

Getting a job in finance.

The strength of collaboration ties

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WORK IN PROGRESS

DO NOT QUOTE

Abstract : Since the seminal papers of Mark Granovetter, *Getting a job* and “The Strength of Weak Ties”, it has been acknowledged that contacts are a valuable way of getting a job, and that weak ties are more efficient than strong ties because the former convey more original information than the latter. We would like to challenge this overemphasizing focus of network sociology on information. We first return to Granovetter’s empirical work and show that the “weak ties” that seem the more helpful for getting jobs are generally former colleagues. One reason for this feature is not that former colleagues increase ego’s information but rather that they value the pursuit of past collaboration. We examine then the consequence of collaboration ties hypothesis in the financial industry labor market. Based on results of previous research, we explain why collaboration ties may be so valuable. In finance, the labor market values the assets that financial operatives take with them from one firm to another such as knowledge, know-how, customers. Since assets are to a certain extent shared among coworkers, it is worth hiring business relations, former colleagues or moving in teams: it enables a better transfer of assets such as idiosyncratic working routines, distributed knowledge, or joint customers. To demonstrate our claims we rely on an internet survey launched with efinancial-careers.fr collected in 09/2008 among French financial employees (n=995). This questionnaire shows that working in core finance favors the accumulation of moveable key assets on the one hand and of collaboration ties on the other hand, that collaboration ties and moveable key assets are strongly correlated. Move of key assets, collaboration ties and more over the combination of those two dimensions increases wages. Although firms try to attach key workers holding such advantages with some contractual devices, those strategies fail since many employee, in order to remain in contact with those attractors, smooth rather than impeach those mobilities. Finally this paper suggest that the real firm is maybe not the formal firm but rather reside between firms in the networks of collaboration ties formed by moving employees.

Since the seminal works of Mark Granovetter, *Getting a job* (1974) and “The Strength of Weak Ties” (1973), research in social science has been increasingly emphasizing the sole informational dimension of networks in job search and job mobility. Theoretically, the weak ties - strong ties argument has been simplified into a more structural approach, with the alternate diversified - redundant ties, implied by the structural hole argument (Burt, 1992). Therefore contacts are viewed mainly, if not exclusively, especially in economic models, as information processors diffusing to ego, at a rate depending on the network structure, new information about job vacancies (Boorman, 1975; Montgomery, 1992; Ioannides and Datcher Loury, 2004). Contacts play therefore benevolently the role of job agencies or that of head-hunters providing at potential employers and employees valuable trustworthy information (Finlay and Coverdill, 2002; Lin, 2001). Nevertheless, empirical research on the value of informational network provided mixed results (Granovetter, 1983, 1995, 2005; Lin, 1999; Ioannides and Datcher Loury, 2004). Several studies find a relation between weak ties and final status or wage, but a relation that appears to be

mediated through a third variable like the status of the contact (Lin et alii., 1981; Wegener, 1991). Other studies based on national wide sample find no clear relation between the strength of tie and pay (Bridges and Villemez, 1986, Mouw, 2003). This overemphasis on information has been also challenged by researches that claim that strong ties can also be helpful, for different reasons than weak ties, because strong ties, although providing maybe less original information, might be more motivated to support and to influence the decision makers (Bian, 1997; Yakubovich, 2005). We might have two mechanisms playing at the same, informing weak ties and supporting strong ties, producing a rather undetermined relation between strength of ties and value of the job.

Nevertheless, both approaches are similar in the way they view contacts in job change. They both separate too strongly, job search episodes and working episodes. The typical situation of these frameworks is that of an unemployed person or a person unhappy at work, who is trying to find a new job and who is asking contacts either (or both) for information or for support. In this framework, contacts, although they may be willing to help, remain more or less indifferent to the firm where ego will find a job. They give information because giving information is not very costly and they can expect information in return or they help someone to whom they are bounded and they can expect some kind of future reciprocity. This type of approach does not enable us to understand why the contact is so often a work contact, such as a former colleague or a former client, who moreover frequently holds part if not totally the power to recruit (Granovetter, 1974; Bridges and Villemez, 1986, Yakubovich, 2005). Work ties like former colleagues are generally classified as weak ties. This statement is correct if we measure it with emotional intensity, but it can be challenged if we measure it with the amount of time spent when ego and contact worked together. But classifying work contacts in weak-strong tie dimension obscures the fact that work contacts can not be seen as independent from the object of the quest. In those types of help, when a former colleague helps to hire a former colleague, what is at stake is nothing less than the pursuit of a fruitful work collaboration. It is therefore not surprising to see that in Bridges and Villemez (1986) the distinction between work and communal ties is more relevant than the classical weak-strong ties in order to explain wages and that its effect is significant at least in important subsample like Manager-Professional-Technical workers.

Financial industry is a good observatory for studying the impact of collaboration ties. As regards the importance of network and social ties, finance offers to the media two contradictory images, that of a world of selfishness and of great solitude, and that of a closed network of highly tied insiders. A way of reconciling those two views is to see that finance is structured not by strong emotional ties, but by highly structured collaboration ties that studies view as important for success (Roth, 2006; Burt, 1997). Finance is also a sector where pay and inequalities have been rising tremendously, benefiting from a wage premium that remains unexplained (Philippon, Resheff, 2009; Kaplan, Rauh, 2009). In previous work (Godechot, 2007, 2008a), we argue that those wages were due to financial operatives capacities to commit hold-up, that is to threaten efficiently the firm to move the firms key assets to a competitor. In our framework those assets like knowledge, technologies, clients, are appropriated by financial employees and multiplied by collaboration ties leading to some spectacular team move (Godechot, 2008a, 2008b). This paper intends to

deepen the theoretical link between moveable assets and collaboration ties and to offer a statistical exploration of its importance relying on an internet survey launched with efinancial-carreers.fr collected in September 2008.

Paper is organized as follows. In the first section, we first return to Granovetter's empirical work and show that below weak ties we have very often collaboration ties. We then develop a theoretical framework that links in finance the importance of collaboration ties with the appropriation of key moveable assets. The third section presents the questionnaire on job mobility in financial industry, and the main variables. We confirm in the fourth section our hypothesis linking moveable assets and collaboration ties to one another, and those related dimensions to a job position at the core of financial markets and to higher wages. The fifth section shows that the combination of moveable assets and collaboration ties helps also to circumvent the contractual devices that try to refrain turn-over. In the final discussion section, we analyze how collaboration ties may challenge the traditional way of viewing the nature of the firm in finance, and second and how they are related to classical measures of network structure.

1. Information or collaboration: Are they so weak?

It is quite common to link Granovetter's theory on weak ties (1973) and *Getting a job* (1974), his study about job search in a Boston suburb. Granovetter's theory is by now almost common knowledge. Ego's different strong ties are very likely to be connected to one another, whereas ego's weak ties are more likely to live in different and rather unconnected groups. While different strong ties, already connected would share more or less the same information, weak ties on the contrary serve as bridge between various circles and may provide ego with new and valuable information.

Granovetter relies partly on his 1974 study on contact in order to establish his general claim explaining that weak ties is a very valuable mean in order to get jobs.

“I have used the following categories for frequency of contact: often = at least twice a week; occasionally = more than once a year but less than twice a week; rarely once a year or less. Of those finding a job through contacts, 16.7% reported that they saw their contact often at the time, 55.6% said occasionally, and 27.8% rarely (N=54). The skew is clearly to the weak end of the continuum, suggesting the primacy of structure over motivation.”

This first kind of proof is rather loose since we do not know the general frequency of all ego's contacts¹. The book, while it does establish that getting a job through personal contacts enables to more satisfying and a better paid job than through formal means and direct application (1974, p. 13-14), does not give much proofs of the strength of weak ties compared to strong ties. It shows that weak ties, defined by the intensity of contacts, are negatively correlated to unemployment and positively correlated to sending good words to the employer (1974, p. 54).

¹ Granovetter do recognize this objection in a footnote p. 1372.

Who are the contacts that are generally involved in Granovetter's survey: they are mainly work contacts.

"In many cases, the contact was someone only marginally included in the current network of contacts, such as an old college friend or a former workmate or employer, with whom sporadic contact had been maintained (Granovetter 1970, pp. 76-80). Usually such ties had not even been very strong when first forged. For work-related ties, respondents almost invariably said that they never saw the person in a non-work context. Chance meetings or mutual friends operated to reactivate such ties. It is remarkable that people receive crucial information from individuals whose very existence they have forgotten. (1973, p. 1371)."

Although Granovetter does not say that a proxy of weak ties could be work contacts and that of strong ties could be family and friends, such a shortcut is nearly suggested. 31% of the contacts are coded "family-social" and 69% "Work" relation, among which we find 21% of former teacher, 36% of former employer or supervisor, and 33% of former colleagues (1974, p. 46). Those work ties seem valuable since that they are more likely to be associated with a better pay. Moreover those former colleagues have a much higher probability than other contacts of becoming the new employer or the new supervisor (1974, p. 47). To put it in a nutshell former colleagues hire former colleagues.

The reason for such a feature may be quite different from the weak tie argument. The weak tie argument relies on the value of a new information provided at time t by weak ties. If your former supervisor quits, works for another firm and three month later calls you back and offers you to work again for him in his new firm, would we say that it is a weak tie? It may not be a strong tie, since this emotional intensity of the relation may be quite low. But since the working contacts were regular before quitting, the supervisor and the subordinate did share already quite a lot of information on each other, and neither the former nor the latter do learn in this phone call much more than the possibility of working again together.

Although it could still be possible to analyze this case in the information ties framework, it is tempting to provide another reason why this type of working ties work. They are collaboration ties. We can talk of collaboration ties when people produce more together than separately. Complementarities is not just of complementarities of skill as in Kremer's framework (Kremer, 1993), but are personal complementarities. Two coworkers learn to coordinate, to share work and they only become and their team becomes productive with time. It is collaboration asset that they may want to preserve. That is why if one moves and has the opportunity of favoring the recruitment of the other, rather than learning at some expense to cooperate with some stranger, he will do so. Cooperating with coworkers is quite common and if we were to state this phenomena alone, for instance on a national sample (Bridges, Villemez, 1986), it is likely that it would have rather little consequences. What we need to do now, is to identify a factor that helps to turn cooperation relations in collaboration ties on the labor market.

2. Collaboration ties in finance

Let us now give a theoretical framework based both on qualitative research in the financial industry (Godechot, 2007, 2008a, 2008b) and on previous literature that analyses the factors that favors the use of collaboration ties.

Collaboration ties are more likely to be important when two persons linked together share a common asset, that they organize a division of labor in order to exploit and value this shared asset and that it is possible to move this asset from one firm to another.

As we have shown in previous analysis (Godechot, 2008a), financial industry is a sector where employee tend to accumulate key assets of the firm and to move them from one firm to another. These assets might be knowledge, know-how, idiosyncratic routines, software and hardware, reputation, or client relationships. Although financial industry is hiring people with an important human capital, what people move from one firm to another is not limited to individual talent. Therefore on the long run, employees in finance are paid a rent that classical human capital variables fail to reduce (Philippon, Resheff, 2009; Kaplan, Rauh, 2009). Although good ideas are seen commonly as the pure product of an individual mind, network sociology has shown that they rely also on a collective context and a network structure (Collins, 1998 ; Burt, 2004). Both insiders account of financial industry (Lewis, 1989) and scholars have shown the importance of mentors (Roth, 2006) in the financial industry from whom you learn both the job and the tips in order to survive in this rather competitive universe. The trading room, with its characteristic open space, is a locus where people learn a lot from each other through informal conversations (Beunza, Starck, 2004). But movable assets are not limited to acquired knowledge, experience and on the job training. Knowledge is often embedded in electronic devices that may be easy to move from one firm to another. For instance, a trader interviewed in 2002, explained that when he moved from a small French broker in Paris to a major American investment bank in London, bringing his laptop to the new firm was a key issue: inside the laptop was a software that he developed with others at his previous firm which could do some innovative pricing of convertible bonds, which are complex financial derivative (Godechot, 2007). One classical element that is often moved from one firm to another is the client relationship. Hence brokers and sales build progressively with their clients an idiosyncratic relationship both through formal and informal, professional and non-professional conversation. One of the issue of the building of those relationships, that may rely on exogenous similarities like that of gender or of social background (Roth, 2006), is to build a shared vision of the market between the sales and client (Smith, 1999, Ortiz, 2003). If a sales moves to another firm, his client might be willing to continue discuss with him, listen his advices, and have transactions with him. Moreover, with standardized products, priced very similarly in different markets, what makes the difference is the complex “chemical” that transforms the customers of the firm into a client of the sales.

Jobs in financial industry differ in the amount of assets an employee can appropriate and in the extent those assets are movable. We may think that jobs at the core of financial market, front-office traders and sales, are jobs where assets are more appropriable and easier to move. The first reason is that jobs in front office are highly specialized (Rajan, Zingales, 2001). It is more likely to

appropriate a key asset if you are in a long term work relation with the assets. If you start as a derivative trader, it is likely that you will remain a trader in the same area as long as you can, working on the same financial products. On the contrary, if you are back-office manager, you will probably move inside your job every few months from one project to another (building new software, reorganizing the unit, cost-cutting, etc.) and every few years move internally from one job to the other inside the support departments of the same firm (back-office, accounting, HR, IT). The second reason is that the organization of work is rather standardized in front offices whereas it is more firm specific in the support departments. The more similar the organizations are, the easier it is to move assets and to value them inside a new environment. In trading and sales activity, organization is pretty similar. This isomorphism both eases the recruitment of external traders and sales but enables some internal traders and sales to quit and take along key assets accumulated during their work in the firm. On the contrary, in the back-office even if you can more or less appropriate an asset through a long term relationship working on it (for instance in some IT jobs when you build an internal software), it might be less valuable to move this asset if it does not fit in the others firm organization. We may therefore sum up those elements in the following hypothesis:

H1: Working in core finance favors the accumulation of moveable key assets

When a person moves alone, he/she might not move all the key assets he/she was holding in the previous firm. This will especially occur when assets are shared among several coworkers. In such case, moving in team, with coworkers sharing the same assets, increases the average asset moved per capita. Groysberg *et alii.* (2008) have therefore shown that financial analysts suffer generally a loss of reputation when they move alone from one firm to another, but that this loss disappears when they move in team with other colleagues. In our interpretation, reputation can be viewed as a collective asset that is based both on the financial analyst individual initial talent, his on the job acquired experience and also the quality of the surrounding team supporting him in his analysis, the quality of service the firm provides to clients, the trust relationship built with customers, etc. Alone, a financial analyst move part of this idiosyncratic bundle and suffer a loss of reputation. But with colleagues those assets are much more portable.

Collaboration relations therefore do matter, since they enable collective moves of assets. The first and most common thing that is moved is all the idiosyncratic routines that members have been collectively building together in order to coordinate. When moving alone, rebuilding coordination with new colleagues can be costly and timely. When moving collectively, efforts invested in those activities are spared and this enables a rapid productivity in the new environment. More, the idiosyncratic routines of division of labor will settle productive complementarities within the team (among traders, among sales, between a trader or a sale and its assistant) with valuable division of tasks, of knowledge, of products, of clients and share of information and expertise. Finally, some underlying assets are even more deeply shared among coworkers. A same client may be shared for different products among several salespersons, some selling derivatives, others selling stocks. The valuation of a financial product like equity or credit derivatives involves also the combination of trading teams (that manage financial portfolios) and sales teams (that manage clients). Heads of trading room that can through collaboration ties move both

teams more or less capture the power to move the financial activity itself (Godechot, 2008b).

Moving in team and hiring teams in financial industry is quite common in financial industry (Godechot, 2007, 2008b). Groysberg *et alii.* remark that investment bankers have a typical expression, “block trading in people”, to name the phenomenon. Of the 366 analyst-moves collected in their database, 100 are team move involving colleagues such as “other ranked analysts, junior analysts, institutional salespeople, and traders”. This figure is all the more impressive that financial analyst is probably not the job the most akin to move in team as compared to other jobs like traders or sales. Although, to my knowledge, we do not have a precise estimation of such collective moves, cases reported in the newspapers show the importance of the phenomenon. For instance Frank Quattrone in Private Equity is reported having moved from Morgan Stanley to Deutsche Bank Securities with 8 colleagues in 1996 and to move again with two other bankers and their 100 persons team in 1998 for Credit Suisse². Team moves are also at the origin of most hedge funds. John Merriwether has first built LTCM in 1994 with a team of former colleagues working under his direction at Salomon Brothers (MacKenzie, 2003).

But collaboration ties are not only involved in very spectacular and dramatic one shot collective moves. The latter are valuable but difficult to set up considering the high level of coordination required. Another way of using collaboration ties is to use them over time. When one develops an activity and meets new recruitments needs, one can pick among former colleagues or business relations, a person one knows as a good productive match.

Therefore these elements lead us to build two new hypotheses, strongly related to one another.

H2a: When people change job, moveable key assets and collaboration ties are highly correlated.

Although it will be difficult to test in this paper, we do think that the correlation given in H2a is the product of dynamic causal system. Holding movable key assets at time t leads you to develop collaboration ties at time $t+1$ in order to achieve a more complete appropriation of the assets. The reverse relation is also true. When you have collaboration ties with coworkers at time t , you will increase also in $t+1$ the key assets you can move, since the type of social capital we are coining may be seen as a multiplier of assets (Bourdieu, 1986, Lin, 2001). To the assets you hold, may be added the assets hold by some of your collaboration ties.

The strong correlation we hypothesize between moveable key assets and collaboration ties has a simple consequence. The factors that cause the former, that is working in core finance (H1), cause also the later and we expect for this reason moveable key assets and collaboration ties to be correlated. But we think also that working in core finance favors also by itself the building and the use of collaboration ties on the financial labor market. One reason is that the strong autonomy and high specialization in core finance, favors the creation of united team ready for defection. On the contrary in the support departments a lower level of specialization and, as in some Law firms (Lazega, 2001), policies

² “Inside Frank Quattrone money Machine”, *Business Week*, October 13th 2003.

of internal mobility from department to another prevent the formation such teams. So for those two reasons, we can expect the following relation:

H2b: Working in core finance favors the use of collaboration ties.

Enjoying the double power of moving assets and people through collaboration ties, is highly valuable on the labor market since it enables to get higher wages. In our previous work (Godechot, 2008a) we characterize this phenomenon with the neo-williamsonian concept of hold-up (Williamson, 1985 ; Malcomson, 1997). We rely on a detailed case study where a head of equity derivative trading room and his deputy were respectively granted 10 and 7 million euros of bonus for the year 2000. The year before, those two heads had resigned and given 48 hours to their bank in order to match the offer of a rival bank granting them with a very high proportion of the bonus pool (15% for the two). They were explicitly threatening their bank that if it did not match the rival offer, they would move their teams very shortly to the rival bank. Finally, under urgent pressure, the bank applied the conditions of the rival bank, which led the two, at the end of a great year on the market, to earn such unusual bonuses (Godechot, 2008a). In this case, the price paid is not just the usual price of a market bidding process for individual talent. We are not here in a situation where people take out from a job no more than what they brought in. Here the price paid is that of the assets they are able to move from one firm to another through collaboration ties, assets that were paid through the investment of a whole community (shareholder, workers) but that are appropriated and moved by a few. This element of opportunism and unequal exchange allows us therefore to conceptualize this exchange more as hold-up (although legal here) than as a classic market bid.

In this case of successful renegotiation, as in many other case of successful collective departure, we have a combination of movable assets and collaboration ties. This combination enables workers to earn an important wage premium that according to us accounts for most of the wage differential puzzle between various jobs in finance and moreover between Wall Street and Main Street (Philippon, Resheff, 2009 ; Kaplan, Rauh, 2009). Moreover if we follow Groyberg *et alii.* (2008) results, firms that are trying to poach teams are very often overestimating the assets the teams are moving, and are overbidding in order to get the whole. The two arguments, assets moving through collaboration ties and overbidding go for the financial operative who moves in the same direction, it raises the wage and can be merged into a strong correlation between the expectation of the assets moved through collaboration ties and salaries. We will sum up our argument by this simple proposition:

H3: Move of key assets, collaboration ties and more over the combination of those two dimensions increases wages.

3. An internet questionnaire on mobility in French financial industry

The questionnaire

The survey is based on a collaboration between the author and *efinancialcareers.fr*, the French branch of *efinancialcareers.com*, a popular website devoted to job classified advertisements in financial industry. The website has developed also into a financial media website in order to attract both firms who pay for

the ads and employee that may be interested by those announcements. The basis of this fruitful collaboration was that I could benefit of their wide audience in the financial industry in order to get an important number of answers and that they could on the other hand use the questionnaire both as a marketing tool in order to promote the website and as a source to feed their information part of the website with the first results (Godechot 2008c, 2008d).

The questionnaire built during summer 2008 is divided into three parts. The first twenty questions are devoted to the description of the last move in finance for those who changed job at least once in financial industry. The next 12 questions describe wishes of mobility, but only for those that had never changed job in financial industry³. The questions for the wishes of mobility are formulated in very similar terms to those concerning the past mobility. And the last 12 questions are general socioeconomic questions asked to the whole sample about the social background and the present situation in the financial industry.

The questionnaire was by coincidence launched on the website on September, 16th 2008, just the day after Lehman Brothers went bankrupt, and was closed on October, 7th 2008 in the midst of the financial turmoil. Although a few final comments made visible people's concern about this special situation, the latter did not seem to affect that much the answers: first the questionnaire, in French, received mainly answers from people working in France or for French firms and apart in the subprime sector, financial crisis became only profound during late fall; second, our questions, focusing on the last mobility, would collect information merely on the year 2006, 2007 and the beginning of 2008, a period where French finance was either flourishing or, apart from the subprime sector, only slowly entering into crisis. The questionnaire was both made visible for persons visiting the website and sent by *efinancialcareers.fr* to their registered contacts. Based on the dates and times of answers, we think that one half to two thirds of the questionnaires were filed by persons invited to do so thanks to their two mailings.

With 995 answers to the first question, the questionnaire, emphasizing its scientific goal, was according to *efinancialcareers.fr* a success when compared to the quick questionnaires they do from time to time. This flattering appreciation shows also the relevance of the questions. But doing rather long questionnaires on internet (maybe 10-15 minutes) has a backside: we see a rather important attrition effect. After the first question on the number of job changes in finance, 22% of the sample stopped answering. Only 66% of the 995 went to the end of the poll. Therefore we can rely on 454 complete and 78 incomplete questionnaires for those who did change job, and 209 complete and 28 incomplete questionnaires for those who never changed job.

Due to the fact that there is no random sampling here, it is important to know to what extent our data is representative of financial industry beyond the fact we can expect that it represents merely the visitors of *efinancialcareers.fr*. The respondents are mainly working in Paris (66%), 12% work in the rest of

³ Although it would have been a better methodology to ask the questions on mobility wishes to the full sample, *efinancialcareers.fr* was very concerned that the questionnaire would therefore become too long for an internet survey. As we will see further, this concern was wise. Therefore, it must be noted, that when we work on the wishes of mobility, there might be a selection bias due to the fact it is the mobility wishes of those who never moved (and who therefore are maybe less inclined to move).

France, 5% in London, 5% in the rest of Europe, the rest elsewhere. They work mainly in banks (47%), in other financial firms (asset management, broker) (16%), or in insurance firms (4%). 22% work in a business that serves financial industry such as law, consulting or IT firms and 10% among other types of firms.

The comparison with data from a leading bank that we were able to gather during our fieldwork (Godechot, 2007) shows that our sample is a rather good representation of financial industry at large (table 1). We must not forget that for a famous trader and a sales in the front office, we must count 4 or 5 other employee working in various support positions. We do find some differences between our data and that of 2000 bank but they are limited to back and middle office on the one hand and accounting, budgeting and audit in the other hand, domains where the nominative differences are rather fuzzy.

Table 1. Comparison between our sample and the job composition of the investment bank of a French leading bank in 2000

Function	Our 2008 sample (n=663)	Investment bank 2000 (n=3800)
Trading and portfolio management	9.8%	8.3%
Marketing and sales	10.7%	8.0%
Financial engineering	7.2%	7.6%
Information and technology	8.3%	8.6%
Research and financial analysis	10.7%	5.5%
Back and middle-office	9.4%	25.4%
Accounting, budgeting, audit	22.9%	7.0%
Law and compliance	2.4%	0.5%
Other	17.2%	29.9%
No answer	1.4%	
Total	100.0%	100.0%

Notes: 9.8% of the 663 respondents were working in trading or portfolio management functions. This figure is pretty close to the 8,3% working in trading functions in 2000 in an important French investment bank. Comparison data were gathered during a fieldwork.

More, our wages - Q1 = 47,000 euros, median=58,000 euros, Q3 = 83,000, P9 =146,000 – are rather similar to the one we can find in Calyon’s 2008 *bilan social* (social report⁴) : Q1 = 37,770 euros, median=55,243 euros, Q3 = 93,529, P9 =171,143. One difference comes for the standard deviation that seems lower in our sample.

The biggest bias of our sample (which that may account for the above discrepancies) is the age bias. In our sample, 7% are under 25, 64% are between 25 and 34, 19% between 35 and 44 and 9% over 45. At Calyon’s bank, 5% are under 25, 29% between 25 and 34, 28% between 35 and 44, and 36% are over 45. Several reasons may account for those differences. Elderly employee in finance might move less, use less IT to look for a job, and may rely more on head-hunting or direct contacts to get a job. Therefore it is very likely, that our

⁴ Calyon – Direction des ressources humaines, 2009, *Bilan social 2008*, Calyon. Social reports are compulsory in French firms over 300 employees and are sent to union delegates, shareholders and to Labor inspection services. Workforce in subsidies and moreover foreign subsidies are not counted.

sample will not permit to scrutinize the most spectacular collective moves organized by the more senior employee like such of the heads of trading rooms described above.

Variables

Movable assets

Asking questions on key movable assets held by employee is not an easy task since the concepts are highly abstract and may sound unfamiliar to the respondents and that maybe the employee may not be always conscious that in a sense they can appropriate assets off the firm. For this reason, we have tried to find a proxy by asking some questions on the elements that were at stake during the recruitment process (Table 2).

Table 2. What was at stake during this recruitment?

Answers (multiple choice question)	% (n=489)
Replacing someone	27%
Reinforcing a team	55%
Bringing new techniques	21%
Bringing new clients	7%
Providing new strategies	11%
Developing a new business	25%

Notes: 27% of the 489 respondent that at least changed once job in finance answered replacing someone was at stake during their last recruitment.

We have interpreted the four last answers of this question as a proxy of the assets held by the employee. If the issue of the recruitment was to bring something “new” to their employer, should it be “new techniques”, “new clients”, “new strategies” or a “new business”, it is most likely that those assets were based on assets, acquired during the career in finance. It is true that some of the elements, like new techniques, could be partly due also to a general, knowledge and talent, prior to financial career. But it is very unlikely that talent and general knowledge can solely enable someone bringing new strategies, and more over new business or new strategies without an on the job accumulation of financial experience, and of what we call key movable assets.

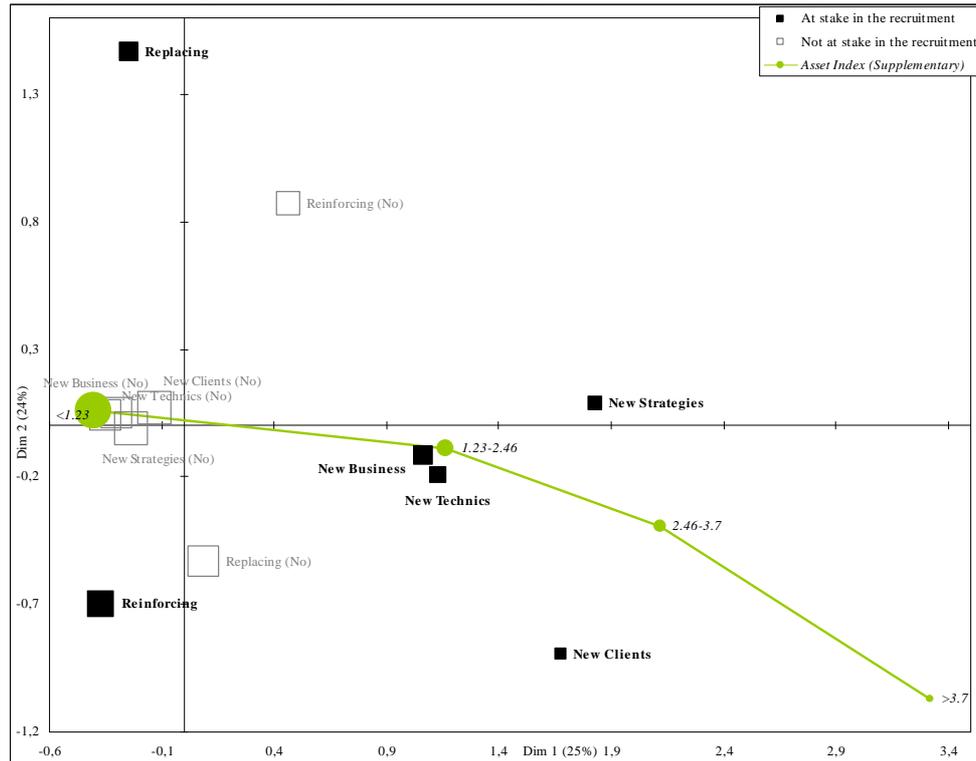
In order to rely on a robust measure of key movable assets, we construct an index that would reflect the various dimensions assets moving. We sum therefore the four standardized last items, in order for each dimension to have the same weight on the overall index.

$$\text{Assets}_0 = \text{Tech}/\text{sd}_{\text{Tech}} + \text{Clients}/\text{sd}_{\text{Clients}} + \text{Strat}/\text{sd}_{\text{strat}} + \text{Bus}/\text{sd}_{\text{Bus}}$$

$$\text{Assets} = \text{Assets}_0 / \text{sd}_{\text{Assets}_0}$$

Our index is all the more justified that it captures pretty well the structure of correlation between the six items of answers. We did a multiple correspondence analysis on the six items of answer and we have plotted as a supplementary variable our index on Graph 1.

Graph 1. Multiple correspondence analysis on asset moving proxies



Notes: Multiple correspondence analysis is a technique derived from principle component analysis. Half of the variance is represented here. The size of point is proportional to the weight of the represented item.

The Multiple Correspondence Analysis shows a strong opposition between the employee who can only replace someone or reinforce a team and those who take along new business, new techniques, new strategies or new clients. The second axis shows a secondary opposition between replacing and reinforcing and to a lesser extent between bringing clients and bringing strategies. We find a strong positive correlation between the first axis of the Multiple Correspondence Analysis and the index that we have been building ($r=0,97$), and a much milder negative correlation between the second axis ($r=-0.16$).

Collaboration ties

In order to measure collaboration ties, we rely mainly on four questions in the past mobility questionnaire and on one in the wished mobility. Moving in teams, hiring former colleagues and, for those who did not experience any job change in finance, being very likely to follow one's boss are clear examples of collaboration ties (Table 3). Those cases reveal situations where people are somehow more productive when they work with contacts with whom they are used to collaborate than with other colleagues, should they share idiosyncratic routines, are more fundamental assets such as knowledge, technology, market share or customers. Although our sample is rather biased in favor of junior workers, it is impressive and suggestive to see that 14% of those who moved had help to hire former colleagues and 15% of them already moved in team. Although the collective aspect of financial recruitment is generally limited to small numbers (two or three persons team) and that we don't get the most spectacular ones, its importance makes it worth an investigation.

Table 3. Ties and collaboration ties

Questions	Items	%
Who was at the origin of the last move? (n=532)	A head hunter contacted me	20%
	An employee of another firm contacted me	18%
	I contacted a head hunter	7%
	I contacted directly a firm	27%
	I replied to a firm	27%
Did you know employees in the service where you were hired? (n=531)	Former colleagues	22%
	Business partners	13%
	Former classmates	13%
	Friends	8%
	Others	15%
Once in your new job, did you help to hire some former colleagues? (n=469)	No, I did not try	76%
	I tried with no success	10%
	1 or 2 colleagues	12%
	3 and more	2%
When you changed jobs, did you ever move with other colleagues in an another firm? (n=469)	No	85%
	With 1 or 2 colleagues	12%
	With 3 and more	3%
If your boss moves to another firm and invites you to come along, would you follow him or her? (n=233)	Very likely	15%
	If other members of the team go	2%
	If conditions are interesting enough	66%
	No	18%

Notes: 20% of those who moved were first contacted by a head hunter. The four first questions were asked to those who experienced a job change and the last one to the person who never changed job.

The question on the contacts informs us also on the types of ties used in financial industry in order to get jobs. Professional contacts such as former colleagues and business partners are people with whom you have been cooperating with and are therefore more likely classified as collaboration ties. But classmates and other contacts on the one hand and friends on the other would be rather classified in the Granovetterian dichotomy weak ties – strong ties. Also, in the first question, although the link is rather weaker, being first contacted by an employee of the firm might also reveal a use of collaboration ties.

As previously for assets, we construct an index of collaboration ties as an addition of the standardized minimum number of persons involved in a team move, the standardized minimum number of the former colleagues hired and the number of types of professional contacts known in the service where one was hired⁵.

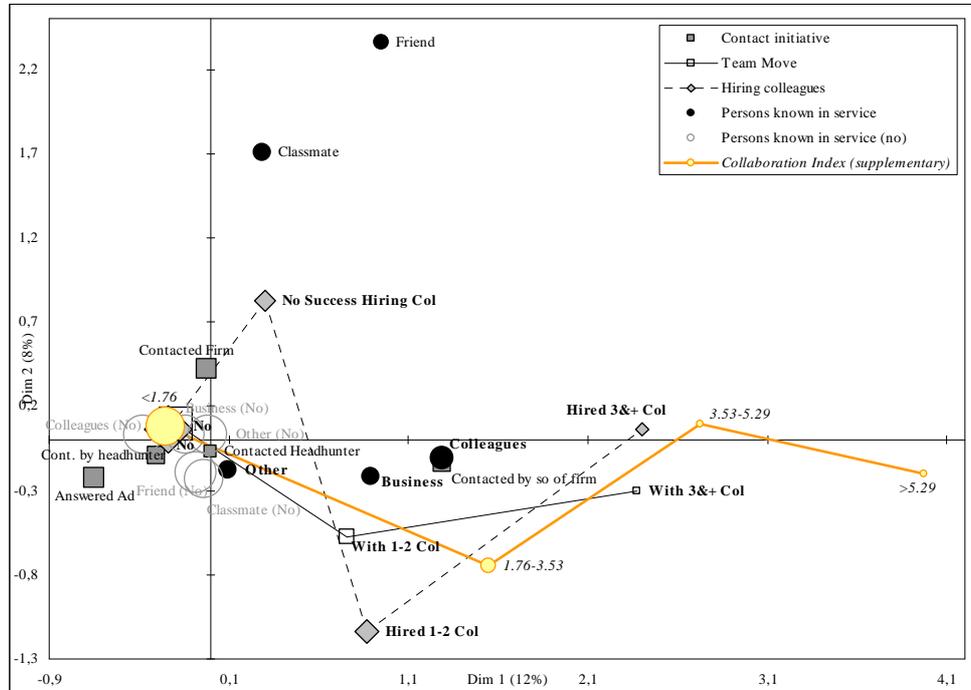
⁵ For team moves (*Team_move* variable), the values are 0 if the respondent never moved in team, 1 if he/she moved with one or two other colleagues and 3 if he/she moved with more than three colleagues. For hiring colleagues (*Hire_coll*), the variable is given a value of 0 if the respondent did not try to hire former colleagues, 0.5, if he/she tried but with no success, 1 if he/she helped to hire 1 or 2 former colleagues, and 3 when he/she helped to hire 3 or more former colleagues. The professional contacts (*Pro_Cont*) has a value of 0 if the respondent did not know neither former colleagues nor business partners in the service where he or she was

$$\text{Coll_Ties}_0 = \text{Team_move}/\text{sd}_{\text{Team_move}} + \text{Hire_coll}/\text{sd}_{\text{Hire_coll}} + \text{Pro_Cont}/\text{sd}_{\text{Pro_Cont}}$$

$$\text{Coll_Ties} = \text{Coll_Ties}_0 / \text{sd}_{\text{Coll_Ties}_0}$$

As previously, this index, that gives an equal weight to all three elements, is representative of the correlation between the variables as we will see in the following Multiple Correspondence Analysis.

Graph 2. Multiple correspondence analysis on collaboration ties



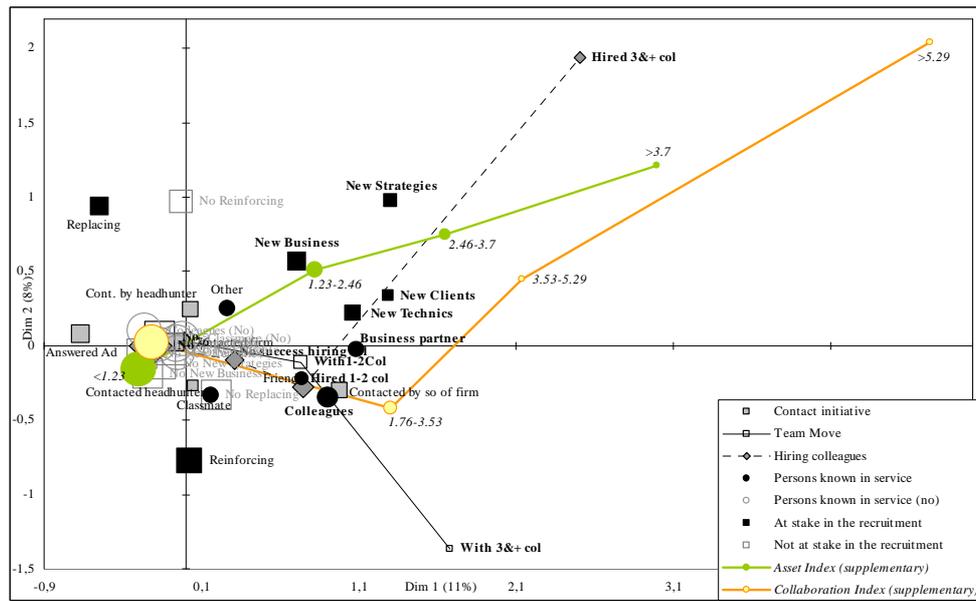
The first opposition that emerges from this analysis is between people that have many collaboration ties and those who are lacking of such collaboration ties. The secondary opposition is between professional and non-professional contacts. The index we have constructed is highly correlated with the first dimension of the multiple correspondence analysis ($r=0.87$) and there is a very weak negative correlation with the second dimension of the analysis ($r=-0.02$).

Combining movable assets and collaboration ties

We have explored several ways of analyzing the combination of movable assets and collaboration ties, such as the addition, the multiplication of our two indexes and the first dimension of the multiple correspondence analysis based on both asset variables and network variables. On the basis of explanatory power, we have chosen the latter solution. But it must be noted that results are very similar.

hired, 1 if he/she did know either former colleagues or business partners, 2 if both types are known.

Graph 3. Multiple correspondence analysis on collaboration ties and movable assets



Other variables

Compensation. Compensation variables are our main dependant variables that enable us to see the impact of assets moving and collaboration ties using. For those who changed job, we asked first the percentage of wage increase obtained during the last mobility. And to all respondents, we asked for their present annual fixed wage and bonus. As compensations are a personal information that some person might not want to reveal in an internet poll, categorical items were proposed instead of the exact numerical amounts. For the fixed wage, categories are the following: 1) < 40 kilo euros a year, 2) 40 to 60, 3) 60 to 80, 4) 80 to 100, 5) 100 to 150, 6) 150 to 300, 7) more than 300. For the variable wage : 1) Less than 10% of the fixed wage, 2) from 10 to 25%, 3) from 25 % to 50 %, 4) from 50 % to 100%, 5) from 1 to 2 time the annual fixed wage, 6) from 2 to 5, 7) more than 5 time. On the basis of those two variables, it is possible to calculate the intervals of the total compensation. For instance, someone with fixed wage between 40 and 60 000 euros, and a bonus between 50% and one year of fixed wage has a total compensation between 60 and 120 000 euros. The full information of this variable may be efficiently handled through interval regression.

Position in financial industry. We used two types of variable in order to describes the position inside financial industry, first the “function”, described in Table 1, and second, a sector question divided in 10 items: 1) Markets: Equity, 2) Markets: Forex, fixed income & commodities, 3) Merger and acquisition, 4) Financing, 5) Private banking, 6) Retail banking, 7) Asset management, 8) Private Equity / Venture Capital, 9) Consulting, 10) Insurance, 11) Others. We consider that at the core of financial markets we find front office functions (Trading and portfolio management, marketing and sales) and the investment bank sector (Markets division, M&A, Private Equity) (Godechot 2001).

Human capital. As financial industry is a sector which is highly intensive in human capital (Philippon, Resheff, 2009), it is important to have a detailed variable capable of describing the hierarchy of diplomas more subtly than the

traditional years of schooling variable (Mincer, 1974). In our survey we asked for the diploma that describes best the schooling curriculum. We proposed 9 items of answer : 1) “Rank A” engineering school, 2) “Rank A” business school, 3) French Doctorate, PhD, 4) “Rank B” engineering school, 5) “Rank B” business school, 6) French university masters (i.e. “DEA”, “DESS” and masters), 7) Foreign university masters, 8) Bachelor (i.e. “Licence, Maîtrise, IUT, bachelor”), 9) Two years of college diploma (“Deug, BTS, Bac + 2”) or lower rank diploma. This nomenclature is based on the domination of French *Grandes Écoles* (Bourdieu, 1998) over universities and inside financial industry on the domination of a small elite of “Rank A” engineering *Grandes Écoles* such as Polytechnique, Mines, Centrale, Ponts, ENSAE for and to a lesser extent “Rank A” business schools such as HEC, ESSEC or ESCP (Godechot, 2001).

We asked when people started in financial industry, so we can therefore calculate a *financial experience*, a form of experience that is better in this sector of high turn-over than the usual seniority within firm variable. We use also the classical age and sex variable.

4. Combining assets and people

Table 4 enables to test both H1 and H2b, that is working at the heart of the financial market favors the dual accumulation of key moveable assets and collaboration ties. If we were to think that key movable assets and collaboration ties were only a byproduct of human capital, that is talented people are *per se* creative of assets and that they attract many people who are willing to collaborate, we would have waited mainly for classical human capital variables such as diploma, age and financial experience to be significant and for others core finance proxies to have very little explanatory power. It is true that diploma, especially top engineering school diplomas, age for moveable assets, experience for collaboration ties have an important impact. But the impact of working in front office jobs is very significant and almost as important as that of an elite engineering diploma. Therefore in order to acquire movable assets or collaboration ties, it’s not only a question of initial talent and general experience but also a matter of where you work.

Table 4. Human capital, core finance and the accumulation of moveable assets and collaborative ties.

	Descriptive statistics	Moveable asset index	Collaborative ties index	Combined index
Intercept	/	-2.46* (1.11)	-0.83 (1.11)	-2.74 * (1.09)
<u>Sector:</u> Investment bank	0.28 (0.10)	-0.029 (0.104)	0.052 (0.103)	0.061 (0.101)
<u>Function:</u> Front-office	0.20 (0.08)	0.46*** (0.12)	0.21 * (0.12)	0.43 *** (0.12)
Financial experts (research and engineering)	0.16 (0.07)	-0.018 (0.133)	-0.22 * (0.13)	-0.062 (0.13)
IT	0.09 (0.04)	-0.097 (0.175)	0.012 (0.175)	0.032 (0.171)
<u>Experience</u> in finance (years)	8.34 (7.33)	-0.0066 (0.0318)	0.097 ** (0.032)	0.064 * (0.031)
Experience in finance (square years)	123.29 (212.49)	0.00046 (0.00096)	-0.0021 * (0.001)	-0.0012 (0.0009)
<u>Age</u> (years)	33.27 (8.24)	0.14* (0.06)	0.04 (0.062)	0.099 (0.061)
Age (square years)	1175.32 (632.28)	-0.0015* (0.0008)	-0.0006 (0.00078)	-0.0013 * (0.0008)
<u>Sex:</u> Male	0.75 (0.43)	0.14 (0.11)	0.27 * (0.11)	0.31 ** (0.1)
<u>Diploma:</u> Top engineering school	0.06 (0.03)	0.59* (0.23)	0.43 * (0.23)	0.71 ** (0.23)
Top business school	0.19 (0.08)	0.071 (0.178)	0.042 (0.178)	0.076 (0.174)
French Doctorate, PhD	0.01 (0.005)	0.75 (0.47)	1.44 ** (0.46)	1.34 ** (0.46)
Rank b engineering school	0.06 (0.03)	0.29 (0.25)	0.18 (0.25)	0.41 * (0.24)
Rank b business school	0.15 (0.06)	0.29 (0.19)	0.026 (0.188)	0.19 (0.18)
French Master	0.33 (0.11)	0.11 (0.16)	0.13 (0.16)	0.15 (0.16)
Foreign Master	0.02 (0.01)	-0.29 (0.35)	0.36 (0.35)	0.24 (0.34)
Lower rank diploma and missing	0.05 (0.02)	0.19 (0.24)	0.22 (0.24)	0.49 * (0.24)
R2	/	12%	15%	18%
N	441	441	441	441

Notes: The first column contains means and standard deviations of explanatory variables. All models are OLS regression. Standard errors are in parenthesis. *p <0.1, **p <0.01, ***p <0.001 (two tailed tests). The reference categories for sector, function, sex and diploma are respectively other sector, back-office, support and other functions, female and bachelor diploma.

Table 5 enables us to explore with more details the link between the situation in financial industry and the type of ties involved. Knowing former colleagues, moving in team, and being first contacted by someone in the firm is highly linked with working in front-office, and for the latter also working the investment bank. Although the sample is quite limited for the people who never moved and who were asked about their wished mobility, it is striking to see that being very likely to follow a moving boss is also correlated with a position in the investment bank. Hiring former colleagues seems a little less specific to financial market core. It is mainly due to financial experience, and seems as common in front-office, IT and support functions but much less

developed in financial expertise functions. This may be due to a work organization in those functions that emphasize more individual expertise than team work.

It is also interesting to contrast collaborative ties with other types of ties. We can see that non-professional contacts such as friends, classmates and “other contacts” are not used by the same persons than collaborative ties. Those types of ties are more effective outside investment banks than at its heart. The argument is not to say that financial people have per se a different nature of sociability that makes them more indifferent to traditional friendship and university ties. It is more to recall that being in a sector where the key of success is to appropriate, value and move key assets that may be shared among several partners, leads to use more collaboration ties over other types of ties which they may also have.

Table 5. Details about collaborative ties

	Professional Contacts	Move in team	Hire colleagues	Contacted by s.o. in the firm	Follow the boss	Non professional contacts
Intercept	-1.05* (0.61)	-0.45 (0.66)	0.53 (0.61)	-6.1* (3.51)	-15.8* (8.18)	1.34* (0.67)
<u>Sector:</u> Investment bank	0.076 (0.057)	-0.0073 (0.061)	-0.013 (0.057)	0.84** (0.28)	1.54** (0.52)	-0.17** (0.06)
<u>Function:</u> Front-office	0.13* (0.07)	0.13 * (0.07)	-0.012 (0.066)	0.61* (0.33)	-0.6 (0.64)	0.11 (0.07)
Financial experts	0.036 (0.073)	-0.022 (0.078)	-0.25 *** (0.07)	0.54 (0.37)	0.51 (0.53)	-0.031 (0.08)
IT	0.011 (0.097)	0.06 (0.103)	-0.05 (0.096)	-0.043 (0.496)	-1.24 (1.21)	0.017 (0.105)
<u>Experience</u> in finance (years)	0.033* (0.018)	0.027 (0.019)	0.05 ** (0.017)	-0.039 (0.091)	-0.014 (0.149)	0.016 (0.019)
Experience in finance (square years)	-0.0008 (0.00053)	-0.00058 (0.00057)	-0.001 * (0.0005)	0.002 (0.0027)	0.0038 (0.0072)	-0.00064 (0.00058)
<u>Age</u> (years)	0.053 (0.034)	0.024 (0.037)	-0.03 (0.034)	0.2 (0.2)	0.73 (0.5)	-0.059 (0.038)
Age (square years)	-0.00063 (0.00043)	-0.00038 (0.00046)	0.0003 (0.00043)	-0.0023 (0.0025)	-0.01 (0.008)	0.00065 (0.00047)
<u>Sex:</u> Male	0.1* (0.06)	0.098 (0.063)	0.11 * (0.06)	0.38 (0.33)	0.18 (0.51)	0.1 (0.064)
<u>Diploma:</u> Top engineering school	0.29* (0.13)	0.12 (0.14)	0.075 (0.128)	0.59 (0.6)	2.58* (1.07)	0.26* (0.14)
Top business school	0.029 (0.098)	-0.038 (0.105)	0.051 (0.098)	-0.4 (0.54)	0.93 (1.04)	0.13 (0.11)
French Doctorate, PhD	0.68** (0.26)	0.33 (0.28)	0.61 * (0.26)	0.15 (1.26)	2.92* (1.71)	0.055 (0.28)
Rank b engineering school	0.19 (0.14)	-0.0025 (0.1457)	0.017 (0.136)	0.48 (0.65)	0.3 (1.45)	0.27* (0.15)
Rank b business school	0.11 (0.1)	-0.0063 (0.1115)	-0.07 (0.104)	-0.59 (0.59)	0.76 (1.01)	0.13 (0.11)
French Master	0.034 (0.088)	0.11 (0.09)	0.012 (0.088)	0.13 (0.45)	0.91 (0.91)	0.061 (0.096)
Foreign Master	0.14 (0.19)	-0.017 (0.207)	0.27 (0.19)	1.04 (0.85)	-15.31 (1161)	-0.079 (0.211)
Lower rank diploma and missing	0.24* (0.13)	0.065 (0.143)	-0.054 (0.133)	0.65 (0.62)	1.08 (1.04)	0.34* (0.15)
R2	13%	5%	11%	(Logit)	(Logit)	7%
N	442	441	441	442	196	442

Notes: The first three columns and the last one are OLS regression with respectively the following dependant variables, number of types of professional colleagues, minimum number of person that moved along, the minimum number of former colleagues hired, number of types of non-professional contacts. The column 4 and 5 are logistic regression modeling the probability of having been first contacted by someone in the firm and the probability of being very likely to follow one's boss if the latter moves and invites you to do so. This last regression concern only people that did not move in financial industry. Standard errors are in parenthesis. *p <0.1, **p <0.01, ***p <0.001 (two tailed tests). The reference categories for sector, function, sex and diploma are respectively other sector, back-office, support and other functions, female and bachelor diploma.

Globally, the analysis of table 4 and 5 confirms well the link, stated in hypothesis 1 et 2b, between working in core finance and accumulating key assets on the one hand, collaboration ties on the other. Holding moveable key assets and collaborations ties seem by the way pretty correlated. First, the multiple correspondence analysis (Graph 3) did show the overall correlation between the items of the first argument and that of the second, that are all on the same

side of the first axis. Is this global correlation due to the similarity of the causes of our two concepts shown by table 4? Or is it more profound?

Table 6. Complete and partial correlation between moveable assets and various measures of collaboration ties

Correlation of moveable assets index with :	Global correlation	Predicted variables correlation	Residual correlation
Collaboration ties index	0.30*** (6.88)	0.76*** (24.86)	0.22*** (4.78)
Professional Contacts	0.22*** (5.08)	0.82*** (30.71)	0.14** (2.96)
Move in team	0.12** (2.71)	0.69*** (20.00)	0.08* (1.66)
Hire colleagues	0.27*** (5.97)	0.47*** (11.40)	0.22*** (4.81)
Non professional contacts	0.10* (2.13)	-0.04 (-0.85)	0.12* (2.55)

Notes: Pearson correlation coefficients are computed, and the nullity of correlation is tested. Student's T statistics are in parenthesis. *p <0.1, **p <0.01, ***p <0.001 (two tailed tests). The global correlation between the moveable asset index and the collaborative ties index is 0.30. The correlation of their prediction calculated regressions (table 4 and 5) with the same explanatory variables is 0.76. The correlation of their residuals, also called partial correlation coefficient, is 0.22.

Table 6 suggests that moveable assets and collaboration ties are strongly correlated not only because of the high similarity of their prediction based on the same set of variables, but also beyond by the correlation of their residuals⁶. The partial correlation of 0.22 indicates that when one of the two variable moves by one standard deviation, the other moves by a little more than a fifth of a standard deviation⁷. The importance and the significance of the three correlations hold when we turn to the relation between moveable assets and different types of collaboration ties. It is interesting to note that the correlation of moveable assets with non-professional contacts, although positive and significant, is much lower that with collaboration ties. Those results show therefore that our proposition of a strong correlation between collaboration ties and moveable assets is clearly proved. Therefore, when you share assets with a coworker, it is worth collaborating with him to valuate those assets, and reversely when you collaborate with someone, you end up holding a greater amount of assets.

What is the impact of this double accumulation on compensation? In table 7, we analyze the impact of our two indexes, first on the pay rise (in percentage) obtained during the last move, and finally on the total compensation at the time of the survey.

⁶ There is a linear relation between the three columns of the table :

$\text{cor}(y,z) = (R_y^2, R_z^2)^{0.5} * \text{cor}(y_p, z_p) + (1-R_y^2, 1-R_z^2)^{0.5} * \text{cor}(u_y, u_z)$ with y_p and z_p the prediction of y and z based on the same set of variables $x_1 \dots x_k$, u_y and u_z their residuals, and R_y^2 and R_z^2 their R square.

⁷ It must be noted that adding one of the two variables as an explanatory variable of the other in the regressions printed in table 4 would lead to the same result both in terms of coefficient (with standardized variables) and in terms of statistical significance. But since we think that we can expect simultaneity and reciprocal determination between the two variable, we thought it would be more correct to use partial correlation than a regression, that could be misleading, if it is interpreted in the usual unilateral causal manner.

The average pay rise obtained during last move is 25%. Modeling this increase is rather difficult. One reason is that pay rise in percentage may be quite a heterogeneous phenomenon: some may be important because the incumbents had a strong position on the market, for instance holding key assets and many collaboration ties, others may be important only because the incumbents had previously a very little wage. Therefore, traditional variables of wage equations such as age, experience and diploma do not seem to play a significant role. Nevertheless the position in financial industry plays rather an important role, moving in (or to) investment bank increase the pay rise by 10 percentage points, and working in front office increases also by 4 or 5 points, a deviation that is not significantly different from that of support functions, but that differ significantly from IT jobs. A standard deviation variation of the collaborative ties index increases the pay rise by nearly 2 points. But our variable is not very significant ($p=0.16$). A standard deviation of our asset moving index has here a stronger and much more significant effect (+3 points). Combining collaborative ties and asset moving, measured by our combined index, has even a stronger effect (+ 3.3 points).

Table 7. Effects of moveable assets and collaboration ties on compensation

	Pay rise during last move (in percentage)				Total compensation (log of intervals)			
Intercept	36.45 (28.09)	42.58 (28.09)	42.91 (28.1)	44.15 (28.12)	1.07* (0.6)	1.06* (0.6)	1.13* (0.6)	0.43 (0.67)
<u>Collaborative ties index</u>	1.76 (1.23)		1.12 (1.26)		0.091*** (0.025)		0.084** (0.026)	
<u>Moveable asset index</u>		3.09* (1.22)	2.84* (1.25)			0.054* (0.026)	0.035 (0.026)	
<u>Combined index</u>				3.34** (1.25)				0.091** (0.03)
<u>Sector:</u> Investment bank	9.61*** (2.61)	9.79*** (2.6)	9.73*** (2.6)	9.5*** (2.6)	0.22*** (0.05)	0.23*** (0.05)	0.23*** (0.05)	0.24*** (0.06)
<u>Function:</u> Front	4.88 (3.06)	3.81 (3.08)	3.69 (3.09)	3.8 (3.08)	0.14* (0.06)	0.14* (0.07)	0.13* (0.06)	0.16* (0.07)
Financial experts	-2.35 (3.36)	-2.68 (3.34)	-2.44 (3.35)	-2.53 (3.33)	0.090 (0.070)	0.073 (0.071)	0.089 (0.07)	0.1 (0.08)
IT	-8.56* (4.43)	-8.24* (4.41)	-8.28* (4.41)	-8.65* (4.4)	-0.066 (0.091)	-0.058 (0.092)	-0.063 (0.091)	0.018 (0.099)
<u>Experience in finance</u> (years)	0.33 (0.81)	0.53 (0.8)	0.42 (0.81)	0.29 (0.8)	0.060*** (0.018)	0.067*** (0.018)	0.06*** (0.018)	0.062** (0.02)
<u>Experience in finance</u> (square years)	-0.009 (0.0245)	-0.014 (0.024)	-0.012 (0.024)	-0.0088 (0.0242)	-0.0013* (0.0005)	-0.0014** (0.0005)	-0.0013* (0.0005)	-0.0015* (0.0006)
<u>Age</u> (years)	-0.75 (1.58)	-1.11 (1.58)	-1.12 (1.58)	-1.01 (1.57)	0.12*** (0.03)	0.12*** (0.03)	0.11*** (0.03)	0.16*** (0.04)
<u>Age</u> (square years)	0.0056 (0.0198)	0.0093 (0.0198)	0.0096 (0.0198)	0.0088 (0.0197)	-0.0014** (0.0004)	-0.0014** (0.0004)	-0.0013** (0.0004)	-0.0018*** (0.0005)
<u>Sex:</u> Male	1.56 (2.71)	1.62 (2.68)	1.34 (2.7)	1.02 (2.7)	0.13* (0.06)	0.15* (0.06)	0.13* (0.06)	0.13* (0.07)
<u>Diploma:</u> Top engineering school	3.33 (5.91)	2.26 (5.9)	1.92 (5.91)	1.71 (5.92)	0.75*** (0.12)	0.76*** (0.13)	0.73*** (0.12)	0.86*** (0.14)
Top business school	5.16 (4.5)	5.02 (4.48)	4.99 (4.48)	4.98 (4.48)	0.46*** (0.09)	0.46*** (0.09)	0.45*** (0.09)	0.51*** (0.1)
French Doctorate, PhD	2.24 (11.92)	2.44 (11.76)	1.02 (11.87)	0.31 (11.83)	0.35 (0.27)	0.43 (0.27)	0.33 (0.27)	0.33 (0.32)
Rank b engineering school	-5.2 (6.24)	-5.79 (6.21)	-5.92 (6.22)	-6.25 (6.22)	0.39** (0.13)	0.39** (0.13)	0.38** (0.13)	0.31* (0.14)
Rank b business school	-0.53 (4.77)	-1.39 (4.76)	-1.35 (4.76)	-1.11 (4.75)	0.23* (0.1)	0.22* (0.1)	0.22* (0.1)	0.28* (0.11)
French Master	0.99 (4.04)	0.87 (4.02)	0.76 (4.02)	0.70 (4.01)	0.21* (0.08)	0.22* (0.09)	0.20* (0.08)	0.24* (0.1)
Foreign Master	-4.88 (8.86)	-3.36 (8.81)	-3.83 (8.83)	-5.03 (8.8)	0.13 (0.18)	0.18 (0.19)	0.14 (0.18)	0.16 (0.2)
Lower rank diploma and missing	-7.51 (6.11)	-7.7 (6.08)	-7.89 (6.08)	-8.76 (6.1)	-0.099 (0.134)	-0.071 (0.134)	-0.10 (0.133)	0.63*** (0.15)
Log scale	/	/	/	/	-0.80*** (0.04)	-0.79*** (0.04)	-0.80*** (0.04)	-0.71 *** (0.04)
R2	9%	10%	10%	10%	/	/	/	/
N	441	441	441	441	429	429	429	429

Notes: We model in the first four columns the percentage of compensation increase during last move with OLS regressions. We model in the last four columns the logarithm of present compensation with interval regression. Standard errors are in parenthesis. *p <0.1, **p <0.01, ***p <0.001 (two tailed tests). The reference categories for sector, function, sex and diploma are respectively other sector, back-office, support and other functions, female and bachelor diploma.

Analyzing the logarithm of total compensation gives more classical results similar to many wage equations estimations (Mincer, 1974). Although it is not possible to calculate a classical R2 with interval regressions, we expect our

model to do a rather good job. Running the same estimation on the logarithm of either side of our interval gives a R2 of 37-38%. As usual in wage equations, human capital, especially with our detailed grid of French diplomas, age and experience have a high explanatory power. Top engineering schools have a salary twice more important than bachelors ($\exp(0.75)$). But those human capital equations do not explain all the variance. Working in front office functions and moreover in investment gives a wage rent respectively of 14% and 25%. Finally our index of collaborative ties has a strong and significant impact on wage. A standard deviation in collaboration ties raise wage by 9%. The moveable asset index has a slightly lower impact, but worth noticing, 5%. Measuring simultaneously the effect of the two variables show rather similar figures and show the fact that collaboration ties have a rather long term impact⁸. Our combined index, has a global impact rather strong, but rather similar to that of collaboration ties index alone.

Finally table 8 enables us to see the different dimensions of collaboration ties. We find the same difficulty to explain with various form collaboration ties the instantaneous pay rise. Some variables are nevertheless nearly significant ($p=0.11$): helping to hire one former colleague increase by 3.5 points the pay rise. Similarly, among those who never moved, those who are ready to follow their boss expect a of 6.7 points higher than others.

Table 8. Types of collaboration ties and compensation

Models	Network variables	Pay rise during last move	Total compensation (log of intervals)
a)	Number of types of professional contacts	1.8 (2.23)	0.17*** (0.05)
	Number of types of non professional contacts	2.59 (2.05)	0.013 (0.042)
b)	Move in team	0.8 (2.09)	0.058 (0.043)
c)	Hire colleagues	3.52 (2.23)	0.094 * (0.046)
d)	Follow the boss**	6.70 (4.26)	0.25 * (0.10)

Notes: We model the impact of different types of relations on pay rise and on total compensation. All 8 models contain the following control variables: sector, function, experience in finance, age, sex and diploma. We model the percentage of compensation increase during last move with OLS regressions. We model the logarithm of present compensation with interval regression. The two models in the last line concern people that have never moved. The pay rise is therefore the expected pay rise. The independent variable is the fact of being ready to follow the boss if the latter moves and invites to join. Standard errors are in parenthesis. * $p < 0.1$, ** $p < 0.01$, *** $p < 0.001$ (two tailed tests).

The long term impact of various collaboration ties on pay is much more significant. Almost all collaboration ties have a positive and significant impact (at 10% significance threshold) on pay. Knowing at least a business partners or a former colleague in the hiring team raises pay by 17%. The difference with non-professional ties is here striking. Those non-collaborative ties, should they be strong (friends) or weak (classmates, others) add hardly nothing. Similarly

⁸ The fact that our moveable asset index has more a short term impact on wages and the collaboration ties has more a long term impact leads us to interpret the correlation between moveable assets and collaboration ties this way: the observed moveable assets at the time of the mobility determinates collaboration ties at the same moment that in turn determinates the unobserved movable assets at the moment of the survey and the level of compensation.

compensation increases by 9.5% per former colleague recruited. Among those who have never moved, those ready to follow their boss get 25% more.

Those results globally allow us to think that our last hypothesis, i.e. that moveable key assets, collaborative ties and a combination of the latter increase wage, is rather well confirmed by our data. If we compare fieldwork analysis and statistical survey, one could have waited for a more impressive premium in favor of those two closely tied dimensions. This nuance calls for a few remarks. First our sample, rather junior, does not enable us to capture the most spectacular hold-ups. Second our measure of collaboration ties, and moreover of key moveable assets, is far from precise. This classical error in variable leads to an attenuation effect that reduce the absolute value of regression parameters. Third the amplitude of the effect is not that little. If hiring a former colleague increases wage by 10%, a head a desk hiring his whole team of 10 persons increases his by 100%, and we can imagine that two head of rooms as in our previous example, moving potentially 100 traders and sales could multiply their wages by 5.

5. How assets and collaborative ties smooth mobility.

In this section, we would like to turn to the consequences of moving assets through collaboration ties. Such moves are dangerous for the firm since it deprives of key assets that it financed. Since formal hierarchy is not sufficient contrary to the claims of the first versions of transaction costs economics (Williamson, 1975), we can therefore expect firms, as far as they are conscious of this danger, to protect their assets from transfers or hold-ups through contractual devices (Williamson, 1985, Edlin & Reichelstein, 1996).

In order to capture this phenomenon we asked if people were before their mobility subject to conditions that could hamper their mobility. 8% said they were subject to differed bonuses, 13% to non compete clauses, 10% to long notice of departure and 4% to “other” devices. Altogether 28% were subject to at least one retainment device, that is 21 % to one device and 7% to two and more devices. As transaction costs theory expect, people holding key assets and moreover collaboration ties are generally more subject to retainment devices than other workers (table 9). This result holds well in particular for differed bonuses and long notices of departure, but does not hold for non compete clauses. One reason for non compete clauses to be not very common at the core of financial markets is that they are not very efficient. In France, as in many countries, non compete clauses must not prevent the freedom of work. In order to be legally enforceable, they cannot forbid to have the same job, their scope must be limited in time and moreover in space. The usual space limitation is not broader than for instance of a few French departments. Therefore person subject to a non-compete clause in Paris will still be able to work with the same assets, the same team and the same customers in London where the clauses will not be very effective.

Table 9. Assets and team protection through retainment devices

Model specification	Variables	Differed bonuses	Non compete clauses	Long notice of departure	At least one type of retainment device	Number of types of retainment device
a)	Collaboration ties index	0.41 ** (0.15)	0.078 (0.15)	0.35 * (0.15)	0.23 * (0.11)	0.093 ** (0.032)
b)	Moveable asset index	0.39 * (0.16)	-0.10 (0.16)	0.33 * (0.15)	0.18 (0.11)	0.066 * (0.032)
c)	Collaboration ties index	0.34 * (0.16)	0.10 (0.15)	0.29 * (0.15)	0.20 * (0.12)	0.083 * (0.033)
	Moveable asset index	0.31 * (0.16)	-0.12 (0.16)	0.26 * (0.16)	0.14 (0.12)	0.048 (0.033)
d)	Combined index	0.57 *** (0.17)	0.029 (0.153)	0.32 * (0.17)	0.25* (0.12)	0.091** (0.032)
N		441	441	441	441	441

Notes: All 20 models contain the following control variables: sector, function, experience in finance, age, sex and diploma. Standard errors are in parenthesis. In the first four columns, logistic regressions are performed while in the last column we use OLS regressions. *p <0.1, **p <0.01, ***p <0.001 (two tailed tests).

Table 9 seems to indicate that firms try to manage the best they can the threat of departure by using available contractual devices. Among those devices, differed bonuses seem the most efficient. Table 9 shows that this device is mostly privileged in order to protect the people holding collaboration ties. Moreover if we compare people who moved and people who did not move, we can see that the later are twice more subject to differed bonus than the former (16% against 8%), a differential that turn to three times in a logistic regression when we control for sector, function, experience in finance, age, sex and diploma, suggesting that differed bonus did prevent part of the turn-over⁹.

However our survey suggests also that the practical efficiency of those retainment devices are largely challenged by the workers capacity of renegotiating their removal. Non compete clauses, long notices of departures and not paying differed bonuses to person who resign are not only legally fragile and highly susceptible of being broken in a trial but also because, even without any trials or threat of trials, firms can accept to exempt the quitting worker of respecting the contractual clauses or to finally pay him/her the accumulated differed bonuses. Employees are aware of this fragility and of the possible removal of those devices through renegotiations. Among the quitting population subject to those retainments, 42% renegotiated successfully the removal, 21% renegotiated unsuccessfully and 37% did not renegotiate. Among the worker who did not move, 40% think that is possible to obtain the removal of the retainment devices, 54% find those devices a little annoying but not enough to impeach departure, and only 4% thinks that it really inhibits mobility. Long notices of departure are quite easy to remove (we estimate that the rate of successful removal is 60%) and it is quite common in financial industry to exempt the worker to respect his notice of departure once he/she finds a job elsewhere.

⁹ We must remain cautious in our interpretation. The question on the retainment devices was concerning the present job in fall 2008 for employee who never moved and the previous job at the time they quitted for those who did move. Information on the differed bonuses for the latter is on average three years earlier (on median two years ealier) than that for the former. The financial crisis led to discussions on the possible impact of compensation on global turmoil and to recommendations in favor of differed bonuses. It is possible that the more frequent presence of retainment devices among those who did not move is also the result of the recent modification of compensation practices.

The firm is often concerned that the resigning workers might be working in advance for the interests of his future employer. But non compete clauses and differed bonus do not generate that much problems either with 35% of successful renegotiation.

Although persons holding collaboration ties and moveable assets are the ones that the firm will try to keep the most through various means, we can expect those persons to be the most successful in circumventing retention devices. Renegotiation with the firm is not a highly abstract process. It is generally a renegotiation with the supervisor and eventually with head of the direct supervisor. Someone quitting with assets and collaborative ties is for many of his contacts a person worth following in his new firm if ever in a close future, worth doing business with in the future, worth collaborating again with a few years later thanks to another reconfiguration of industry through turnover. Far from being a scapegoat that everyone will try to punish, the asset holding quitter is an attractor to whom everybody wants to remain connected.

Table 10. How collaborative ties smooth transfers on the labor market ?

Model specification	Variables	I. Renegotiate successfully retainments	II. Renegotiate successfully retainments / subject to retainments	III. Renegotiate successfully retainments / subject to differed bonuses or non compete clauses	IV. Negotiation of a wage increase in order not to quit	V. Contacts played a key role / People had contact	VI. Naming referrals that can testify realizations	VII. Keeping good relations with former colleagues
a)	Collaboration ties index	0.24 * (0.13)	0.083 (0.180)	0.32 * (0.18)	0.23 * (0.12)	0.27 * (0.14)	0.24 * (0.13)	0.25 * (0.12)
b)	Moveable asset index	0.27* (0.14)	0.16 (0.22)	0.36 * (0.21)	0.54 *** (0.12)	0.17 (0.15)	0.28 * (0.13)	0.17 (0.11)
c)	Collaboration ties index	0.19 (0.14)	0.053 (0.185)	0.19 (0.21)	0.11 (0.12)	0.25 * (0.15)	0.20 (0.13)	0.22 * (0.12)
	Moveable asset index	0.22 (0.14)	0.15 (0.23)	0.41 (0.27)	0.52 *** (0.12)	0.12 (0.15)	0.25 * (0.13)	0.13 (0.11)
d)	Combined index	0.38 ** (0.15)	0.26 (0.22)	0.49 * (0.22)	0.43 *** (0.12)	0.56 ** (0.17)	0.36 ** (0.13)	0.32 ** (0.12)
N		441	129	92	441	242	441	441

Notes: All 32 models contain the following control variables: sector, function, experience in finance, age, sex and diploma except the four models in column 3 that are estimated with no control variables. All models are logistic regressions. Standard errors are in parenthesis. *p <0.1, **p <0.01, ***p <0.001 (two tailed tests).

In the first three columns of table 10, we estimate the impact of collaboration ties and of moveable assets on the probability of renegotiating successfully the removal of retainment devices. Holding collaboration ties or moveable assets or moreover a combination of thereof increase the probability of success. As we do the regression on the full mobile sample and not conditionally on the subjection to retainment devices, one can suspect that we capture only the probability of being subject to retainment devices. This is not only the case since the regression parameters are higher and more significant than in table 9. More, when we estimate a regression on the probability of not renegotiating or having no success renegotiating on the same sample the parameters for moveable assets and collaborations ties are very close to zero and not significant at all. In the second column we do the same regression but only on the sample of people subject to retainment devices. The parameters are positive, but probably due to the small size of the sample ($n=129$) and the important number of control variables ($k=17$), parameters are not significant. It is worth noting that without those control variables, correlation between successful renegotiation and our indexes of collaboration ties and of moveable assets is positive and significant (regressions III, table 10).

Removing retainment is not the only way of smoothing transfers that holding moveable assets and collaboration ties permits. They enable staying in the same firm with a better wage if perchance the job change fails or does not seem enough profitable. Column IV shows that holding collaboration ties and moreover moveable assets favors wage renegotiation in the firm in order to avoid resignation. Being an attractor leads many people to help you in order to benefit of your collaboration or of the assets you carry with you. Column V shows that in such cases, contacts in the new firm are really willing to help to hire and play a key role. It is also much easier to name some referrals that can testify one's realizations during the hiring process (regressions VI, table 10), both because, thanks to collaboration ties, referrals are easier to propose, and because referrals are probably more inclined to support the recruitment through their testimony in order to remain in contact with the quitting financial worker. Although those mobilities might hurt the team and the firm left, people leaving with assets and collaboration ties do not suffer from any kind of informal punishment or social exclusion. On the contrary, they keep more often than other quitters good relations with the colleagues they leave, since those good relations are crucial for both sides in order either to follow the quitter or to bring to the new firm colleagues left behind (column VII).

6. Concluding remarks

We have shown that within financial industry, position at the core of financial market leads to a double accumulation of moveable assets and collaboration ties and that those two factors, dynamically reinforcing one another, contribute to successful job moves and to higher salaries. Those factors contribute to solve part of the wage puzzle in financial industry. Moreover, while the firm tries to protect against dangerous departure through contractual devices, persons holding collaboration ties and moveable assets are successful at withdrawing those limitations. This statistical demonstration knows some limitations. As in many studies, we did not identify any evident exogenous instrumental variable, and our result can still be due to some unobserved

heterogeneity. Nevertheless, although empirical demonstration is not perfect and that it needs further work, confirmation of our results even when we control for a detail human capital nomenclature and for position within the firm pleads in favor of the robustness of our argument. Finally our demonstration offers two perspectives. First, we would like to discuss the way we should view firms and market in financial market. Second, we will see how collaboration ties relate to literature on social network.

In financial industry, mobile workers that quit the firm in order to start to work for a competitor enjoy a rather unusual fate. In a war situation, someone doing so would be considered as a traitor and would risk the death row. In a political situation, switching from party to another may be seen as a mere sign of opportunism and remains suspect. In traditional oligopolistic industry, quitting for a competitor may not be officially condemned, but whispers can spurt in the abandoned firm about the lack of loyalty of the quitter. Here the situation is different. The mobile, holding moveable assets and collaborative ties, far from being condemned, is an attractor that his environment is willing to help, either to follow him/her quickly or to remain in contact with, with the hope of eventual future collaborations. Our case study of mobility in financial industry is a prolongation of Boltanski and Chiapello's characterization of exploitation in a network world. They coin analytically this concept as a reversal of the classical redistribution formula *the fortune of the great men makes the fortune of the little people* that prevails in politics ruled by rules of justice. Exploitation are situation where *the misfortune of the little people makes the fortune of the great men* (Boltanski, Chiapello, 2006: 375). In a network world, the mobile exploit the immobile in a sense that *some people's immobility is necessary for other's people mobility* (ibidem: 362). A mobile acquires this position by threatening the immobile of moving or disconnecting them and maneuvers in a way that the immobile will serve him/her. We have here a similar situation where the immobile, for instance people in the support departments, will contribute to the assets that the most mobile appropriate and move elsewhere, and in order try to remain connected to the mobile will serve their interest even in the mobility episode. What completes here usefully Boltanski and Chiapello is here to document how mobility, collaboration ties, assets are linked and produces such inequalities. Hence, exploitation in network world is not orthogonal to the issue of property as they claim in their argument, as long as we can consider mobile property, such as social and technical moveable assets.

The importance of turn-over and attractiveness of the mobile challenges also our view of the firm and of competition. Since mobile can move a bundle of assets and people and deprive the firm and the stakeholders of an important fraction of the capital, this obliges us to reconsider the frontier of the firm (Zingales, 2000). Shareholders do not really own the firm as they own classical industrial firms. It is not only human capital that falls out of their perimeter as explained by Zingales, but moreover social capital, with its multiplicative capacity to bundle through collaboration ties all sorts of assets as knowledge, know-how, software, customers. Not only the firms do not belong totally to their shareholder but we should also reconsider their locus. First, we can identify the teams moving from one firm to another as the real microfirms. More, considering the intensity of turn-over and the fact that the frontier of a team remains fuzzy and is renewed by past or new collaborations across firms, we might see the real firm between nominal firms in the networks of past and

present collaboration ties that can at any time coagulate into a new productive team. This direction challenges our vision of competition on the market. A universe where one competitor is a former colleague that may also become a future colleague or more a future supervisor is likely to be less competitive than a universe where clearly separated rivals compete. Although financial competition for chances of exchange remains stark, several studies find evidence that competition on prices is somehow tempered (Christie, Schultz, 1994), and this has probably to do with the network of collaboration ties. The study of this later phenomenon could therefore help to explain part of the rent of the financial industry.

But collaboration ties are not only important for the study of the financial industry, they are relevant in other sectors. We can expect their role to increase with the cooperative nature of work and its idiosyncratic nature and with moveable assets at stake. Therefore those relations will play a role in sectors that are not well protected by enforceable property rights or by patents, especially in service to business. Although work contacts may still be viewed as informational weak ties or motivated and influential strong ties, and help to find a job without being personally involved in some kind of pursuit of past collaboration, it is likely that part of the work contacts usually studied as weak or strong are in fact collaboration ties. In this paper, we have been considering work contacts mainly as dyads and we did not explore the broader form of the network that makes collaboration ties valuable. Must they be rather cohesive or non redundant? This issue is partly contingent on the technology and the way it coordinates people (Podolny, Baron, 1997; Hansen et alii., 2001) but also on the position in the group. In financial industry, building on the one hand closed and tied network creates a strong group solidarity and builds a team ready for defection (Lazega, 2001), but on the other hand, for the leading head of desk or head of trading room, maintaining some structural holes between main deputies avoids that the deputies form coalition against the leader and maintains his/her preeminence and his/her indispensability for engineering collective move. This analysis suggest therefore a tradeoff between brokerage and closure (Godechot, 2008b), that is a little different from that established by Burt (2005). Further research is needed in order to establish the factors that determine equilibrium in the collaboration ties framework.

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