentioned earlier in this paper, the specialists of investment banks can not be seen as belonging to a profession. They do not monopolise certain knowledge or certain positions. If the definition of knowledge workers include theoretical knowledge, the Analysts and experts of Corporate Finance will still be categorised into this group. The Sales and the Traders, however, are not as evidently knowledge workers. Many of them do have a University training or a doctorate, but others make their career with no higher education at all.

All the four categorise of specialists can be seen as occupational groups, and even occupations with their own specific culture. However, those different and specific cultures are interconnected with each other (see also Abbot, 1988). During the right circumstances, a member of one occupation can change to one of the others. This is frequently happening in the business. Even though the culture is presented as quite different between the groups, some foundation of epistemic culture must be shared. It appears as if the sharing of epistemic practice is the most vital prerequisite, and that the membership of a specific occupation is a necessity, but still of secondary importance. Could this be a characteristic for many of the knowledge workers developing in the contemporary business life?

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