

**n° 2010-42**

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# Getting a Job in Finance

## The Strength of Collaboration Ties

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### 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 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 and customers. Since assets are to a certain extent shared among co-workers, 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 online survey launched with *eFinancialCareers.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, ie that collaboration ties and moveable key assets are strongly correlated. The moving of key assets, collaboration ties and notably the combination of those two dimensions all increases wages. Although firms try to secure key workers holding such advantages through contractual devices, those strategies fail since many employees, in order to remain in contact with those attractors, facilitate rather than prevent such movement. Finally this paper suggests that the real firm is maybe not the formal firm itself but rather resides between firms in the networks of collaboration ties formed by employees who are mobile.

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 uniquely informational dimension of networks in job search and job mobility. Theoretically the weak ties *versus* strong ties argument has been simplified into a more structural approach, with the alternate diversified *versus* 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 passing on to ego, at a rate depending on the network structure, new information about job vacancies (Boorman, 1975; Montgomery, 1992; Ioannides and Datcher Loury, 2004). Thus contacts play the benevolent role of job agencies or that of head-hunters providing potential employers and employees with valuable trustworthy information (Finlay and Coverdill, 2002; Lin, 2001). Nevertheless, empirical research on the value of the informational network provided mixed results (Granovetter, 1983, 1995, 2005; Lin, 1999; Ioannides and Datcher Loury, 2004). Several studies find a correlation between weak ties and final status or wage, but one that appears to be mediated through a third variable such as the status of the contact (Lin *et al*, 1981; Wegener, 1991). Other studies based on a nation-wide sample find no clear relationship between the strength of ties and pay (Bridges and Villemez, 1986; Mouw, 2003). This overemphasis on information has been also challenged by research that claims that strong ties can also be helpful, for different reasons than weak ties, because strong ties, although providing possibly less original information, might be more likely to support and to influence the decision-makers (Bian, 1997; Yakubovich, 2005). We might have two mechanisms working in parallel, informing weak ties and supporting strong ties, producing a rather undetermined relationship between strength of ties and value of the job.

Nevertheless, both approaches are similar in the way they view contacts in the context of changing job. They both fail to link job-searching periods and working periods. The typical situation involves an unemployed person or a person unhappy at work, who is trying to find a new job and who is asking contacts either for information or for support (or both). In this scenario, 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 are helping someone with whom they have some bond 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 in part, if not totally, the power to recruit (Granovetter, 1974; Bridges and Villemez, 1986; Yakubovich, 2005). Work ties such as former colleagues are generally classified as weak ties. This statement is correct if we measure it by emotional intensity, but it can be challenged if we measure it by the amount of time spent when ego and contact worked together. But classifying work contacts in weak/strong tie terms obscures the fact that work contacts cannot be seen as independent from the object of the quest. In such cases of help as 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 for an important subsample such as Manager-Professional-Technical workers.

The financial industry is a good observatory for studying the impact of collaboration ties. As regards the importance of network and social ties, finance offers the media two conflicting images: one of a world of selfishness and of great solitude, and another of a closed network of closely-bound insiders. A way of reconciling these two views is to see that finance is structured not by strong emotional ties but by highly-structured collaboration ties that studies deem 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’ ability to commit a hold-up, that is to threaten efficiently the firm to move the firm’s key assets to a competitor. Within our framework such assets as knowledge, technology and clients are appropriated by financial employees and

multiplied by collaboration ties, leading to some spectacular team moves (Godechot, 2008a, 2008b). This paper intends to strengthen the theoretical link between moveable assets and collaboration ties and to offer a statistical exploration of its importance based on data from an *eFinancialCareers.fr* online survey collected in September 2008.

The paper is organized as follows. In the initial section, we first revisit Granovetter's empirical work and show that below weak ties we very often have collaboration ties. We then develop a theoretical framework that, in finance, links the importance of collaboration ties with the appropriation of key moveable assets. The third section presents the questionnaire on job mobility in the financial industry, and the main variables. We confirm in the fourth section our hypothesis linking moveable assets and collaboration ties, 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 also helps to circumvent the contractual devices that try to restrain 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 consider 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 of job search in a Boston suburb. Ego's different strong ties are very likely to be connected to one another, whereas ego's weak ties are more likely to exist in different and relatively unconnected groups. While persons linked by strong ties would share more or less the same information, weak ties on the contrary serve as a bridge between various circles and may provide ego with new and valuable information.

Granovetter relies partly on his 1974 study on contacts in order to establish his general claim explaining that weak ties is a very valuable means to getting 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 weak since we do not know the general frequency of all ego's contacts<sup>1</sup>. While it does establish that getting a job through personal contacts leads to a more satisfying and better-paid job than through formal means and direct application (1974, pp13-14), the book does not give many 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, p54).

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, pp76-80]

'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.' [ibid, 1973, p1371]

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<sup>1</sup> Granovetter does recognize this objection in a footnote, p1372.

Although Granovetter does not state explicitly that a proxy of weak ties could be work contacts and that one of strong ties could be family and friends, such a shortcut is suggested. 31% of the contacts are coded 'family-social' and 69% 'work' relations, among which we find 21% of former teachers, 36% of former employers or supervisors, and 33% of former colleagues (1974, p46). Those work ties seem valuable since they are more likely to be associated with a better salary. Moreover those former colleagues are much more likely than other contacts to become the new employer or the new supervisor (1974, p47). 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 new information provided at time  $t$  by weak ties. If your former supervisor quits, works for another firm and three months later calls you back and invites 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 may be quite a low-intensity emotional relationship. But since the working contacts were regular before quitting, the supervisor and the subordinate did already share quite a lot of information on one another, and in this phone call neither the former nor the latter learns much beyond the possibility of working together again.

Although it could still be possible to analyze this case according to the information ties model, it is tempting to provide another reason why this type of working ties works: they are collaboration ties. We can talk of collaboration ties when people produce more together than separately. Complementarities is not referring only to complementarities of skill, as in Kremer's framework (Kremer, 1993), but also to personal complementarities. Two co-workers learn to coordinate, to share work and they only become productive over time. Therefore, they will be willing to preserve this collaboration asset. 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/she will do so. Cooperating with co-workers is quite common and if we were to state this phenomenon alone, for instance on a national sample (Bridges, Villemez, 1986), it is likely that it would have rather modest consequences. What we need to do now is to identify a factor that helps to turn cooperation relations into collaboration ties in the labor market.

## 2. Collaboration ties in finance

Let us now advance a theoretical model based both on qualitative research into finance (Godechot, 2007, 2008a, 2008b) and on existing literature that analyses the factors that actively encourage collaboration ties.

Collaboration ties are more likely to be significant when two persons linked together share a common asset, when they organize a division of labor in order to exploit and value this shared asset and when it is possible to move this asset from one firm to another. Before developing the model, let us give an example of this link. John and Jack are sales-staff working in a derivatives team for Bank A and selling financial products to Mike in firm F. We consider here that the commercial relationship to Mike in firm F is the key moveable asset. If John moves alone to Bank B, he will move a fraction  $f$  of his business to Bank B. If John and Jack move together to Bank B, they will move together a fraction  $g$  of business to Bank B. We expect the fraction  $g$  of assets moved in the second case to be more than twice as big as the fraction  $f$  in the first case ( $g > 2f$ ). In some extreme cases, we can imagine them taking everything when they move in teams and taking nothing when they move alone ( $g=100\%$ ,  $f=0\%$ ).

As we have shown in previous analysis (Godechot, 2008a), the financial industry is a sector where employees 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 the 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, in 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' accounts of financial industry (Lewis, 1989) and scholars have shown the importance of mentors (Roth, 2006) in the financial industry from whom one learns 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 much from one another through informal conversations (Beunza, Starck, 2004). But moveable 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 piece of software that he developed with others at his previous firm which could carry out some innovative pricing of convertible bonds, which are complex financial derivatives (Godechot, 2007). One classical element that is often moved from one firm to another is client relationship. Hence brokers and salespeople build progressively with their clients an idiosyncratic relationship both through formal and informal, professional and non-professional conversation. One of the issues of the building of those relationships, that may rely on exogenous similarities such as those of gender or of social background (Roth, 2006), is to build a shared vision of the market between salespeople and client (Smith, 1999; Ortiz, 2003). If a salesperson moves to another firm, the client might be willing to continue to discuss business-matters with him, listen to his/her advice and to do business with him/her. Moreover, with standardized products, priced very similarly in different markets, what can clinch a deal is the complex 'chemical' that transforms the customer of the firm into a client of the salesperson.

Jobs in the financial sector differ in the amount of assets an employee can appropriate and in the extent to which those assets are moveable. We may think that jobs at the core of financial market, front office traders and salespeople, are jobs where assets are more appropriable and easier to move. The first reason is that front office jobs are highly specialized (Rajan, Zingales, 2001). You are more likely to appropriate a key asset if you have been working long-term with such assets. If you start as a derivatives trader, it is likely that you will remain a trader in the same area as long as you can, working with the same financial products. However, if you are a back office manager, as part of your overall job you will probably move around 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 another inside the support departments of the same firm (back office, accounting, HR, IT). The second reason is that the organization of work is fairly standardized in front offices whereas it is more firm-specific in support departments. The more similar the organizations, 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 eases the recruitment of external traders and salespeople while also enabling some internal traders and salespeople to quit and thereby relocate key assets accumulated during their work within the firm. On the other hand, in the back office, even if you can more or less appropriate an asset through a long-term involvement with it (for instance in some IT jobs when you create a piece of internal software), it might be less valuable to move this asset if it is not compatible with the systems of the new firm. We may therefore sum up those elements in the following hypothesis:

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

When individuals move independently, they might not move all the key assets that they were holding in the previous firm. This is especially prevalent when assets are shared among several co-workers. In such cases, moving in teams, with co-workers sharing the same assets, increases the average asset moved per capita. Groysberg *et al* (2008) have therefore shown that generally financial analysts suffer a loss of reputation when they move alone from one firm to another, but that this loss disappears when they move in teams with other colleagues. In our interpretation, reputation can be viewed as a collective asset based on a combination of the financial analyst's individual initial skill, experience acquired on the job and also the quality of the surrounding team supporting him in his analysis, the quality of customer service, the trust-relationship built with

customers, etc. Alone, a financial analyst moves part of this idiosyncratic bundle and suffers 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 saved and this enables rapid productivity in the new environment. Moreover, the idiosyncratic routines of division of labor will set productive complementarities within the team (among traders, among salespeople, between a trader or a salesperson and his assistant) with valuable division of tasks, of knowledge, of products, of clients and sharing of information and expertise. Finally, some underlying assets are even more deeply shared among co-workers. The same client may be shared for different products among various sales-staff, some selling derivatives, others selling stocks. The valuation of a financial product such as equity or credit derivatives also involves the combination of trading teams (that manage financial portfolios) and sales teams (that manage clients). Heads of trading room who can, through collaboration ties, move both teams more or less capture the power needed to transfer the financial activity itself (Godechot, 2008b).

In the financial industry, moving in teams and hiring teams are quite common phenomena (Godechot, 2007, 2008b). Groysberg *et al* (2008) remark that investment bankers commonly refer to it as ‘block trading in people’. Of the 366 analyst-moves collected in their database, 100 are team moves involving colleagues categorized as ‘other ranked analysts, junior analysts, institutional salespeople, and traders’. This figure is all the more impressive since the job of financial analyst would not at first sight appear as obviously a team-based one compared to other jobs such as traders or salespeople. Although, to my knowledge, we do not have a precise estimation of such collective moves, cases reported in the newspapers show the extent of the phenomenon. For instance Frank Quattrone in Private Equity is reported to have moved from Morgan Stanley to Deutsche Bank Securities with 8 colleagues in 1996 and to have then moved again with two other bankers and their 100-strong team in 1998 to Crédit Suisse<sup>2</sup>. Team moves are also at the origin of most hedge funds. John Merriwether launched 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 you develop an activity and meet new recruitment needs, you can pick from among former colleagues or business relations a person you know as a good productive match.

These elements thus lead us to build two new, closely interrelated hypotheses.

*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 above in H2a is the product of a dynamic causal system. Holding moveable 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 co-workers 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 held 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, ie working in core finance (H1), also cause the latter, which is why we expect moveable key assets and collaboration ties to be correlated. But we also think that working in core finance also independently encourages the building and the use of collaboration ties on the financial labor market. One reason for this is

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<sup>2</sup> ‘Inside Frank Quattrone money Machine’, *Business Week*, October 13 2003.

that the strong autonomy and high specialization in core finance together favors the creation of a united team ready for defection. Meanwhile, in the support departments a lower level of specialization and, as in some law firms (Lazega, 2001), policies dealing with internal mobility from one department to another prevent the formation of 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 power of moving both assets and people through collaboration ties is highly valuable on the labor market since it leads to 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 derivatives trading-room and his deputy were respectively granted 10 and 7 million euros in bonuses 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 a very high proportion of the bonus pool (15% for the two). They were threatening their bank by warning 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 both of them, 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. This is not 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 (shareholders, 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 a hold-up (although legal here) than as a classic market-bid.

In this case of successful renegotiation, as in many other cases of successful collective departure, we have a combination of moveable assets and collaboration ties. This combination enables workers to earn a major wage-premium that, in our view, accounts for most of the wage-differential puzzle between various jobs in finance and notably between Wall Street and Main Street (Philippon, Resheff, 2009; Kaplan, Rauh, 2009). Moreover, according to the findings of Groyberg *et al* (2008), 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 full package. These two arguments, ie that of assets-moving through collaboration ties and that of overbidding, converge in the case of mobile financial operatives. They entail on the one hand high levels of wages and on the other hand a strong correlation between salaries and the expectation of assets moved through such collaboration ties. We will sum up our argument with this simple proposition:

*H3: The moving of key assets, collaboration ties and notably the combination of these two dimensions all increases wages.*

### **3. An Internet questionnaire on mobility in the French financial industry**

#### **The questionnaire**

The survey is based on a collaboration between the author and *eFinancialCareers.fr*, the French branch of *eFinancialCareers.com*, the leading global career-site network for professionals working in the financial sectors. The website provides financial services professionals with job-opportunities, job-market news and analysis, salary-surveys and career-advice. Recruiters and employers can post jobs targeting specific sectors within the financial services industry, both buy-side and sell-side, and can search the resume database for highly qualified and specialized professionals. The basis of this fruitful collaboration was that the author could benefit from their broad finance-based audience in order to get a large number of answers while they on the other hand could use

the survey results as a marketing-tool to keep their audience informed about the latest market-trends (Godechot 2008c, 2008d).

The questionnaire, designed during the summer of 2008, is divided into three parts. The first twenty questions focus on the last move in finance for those who changed job at least once within that industry. The next dozen questions concern the desire to move, but only for those that had never changed job within finance<sup>3</sup>. The questions dealing with the desire to move are formulated in very similar terms to those concerning past mobility. And the final dozen questions are general socio-economic questions for the whole sample relating to respondents' social background and current situation in the financial industry.

The online questionnaire was by coincidence launched on September 16, 2008, the very day after Lehman Brothers went bankrupt, and was closed on October 7, 2008 in the midst of the financial turmoil. Although a few final comments expressed people's concern about this untypical situation, the latter did not seem to affect the answers significantly: first, most of the respondents to the questions (which were in French) were working in France (83%) and, apart from in the sub-prime sector, the financial crisis only deepened in France during late fall; second, the responses reflected overall an increased mobility for the years 2006, 2007 and early 2008, a period when French finance was either flourishing or, other than in the subprime sector, only slowly entering into crisis. The questionnaire was accessible to people both through the website and by email to *eFinancialCareers.fr*-registered contacts. Based on the dates and times of the answers, we think that between a half and two-thirds of the questionnaires were filed by people alerted to the questionnaire through their two invitations.

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 conduct from time to time. This flattering appreciation also shows the relevance of the questions. But carrying out lengthier questionnaires on the Internet (maybe 10-15 minutes) has a down-side: we see a quite significant 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 continued 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 the 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 France, 5% in London, 5% in the rest of Europe, the rest elsewhere. They work mainly for banks (47%), for other financial firms (asset management, brokerage) (16%), or for insurance firms (4%). 22% work in a business that serves the 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 provides a fairly accurate representation of the financial industry at large (Table 1). We must not forget that for a famous trader and a sales-agent in the front office, we need to count 4 or 5 further employees working in various support positions. We do find some differences between our data and those of a major bank (in 2000), but they are limited to back and middle office on the one hand and accounting, budgeting and audit on the other hand, domains where the nominative differences are somewhat fuzzy.

**Table 1. Comparison between our sample and the job composition of the investment**

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<sup>3</sup> Although it would have been a better methodology to ask the questions on the desire to move to the full sample, *eFinancialCareers.fr* was very concerned that the questionnaire would as a result become too long for an internet survey. As we will see further, this concern was wise. It must therefore be noted that when we analyse the desire to move, there might be a selection bias due to the fact it deals with those who never moved (and who therefore are maybe less inclined to move).

### 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, auditing	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%

Note: 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 a major French investment bank. Comparison data were gathered during fieldwork.

Furthermore, our wages - Q1 = 47,000 euros, median=58,000 euros, Q3 = 83,000, P9 =146,000 – are rather similar to those we find in Calyon’s 2008 *bilan social* (social report<sup>4</sup>) : Q1 = 37,770 euros, median=55,243 euros, Q3 = 93,529, P9 =171,143. One difference can be explained by the standard deviation that seems lower in our sample.

The biggest bias of our sample (which may account for the above discrepancies) is that of age. 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 employees in finance might move less, use IT less 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 sample will not allow us to scrutinize the most spectacular collective moves organized by the more senior employees such as the heads of trading rooms described above.

## Variables

### *Moveable assets*

Asking questions on key moveable assets held by employees is not an easy task since the concepts are highly abstract and may sound unfamiliar to the respondents; moreover, employees may not always be 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).

<sup>4</sup> Calyon – Direction des ressources humaines, 2009, *Bilan social 2008*, Calyon. Social reports are compulsory in French firms of over 300 employees and are sent to union delegates, shareholders and to Labor Inspection services. Those working in subsidiaries and notably foreign subsidiaries are excluded here.

**Table 2. What was at stake during this recruitment?**

Answers (multiple-choice questions)	% (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%

Note: 27% of the 489 respondents that changed job in finance at least once answered that 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 employees. 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, such as new techniques, could also be partly due to general knowledge and talent acquired before the start of the financial career. But it is very unlikely that talent and general knowledge alone can enable someone to bring new strategies, and moreover new business or new clients, without an on-the-job accumulation of financial experience, and of what we call key moveable assets.

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

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

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

### *Collaboration ties*

In order to measure collaboration ties, we rely mainly on four questions in the past mobility questionnaire and on one in that on the desire to move. 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, or more fundamental assets such as knowledge, technology, market share or customers. Although our sample is somewhat biased in favor of junior workers, it is significant that 14% of those who moved had helped to hire former colleagues and that 15% of them had already moved in teams. Although the collective aspect of financial recruitment is generally limited to small numbers (a team of two or three members) and we don’t include the most spectacular ones, its prevalence makes it worth further study.

**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 a firm directly	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 to another firm? (n=469)	No	85%
	With 1 or 2 colleagues	12%
	With 3 and more	3%
If your boss moved 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%

Note: 20% of those who moved were first contacted by a head-hunter. The first four questions were asked to those who had experienced a job-change and the final one to people had who had never changed job.

The question on contacts also informs us about the types of ties used in the financial industry in order to get jobs. Professional contacts such as former colleagues and business partners are people with whom you have been cooperating and are therefore more aptly classified as collaboration ties. But classmates and other contacts on the one hand and friends on the other would more appropriately fall within the Granovetterian weak ties *versus* strong ties dichotomy. 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 people 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 hired<sup>5</sup>.

$$\text{Coll\_Ties}_0 = \text{Team\_move}/\text{sd}_{\text{Team\_move}} + \text{Hire\_coll}/\text{sd}_{\text{Hire\_coll}} + \text{Pro\_Cont}/\text{sd}_{\text{Pro\_Cont}}$$

$$\text{Coll\_Ties} = \text{Coll\_Ties}_0/\text{sd}_{\text{Coll\_Ties0}}$$

#### *Other variables*

Compensation. Compensation variables are our main dependant variables that enable us to see the impact of assets-moving and use of collaboration ties. For those who changed job, we asked first the percentage of wage increase obtained during the last move. And we asked all respondents for their present annual fixed wage and bonus. As compensations are personal and something some people 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 times the annual fixed wage, 6) from 2 to 5 times, 7) more than 5 times. On the basis of those two variables, it is possible to calculate the intervals of the total compensation. For instance, someone with a fixed wage of between 40 000 and 60 000 euros, and a bonus of between 50% and one year of fixed wage has a total compensation of between 60 000 and 120 000 euros. The full information of this variable may be extrapolated through interval regression.

Position in the financial industry. We used two types of variable in order to describe the position within the financial industry: first the ‘function’, described in Table 1, and second, a sector question divided into 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 the 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 best describes the schooling curriculum. We suggested 9 items of answer : 1) top-grade engineering school, 2) top-grade business school, 3) French Doctorate, PhD, 4) other good engineering school, 5) other good business school, 6) French university Masters (ie ‘DEA’, ‘DESS’ and Masters), 7) other university Masters, 8) university Degree (ie ‘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 the financial industry on the domination of a small elite of top-grade engineering *Grandes Écoles* such as Polytechnique, Mines, Centrale, Ponts, ENSAE and to a lesser extent top-grade business schools such as HEC, ESSEC or ESCP (Godechot, 2001).

We asked exactly when people started in the 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 variables.

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<sup>5</sup> For team moves (*Team\_move* variable), the values are 0 if the respondent never moved in teams, 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 knew neither former colleagues nor business partners in the service where he/she was hired, 1 if he/she did know either former colleagues or business partners, 2 if both types are known.

## 4. Combining assets and people

Table 4 enables us to test whether working at the heart of the financial market favors the dual accumulation of key moveable assets and collaboration ties (H1 and H2b). If we were to think that key moveable assets and collaboration ties were only a by-product of human capital, ie that talented people are *per se* creative of assets and that they attract many people who are willing to collaborate, we would have expected mainly the classical human capital variables, such as diploma, age and financial experience, to be significant and other core finance proxies to have very little explanatory power. It is true that diplomas, especially top engineering school diplomas, age for moveable assets and experience for collaboration ties have a major impact. But the impact of working in front office jobs is very significant and almost as influential as that of an elite engineering diploma. Therefore in order to acquire moveable 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
Intercept	/	-2.46*	-0.83
		(1.11)	(1.11)
<u>Sector</u> : Investment bank	0.28	-0.029	0.052
	(0.10)	(0.104)	(0.103)
<u>Function</u> : Front office	0.20	0.46***	0.21 *
	(0.08)	(0.12)	(0.12)
Financial experts (research and engineering)	0.16	-0.018	-0.22 *
	(0.07)	(0.133)	(0.13)
IT	0.09	-0.097	0.012
	(0.04)	(0.175)	(0.175)
<u>Experience</u> in finance (years)	8.34	-0.0066	0.097 **
	(7.33)	(0.0318)	(0.032)
Experience in finance (square years)	123.29	0.00046	-0.0021 *
	(212.49)	(0.00096)	(0.001)
<u>Age</u> (years)	33.27	0.14*	0.04
	(8.24)	(0.06)	(0.062)
Age (square years)	1175.32	-0.0015*	-0.0006
	(632.28)	(0.0008)	(0.00078)
<u>Sex</u> : Male	0.75	0.14	0.27 *
	(0.43)	(0.11)	(0.11)
<u>Diploma</u> : Top engineering school	0.06	0.59*	0.43 *
	(0.03)	(0.23)	(0.23)
Top business school	0.19	0.071	0.042
	(0.08)	(0.178)	(0.178)
French Doctorate, PhD	0.01	0.75	1.44 **
	(0.005)	(0.47)	(0.46)
Other engineering school	0.06	0.29	0.18
	(0.03)	(0.25)	(0.25)
Other business school	0.15	0.29	0.026
	(0.06)	(0.19)	(0.188)
French Masters	0.33	0.11	0.13
	(0.11)	(0.16)	(0.16)
Non-French Masters	0.02	-0.29	0.36
	(0.01)	(0.35)	(0.35)
Lesser diploma / no diploma	0.05	0.19	0.22
	(0.02)	(0.24)	(0.24)
R2	/	12%	15%
N	441	441	441

Note: 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 in more detail the link between the role in the financial industry and the type of ties involved. Knowing former colleagues, moving in teams, and being first contacted by someone in the firm is closely linked with working in front office, and for the latter also working in an investment bank. Although the sample is quite limited for the people who never moved and who were asked about their desire to move, it is striking to see that being very likely to follow a boss who moves 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 roles but much less developed in financial expertise roles. This may be due to an organization of work in those functions that favors individual expertise over 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 as 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 greater use of collaboration ties compared to other types of ties which they may also have.

**Table 5. Details about collaborative ties**

	Professional Contacts	Move in teams	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)
Other 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)
Other 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 Masters	0.034 (0.088)	0.11 (0.09)	0.012 (0.088)	0.13 (0.45)	0.91 (0.91)	0.061 (0.096)
Non-French Masters	0.14 (0.19)	-0.017 (0.207)	0.27 (0.19)	1.04 (0.85)	-15.31 (1161)	-0.079 (0.211)
Lesser diploma / no diploma	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

Note: 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 people that moved with them, the minimum number of former colleagues hired, number of types of non-professional contacts. Columns 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 latter regression concerns only people that did not move within the 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 Tables 4 and 5 clearly confirms the link, stated in Hypotheses 1 and 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 seems by the way pretty correlated. 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**

	Global correlation	Predicted variables correlation	Residual correlation
Correlation of moveable assets index with :			
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 teams	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)

**Note:** 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 assets index and the collaborative ties index is 0.30. The correlation of their prediction calculated regressions (Tables 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, further, by the correlation of their residuals<sup>6</sup>. The partial correlation of 0.22 indicates that when one of the two variables moves by one standard deviation, the other moves by a little more than a fifth of a standard deviation<sup>7</sup>. The importance and the significance of the three correlations applies 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 than 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 co-worker, it is worth collaborating with him to value those assets; put another way, 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 then on the total compensation at the time of the survey.

The average pay-rise obtained during the last move is 25%. Modeling this increase is rather difficult. One reason is that pay-rise in percentage terms may be quite a heterogeneous phenomenon: some pay-rises may be large because the incumbents had a strong position on the market, for instance holding key assets and many collaboration ties, others may be sizeable only because the incumbents previously received a very low wage. Therefore, traditional variables of wage equations such as age, experience and diploma do not seem to play a significant role. Nevertheless, in the financial industry, position is a key factor: moving in (or to) an investment bank increases 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 differs 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

<sup>6</sup> 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.

<sup>7</sup> 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 variables, 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.

standard deviation of our asset moving index has here a stronger and much more significant effect (+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)	1.07* (0.6)	1.06* (0.6)	1.13* (0.6)
<u>Collaborative ties index</u>	1.76 (1.23)		1.12 (1.26)	0.091*** (0.025)		0.084** (0.026)
<u>Moveable assets index</u>		3.09* (1.22)	2.84* (1.25)		0.054* (0.026)	0.035 (0.026)
<u>Sector:</u> Investment bank	9.61*** (2.61)	9.79*** (2.6)	9.73*** (2.6)	0.22*** (0.05)	0.23*** (0.05)	0.23*** (0.05)
<u>Function:</u> Front	4.88 (3.06)	3.81 (3.08)	3.69 (3.09)	0.14* (0.06)	0.14* (0.07)	0.13* (0.06)
Financial experts	-2.35 (3.36)	-2.68 (3.34)	-2.44 (3.35)	0.090 (0.070)	0.073 (0.071)	0.089 (0.07)
IT	-8.56* (4.43)	-8.24* (4.41)	-8.28* (4.41)	-0.066 (0.091)	-0.058 (0.092)	-0.063 (0.091)
<u>Experience in finance (years)</u>	0.33 (0.81)	0.53 (0.8)	0.42 (0.81)	0.060*** (0.018)	0.067*** (0.018)	0.06*** (0.018)
<u>Experience in finance (square years)</u>	-0.009 (0.0245)	-0.014 (0.024)	-0.012 (0.024)	-0.0013* (0.0005)	-0.0014** (0.0005)	-0.0013* (0.0005)
<u>Age (years)</u>	-0.75 (1.58)	-1.11 (1.58)	-1.12 (1.58)	0.12*** (0.03)	0.12*** (0.03)	0.11*** (0.03)
<u>Age (square years)</u>	0.0056 (0.0198)	0.0093 (0.0198)	0.0096 (0.0198)	-0.0014** (0.0004)	-0.0014** (0.0004)	-0.0013** (0.0004)
<u>Sex:</u> Male	1.56 (2.71)	1.62 (2.68)	1.34 (2.7)	0.13* (0.06)	0.15* (0.06)	0.13* (0.06)
<u>Diploma:</u> Top engineering school	3.33 (5.91)	2.26 (5.9)	1.92 (5.91)	0.75*** (0.12)	0.76*** (0.13)	0.73*** (0.12)
Top business school	5.16 (4.5)	5.02 (4.48)	4.99 (4.48)	0.46*** (0.09)	0.46*** (0.09)	0.45*** (0.09)
French Doctorate, PhD	2.24 (11.92)	2.44 (11.76)	1.02 (11.87)	0.35 (0.27)	0.43 (0.27)	0.33 (0.27)
Other engineering school	-5.2 (6.24)	-5.79 (6.21)	-5.92 (6.22)	0.39** (0.13)	0.39** (0.13)	0.38** (0.13)
Other business school	-0.53 (4.77)	-1.39 (4.76)	-1.35 (4.76)	0.23* (0.1)	0.22* (0.1)	0.22* (0.1)
French Masters	0.99 (4.04)	0.87 (4.02)	0.76 (4.02)	0.21* (0.08)	0.22* (0.09)	0.20* (0.08)
Non-French Masters	-4.88 (8.86)	-3.36 (8.81)	-3.83 (8.83)	0.13 (0.18)	0.18 (0.19)	0.14 (0.18)
Lesser diploma / no diploma	-7.51 (6.11)	-7.7 (6.08)	-7.89 (6.08)	-0.099 (0.134)	-0.071 (0.134)	-0.10 (0.133)
Log scale	/	/	/	-0.80*** (0.04)	-0.79*** (0.04)	-0.80*** (0.04)
R2	9%	10%	10%	/	/	/
N	441	441	441	429	429	429

**Note:** We model in the first four columns the percentage of compensation increase during the 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-equation estimations (Mincer, 1974). Although it is not possible to calculate a classical R2 with interval regressions, we expect our model to provide an adequate picture. Running the same estimation on the logarithm of either side of our interval gives an 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. Students from the top engineering schools command

a salary double ( $\exp(0.75)$ ) that of bachelor diploma (“*licence*” degree in France). But those human capital equations do not fully explain the variance. Working in front office functions and notably in investment gives a wage rent respectively of 14% and 25%. Finally our index of collaborative ties has a strong and significant impact on wages. A standard deviation in collaboration ties raises wages by 9%. At a slightly lower 5%, the moveable assets index also has a significant impact. Measuring simultaneously the effect of the two variables both shows similar figures and highlights the fact that collaboration ties have a rather long-term impact<sup>8</sup>.

In Table 8 we test various types of combination of collaborative ties and moveable assets. We find a positive effect of the interaction of collaboration ties and moveable assets on both pay rise and total compensation. But in both cases, the interaction controlled by the non-interacted variables is not significant. It should be noticed nevertheless that estimating highly-tied variables on a rather small sample may lead to some autocorrelation that increases standard estimates and lead all three variables to become non-significant. Although the joint nullity test shows that the three variables jointly add some significant information, the effect of the three variables becomes difficult to disentangle.

Finally, the difficulty of disentangling collaborative ties and moveable assets leads us to build a combined index as the standardized sum of moveable assets and collaborative ties. This combined index has even a stronger effect on immediate pay rise than the moveable assets alone and similarly has a stronger effect than collaboration on total compensation.

**Table 8. Effects of the combination of moveable assets and collaboration ties on compensation**

	Pay-Rise		Total compensation	
Collaborative ties index	0.31 (1.67)		0.027 (0.038)	
Moveable assets index	2.16 (1.56)		0.019 (0.037)	
Collaborative ties index * Moveable assets index	0.63 (0.86)		0.030 (0.021)	
Combined index: Collaborative ties index + Moveable assets index		3.17* (1.25)		0.094** (0.029)
Joint Nullity test	F=2.57 p=0.05		D2=13.10 p=0.0044	
Controls	Yes	Yes	Yes	Yes
N	441	441	429	429

Note: We model the impact of different types of relations on pay rise and on total compensation. All 4 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. Standard errors are in parenthesis. \*p <0.1, \*\*p <0.01, \*\*\*p <0.001 (two-tailed tests).

Finally Table 9 enables us to see the different dimensions of collaboration ties. We find the same difficulty to explain with various forms of collaboration ties the immediate pay rise. Some variables are nevertheless borderline significant (p=0.11): helping to hire one former colleague increases by 3.5 points the pay rise. Similarly, among those who never moved, those who are ready to follow their boss expect a pay rise 6.7 points higher than others.

<sup>8</sup> The fact that our moveable assets index tends to have a short-term impact on wages and the collaboration ties tends to have 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 moveable assets at the moment of the survey and the level of compensation.

**Table 9. 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 teams	0.8 (2.09)	0.058 (0.043)
c)	Hire colleagues	3.52 (2.23)	0.094 * (0.046)
d)	Follow the boss if he/she moves	6.70 (4.26)	0.25 * (0.10)
All models	Controls	Yes	Yes
N		441	429

Note: 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 line d) 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 partner or a former colleague in the hiring team raises pay by 17%. The difference with non-professional ties is striking here. Those non-collaborative ties, whether strong (friends) or weak (classmates, others) add virtually nothing. Similarly, 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, ie that moveable key assets, collaborative ties and a combination of the latter increase wage, is clearly confirmed by our data. If we compare fieldwork analysis and statistical survey, we could have expected a more impressive premium in favor of those two closely tied dimensions. This nuance calls for a few remarks. First our sample, with its junior bias, 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 reduces the absolute value of regression parameters. Third the amplitude of the effect is not that small. If hiring a former colleague increases wage by 10%, a head of desk hiring his whole team of 10 employees increases his by 100%, and we can imagine that two heads of room as in our previous example, moving potentially 100 traders and sales-agents, 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 they deprive it 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, before their move, people were subject to conditions that could hamper it. 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, ie 21 % to one device and 7% to two and more

devices. As transaction costs theory predicts, people holding key assets and notably collaboration ties are generally more subject to retainment devices than other workers (Table 10). This result applies in particular in the case of differed bonuses and long notices of departure, but does not apply in the case of non-compete clauses. One reason for the comparative scarcity non-compete clauses 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 prevent from having the same job elsewhere, their scope must be limited in time and in space. The usual space limitation is not broader than for instance of a few French departments. Therefore people 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, which is why the clauses will not prove very effective.

**Table 10. 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 assets 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 assets index	0.31 * (0.16)	-0.12 (0.16)	0.26 * (0.16)	0.14 (0.12)	0.048 (0.033)
d)	Combined index (a+b)	0.51 *** (0.16)	0.16 (0.24)	0.44 * (0.15)	0.27* (0.12)	0.10** (0.03)
All models	Controls	Yes	Yes	Yes	Yes	Yes
N		441	441	441	441	441

Note: 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 10 seems to indicate that firms try to manage as best they can the threat of departure by using available contractual devices. Among those devices, differed bonuses seem the most efficient. Table 10 shows that this device appears designed to protect the people holding collaboration ties. Moreover if we compare people who moved with people who did not, we can see that for the latter differed bonuses are twice as common as for the former (16% against 8%), a differential that turns into a factor of three 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-over<sup>9</sup>.

However our survey suggests also that in practice the efficacy of those retainment devices is undermined by the workers' capacity for renegotiating their removal. Non-compete clauses, long notices of departures and not paying differed bonuses to those who resign are not only legally fragile and highly susceptible to being overturned in the courts but also because, even without any trial or threat of trials, firms can simply exempt the departing worker from respecting the contractual clauses or agree nevertheless to pay him/her the accumulated differed bonuses. Employees are aware of this fragility and of the possible removal of those devices through

<sup>9</sup> We must remain cautious in our interpretation. The question on the retainment devices concerned the current job in fall 2008 for employees who never moved and the previous job at the time they quit for those who did move. Information on the differed bonuses for the latter is on average three years earlier (on median two years earlier) 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.

renegotiations. Among those transferring to new jobs and subject to such retainments, 42% successfully negotiated their removal, 21% renegotiated unsuccessfully and 37% did not renegotiate. Among the workers who did not move, 40% think that is possible to obtain the removal of the retainment devices, 54% find those devices somewhat annoying but not enough to prevent departure, and only 4% think that they really inhibit 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 the financial industry to exempt the worker from respecting his/her notice of departure once he/she finds a job elsewhere. The firm is often concerned that employees serving their notice might actually be working in advance for the interests of a future employer. But non-compete clauses and differed bonuses do not represent a significant hurdle, with 35% of successful renegotiation.

Although the holders of collaboration ties and moveable assets are the people that the firm will try the hardest to retain, by various means, we can expect those people 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 sometimes with the latter's line-manager. Someone departing with assets and collaborative ties could be for many of his contacts a person worth following in his new firm immediately, worth doing business with in the future or worth collaborating with again a few years later thanks to another reconfiguration of industry through turnover. Far from being a scapegoat that everyone will try to punish, the employee leaving with assets is an attractor to whom everybody wants to remain connected.

**Table 11. How collaborative ties smooth transfers on the labor market**

Model specification	Variables	I. Successfully renegotiate retainments	II. Successfully renegotiate retainments / subject to retainments	III. Successfully renegotiate 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. Supplying references	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 assets 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 assets 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	0.33 * (0.14)	0.15 (0.20)	0.44 * (0.21)	0.50 *** (0.12)	0.30 * (0.15)	0.36 ** (0.14)	0.28 ** (0.12)
All models	Controls	Yes	Yes	No	Yes	Yes	Yes	Yes
N		441	129	92	441	242	441	441

Note: 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 11 we estimate the impact of collaboration ties and of moveable assets on the probability of successfully renegotiating the removal of retainment devices. Holding collaboration ties or moveable assets or even a combination thereof increases the likelihood of success. As we do the regression on the full mobile sample and not conditionally on the subjection to retainment devices, we 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 10. Furthermore, 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 11).

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 should the job change fail or if does not seem sufficiently profitable. Column IV shows that holding collaboration ties and notably 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 from your collaboration or from the assets you carry with you. Column V shows that, in such cases, contacts in the new firm are indeed willing to help to hire and play a key role. It is also much easier to name some referrals that can corroborate the achievements claimed 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 moves 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, compared with other employees moving on they are more likely to maintain good relations with the colleagues they leave, since those good relations are crucial for both sides in order either to follow that person or to bring to the new firm colleagues left behind (column VII).

## **6. Concluding remarks**

We have shown that, within the financial industry, position at the core of financial markets 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 solving part of the financial industry wage puzzle. Moreover, while the firm tries through contractual devices to protect itself against dangerous departures, employees holding collaboration ties and moveable assets are successful in circumventing 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 although it needs further work, confirmation of our results - even when we control for a detailed 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 the financial market. Second, we will see how collaboration ties relate to literature on social network.

In the financial industry, mobile workers leaving the firm in order to start to work for a competitor enjoy a rather unusual fate. In a war situation, someone so doing would be considered a traitor and would risk death row. In a political situation, switching from one 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 rumors can spread in the abandoned firm about the lack of loyalty of the ex-employee. Here the situation is different. The mobile worker, holding moveable assets and collaborative ties, far from being condemned, is an attractor whose environment is willing to help, either to follow him/her quickly or to remain in contact with, with the hope of future collaborations. Our case study of mobility in the financial industry is a prolongation of Boltanski's and Chiapello's characterization of exploitation in a network world. They coin analytically this concept as a reversal of the classical redistribution formula whereby *the fortune of the great men makes the fortune of the little people* that prevails in polities governed by rules of justice. Exploitation is where *the misfortune of the little people makes the fortune of the great men* (Boltanski, Chiapello, 2006, p375). In a network world mobile workers exploit immobile workers in a sense that *some people's immobility is necessary for other's people mobility* (*ibid*, p362). A mobile employee acquires this position by threatening the immobile employees with moving or disconnecting them and manipulates the immobile to serve his/her ends. 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 to remain connected to the mobile will serve their interest even in the mobility episode. Developing Boltanski's and Chiapello's analysis, here we document how mobility, collaboration ties and assets are linked and produce such inequalities. Hence, exploitation in a 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 the attractiveness of mobile workers also challenge our view of the firm and of competition. Since mobile employees can move a bundle of assets and people and deprive the firm and the stakeholders of a significant 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 also social capital, with its multiplicative capacity, through collaboration ties, to bundle all sorts of assets as knowledge, know-how, software and customers. Not only do the firms 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. Moreover, considering the intensity of turn-over and the fact that the frontier of a team remains fuzzy and is renewed by old 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 even a future supervisor is likely to be less competitive than a universe where clearly separated rivals compete. Although financial competition over exchange opportunities remains stark, several studies find evidence that competition on prices is somehow tempered (Christie, Schultz, 1994), and this is probably related to the network of collaboration ties. The study of this latter phenomenon could therefore help to explain part of the wage rent in 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 adequately 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 deliberate 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 viewed 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 relatively cohesive or non-redundant? This issue is partly contingent on technology and the way it coordinates people (Podolny, Baron, 1997; Hansen *et al*, 2001) but also on the position in the group. In the financial industry, building on the one hand closed and tied networks 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 the main deputies avoids the possibility that the deputies form a coalition against the leader and maintains his/her preeminence and his/her indispensability for engineering a collective move. This analysis suggests 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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