



Between Lisbon and London: Financial Sector Consolidation in the Context of the Lisbon Agenda

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DECEMBER 2005

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EXECUTIVE SUMMARY

It's "half-time" for the Lisbon Agenda - which has aimed to make Europe the most competitive and dynamic economy in the world by 2010. And it's "half-time" for the EU's Financial Services Policy, which aims to increase financial sector integration and should give a helping hand to small and innovative companies that are a corner stone of the Lisbon strategy. But discussion on the ground continues to reveal concern that financial sector integration and national consolidation are putting significant pressure on some of Europe's traditional lenders to small companies.

Financial sector integration has the potential to increase efficiency, competition and choice in financial intermediation. But the short-term effects of integration can vary. National consolidation leads to larger banks that may be unable or unwilling to handle business with small innovative firms. Other existing or 'de novo' banks and financial institutions as well as venture capital firms play an important role in filling any potential "financing gaps".

The policy implications are important. Consolidation that is unaccompanied by measures to improve or ensure market openness and contestability may prolong any adverse effects from the integration process, especially for small borrowers. Consolidation has progressed, fostering the emergence of national champions. Ease of market entry now needs to be reinforced across Europe. A stalled process of integrating Europe's financial markets could compromise the Lisbon Agenda and the prospects of some of the small and innovative companies on which its success relies.

I. INTRODUCTION

Are deepening integration and consolidation of the European financial sector (increasingly anchored in London) compromising innovation and growth as envisaged in the Lisbon Agenda? At first the question may seem odd. Isn't the single market in financial services supposed to increase efficiency and competition in financial intermediation, and hence almost by definition deliver growth?

For sure a large body of empirical work shows that financial integration, equity market liberalization for example, decreases the cost of capital, spurs investment, and increases aggregate growth.¹ But concern stems from the perceived importance of local financial institutions and relationship banking models for small and medium sized enterprises (SMEs). Consolidation may increase pressure on these types of institutions, thereby putting at risk small companies' traditional sources of finance. In so far as SMEs are an important potential source of innovation and growth, such an outcome would be detrimental to the objectives embodied in the Lisbon Agenda.

We find that the short-term effects of integration and consolidation are ambiguous. But any negative effects of consolidation are likely to be avoided in the long-term if the development of alternative forms and sources of finance is not unduly hindered. Such hindrance may stem from e.g. supervisory practices or competition policies favouring local, national and even European champions. In particular, complete financial liberalization means openness towards other existing or de novo banks and venture capital. Moreover, other impediments to innovation in the EU – such as product and labour market regulation or a lack of exit options for venture capital investments – may be more important for the Lisbon Agenda than limits to access to finance.

This paper outlines the potential impact of financial sector consolidation on small and innovative borrowers in the context of the Lisbon agenda. It highlights policy implications for ensuring access to finance for such companies in the context of financial sector consolidation. And it identifies other areas in which public policy may be able to improve the environment for small, innovative companies.

II. LISBON AGENDA, INNOVATION AND SMALL COMPANIES

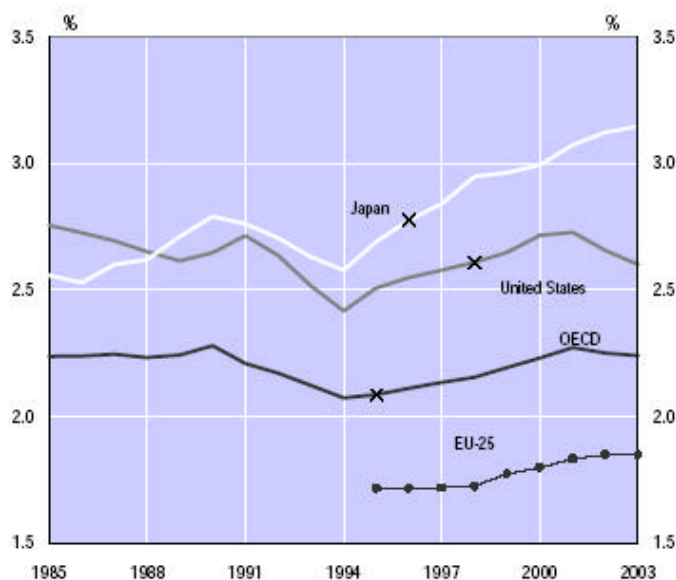
The Lisbon strategy aims to promote productivity, innovation and competitiveness. At the March 2000 European Council in Lisbon, the ambition was stated to make Europe by 2010 “the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion”. Special attention is given to improving productivity, by boosting innovation.

¹ Henry (2003), Bekaert, Harvey and Lundblad (2003), Mitton (2005) and Gupta and Yuan (2005), among others.

Box 1: International R&D expenditures compared

The innovation performance of the EU has remained low compared to the US and Japan. It is argued that the Union's relatively low expenditures on R&D explains part of Europe's innovation weakness. Figure 1 indeed shows that the EU-25 spends less than 2% of its GDP on R&D-expenditures, while Japan and the US spend more than 3% and 2.5% respectively.² The Barcelona European council of March 2002 sets the target R&D to GDP ratio of 3% by 2010 where two-thirds are to be financed by the private sector.

FIGURE 1. GROSS DOMESTIC EXPENDITURES ON R&D (AS % OF GDP)



Source: OECD (2005) *Main Science and Technology Indicators*.

Although innovation does not come exclusively from small firms³, they are an important source of it. In particular they appear to play a critical role in the development of so-called “breakthrough innovations”.

In a recent study, Baumol (2004) argues that:

“Breakthrough inventions are contributed disproportionately by independent inventors and entrepreneurs, while large firms focus on cumulative, incremental (and often invaluable) improvements.”

And based on an analysis of data from the US Small Business Administration he concludes that:

“It is a plausible observation, then, that perhaps *most* of the revolutionary ideas of the past two centuries have been, and are likely to continue to be, provided more often by these independent innovators who, essentially, operate small business enterprises.”

² Several indicators of innovation performance can be employed. An *input* indicator is the already discussed R&D expenditures relative to GDP. The reported expenditure gap is persistent over time although the difference in spending between the EU and the US has declined somewhat during the last few years. The gap exists both in government- and in industry-financed R&D expenditures. Patent-based indicators are one measure of technological *output*. Although using patents as indicator may have severe limitations, analysis of patents shows that (i) the patent share of the EU-25 in the sum of EU-25, Japanese and US-patents, has slightly declined from 27% to 23% over the period 1990-2000, and is considerably lower than the patent share of the US (which decreases marginally from 39% in 1990 to 38% in 2000), (ii) the EU-25 has a strength in “Mechanical Engineering” and “Materials” and a major weakness in “Biotechnology”, (iii) the EU-25 is persistently lagging behind in “Information, Communication and Technology”, and (iv) the EU-25 is catching up in “Consumer Electronics”.

³ Large firms provide the engine of innovative activity in some industries such as pharmaceuticals and aircraft development.

As “breakthrough inventions” are most important in explaining productivity growth, small firms play a special role. For example, a recent report by the OECD (2003) argues that small firms foster innovation more than large firms do. Growth is usually associated with new entrants who drive out old and obsolescent firms. The new entrants typically introduce new technologies and indirectly foster technological progress by prodding incumbent firms to also adopt the new technologies. Firm dynamics are thus important in explaining industry growth.

Given the above, it should also be clear that entry and exit rules are crucial in boosting productivity by putting pressure on incumbent firms to innovate. Moreover, these rules may affect the industries where knowledge spillovers are important. That is industries where the general-purpose technologies being used are changing rapidly may benefit more from product market regulations that ease entry and exit of firms. The report by the OECD (2003) summarizes the prevailing view on this account as:

“Strict regulations on entrepreneurial activity, as well as high costs of adjusting the workforce, negatively affect the entry of new firms. Thus in the US, low administrative costs of start-ups and not unduly strict regulations on labor adjustments are likely to stimulate potential entrepreneurs to start on a small scale, test the market and, if successful with their business plan, expand rapidly to reach the minimum efficient scale. In contrast, higher entry and adjustment costs in Europe may stimulate a pre-market selection of business plans with less market experimentation.”

We think that it is on this margin that European integration may play a key role in facilitating firm entry and exit. Finance is important, but only one, arguably less critical, component among many of a healthy environment for innovative firms.

Small Firms and Access to Finance: the Role of the Financial System

Finance is important in explaining economic growth and many small firms consider access to it to be a problem. Smaller enterprises may face financing difficulties due to market failure stemming from information asymmetries and transaction costs. As the continental European countries are more bank-based financial systems, the majority of European SMEs still depends on banks⁴. Moreover, most SMEs borrow from just one bank⁵. The financial system also plays a role in the innovation process itself. A 2003 report by the OECD (2003) stresses:

“The more market-based financial system may lead to lower risk aversion to project financing in the US, with greater financing possibilities for entrepreneurs with small or innovative projects, often characterized by limited cash flows and lack of collateral.”

Given the degree of bank dependence of small firms in parts of Europe, it is all the more important to ensure that alternative forms and sources of finance are accessible and free to develop if the maximum benefits of integration are to be realized.

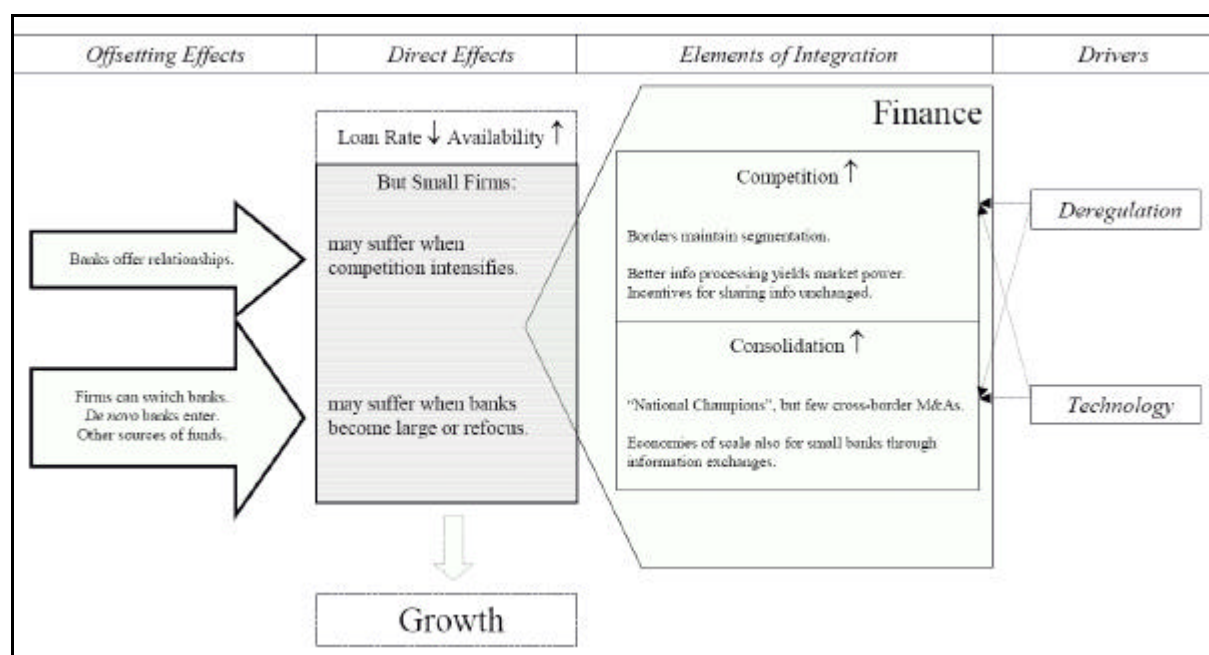
⁴ For a review see Allen and Gale (2000).

⁵ See e.g. Commission (2003).

III. THE IMPACT OF INTEGRATION IN THE EUROPEAN BANKING SECTOR ON THE FINANCING OF INNOVATION

Changes in regulation and technology have had a profound effect on financial sector integration. In principle, most regulatory borders in Europe have now been removed. And technology is slowly eroding many of the economic boundaries that still exist. These forces have and continue to foster increases in competition and consolidation in the financial sector. But their overall impact on innovative companies and their access to finance is not always straightforward and positive.

Figure 2. Integration and Small Firm Financing



The Effects of Competition

Financial sector integration has involved more intense competition between banks. Scope for foreign competitors has limited incumbents' powers from market concentration. This puts downward pressure on the cost of credit for most firms. But increased competition may not be positive for all. Access for some firms, in particular those with uncertain future cash flows, may be impaired by increased competition.

The results of studies in Europe vary widely in terms of their implications. Some have suggested that innovative firms benefit from long-term banking relationships. Others demonstrate that foreign bank entry, for example in Eastern Europe, expands credit and decreases costs for the bulk of borrowers, but that these positive effects are less pronounced for small firms.

Determining the importance of relationship lending is also difficult due to wide variations in national markets. The number of banking relationships increases “going south”, i.e. from 1 in northern countries to 15 in southern Europe. And there is variation in the duration of relationships. For example, small US and Belgian firms report relationships to last between 5 to 10 years on average, while small Italian and French firms report 15 years or more.

If small firms have many relationships to start with, then changes in the degree of market-wide competition *per se* may not affect their financing conditions much. On the other hand if the lack of competition impels small and innovative firms to maintain few and intense relationships, then fiercer competition may *ab initio* not only undermine these relationships but also the financing of these firms. These firms could be further negatively affected if their main banks succumb to competitive pressures.

The Effects of Consolidation

The overall impact of increasing financial sector consolidation is also somewhat ambiguous. European integration has, up until now, mostly led to domestic consolidation and the creation of “National Champions”. National competition policy concerns are likely to hinder further domestic consolidation in many countries, inviting more cross-border integration and hence the gradual transformation of some banks into “European Champions”.

According to standard thinking, mergers that result in increased market power should raise prices or diminish service quality, resulting in a decline in customer welfare, while gains to efficiency should reduce prices or raise the quality of services, enhancing customer welfare. The welfare implications are straightforward. Mergers harm customers if increased market power offsets the efficiency gains that are passed on to borrowing firms.

But there are exceptions to this standard tradeoff. Even within a competitive market, a poorly run acquisition target may be offering credits at below cost rates. So rates may rise after acquisition even accounting for efficiency gains. In other analyses, there is evidence that borrowers with highly uncertain cash-flows may benefit from consolidated markets. The risk involved in lending to them requires banks to invest more up front in due diligence and relationship building. But this investment would be put at risk in a more competitive market; when projects come to fruition, borrowers could be poached by competitors.

Another reason why consolidation may hurt smaller borrowers is that bigger banks seem to have more difficulty in processing “soft” information that cannot travel easily up the chain of command to where credit decisions are taken. Borrowers that are atypical or whose prospects cannot efficiently be translated into hard data may be denied credit.

Lastly, clients of target banks may be at a disadvantage after a merger. Their contacts within the bank may leave. And the merged bank may undergo a change in strategy or lending policy regime, making it more likely that clients of the target bank terminate (or are forced to terminate) their relationship.

In fact, very recent evidence for Italy (Bonaccorsi di Patti and Gobbi (2005)) shows that Italian SMEs borrowing from a bank involved as a bidder or as a target, experience a temporary reduction in credit of approximately 1.5% and 2% respectively. Moreover if the relationship between the firm and the merged bank is severed, the temporary drop in credit is 9%. However the study also finds that the negative supply shock is short-lived, being completely absorbed after 3 years, supporting similar empirical evidence for the US. In the next section we analyse which factors can help to ensure that consolidation will not have a long-run detrimental effect.

The Effects of Technology on Competition and Consolidation

Advances in technology, in particular in communication and information processing, substantially alter current practices in the banking sector (Berger (2003)). Distance-related diseconomies may disappear, particularly regarding (1) the monitoring and risk management of loans, (2) the offering of traditional banking services, through for example improvements in credit scoring, (3) the management of staff, and (4) the provision of new services over the internet. Economies of scale in each of these areas seem to have spurred bank consolidation (Strahan (2005)). Banks of different sizes may deliver their services using different technologies. Indeed, large banks implement new technologies, such as credit scoring, securitization, and internet banking faster than small banks, while also having implemented older technologies such as telephone and fax more than small banks at an earlier stage. Large banks may therefore have comparative advantages in lending technologies that are based on “hard” quantitative data, whereas small banks may have comparative advantages in lending technologies such as relationship lending that are based on “soft” information that is difficult to quantify and transmit through the communication channels of large banking organizations (e.g. Stein (2002)). Also large banks may be more inclined to adopt internal models for risk evaluation under the Basel II – Internal Ratings-Based approach possibly scuppering relationship-based lending.

IV. MARKET ADJUSTMENTS TO CONSOLIDATION – AND POLICY ISSUES

There are three main factors that work to alleviate any detrimental effects of consolidation for the financing of innovative firms. Firstly, problems encountered by small borrowers following bank mergers are often offset by credit supplied by other banks in the same local market. Secondly, ‘de novo’ banks may be encouraged by high margins to enter newly consolidated markets. Lastly and perhaps the most important, other forms of financing, such as venture capital, may be best placed to provide financial services to small innovative companies.

A. Other Banks

If all banks are regional, local markets are more concentrated than national markets, but mergers between banks located in different regions need not affect local concentration. If all banks are national, on the other hand, local concentration may mirror national concentration and mergers between banks

increases both national and local concentration. Banks in the US were often regional and rapid consolidation hardly affected local concentration (see Table 1). Bank consolidation in some countries in Europe, on the other hand, has now reached a stage where following any domestic merger both national and local concentration increases substantially. In these countries also small firms may encounter problems switching bank locally, as there are few alternatives available. On the other hand, branching across local or regional boundaries is typically much less problematic than crossing national borders (De Juan (2003)) and any competing bank in the local vicinity could in principle quickly fill any void in the provision of bank services left by the merger.

Table 1. Local Market Concentration

The table lists selected empirical work investigating bank market concentration. The measure of concentration in all studies is the Herfindahl – Hirschman Index (HHI), which can be calculated by squaring the market share of each bank competing in the market and then summing the resulting numbers ($0 < \text{HHI} < 1$).

Source: Degryse and Ongena (2005a).

Papers	Years	Country	Avg. [Med.] Pop. / Area	M	HHI
Cavalluzzo, Cavalluzzo and Wolken (2002)	1993	US	$\pm 2,500,000^a$	D	0.14
Petersen and Rajan (1995)	1987	US	$\pm 2,250,000^a$	D	0.17 ^a
Sharpe (1997)	1983-1987	US	2,000,000 ^a	D	0.08
Cyrnak and Hannan (1999)	1996	US	$\pm 2,750,000^a$	D	0.16
Hannan and Prager (2004)	1996	US	1,034,000	D	0.23
	1999		1,092,000	D	0.22
Rosen (2003)	1988 - 2000	US	$\pm 1,000,000$	D	0.35
Hannan (1991)		US	4,725	D	0.14
Claeys and Vander Venet (2005)	1994-2001	36 Euro C	30,000,000 ^a	L	0.10
Corvoisier and Gropp (2002)	2001	EU	30,000,000 ^a	L	0.13
Sapienza (2002)		Italy	600,000 ^a	L	0.06
Kim, Kristiansen and Vale (2004)		Norway	250,000 ^a	L	0.19
Fischer and Pfeil (2004)	1992-1995	W-Germany	n/a	B	0.20 $\pm$
		E-Germany		B	0.30 $\pm$
Degryse and Ongena (2005b)	1997	Belgium	8,632	B	0.17
Angelini, Di Salvo and Ferri (1998)	1995	Italy	[< 10,000]	L	0.42

^a Authors' calculations or estimates. B: Branches. D: Deposits. Euro C: European Countries. FRB: Federal Reserve Bank. L: loans. M: Market. NSSBF: National Survey of Small Business Finance. STB: Federal Reserve's Survey of the Terms of Bank lending to business.

At the national level this mechanism may not work as cross-border entry and mergers are still fraught with danger. Many studies suggest that not only exogenous economic borders (that also affect other industries) but also endogenous economic borders specific to the banking industry (e.g. information asymmetries in assessing target bank portfolios) may make it hard to pull off successful cross-border bank M&A's. Bank managers are apparently aware of the difficulties awaiting them when engaging in cross-border M&A and seem to refrain from undertaking this form of expansion. But also investors recognize the dangers. A recent study by Beitel, Schiereck and Wahrenburg (2004) for example documents that the combined cumulative abnormal returns (CAR) for stocks of bidder and target banks in cross-border bank M&As in Europe over the last few decades is actually zero or negative, in stark contrast with other industries where the combined CARs of cross-border M&As are typically found to be positive!

B. De Novo Banks

In addition to domestic bank consolidation and the difficulties involved in cross-border entry and mergers, *de novo* bank creation in Europe seems quite modest compared to the US. Particularly for small firms this may be an area of concern as *de novo* banks, starting small, may be willing to finance and build relationships with small firms. Contestability determines effective competition especially by allowing (foreign) bank entry and reducing activity restrictions on banks. As an illustration, records for the US show that during the period 1985-2003, there were 2,275 *de novo* community banks established (FDIC records). *De novo* banks often fill gaps that stem from bank consolidation (Berger, Goldberg and White (2001), Berger, Bonime, Goldberg and White (2004)). This suggests that US-banking markets are contestable, as new banks successfully target specific local markets and activities. Comparing this to experience in Europe, only 34 new branches of EU banks and 11 new banks were established under direct control of the French supervisory authorities during the period 1995-2004. And about 105 successful applications were made to the German regulatory authority to conduct banking activities over the period 2001-2004 (BaFin and Banque de France CECEI annual reports).

Indeed Claessens and Laeven (2004) identify entry and activity restrictions as key drivers of contestability. They compute the Panzar and Rosse H-statistic for 50 countries for the period 1994-2001.⁶ They find that most banking markets are actually characterized by monopolistic competition with H-statistics ranging between 0.6 and 0.8 and that entry and activity restrictions result in lower H-statistics and hence less competition.

C. Alternative Finance: Venture Capital

Venture capital, and other market-based forms of finance, are well adapted to financing small firms striving to develop breakthrough innovations. For example, when a new technology is introduced there are not only uncertainties about the effectiveness of it, but also about the best management strategies to follow. Diversity of opinion among investors is a characteristic of such projects. Allen and Gale (1999) argue that markets have considerable advantages over intermediated finance when there is no uniformity of initial beliefs among investors:

“A large number of people participate directly in the investment decision. This is costly because each investor has to acquire information to make the decision, but it has the great advantage that each investor makes his own decision based on his own information and his own prior. This ability to agree to disagree allows innovative projects to be financed.”

Of course, the extent to which any of these alternatives will respond to consolidation, and provide new sources of finance to small and innovative companies, is dependent on the policy and economic environment, to which we now turn, in particular with regard to venture capital.

V. THE MARKET ENVIRONMENT FOR VENTURE CAPITAL

The good news for innovation is that the European venture capital market is fairly integrated [*perhaps more so than the traditional banking market*]. Approximately a quarter of all venture capital firms have partners from foreign countries, and a quarter of investments are made in foreign countries. Europe is also, being the US the most popular destination for foreign investments. Also a third of all European venture capitalists had some work experience in the US. Finally, new entrants in the industry invest more in the seed stage, monitor their investments more closely, have more prior professional experience and are more likely to have a business education and a Masters degree.

But there are other institutional and regulatory factors that play a key role in increasing innovation ratios (Da Rin, Nicodano and Sembenelli (2005)). The experience of 14 European countries between 1988 and 2001 is analyzed to investigate what the drivers are of higher innovation ratios (defined as the share of high tech and the share of early stage investment to total venture capital investments). They find that the main determinants of higher ratios are the existence of (1) exit options for venture capitalists such as the existence of stocks market for entrepreneurial companies, (2) more flexibility in the labor market, and (3) a reduction in the corporate capital gains tax.⁷

Many of the characteristics of venture capital in Europe are related to Europe being a bank-based economy. In this sense the consolidation of the banking industry that is leading to larger and more diversified financial institutions, could allow banks to increase the funds devoted to high-risk activities such as investments in the venture capital market. However, banks are strategic followers rather than leaders in this market. Evidence from the US (Hellmann, Lindsay and Puri (2005) and Europe (Bottazzi, Da Rin and Hellman (2004) and Mayer, Schoors and Yafeh (2004)) point to the fact that independent or corporate-owned venture capital firms invest more in early stage companies, while bank-owned venture capital firms invest more in later stage activities, and are less likely to frequently monitor their firms. Therefore the positive impact of consolidation will be most probably felt in the late stages, when the firm may need additional funding to reach industrial scale production, upgrade facilities and later on when preparing for sale or IPO. Probably bank consolidation will not induce a larger supply of bank-funded venture capital for the earlier stages when the firm explores the viability of the project and when it begins to design its organization and corporate strategy. Indirectly, however, the increased availability of bank-funded venture capital funds for late stages might lead other venture capitalists to focus more on early stage financing. While initially a secondary effect, the different focus may lead to specialization and further increases in credit availability.

⁶ The Panzar and Rosse (1987) *H*-statistic for banks is the sum of their elasticities of total interest revenue over assets with respect to their factor input prices. A monopoly situation yields an *H*-statistic that can be negative or zero while perfect competition implies an *H*-statistic equal to one.

⁷ Gompers and Lerner (1999) find the same effect for the US, and give a demand side explanation: the reduction in the capital gains tax gives workers more incentives to become entrepreneurs.

Box 3: Venture Capital: Europe versus the US

Bottazzi and Da Rin (2002) summarized the main differences in venture capital between the US and Europe. They report that Europe invests significantly less in venture capital compared to the US (in 2000 Europe invested one-fifth of US investment). However more recent data for 2002 shows that the gap has been shrinking significantly with Europe investing almost half of the US amount.

They also report that although the amount invested in the early stages in Europe has been increasing since 1997, it is still lagging the US. The study by Hellmann, et al. (2005) suggests that this may be related to the fact that Europe is a bank-based system. In fact, Bottazzi and Da Rin (2002) report that the largest contributors to venture capital in Europe are financial institutions, mainly banks, that specialize in later stage activities, while in the US institutional investors, mainly pension funds, contribute the largest amount.

In a comparative micro-level study of the performance of venture financing in the US and Europe, Hege, Schwienbacher and Palomino (2003) also find that the fraction of the total investment devoted to the initial round is higher in the US than in Europe and that this fact has a significant impact on firm performance. They also conclude that US venture capitalists have a better capacity to screen projects and to add value to innovative firms, and that European venture capitalists are more deal-makers and less active monitors. Also compared to Asia, Europe invests a smaller percentage in the early stage, as reported by Allen and Song (2003). Again here the fact that Europe is a bank-based system can play an important role. In fact, Bottazzi, Da Rin and Hellmann (2005) suggest that human capital may matter as much as financial capital and they argue that independent, bank, and corporate venture capital firms tend to attract different breeds of venture capitalists with different educational backgrounds and work experiences that result in different investment choices.

On the other hand, there are several policy issues not directly related to integration of the financial system that could affect innovation. The ongoing reform to pension systems in different European countries could have a positive impact; but this may depend on the regulations governing the investments of those pension funds. In fact in the US, it was the introduction in 1979 of an amendment to the Employee Retirement Income Security Act, explicitly allowing pension managers to invest in high-risk assets (including venture capital), that produced a dramatic increase in the funds flowing to the venture capital industry.

VI. THE ENVIRONMENT FOR INNOVATION BEYOND THE FINANCING ISSUE

Although the success of small innovative firms requires capital, it is not clear that the foremost problem in Europe is a shortage of funds. Recent empirical evidence points to the considerable gap in realised returns between the US and Europe. As indicated by Hege, et al. (2003), trade associations and practitioners have pointed to this gap as the reason for not investing in early stages. The evidence in Da Rin, et al. (2005) seems to indicate that there are institutional and regulatory issues that European governments can address to increase expected returns and therefore encourage innovation. In general overly regulated product markets may undermine any effect of financial market reform on output and employment (see also Estevao (2005)). But the creation of exit options for venture capital, the elimination of labor market rigidities and the reduction of the capital gains tax are steps that seem to promise to create a friendlier environment for entrepreneurs.

VII. CONCLUSIONS

In this paper, we address the potential consequences of financial sector consolidation for the EU's "Lisbon Agenda" on innovation and growth. The Lisbon Agenda sets the stage for growth and innovation, to make Europe by 2010 "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion". Recent theoretical and empirical work highlights that precisely start-ups and other small and young firms are crucial in generating breakthrough innovations in most sectors.

Is the success of small firms compromised by the integration of the European financial sector? The integration of the European banking sector through deregulation and technological progress has mainly led to increased banking competition but also to domestic banking consolidation. Fiercer inter-bank competition could undermine vital inter-temporal risk sharing between bank and innovative firms. Banking consolidation leads to larger banks that may be unwilling or unable to handle loan applications by small innovative firms, as existing information in bank-firm relationships may evaporate.

But the evidence indicates that (1) competition and relationship finance are not necessarily inimical, (2) based on US and initial European evidence, other existing or *de novo* banks may accommodate the reduced credit availability over time, and (3) the deepening venture capital markets in Europe may play a key role in "filling up the potential financing gap". In particular the consolidation of the banking industry creates larger and more diversified financial institutions. These large-complex financial institutions may devote more of their funds to the venture capital market. However, banks currently contribute most to the later stages within the venture-capital market.

There are important implications for policy makers. Filling the financing gap requires that markets are sufficiently open and flexible to encourage new entrants: new banks, new forms of financing. There is a risk that financial sector consolidation that is not accompanied by measures to ensure openness may exacerbate short-term problems for innovative firms while at the same time allowing incumbents to accrue and potentially exploit market power. A particularly important role is to be played by antitrust authorities in ensuring competitive bank markets and facilitating cross-border bank mergers. There is also concern that Basel II may affect the competitive position of different types of banks in the markets where they operate. In particular regulators should make sure that smaller banks, that are more likely to adopt the standardized approach are not put at a disadvantage vis-à-vis larger banks that generally adopt the more advanced approach (Internal Ratings-Based).

There are also institutional and regulatory issues that European governments can address to improve the demand for financing from innovative firms. Measures should be taken that increase the expected returns and encourage innovation in order to close the gap with the US. The creation of exit options for venture capital, the elimination of labor market rigidities, the introduction of product market regulations that ease entry and exit of firms are important steps that will have a positive impact in creating a friendlier environment for entrepreneurs.

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