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Banking at the crossroads: How to deal with marketability and complexity?

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Abstract

The objective of this overview paper is to address some key issues affecting the stability of financial institutions. The emphasis is on the micro-economics of banking: what type of incentives do financial institutions have in the current landscape? And what does this imply for regulation and supervision? The paper is motivated by the proliferation of financial innovations and their impact on the financial services industry. A fundamental feature of more recent financial innovations is their focus on augmenting marketability. Marketability has led to a strong growth of transaction-oriented banking (trading and financial market activities). This is at least in part facilitated by the scalability of this activity (contrary to relationship banking activities). It is argued that the more intertwined nature of banks and financial markets induces opportunistic decision making and herding behavior. In doing so, it has exposed banks to the boom and bust nature of financial markets and has augmented instability.

Building on this, the paper discusses the incentives of individual financial institutions. Issues addressed include: frictions between relationship banking and transaction activities that are more financial market focused, ownership structure issues, the impact of the cost of capital, the effectiveness of market discipline, and what configuration of the industry can be expected. We will argue that market forces might be at odds with financial stability. We will point at institutional and regulatory changes that might be needed to deal with the complexity of financial institutions.
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1. Introduction

The financial services sector has gone through an unprecedented turmoil in the last few years. Stability is a paramount concern. The institutional and regulatory framework has been called in question. This paper seeks to build an understanding about the fundamental forces that may have destabilized banking. We focus in particular on the effects of recent financial innovations and their impact on the decision making of financial institutions. The emphasis is therefore on the micro-economics of banking: what type of incentives do financial institutions have in the current landscape? And what implications can be drawn for the desired regulatory and supervisory structure of banking?

The financial crisis followed a period with substantial changes in the industry. Liberalization, deregulation and advances in information technology had reshaped the financial landscape dramatically. Interbank competition has heated up and banks face increasing competition from non-banking financial institutions and the financial markets. The predictability of the industry with low levels of financial innovation, little innovation in distribution channels and well defined and rigid institutional structures is gone. Product innovations, new distribution channels and emerging new competitors are in abundance. While the crisis itself and the regulatory responses may have – temporarily – halted the ongoing dynamic shifts in the industry, the underlying structural changes have not disappeared.

This paper will focus on the structure of the banking industry, particularly the complexity of financial institutions. The starting point is that more recent financial innovations have complicated the governance of financial institutions by creating a dynamism that is hard to control. A fundamental feature of recent financial innovations is that they are often aimed at augmenting marketability, see for example securitization and related

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products like CDS and CDOs. Such marketability can augment diversification opportunities, yet as we will argue can also create instability. The mere fact that something becomes tradable (or marketable – we will use these terms interchangeably) can undermine commitment. For example, as is well known, mortgages that become tradable might undermine the incentives of the originator to monitor the quality of borrowers. More fundamentally, when markets exist for all kinds of real or financial assets of a firm, a firm can more easily change the direction of its strategy. This might be good, but could also lead to lack of commitment (and staying power), more impulsive decisions and possibly herding. The latter refers to the tendency to follow current fads. In banking, herding is particularly worrisome because it could create systemic risk. Meaning, when all institutions make the same bets, risk exposures become more highly correlated and a simultaneous failure of institutions might become more likely.[1]

Some have described recent developments as banks "fighting for turf" in the face of market liberalization and/or major technological shifts (Hellwig, 2008). That is, major structural shifts (e.g. the financial innovation wave as a reflection of developments in information technology?) open up the industry and could induce parties to grab market share in order to establish a leading position going forward. This would point at a more transitory problem. As with for example the banking crisis following the deregulation of Swedish banking in the 80s, it takes some time for the industry to settle in a new equilibrium (following liberalization and/or other major shifts) and in the mean time accidents may happen. We believe more is going on. The increased marketability is a permanent shift in the underlying dynamics of financial institutions, and has increased the sensitivity of banks to financial market developments.

As we will argue, this more intertwined nature of banks and financial markets has exposed banks to the boom and bust nature of financial markets and may have augmented instability.[2] The linkages to the financial market also facilitate a further proliferation of transaction-oriented banking (trading and financial market) activities possibly at the expense of more traditional relationship banking activities. Important is also the scalability of transaction-oriented banking relative to relationship banking activities, and hence the more opportunistic approach that this facilitates in transaction banking. What this points at is that banks can relatively easily participate in the proliferation of financial markets. This has further fuelled the sensitivity of banks to financial markets. We will also argue that via an increased risk profile this may undermine a bank's relationship banking franchise.

In this context also the ownership structure of banks is important. The traditional partnership model in investment banking may have contained risk taking in that partners had their personal wealth tied up in the business, and could not easily leave and liquefy their ownership claim. In a sense, the marketability of their own involvement (human capital) was severely constrained which may have countered the fluidity of banking activities itself.

The increasingly fluid and complex nature of the banking industry – via speed of change, interconnectedness and the presence of large and complex institutions – has motivated some to point at the importance of market discipline in banking as a supplement to regulatory and supervisory controls (Flannery, 2009). We will argue that market discipline might not be able to play an important role in ensuring stability of the financial system as a whole. The momentum-driven nature of financial markets might mean that the risk in whatever activity that is 'hot' is effectively underestimated by the market as a whole, and this may 'poison' market discipline. That is, momentum driven financial markets promote certain strategies, and these very same markets would then not be in a good position to impose market discipline. To the contrary, they were actually encouraging those strategies by possibly underpricing the risks involved.

From here, the question is how the financial sector will develop. This paper emphasizes the importance of understanding the economics of banking for assessing the changes in the industry. Can we draw insights from the extensive literature on scale and scope economies in banking? We will argue that only limited insights are available. Most recent empirical work identifies some scale economies, yet faces bigger difficulties in identifying real scope advantages. Thus overwhelming evidence is missing, albeit there continues to be a clear tendency with financial institutions to go for growth and larger size. While recently most institutions have expressed a 'client centric' strategy, by some called 'back-to-basics' (e.g. the Dutch banking conglomerate ING), the underlying forces in banking may not have changed, so it is far from clear what this sudden emphasis on 'client centric' and 'back-to-basics' strategies really means.

This picture suggests that endogenous developments in the industry itself may not lead to less complex institutions. The important question then is how to deal with this complexity. Here we will point at institutional and regulatory changes that might be needed to improve the stability of the financial sector. One could say that the institutional structure (including regulation) has not kept up with the enhanced marketability, 'changeability' and hence complexity of the industry. We will focus on effective supervision of individual financial institutions, albeit in the context of the macro-prudential (system-wide, i.e. interconnectedness) concerns that are paramount. Dealing with the complexity of individual institutions via timely intervention and orderly resolution is important in this context. What does this mean? Are structural measures (e.g. breaking up large and complex institutions) needed to deal with the complexity? We will argue that imposing structural measures is far from

[1] Risk taking might also become more cyclical. For example, the demand for senior tranches in securitized structures was high despite their high sensitivity to bad economic states (Coval et al., 2009). Investors were either lured by high ratings of such instruments or, alternatively, they were eager to upload systemic risk. And this was an industry wide phenomenon. Haensel and Krahnen (2007) show on a data set of European CDOs that banks that issued CDOs raised their systemic risk.

[2] As Shin (2009, p. 110) puts it, "... in a modern market-based financial system, banking and capital market conditions should not be viewed in isolation." Demirguc-Kunt and Detragiache (2005) point at the risks of collective euphoria, and that with the length of an economic boom a crisis becomes (ultimately) more likely (see also Llewellyn, 2010; Woolley, 2010). Adrian and Shin (2010) point at the effect of favorable financial market conditions on leverage (increasing) and funding (becoming more fragile and short-term). Both effects cause stress when market conditions deteriorate.

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straightforward but might be needed to help contain possibly destabilizing market forces and improve the effectiveness of supervision. Overall we advocate a comprehensive approach to regulation and supervision.

The organization of the paper is as follows. Financial innovations and their impact on marketability are analyzed in Section 2. Section 3 analyzes the banks' choices between relationship banking and more financial market driven transaction banking, including the potential internal frictions between those activities. Typically this is framed in the context of commercial versus investment banking activities, but this might be too simplistic. Much of investment banking is relationship based. The key dimension is the link to financial markets and that is more dominant for transaction-based activities. Section 4 briefly addresses the banks' cost of capital. This issue is important both internally across activities (how to allocate capital among activities?) and from an overall perspective (how much capital is needed, and is bank capital 'expensive'?). The perceptions about the cost of capital and its determinants are important for understanding the decision making and choices of banks. In Section 5 we focus on the ownership structure of banks. Particularly, we discuss the partnership structure as an example of an ownership structure that better aligns incentives, and might have stabilized investment banking in the past. Section 6 considers market discipline. Could it be effective in constraining bank risk choices and help in augmenting stability? As stated earlier, we are rather skeptical. In Section 7 we focus on bank strategies, scale and scope economies, and the complexity of financial institutions that may endogenously come about. Section 8 asks the question what can be done about complexity, and analyzes whether structural measures are desirable. Section 9 concludes.

2. Financial innovations and marketability

The notion that financial innovation is good for economic growth is based on the idea that such innovations will improve the allocation of capital. In the words of Fed Chairman Ben Bernanke, "The increasing sophistication and depth of financial markets promote economic growth by allocating capital where it can be most productive" (Bernanke, 2007). This sounds politically correct, and by its very generality is difficult to refute. However, more specificity is needed. What can precisely be good about financial innovations? In a first best world where information is available to all and everybody is capable of fully discerning all relevant attributes, financial innovations could help complete the market, i.e. facilitate a complete set of Arrow-Debreu securities. This is the typical 'spanning' argument; financial innovations are good because they help complete the market.[3]

As a corollary, financial innovations might then help improve the allocation of capital. In more simple terms, a complete market allows individuals to optimally hedge, c.q. smooth, their income over time. Given the higher level of predictability that results, they can abscond of their money for longer periods of time facilitating more long-term investments. Similarly, the tradability (marketability) of debt and equity in financial markets allows investors to liquefy their holdings at any point in time (i.e. by selling their holdings to other investors) and helps in diversifying risks. In doing so firms might have an easier access to long(er) term financing.

The wish to liquefy claims also helps explain the introduction of limited liability in equity-type contracts—an innovation by itself. It facilitates trading, and allows investors to liquefy claims on otherwise long-term investments (Michalopoulos et al., 2009). Liquidity therefore is valuable, yet, as we will see, can simultaneously have some negative repercussions.[4] More specifically, in a world with imperfections, agency and information problems lead to potential distortions that can create a dark side of liquidity.

2.1. Information problems

When information asymmetries are severe and particular contingencies are not contractible at all, having complete markets is infeasible.[5] This happens when contingencies are not verifiable, and/or too costly to verify. Introducing a financial innovation might now have a much darker motivation. Financial innovations might be intended to fool market participants. An example might be the Dutch or UK market for life insurance products. On several occasions structural misselling has occurred with as a common denominator the presence of an excessive variety of

[3] A complete market means that investors or consumers can 'contract' on any conceivable future state of the world, and in doing so create an optimal allocation. In the context of hedging for example such a complete market allows investors to neutralize whatever state-contingent risk they may face. What this means is that investors can tailor the state-dependent pay-offs to their precise preferences. Please note that one cannot automatically assume that introducing new securities in incomplete markets that give investors greater 'spanning' opportunities is by definition value enhancing. Elul (1995) shows that adding a new security could have "almost arbitrary effects on agents' utilities."

[4] If certain frictions – transaction costs – impede the optimal allocation of capital then innovations that reduce these seem optimal (see Tufano, 2003). In this positive interpretation, innovations like credit default swaps (CDS) and collateralized debt obligations (CDO) would promote an optimal allocation of capital by reducing the cost of diversifying and reallocating risk. However, as Posen and Hinterschweiger (2009) note, during the period 2003–2008 the growth in OTC derivatives outpaced that of real investment by a factor of twelve (300% versus 25%). And after 2006 real investments stagnated while OTC derivatives grew arguably faster than ever. While this does not preclude that the proliferation of these financial instruments provided benefits also later in the boom, the negative effects on the robustness of the financial system – as observed in 2007–2009 – tend to refute this.

[5] Note that new securities are sometimes introduced to help overcome information asymmetries. While not a really new security, a debt claim may illustrate this. Such a claim might offer financing at lower cost than issuing equity because it is less information sensitive (see Myers and Majluf, 1984; Hennessy, 2009). The idea is that an equity type claim would suffer from a lemon problem, see Akerlof (1970). Alternatively, in case of verification problems, the anticipated costs of verification with a debt contract are limited since in most cases the firm can and will repay (and no verification is needed, see the earlier contribution of Gale and Hellwig, 1984; Tirole, 2006). The security design literature provides several other examples, e.g. convertible bonds could give bondholders protection against risk-seeking behavior by shareholders. Others have argued that a rights issue could help solve the lemon problem (Heinkel and Schwartz, 1986; Balachandran et al., 2008).

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product innovations that share one characteristic: complexity in conjunction with obscurity of costs.[6]

Financial innovations would then tend to worsen the allocation of capital. The more recent advances in securitization could be interpreted in that way too. Initially securitization could have allowed for a wider access to investors, reduced funding costs and hence improved lending opportunities for banks. As stated earlier, this may well have been value enhancing. There is a logic in fulfilling the demand for high grade securities by packaging mortgages, and selling the low risk portion to (distant) investors. As long as the originators of the loans keep the more risky layer, they would still have a strong incentive to screen loan applicants and monitor them.

What happened subsequently is less benign. It is clear that lending standards weakened (Keys et al., 2010).[7] In part this had little to do with securitization. The housing boom in the US seduced lenders in granting higher mortgages. As long as prices kept rising, loans could always be refinanced and/or sales of underlying houses would cover the outstanding mortgages. Where securitization did come into the picture is that the insatiable appetite for triple-A paper in the market pushed financial institutions into a high gear repacking mode, ultimately lowering standards. Also, in a desire to issue as much triple-A paper as possible, the more risky tranches of securitization structures were repackaged again, and more triple-A paper was squeezed out. This packaging and repackaging led to very complicated securities. When the market finally started questioning the sustainability of the housing boom, the arcane securities were suddenly out of favor.[8]

The more fundamental observation, and one that is particularly important for this paper, is that securitization interconnects banks with financial markets. Securitization was not just there to offload risk, but banks also took positions in those instruments (via liquidity guarantees, warehousing, etc.). Hence their fortunes became intertwined with those of the financial markets.

2.2. Marketability and excessive 'changeability' key

Securitization has opened up the bank balance sheet. Many bank assets have potentially become marketable. This marketability is typically seen as something positive, but the links with the financial markets that this has created has made banks potentially more vulnerable vis-à-vis the volatility and momentum in financial markets. Moreover, marketability means that existing activities and risks can be changed almost instantaneously. Since financial markets go through cycles and are possibly subjected to hypes and investor sentiments, the banks' decisions might become more momentum driven, or as Turner (2010) puts it, banks become "... even more susceptible to self reinforcing exuberant upswings and subsequent downswings..."; see also Shleifer and Vishny (2010). This adds further instability.[9] What we mean by this is that due to the proliferation of financial markets and the increased marketability of the banks' assets, banks become more opportunistic and could lose a degree of stability.[10]

With information technology as a driving force, the proliferation of financial markets together with the marketability enhancing financial innovations have changed the dynamics of banking. We will argue that more is going on than just typical competitive dynamics where structural shifts (e.g. liberalization) have opened up 'the market' and parties scramble for market share to establish a leading position going forward. While such upheaval might induce risky behavior and cause temporary instability,[11] we expect a more permanent effect of the proliferation of the recent marketability enhancing financial innovations. As we will discuss, the instability in the industry might not be easy to resolve, and more structural measures might be needed.

[6] Gabaix and Laibson (2006) analyze how producers (e.g. financial services firms) can exploit uniformed consumers by misrepresenting attributes. In Carlin (2009) complexity is added to discourage information production, intended to facilitate expropriation of investors. Henderson and Pearson (2009) show how innovations might be designed to fool market participants, and in doing so cause serious harm.

[7] Parlour and Plantin (2008) analyze loan sales. In their view banks weigh the benefits of loan sales in the form of additional flexibility to quickly redeploy bank capital against the drawbacks in the form of lower monitoring incentives. They show that loan sales would lead to excessive trading of highly rated securities but to insufficient liquidity in low rated securities. Risk weighted capital requirements may help in bringing liquidity to low rated securities.

[8] As long as the momentum was there, the market's appetite could not be saturated, and much money could be made by putting the 'repackaging machines' into higher and higher gear. The willingness of rating agencies to grant high ratings did clearly help (see also White, 2010). In the process, financial institutions adapted their business mix to these market linked activities.

[9] Also replacing deposit funding by wholesale funding exposed banks to additional liquidity risk. Huang and Ratnovski (2011) show that the dark side of liquidity comes in the form of reduced incentives of wholesale funds providers to monitor their banks and this may trigger inefficient liquidation; see also Acharya et al. (forthcoming). The main threat of a bank run may no longer come from demand deposits as in Diamond and Dybvig (1983) but rather from wholesale financiers or from bank borrowers that deplete their loan commitments (see Ivashina and Scharfstein, 2010; Gatev et al., 2009).

[10] This discussion is also related to the general corporate governance question on the rights of shareholders in the financial market. In related work by Boot et al. (2008), the emphasis is on the need of having some stable shareholders. The liquidity stock markets provide may cause ownership to be changing all the time such that no stable and lasting link with shareholders comes about. Support and commitment to a particular strategy might then become weaker and more haphazard. This could make firms more sensitive to short term financial market pressures. Bhide (1993) argues that the liquidity of stock markets may have a dark side in that fully liquid stock markets encourage diffuse ownership, and this may undermine monitoring incentives. Hence corporate control over managers might be lax. Monitoring incentives typically require a large(r) and enduring stake in a company, yet this is at odds with liquidity. Bolton and von Thadden (1998) have shown that overall stock market liquidity may actually benefit from the simultaneous presence of a few block holders. The dark side of liquidity and possibility for quick changes in asset allocation is related to the work of Myers and Rajan (1998) who emphasize that the illiquidity of bank assets serves a useful purpose in that it reduces asset substitution moral hazard. The dark side of marketability is also present in the work in economics that emphasizes that creating (interim) markets and trading opportunities might not necessarily be good, see for example the work of Jacklin (1987) in the context of Diamond and Dybvig's (1983) intertemporal smoothing.

[11] Hellwig (2008) points at the banking crisis that followed the deregulation in 1971 in the UK (lifting of credit controls) as well as the crisis of 1992 that followed deregulation in the mid-eighties in Sweden.

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3. Relationship-oriented versus transaction-based banking

As *The Economist* put it over fifteen years ago in the context of the experience of securities firms:

> "Perhaps the worst feature of the 1980s – which has subsequently returned to haunt the securities firms – was the abandonment by most of them of the old relationships with their customers. [. . .] "The aim was to do a deal, any deal", remembers one manager who prefers not to be named" (*The Economist*, April 15 1995, Special Section: A Survey of Wall Street, p. 13).

While this quote was made over fifteen years ago, it is interesting to note that when financial markets prosper they appear to push financial institutions away from their relationship banking franchise. This might be even more true with the recent proliferation of financial markets where many banks actively engaged in financial market driven activities, including proprietary trading. In Section 7 we will make some observations about the current strategies of financial players where banks go out of their way to show support for customer-centric strategies. Our message will be somewhat skeptical. Banks appear to operate with increasingly shorter cycles in which they drift away from (and rediscover) the importance of their relationship banking franchise. It was only in October 2005 that Citigroup felt compelled to reemphasize the importance of its retail and relationship banking franchise by stating that Citi should think "locally."[12] And barely five years later its CEO Vikram Pandit emphasizes that Citi should (again) position itself closer to the customer: "Serving customers, serving clients, serving the real economy, doing that is what banks should be doing".[13]

Apparently in good years financial markets appear to offer tempting opportunities to financial players, regardless of the true capabilities that each of them might have. For example, in 1999, ABNAMRO – which by now following a split up has disappeared as an international group – unfolded a financial market oriented wholesale banking strategy, to change course a few years later realizing its true added value in relationship-based commercial banking. As BCG (2010a) puts it (explaining the surge in transaction oriented activities in 2004–2007): ". . . Amid surging economies, low loan losses, and readily available cheap capital, it did not really matter whether a bank had top- or bottom-quartile capabilities [. . .]. All that mattered were workable sales processes".

What this points at is the scalability of transaction-oriented activities. Subject to available capital banks can quickly increase their exposure to those activities. Relationship-based activities are more constrained as they depend on employing human capital and engaging with potential clients. Thus transaction-oriented banking is not only more susceptible to a sudden spur in momentum (demand-type effect), but also the feasibility of financial institutions to quickly mobilize resources and give in to the sudden opportunities (supply effect) seems greater than for relationship banking activities.

The competitive dynamics plays an important role. When financial markets are exuberant, banks that abstain from for example trading activities – one of the financial market activities that can be expanded quickly – may look less profitable and might feel 'left behind' in the earnings game vis-à-vis other banks. This is precisely what happened with UBS, one of the bigger victims in the 2007–2009 crisis. An internal investigation in 2008 – following massive losses on subprime investments – discovered that its troublesome subprime investments were undertaken following pressure from external consultants that pointed at its fixed income activities that were lagging those of competitors. To fill this gap UBS was advised "to close key product gaps" which explicitly referred to subprime investment vehicles (UBS, 2008, p. 11).

3.1. Internal dynamics

Let's now focus on the internal dynamics of banks combining transaction- and relationship-based activities. Trading activities within banks have grown enormously and seem sometimes in conflict with the 'traditional' relationship-oriented activities. An interesting example is proprietary trading, an activity that has gained importance, and arguably seems to have contributed significantly to the profitability of banks in recent years.[14]

A noteworthy example of a banking institution where proprietary trading gained importance rapidly was the Barings Bank, a British bank with a long tradition in corporate banking. Barings failed in 1995 due to trading losses.[15] Some interpret the Barings debacle as a meltdown caused by a clash of cultures: aggressive and ambitious traders versus traditional and conservative bankers. For them, better internal controls and external supervision aimed at aligning incentives seem obvious remedies (Jorion, 2000, p. 43). The economics of banking may however dictate a more fundamental analysis, one that transcends the specifics of Barings and sheds light on banks' strategic choices in general. Assume that the risk inherent in the trading activity is not fully accounted for.[16] In a sense this was the case because counterparties to Barings' trading activity felt safe because Barings as an entity was effectively underwriting the trading risks. Also risks might have been underestimated such that risk premiums were relatively low (see Section 6).

This line of argument implies that the proprietary trading activity is free-riding on the bank at large. This may have three consequences: (i) proprietary trading appears more profitable

[12] "Thinking Locally at Citigroup", *Business Week*, October 24, 2005, pp. 50–51, remarks by Steven S. Freiberg, Citigroup's head of banking retail operations.

[13] Interview on Indian television, March 3, 2011, NDTV: http://www.ndtv.com/video/player/news/vikram-pandit-on-citigroup-turnaround/192488?Npic.

[14] Elsas et al. (2010) show that higher margins from non-interest revenues increased bank profitability.

[15] The now infamous trader, Nick Leeson, lost £827 million ($1.3 billion) speculating on futures contracts in Barings' Singapore office.

[16] The trading activity involves substantial risks, thus establishing the fair risk-adjusted cost of funds is important. Banks try to resolve this by allocating (costly) capital to the trading unit.

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than it really is, (ii) a proprietary trading unit does not sufficiently internalize risks, and (iii) other – mainly relationship-oriented – activities of banks face (over time) an unfairly high cost of funds. The latter would come about because proprietary trading would elevate the risk of the institution at large. The implications are twofold. First, proprietary traders may operate with little market discipline. As we will argue in Section 6, market discipline might be lacking in banking in any case, but free riding of the trading activity on the bank at large makes it worse. Consequently, the only corrective mechanisms might be internal controls and external supervision.

Second, banks may become less competitive in their relationship-oriented activities. That is proprietary trading might have been granted an artificially low cost of capital, at the expense of a (ultimately) prohibitively high cost of capital for the bank as a whole. Other – mainly relationship-oriented activities – are then implicitly taxed and falsely appear not profitable. Thus, proprietary trading could undermine the bank's competitive edge in its relationship banking business, and that is what the quotes at the beginning of this section point at.[17]

While we have highlighted Barings as an example, we could just as well have used UBS. In the UBS report (UBS, 2008), it was noted that the investments in mortgage backed securities were charged a very low cost of capital, and that bonuses were paid on the excess return relative to this underpriced funding cost level. Not surprisingly, this gave ample incentive to increase exposure to these securities even further. While the high (triple-AAA) credit rating on the MBS securities might have been an excuse, it is surprising that apparently no independent due diligence was undertaken.

A related mechanism is that such trading activities initially appear very profitable (as long as the boom lasts), and that during that time those departments engaged in this activity will gain power. What this does is that power is shifted from more prudent relationship banking activities to those trading units. This will affect the overall balance of power and may tilt the institution away from its relationship banking franchise.

3.2. *Relationship banking and competition: some theoretical observations*

The academic literature has offered strong support for the importance of relationship banking.[18] But how does this relate to the arguments that are often made to explain banks' increasing involvement in transaction activities? Two arguments explaining a possibly desired (or indispensable) shift to transaction-oriented banking dominate; both are related to the competitive environment. First, it is often argued that in a more competitive environment banks need to look for alternative sources of revenue outside their traditional domain. The other is that competition undermines the feasibility of recouping investments in relationship banking, and that *endogenously* transaction-oriented banking gains importance.

The first argument – the need to look for alternative sources of revenue in a more competitive environment – is somewhat problematic because it does not explain why banks would be good at that. Why undertake other activities unless linked one way or the other to the banks' competencies? Should banks in that case not just shrink? Key is then that there need to be complementarities to rationalize banks choice to engage in other activities.

On the second argument an interesting literature has developed that looks at how competition might affect the incentives for investing in relationship banking. While this may ultimately be an empirical question, two diametrically opposite points of view have emerged theoretically. One is that competition among financiers encourages borrowers to switch to other banks or to the financial market. The consequent shortening of the expected "life-span" of bank–borrower relationships may inhibit the reusability of information and diminish the value of information. Banks then experience weaker incentives to acquire (costly) proprietary information and may choose to reduce their relationship-specific investments, and relationships may suffer. One formulation of this negative effect of competition on banks' incentives to invest in relationship banking is that increased credit market competition could impose tighter constraints on the ability of borrowers and lenders to intertemporally share surpluses (see Petersen and Rajan, 1995). In particular, it becomes more difficult for banks to 'subsidize' borrowers in earlier periods in return for a share of the rents in the future. Thus, the funding role for banks particularly for less established borrowers may not be sustainable in the face of sufficiently high competition. This implies that interbank competition may diminish bank lending.[19]

The opposite point of view is that competition may actually elevate the importance of a relationship-orientation as a distinct competitive edge. The general idea is that competition reduces profit margins most on commoditized products and increases the importance of differentiation. Relationship lending is one way of differentiating. Boot and Thakor (2000) formalize this argument to show that a more competitive environment may encourage banks to become more client-driven and customize services, thus focusing more on relationship banking.[20] They distinguish between 'passive' transaction lending and more intensive relationship lending. Transaction lending competes head-on with funding in the financial market. Competition from the financial market (as well as interbank competition) will lead to more resource–intensive relationship lending, and reduce transaction

[17] It is important to realize that investment banking can be relationship-oriented as well. Proprietary trading is one of the activities that is clearly not.

[18] This subsection follows in part Boot and Thakor (2010).

[19] Berlin and Mester (1999) provide a related, albeit different, argument. Their analysis suggests that competition forces banks to pay market rates on deposits, which may impede their ability to engage in the potentially value-enhancing smoothing of lending rates. This is also directly related to Allen and Gale (1995) who see intermediaries as vehicles that can smooth lending rates over time, and financial markets focused on cross sectional diversification.

[20] In related work, Hauswald and Marquez (2006) focus on a bank's incentives to acquire borrower-specific information in order to gain market share, and Dinç (2000) examines a bank's reputational incentives to honor commitments to finance higher quality firms.

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lending, since this mitigates the margin-reducing effects of price competition. The absolute level of relationship lending is, however, non-monotonic in the level of competition: initially competition increases relationship lending, but when competition heats up too much, investments in bank lending capacity will suffer and that may start to constrain relationship lending.

Another important consideration is that relationships may foster the exchange of information, but may simultaneously give lenders an information monopoly and undermine competitive pricing. The informational monopoly on the "inside" lender's side may be smaller if a borrower engages in multiple banking relationships. This would mitigate the possibilities for rent extraction by informed lenders and induce more competitive pricing (see Sharpe, 1990). Transaction-oriented finance, however, may give banks little incentive to acquire information but is potentially subject to more competition. This suggests that markets for transaction-oriented finance may fail when problems of asymmetric information are insurmountable without explicit information acquisition and information-processing intervention by banks. This argument is used by some to highlight the virtues of (relationship-oriented) bank-dominated systems (e.g. Germany and Japan) vis-à-vis market-oriented systems like the US. This is part of the literature on the design of financial systems (see Allen and Gale, 1995).[21]

What this discussion indicates is that the impact of competition on relationship banking is complex; several effects need to be disentangled. However, recent empirical evidence (see Degryse and Ongena, 2007) seems to support the notion that the orientation of relationship banking adapts to increasing interbank competition, so higher competition does not drive out relationship lending. Despite this adaptation, there is also evidence that in recent years the geographic distance between borrowers and lenders has increased, and that this has been accompanied by higher loan defaults (see DeYoung et al., 2008).

An important observation is that competition could lead to consolidation in banking, and that in itself might have an impact on the importance of relationship banking. In particular, consolidation may undermine the incentives of banks to produce and utilize soft information. Recent research has shown that large banks are less capable in using soft information (see Berger and Udell, 2002; Stein, 2002; and for empirical evidence Berger et al., 2005). Larger, more centralized banks base their credit approval decisions more on hard (verifiable) information, whereas smaller (more decentralized) banks can more easily use soft information.

As a consequence relationship banking could suffer. This might be particularly important for the financing of smaller and informationally opaque firms, and also has implications for the optimal decision-making structure of larger financial institutions (see Stein, 2002; Liberti, 2003; Strahan, 2008).[22] Sapienza (2002) finds that bank mergers involving at least one large bank result in a lower supply of loans to small borrowers by the merged entity. As stated, this could be linked to the difficulty that larger organizations have in using soft information. These arguments could also point at the importance of proximity in relationship banking and actually suggest that larger banks may fail to grab the benefits of relationship banking if they do not delegate enough authority lower into the organization (see Degryse and Ongena, 2005). That is, the organizational structure of banks might play a crucial role.

The extensive work in the field of financial intermediation points at the distinct value of relationship banking. We do not believe that this work has been invalidated by recent developments in the financial sector. To the contrary, much we have said indicates that banks may have destroyed value by straying from their client-focused strategies. Academic research has long shown that banks should be ". . .extra cautious in forays outside of home markets, and above all, cultivate deep client relationships" (BCG, 2010b).

4. Cost of capital fallacy

The potential misallocation of resources, and shifts in balance between transaction and relationship banking activities is further affected by the beliefs that banks have about their cost of capital. Bankers see capital as being very expensive, and they seem to convey that capital has one price. A bank's cost of capital might be set in the mind of bankers at for example 15%. Whatever the presumption, capital does not have one price. Standard capital structure theory tells us that the per unit cost of capital depends on the risks that this capital is exposed to. More risk generally implies a higher cost of capital. This is indeed core to the well known Modigliani and Miller capital structure theory, and more generally core to the theory of corporate finance.[23]

Two important implications now follow. First, the per unit cost of capital will not be the same for all of the bank's activities. The level of risk and the risk characteristics will determine the unit cost of capital for each of the activities. Applying an average bank's cost of capital to its proprietary trading unit would therefore be wrong. Given the generally well diversified, and thus low risks, found in the bank at large, the (non-diversifiable) risks taken in the trading unit dictate a much higher cost of capital. This is what banks try to deal with when allocating capital internally.

[21] Another important insight is that that bank ownership type (foreign, state-owned or private domestic) affects the bank's choice between transaction and relationship lending, see the empirical work of Berger et al. (2008).

[22] Berger et al. (1998) show that the actual supply of loans to small businesses may not go down after bank mergers, since they invite entry of de novo banks that specialize in small business lending (see also Strahan, 2008).

[23] This does not mean that capital structure indifference applies to banks. As is well known, there might be frictions that causes deviations from the M&M world. Yet the general notion that the cost of capital is affected by the risk that the capital is exposed to is hard to refute (see also Admati et al., 2011). To what extent banking is special, particularly with its role in liquidity transformation, is open for debate. Some alternative theories on the financial structure of banks focus on the disciplining role of fragile short term funding (see Calomiris and Kahn, 1991; Diamond and Rajan, 2001). The idea there is that such fragile debt disciplines a bank (i.e. it will behave well to prevent a run), yet, as Shin (2009) argues such a financial structure would be highly destabilizing, particularly considering exogenous industry-wide events (beyond an individual bank's control) that may trigger a confidence crisis among financiers. Such fragile debt would then cause a severe liquidity crisis in the industry.

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The capital allocations are typically based on Economic Capital, VaR and RAROC-type methodologies. Allocating differential amounts of capital (at a fixed cost per unit) might be equivalent to differentiating the cost of capital across activities. In practice however risk differentials may not be taken into account sufficiently. Moreover, the momentum driven financial markets may underestimate risk and hence cause distortions in the capital allocation.

The second implication is possibly even more important: banks should not choose to engage in certain activities solely because they have the capital available. This directly addresses the distortions that the simple belief that capital has somehow a high (exogenously) fixed price induces. The critical observation is that 'putting capital to use' increases the per unit cost of capital. Therefore, engaging in proprietary trading to exploit the bank's capital will elevate the cost of this capital, and as a consequence increase the cost of funds for the bank at large.

Banks that consider themselves 'overcapitalized' and decide to put this capital to use may thus not create value at all. This argument may also explain why banks consider capital (prohibitively?) expensive. If potential investors anticipate that banks will put their capital to use at all cost, they will gross-up their required return accordingly.[24] Banks then can issue equity only at discount prices. These beliefs and anticipations create a perverse equilibrium. Given the bankers' state of mind – fixed priced, expensive capital that needs to be put to use as quickly as possible – the market responds rationally by charging a high price for capital.[25] And given these anticipations by the market, the bankers' beliefs are justified and confirmed in equilibrium.

As we will highlight in Section 6, taking into account that financial markets may go through euphoric (boom) periods with underpriced risk amplifies the distortions highlighted in this section. If risk is underpriced, loading up on risk (via leverage, asset risk or mismatches) seems to create value. One of the puzzles is why banks appear to maximize ROE while corporate finance theory tells us that risk should be taken into account, and hence the risk-adjusted ROE should be targeted. Once you accept that risk might be underpriced in good times, it becomes easier to understand why maximizing ROE is so prevalent. In the extreme, if risk can be ignored ROE would become a sensible measure. This could also explain why increasing leverage is popular: increasing leverage elevates ROE.[26]

The proliferation of financial markets has worsened this problem. It has become much easier to quickly take advantage of market-driven opportunities.[27]

5. Ownership structure: partnerships, stability and institutional franchise value

As stated, key to recent financial innovations is the marketability and (excessive?) 'changeability' that it may cause. We pointed at the opportunistic behavior that this may cause. An important link to the ownership structure and stability of investment banks versus commercial (relationship oriented) banks can be made.

Traditional relationship-oriented banks seem incentivized to build up *institutional* franchise value. Individuals are part of the organization as an entity, and the continuity of the organization and lasting relationships with its clientele defines its value. The value cannot be transferred and cannot readily be assigned to individual stars. In other words, the value created is an integral part of the organizational entity and not portable as part of individuals.

Investment banks on the other hand, particularly their trading and transaction activities,[28] seem more based on the individual star concept with high marketability of individuals. As a consequence, less institutional franchise value is built up; individual franchise values dominate. If this is the only difference then a relationship banking institution has substantial implied franchise value, while the investment bank has little implied value, and hence Keeley's (1990) analysis would suggest that an investment bank would take lots of risk, while the franchise value of a commercial bank would help curtail its risk taking.[29]

Historically investment banks have solved the marketability problem – and the potential lack of institutional franchise value – by having partnerships. The partnership structure has two dimensions that could help jointly resolve the marketability problem, and related opportunistic, risky behavior (and star phenomenon):

- a partnership means that bankers have their personal wealth tied up in the business—they own the equity claim of the business;
- the partnership structure is such that the equity is not (optimally) marketable.

[24] Several examples from the 2007–2009 financial crisis demonstrate the risks associated with banks' rapid growth. The Icelandic bank Landsbanki realized extraordinary growth in the Netherlands and the UK by offering Icesave online savings accounts with attractive interest rates. In only five months of presence in the Netherlands, it raised €1.7bn in approximately 130,000 accounts (De Moor et al., 2009, pp. 54, 56). The subsequent collapse of Landsbanki created a diplomatic dispute between Iceland and the UK and the Netherlands. Similarly, ING expanded aggressively in the US with its ING Direct business. The tens of millions in deposits that were acquired in the US market had to be invested locally with some requirements linked to the housing market. Without much of a physical presence in the US, massive investments were made in Alt-A mortgage securities that were questioned in the financial turmoil of 2007–2009. ING needed support from the Dutch government.

[25] A corollary to the 'fixed price notion' is that banks might be tempted to respond to higher capital requirements by increasing risk, unless this risk is fully captured in the risk-based capital requirements. Actually, it may help explain the rapid elevation of risk prior to the crisis when banking was considered adequately capitalized.

[26] Haldane et al. (2010) also point at the distortions caused by the explicit (deposit insurance) and/or implicit (TBTF) safety net.

[27] See also Adrian and Shin (2010).

[28] Many of the activities in an investment bank are relationship based (see Section 3), trading is typically not. In recent times, traders appear to have gained power within investment banks, e.g. more recent leaders of Goldman Sachs came from the trading side. In any case, we do not see the distinction between commercial banking and investment banking as an absolute dichotomy.

[29] There is some value in the multitude of connections that are combined in the investment bank, but this is also pointing at externalities of failure (see Duffie, 2010).

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The latter implies that stars cannot take their money out, or only at a reduced value. Implicitly, this means that non-portable franchise value is created, and this value is transferred over time to future partners. Interesting examples exist where institutions have made changes that have destroyed this structure. For example, with a go-public transformation (converting a partnership in a listed shareholder owned company) the current partners effectively expropriate all franchise value that has been built up over time.[30] Even worse, once the partnership is gone, stars may no longer be 'under control.' Their financial interest is no longer tied to the firm. This may elevate risk and reduce stability.[31]

In commercial banking the enhanced marketability – and with it, transaction focus – may have opened the door for some type of star phenomenon as well. In a sense, it may have brought commercial banking closer to investment banking, and similar issues might be at play. This may have induced opportunistic behavior particularly because partnership structures in commercial banking never have been very common.

In any case, partnerships among major financial institutions are rare. The important point however is that via enhancing marketability the demise of partnerships could have undermined stability. As a caveat, all this does not mean that there might not be distinct benefits associated with these developments as well. What we have stressed is the potential downside. We are however prepared to conclude that the financial crisis has made us look more favorably at alternative ownership structures like mutuals and cooperative banks (e.g. Credit Agricole in France). It may well be that also with our thoughts about the type of ownership structure we should be more open to diversity. After all, one of the problems of the increasing intertwined nature of banks and markets is that it might make banks look more alike, and that could induce systemic risk. Diversity in ownership structures might help counter this.

6. Does market discipline work?

Market discipline is an often discussed feature of banking. In the positive sense it means that banks might be induced to behave well because financial markets may reward and/or punish them. Bliss and Flannery (2002) talk about two components of market discipline: investors identifying the condition of a banking firm in a timely fashion. This requires monitoring by investors. And subsequently the feeding back of investors' responses in the behavior of banks. One could identify as a third channel the use of market information for official supervisory intervention (see Flannery, 2009; Llewellyn, 2010).

Supervisors have subscribed to the notion of market discipline as well. For example, in the Basel II agreement the third pillar aims at enhancing market discipline by pushing for more disclosure. The idea seems sensible. Why not use market information, and have markets help in disciplining banks? This seems particularly important considering the difficult task that supervisors face: a mushrooming financial sector with ever more complex financial institutions and interconnections (Kaufman, 2003). Basel II thus intends to make this task easier for regulators/supervisors by improving transparency, and hence market discipline. Possibly supervisors might also use the market-revealed information in their supervisory practices.

On the surface one feels sympathetic for these ideas. Market discipline would be a welcome supplement for enforcing prudent banking. How might market discipline actually work? At the very least one could say that pricing information and market signals will always provide some information, and hence should potentially be valuable. In the literature, particularly subordinated debt has been pushed as a desired source of funding for financial institutions because it could give valuable pricing information (Bliss, 2001). Such pricing signals could augment the supervisors' information about an institution's risk, or, alternatively, could discourage risk taking by a financial institution directly. That is, when markets envision too much risk taking subordinated funding might not be available anymore, or banks might be discouraged to take risks anticipating the upward adjustment in subordinated debt yields.[32]

While market discipline may play a role, the extent to which it helps impose discipline on the financial sector at large is open for discussion. Even if the market could observe potential risks, collective action problems among investors (free riding) and anticipated government bail-outs could lead to quite distorted pricing signals. Some of the discipline runs via the banks' credit ratings, and these in turn may depend on market signals. As we have seen in the last few years, credit rating agencies might be subjected to conflicts of interest, may not adjust their ratings timely, and/or have little true added value in assessing underlying risks.[33]

There is some support for the presence of market discipline, but there is controversy on whether market discipline helps or hinders the regulatory task of maintaining banking stability. What seems to be true is that market discipline comes in waves, and particularly in a financial crisis may overwhelm individual players and the industry at large. Market discipline might

[30] Morrison and Wilhelm (2007, 2008) analyze the decision of major US investment banks to go public. Investment banks were initially organized as partnerships. The opacity of partnerships and illiquidity of their shares allowed for successful mentoring and training in tacit non-contractible human skills, such as building relationships, negotiating M&A deals and advising clients. They have argued that IT technology necessitated heavy investments and that necessitated investment banks to go public. Potentially confirming this is that wholesale-oriented investment banks such as Morgan Stanley for which tacit human capital was more important than IT technology went public later than retail oriented investment banks such as Merrill Lynch.

[31] Publicly listed firms sometimes use restricted stock to create some fixity in the ownership structure, and continued loyalty of key personnel.

[32] Decamps et al. (2004), Goyal (2005), and Barth et al. (2004) offer some support for these ideas.

[33] Observe also that a downward adjustment in the credit rating might act as a trigger that could in itself destabilize an institution. A downgrade could induce a type of run with investors. For example, many institutional investors are only allowed to invest in investment grade securities. A downgrade to non-investment grade may then lead to a mass exodus. These problems are far from trivial. Credit ratings do also play a role as focal points in financial markets. This may help in coordinating beliefs in the financial market and reduce fragility, see Boot et al. (2006).

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be subject to herding behavior, as everybody "heads simultaneously for the exit" in more stressful times. As such it could be a source of instability.[34]

We see a paradox in the notion of market discipline. The opportunistic behavior that we pointed at is driven by banks engaging in particular financial market linked activities. And the enhanced marketability, that we discussed earlier, may have facilitated this. Those activities are heavily driven by momentum in the financial markets; for example overoptimistic views in the market about the profitability of particular strategies. These opportunities appear to mushroom in euphoric times in the financial markets, and typically go hand in hand with underpriced risk, i.e. low risk premiums. It is the market that defines the opportunities and underestimates risk; banks seek to (opportunistically) exploit them.

But now the paradox. In the way we have formulated the argument, financial markets that are supposed to engage in market discipline underestimate risks and are momentum driven, and in doing so encourage banks to engage in specific activities. How then can we expect these same markets to impose market discipline? It appears to us that market discipline is not present when banks follow financial market inspired strategies. Things are even worse because the correlation in strategies between financial institutions will then be high because all see the same opportunities and hence we see herding behavior. Systemic risk would be enormous and not checked by market discipline.

What this points at is that from a macro-prudential view (i.e. system wide view) market discipline is not effective. This supports Flannery's (2009) analysis that in the summer of 2007 neither share prices nor CDS spreads provided information about pending problems. We tend to conclude that market discipline might more readily work for idiosyncratic risk choices of an individual financial institution (i.e. across institutions) than for the choices of the sector as a whole. In the financial sector with the correlated strategies induced by momentum in financial markets, market discipline seems ineffective.

7. Strategy of financial players and scale and scope economies

What drives financial players in choosing their scale and scope of operations? This question is important because the size and particularly the complexity of financial institutions is a concern to regulators and supervisors.[35] While the current statements in the industry might suggest that institutions 'go back to basics', i.e. reduce complexity, focus and simplify product offerings (KPMG, 2011), we expect the scale and scope extending strategies to continue. As we will discuss below, size will continue to be a driver in the industry. This is part of the ongoing underlying market forces in the industry. Whether size really offers scale or scope economies is a totally different question. Research on this remains rather inconclusive, or in the words of Richardson et al. (2010): "Indeed, the recent studies mirror the findings [...] some 15 years earlier [...] there was no predominance of evidence either for or against economies of scale in the financial sector."

7.1. Observations on scale and scope

A first observation is that banks like to *combine* many different activities. This distinguishes banks from many of their competitors, e.g. non-banking financial institutions like mutual funds and finance companies. The latter often choose to specialize and therefore are much more transparent. Banks generally choose to diversify their activities. Although few would readily deny that some degree of diversification is necessary, banks seem to engage in a very broad variety of activities. The question that arises is what is the optimal conglomeration of bank activities, and what structure will the industry migrate to?

Until recently, the complexity (or opaqueness) even meant that bankers themselves did not really know the profitability of many of their activities. Cross-subsidies were the rule, and internal cost accounting was rudimentary. While cross-subsidies may sometimes be an optimal competitive response, often they will not be sustainable in a competitive environment. A related issue is that implicit or explicit government guarantees and too-big-to-fail (TBTF) concerns might give artificial competitive advantages to size. Universal banks, while not particularly efficient (BCG, 2010a), might have sufficient 'protected' revenues to compete with more focused players.[36]

The coincidence of the consolidation trend in the financial sector with increased competition has led many to believe that the massive restructuring observed in banking is a response to a more competitive environment. That is, as commercial banking becomes more competitive, banks need to examine all possible ways to eliminate inefficiencies from their cost structures, for example, by merging with other banks and realizing scale efficiencies through elimination of redundant branches and back-office consolidation. Moreover, diminishing margins in commercial banking might have invited banks to look outside their traditional domain (see Section 3). Some non-banking activities may (appear to) offer higher margins and make scope

[34] The relevant question is whether market discipline could help in containing systemic risks, or whether market responses merely amplify such risks (see Flannery, 1998).

[35] We will not focus on (historic) differences in financial systems across countries. Financial systems are often characterized as either being bank-based (continental Europe) or financial market driven (US, UK). In the former, bank financing and relationships are dominant, while direct funding from the financial market plays a more important role in the latter. Financial innovations may have affected these systems differently. The distinction is not as sharp as the dichotomy might suggest, e.g. more than half of US businesses is bank-financed and financial markets clearly play a role in continental Europe; hence no system is fully market or bank-driven. Nevertheless, an interesting question is whether the more recent proliferation of financial innovations might impact those systems differently. One observation is that bank-based and financial market driven systems might have become more alike. The marketability associated with recent financial innovations may have weakened the distinction between bank-based and financial market driven systems.

[36] Indeed, this is one of the complaints of more focused investment banking institutions. Universal banks can leverage their balance sheet (read: cross subsidize) to secure investment banking business (e.g. *Financial Times*, March 21, 2011, p. 17: "US banks face fresh scrutiny on lending").

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expansion look attractive. The key question is whether these responses indeed create value.[37]

Scale and scope economies are often cited as rationale for why financial institutions tend to growth in size and complexity (scope) over time. But are scale and scope economies truly present? Sources of scale and scope economies include (see Boot, 2003; Walter, 2003): (i) information-technology related economies; (ii) reputation and marketing/brand name related benefits; (iii) (financial) innovation related economies; and (iv) diversification benefits. Information technology related economies particularly refer to back office efficiencies and distribution-network related benefits. Transaction processing offers distinct scale economies. And information technology developments facilitate an increasing array of financial products and services to be offered through the same distribution network, and thus allow for cross selling. Reputation and brand name/marketing related economies may be present in the joint marketing of products to customers. Brand image is partially marketing related, but is also related to the notions of 'trust' and 'reputation.' (Financial) innovation related economies particularly refer to large(r) institutions that might be in a better position to recoup the fixed costs of those innovations.

Diversification benefits are (at first sight) more controversial. In many cases, conglomeration may lead to a valuation discount which could point at (anticipated) inefficiencies. This is in line with corporate finance theory that tells us that investors can choose to diversify and that this does not need to be done at the firm level. However, key to the business of banking is risk processing and absorption. And confidence in a bank requires it to be safe. Diversification is then needed to be able to absorb risks and be safe. Observe also that several bank activities benefit from a better credit rating, which suggests that diversification at the level of the bank has value.[38]

7.2. *Are scale and scope benefits real?*

Scale and scope economies in banking have been studied extensively. A survey paper by Berger et al. (1999) concludes that, in general, the empirical evidence cannot readily identify substantial economies of scale or scope. Illustrative is Saunders (2000). He cites 27 studies, 13 of which found diseconomies of scope, 6 found economies of scope and 8 were neutral.[39]

An important caveat is that this research mainly involves U.S. studies using data from the 70s and 80s. Apart from potential methodological shortcomings the results therefore do not capture the dramatic structural and technological changes in banking that have taken place since then. Furthermore, they reflect the historic fragmentation of the U.S. banking industry due to severe regulatory constraints on the type of banking (banks could engage in commercial banking or investment banking, but not both) and the geographic reach of activities (limits on interstate banking) that were present till the deregulation in the 90s (see Calomiris and Karceski, 1998).

Some more recent studies examine the existence of a diversification discount for financial institutions. Laeven and Levine (2007) confirm the existence of a diversification discount in banks that combine lending and non-lending financial services, and suggest that the potential economies of scope in financial conglomerates are not large enough to compensate for potential agency problems and inefficiencies associated with cross-subsidies.[40] Rajan et al. (2000) emphasize that, even though conglomerates trade at a discount on average, 39.3% of the conglomerates trade at a premium. They show that the interrelation between activities within the conglomerate is of crucial importance. Diversified firms can trade at a premium if the dispersion between activities is low. High dispersion induces inefficiencies which point at the importance of focus within the conglomerate. In particular, one should look at what type of mergers and acquisitions involve scale and scope benefits. Recent research suggests that mergers with both a geographic and activity focus are most value enhancing. Similarly, in analyzing scope and scale issues, one should focus on the type of activities. What are the scale economies in each activity? And what product-mix offers true scope economies?

In this spirit, DeLong (2001) looked at the shareholder gains – more specifically, the immediate announcement effect on share prices – from focused versus diversifying bank mergers in the U.S. between 1988 and 1995. She found that focused mergers, both on the level of activity and geography, have positive announcement effects. Moreover, focus in activities was shown to be more important than geographical focus, albeit the latter was important as well. Activity-diversifying mergers

[37] The banks' inclination to expand scope has some notable exceptions. For example, while we had observed a spectacular cross-industry merger of Citicorp and Travelers, bringing together insurance activities with bank-oriented financial services, more recently, Citigroup has been divesting its insurance assets. Similarly, Credit Suisse expanded into insurance by acquiring the insurance company Winterthur, but lately has been divesting these assets. Similar processes are observed with other bancassurance conglomerates.

[38] For many guarantees or contracts and activities that involve recourse, the credit standing of the guarantor is crucial for the credibility of the contract. Mester (2008) emphasizes that bank production decisions affect bank risk. Scale and scope related decisions have via diversification an effect on risk, and that in turn may affect choices about risk exposure.

[39] With respect to the empirical evidence on scale and scope, some general observations can be made. First, scale and scope economies are empirically often dominated by adverse changes in managerial efficiency. For example, inefficiencies in managing larger organizations may mitigate possible scale and scope benefits. Second, scale and scope economies are difficult to disentangle from changes in market power. Increasing scale and scope may facilitate market power, and thus elevate profitability in the absence of scale and scope economies. Third, to the extent that mergers may change the structure and dynamics of the industry, the abnormal stock returns associated with merger announcements reflect such changes.

[40] Schmid and Walter (2009) confirm the Laeven and Levine (2007) results, and verify that this discount is indeed caused by diversification, and not by inefficiencies that already existed before the diversification. There are two important qualifications on conglomerate discounts as measured in the literature (following the well known Berger and Ofek (1995) study that – as one of the first – identified persistent discounts). Chevalier (2004) shows that controlling for the pre-conglomeration performance of businesses is important: inefficiencies measured after a merger often already existed prior to the merger. A second qualification is that discounts are often measured as a ratio (e.g. return on invested capital). A merger that leads to larger investments may reduce the average return but increase the absolute overall return (in $s).

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had no positive announcement effects. These results point at the presence of scale rather than scope economies.[41]

The typical result in these earlier studies was however that even scale economies were exhausted at relatively small bank sizes. More recent evidence points at more persistent scale economies. Wheelock and Wilson (2009) and Feng and Serletis (2010) find increasing returns to scale and Elsas et al. (2010) find increasing returns to scope also for larger financial institutions. Apart from methodological issues (see Mester, 2010), this might be driven by information technology developments that might only have showed up in more recent data.

7.3. What to expect?

We would subscribe to Robert DeYoung's statement that "...scale economies are a distraction" (DeYoung, 2010). What we observe is that many players choose a conglomerate model and go for size (and complexity). In terms of efficiency and effectiveness the academic research would not readily point to a real superiority of such model. Indeed, it might very well be regulatory induced (e.g. taking advantage of TBTF benefits; see Feldman, 2010a).

As a final observation, the structure of the industry that we expect to naturally follow from market forces is trimodal. Apart from these conglomerates (also called large complex financial institutions, LCFI) which might be more investment banking or commercial banking centered, large specialized financial institutions will co-exist, as well as smaller banking institutions capitalizing on relationship-focused niches.[42] However, it is difficult to make prediction about the future structure of the industry. Uncertainties are daunting; for example, it is very unclear what the impact of public policy and new regulations might ultimately be on the industry.[43]

But again we expect market forces to continue to press for size. In the next section, we will try to answer the question whether structural measures are needed to reduce complexity.

8. Dealing with complexity: breaking-up banks and living wills

We will argue that structural measures might be needed to help contain destabilizing market forces and deal with complexity, and that behavioral measures (like higher capital requirements) are insufficient. Overall we will advocate a comprehensive approach to regulation and supervision.

The issue of complexity of financial institutions is heavily debated. In other industries one is tempted to say that market forces will figure out what the optimal configuration of a firm might be (subject to anti-trust concerns). However, in banking complexity can worsen externalities that one might want to contain. More specifically,

i. complex institutions might be difficult to manage and supervise, and effective market discipline might not be expected (problem of opaqueness);
ii. a complex financial institution may have many, difficult to discern linkages with the financial system at large. This may augment TBTF, or rather too-interconnected-to-fail concerns;
iii. as a consequence systemic concerns might become more prominent;
iv. complexity might paralyze supervisors and put them in a dependent position; e.g. how is timely intervention possible if the complexity of the institution cannot be grasped by supervisors?

On the last point, one element of the current reform proposals asks financial institutions to have a living will available, i.e. a detailed recovery and resolution plan that would allow for an orderly and efficient resolution of financial difficulties when they may arise. Such a living will aims at overcoming the complexity of an institution, and the paralysis it may cause with the supervisor when problems emerge.[44] Taking this concept seriously should probably mean that all relevant financial

[41] Isolating potential scale and scope economies is important. On the demand side, the proliferation of savings products and their link to pensions, mutual funds and life insurance clearly pushes for joint distribution, and thereby suggest economies of scope. IT developments might have made it possible to better exploit potential scope economies with multiple product offerings to a particular customer group, using new direct distribution channels with relatively easy access to (formerly) distant customers. The very same IT developments however also offer better possibilities for focused single-product players. Interfaces (may) come about that help bundle the product offerings of specialized providers, thereby becoming a substitute for an integrated provider. The lesson is that only very well managed integrated financial services firms may realize positive scope economies.

[42] This could build on the insight in section 3 that larger banks are not very good at serving smaller customers. More specifically, the use of soft information might be hampered in larger organizations. A question is whether larger institutions could successfully imitate a 'multi-local approach' in which subsidiaries would focus on local characteristics of individual countries, and be delegated enough autonomy. But the holding company would supply activities where scope and scale economies would be the biggest. Rotation practices could then (theoretically) bring better governance in subsidiaries compared to stand alone banking firms. As Unicredit puts it: "UniCredit recognizes the importance of specialization. The group utilizes a divisional business model that optimizes its ability to meet the needs of a variety of customer segments, offering personalized services. UniCredit's divisional model is based on identifying well-defined business areas common to all of the markets in which the group operates: retail, corporate, private, investment banking and asset management. The emphasis is on creating specialized product factories and on centralizing support services. To apply this model, UniCredit uses a multi-local approach. This approach is consistent with the group's goal of being recognized as a highly capable domestic player in each of the markets in which it is present. Emphasis is placed on the value of establishing a presence in local communities. Global product factories are a key feature of the divisional model. They can help exploit the growth potential inherent in UniCredit's vast branch network." (http://www.unicreditgroup.eu/en/Investors/Strategy.htm).

[43] See for example, McKinsey (2010a,b). Strategic considerations make it also difficult to extrapolate from choices that we currently observe in the industry. Boot (2003) explains the rather broad strategies of many banking institutions by emphasizing that in an uncertain environment banks may want to keep their options open.

[44] As Bliss (2003) concludes "... until the informational problems are resolved, it will only be happenstance that LCFIs are discovered to be distressed when they are still sufficiently solvent...".

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institutions organize themselves in a way that they can be easily dissolved when problems arise. So the complexity might have to be dealt with upfront, and would then have direct implications for the organizational structure of the business, i.e. for a bank's business model (Feldman, 2010b).

One is tempted to conclude that one way of dealing with the complexity is to disentangle activities and put them in separate legal structures ('subsidiaries'). Those subsidiaries could deal on an arms-length basis with each other, with each being adequately capitalized without recourse to each other. This would resemble the non-operating holding company structure that is discussed in some OECD studies (Blundell-Wignall et al., 2009). With such a structure supervisors could possibly more easily (and timely) target, i.e. rescue, systemically important parts of a financial institution in case of distress; other parts could be sold or dismantled.

In this spirit one could look at the arrangements in New Zealand. In that country much of the banking system is in the hands of foreign players. New Zealand's authorities were skeptical about this lack of control, and instituted structural requirements to address them. The requirements entail enforced organization of activities within subsidiaries, but on top of that requirements that make the New Zealand based subsidiaries operationally independent from their foreign parents (Herring and Carmassi, 2010).[45]

8.1. Can separate legal structures under one corporate roof be effective?

Whether such separate legal structures are really effective is unclear. In the market there might still be reputational spillovers between the different parts. Similarly, the market may still expect intra-group cross subsidization or joint risk bearing with the group's financial strength being perceived behind any individual activity (Lumpkin, 2010).

In practice, financial institutions typically have corporate structures that include a myriad of legal entities (Avgouleas et al., 2010). Banks in this way have become horrendously complex. HSBC for example has in excess of two thousand entities (Llewellyn, 2010). These are typically not designed to augment transparency and/or reduce complexity, but rather to engage in regulatory and tax arbitrage (e.g. capital management). The legal structures themselves are typically not stand-alone in any meaningful way but linked together through intra-group transactions, joint back offices and other shared facilities and activities. While these linkages might produce synergies, the accompanying complexity seems at odds with having effective living wills, or having a business structure that is receptive to supervision or market discipline.

Complexities are magnified once we take into account cross border activities and differences in bankruptcy regimes across countries (Cumming and Eisenbeis, 2010). Living wills and the timely intervention they could facilitate might be valuable particularly in these cross border situations especially when intervention occurs before losses become overwhelming. The latter might be crucial to align the interests of policymakers and supervisors. The potential for conflicts is considerable considering the problems associated with burden sharing.

One may expect that the industry will vigorously oppose such transparent and arms-length structures that – in their view – would limit synergies. Whether these concerns are really valid cannot be readily answered. Real synergies might be limited as we have seen in Section 7. As we have argued in Section 3, banks may confuse cross-subsidization with real synergies. The incentives of financial institutions might also be to seek complexity and in doing so hold supervisors 'hostage.' The implicit TBTF (or too-complex and/or interconnected-to fail) backing may further amplify disagreements between the bankers privately optimal choices and those of society. The reality is that the non-operating holding company structure as envisioned in the OECD studies – with transparency via arms-length contracts, no recourse and separate capitalizations – is a far cry away.

8.2. Breaking-up banks?

A valid question is whether in face of this opposition one should not be more active and possibly seek a more radical solution. This refers to structural measures that seek to prescribe the structure and allowable businesses of banks and other financial institutions (Llewellyn, 2010).[46] Several policymakers have advocated such measures. The British have arguably been most adamant. Both Mervin King (Governor Bank of England) and Adair Turner (Chairman of the Financial Services Authority) have hinted at the need to split up banks. Actually, the UK government has established an independent Banking Commission (the Vickers Committee') to look into potential structural remedies. While not directly advocating such measures, Sheila Bair of the FDIC has advocated that "America's big international banks may have to restructure and downsize their operations now, unless they can prove they will be easy to dismantle in another financial crisis" (as reported by Reuters, March 1st, 2011). In terms of actually implementing new policies, the US

[45] Following Ng (2007): Banks in New Zealand typically outsource a range of business activities, both to independent and to related-party service providers, and both domestically and offshore. The predominance in New Zealand of banks owned by offshore parent banks, which provide important services to their subsidiaries, means that cross-border, related-party outsourcing is of particular relevance. The outsourcing policy requires a large bank's board to maintain legal and practical control over any outsourced functions such that the bank is able to continue to play its key role of supporting financial activity in the economy, both under normal circumstances and (particularly) under stress. The Reserve Bank applies the policy with some flexibility to suit the circumstances of individual banks. The policy thus ensures that the banking system retains the ability to avert distress, and underpins the Reserve Bank's ability to manage a financial crisis, while enabling the financial system to enjoy the benefits of foreign bank participation.

[46] We also could identify possible structural measures in the operations of financial markets; for example the introduction of central counterparties to reduce counterparty risk in OTC markets. This may help contain contagion. Note that the focus in this paper is on financial institutions, and less on the functioning of markets. As we will argue, we advocate a comprehensive redesign of regulation and supervision which would include measures aimed at reducing counterparty risk.

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appears to be in the lead with the Volcker Rule (part of the Dodd-Frank Act) that seeks to prohibit the involvement of banks in proprietary trading, and limit their investments and sponsorship in hedge funds and private equity.[47]

European banks have always operated as fully integrated universal banks, while in the US the Glass-Steagall Act made a clear division between commercial banking and investment banking. The demise of this Act at least in part reflects the difficulty (and desirability?) of enforcing such separation. Indeed, prior to the passage of the Gramm-Leach-Bliley Financial Services Modernization Act of 1999 which formally repealed Glass-Steagall, commercial banks did enter via so-called Section 20 subsidiaries investment banking activities. This may have reflected the complementarity between lending and debt underwriting. Hence, the 1999 Financial Services Modernization Act was to some extent a belated response to underlying market forces. But it did more. It enabled US commercial banks to expand rapidly in investment banking, and become true financial conglomerates.[48]

If the complexity makes it impossible for supervisors to (credibly) intervene in a timely fashion, one may start thinking about the desirability of breaking-up banks. One question is whether this is really possible. And the other is how breaking-up banks squares with the broader objectives of supervision, and particularly the lessons learnt from the financial crisis. At least two lessons could be identified:

i. Contagion should be addressed;
ii. Core commercial banking functions might have to be safeguarded.

The latter typically refers to the payment system and local deposit and lending operations. If a break-up indeed increases transparency and reduces complexity, timely intervention might become easier which might fit both lessons.[49] But this is from an ex post perspective, i.e., after problems have emerged. But how would a more fragmented banking system operate from a more ex ante perspective? Does it reduce contagion? Is it better at safeguarding core-commercial banking functions?

It is not obvious that a more fragmented system would be less susceptible to contagion, but the record of consolidated systems is not convincing either. Systemic risk does not appear to be contained in large diversified banks. As a matter of fact, Richardson et al. (2010) conclude that "the expansion to multiple functions – the LCFI (large, complex financial institution) model – produces greater systematic risk." They build this conclusion on extensive work by (among others) Stiroh (2006), De Jonghe (2010), and theoretical work by Wagner (2010). So from a policy perspective it is hard to defend the necessity of such large and complex institutions. Likewise, more limited commercial banking institutions without much exposure to the financial markets and primarily financed by deposits (contrary to less stable wholesale financing) might be better at safeguarding core-commercial banking functions.

8.3. What to do?

We would be in favor of actions that would simplify the structure of banking institutions. With the enormous complexity of existing institutions and the difficulty that regulators (and legislators) have in grasping the intralinkages (within) and interlinkages (across) financial institutions, much could be gained. However, the same complexity together with the (understandably) hostile and uncooperative attitude of the industry itself when it comes to structural measures, make it a truly daunting task that would require enormous perseverance and persistence. Also, well known problems like how to deal with the cross border operations of banks (international coordination) and the shadow banking system at large would need to be addressed. And what does not help either is that there are no well established prescriptions on how to go about redesigning the financial architecture.

The Volcker Rule with its focus on proprietary trading, investments and sponsorship in hedge funds and private equity, and some restrictions on derivatives trading could help reduce the exposure to financial markets and does seem consistent with the dual lessons of the crisis as stated above (limit contagion and protect core banking functions). But the Rule is clearly imprecise and not watertight, so its effectiveness might be limited. Also the impact on complexity is limited, and hence effective timely intervention would still be doubtful. But overall we see it as a move in the right direction.

We believe that heavy handed intervention in the structure of the banking industry – building on the Volcker Rule – might ultimately be an inevitable part of the restructuring of the industry. It could address complexity but also help in containing market forces that might run orthogonal to what prudential concerns would dictate (as the insights on market discipline in section 6 suggest). For now, the structural interventions in the banking industry are rather tentative. Other measures such as higher capital and liquidity requirements are clearly needed. But these primarily focus on individual institutions while a more system-orientation is crucial to identify externalities and interlinkages (Goodhart, 2009; Calomiris, 2009). Anti-cyclical capital surcharges and other measures and surcharges depending on the degree of interconnectedness are needed as well to add some further comfort. We tend to subscribe to Kay's (2010) notion of redundancy: having comfort in the stability of the financial sector dictates building redundancy into the regulatory and supervisory structures of banking.

9. Conclusions

The paper has highlighted the major challenges facing 'modern' banks. What has been shown is that financial innovations can be good (e.g. from the perspective of completing markets)

[47] The Act is broader. It seeks to expand these measures to other important financial institutions (not just banks) and also seeks to address financial derivatives.

[48] The other noteworthy regulatory development was the repeal in 1994 of the McFadden Act (with the passing of the Riegel-Neal Interstate Branching Efficiency Act) which removed restrictions on interstate branching.

[49] For an early discussion on timely intervention and its interaction with systemic concerns, see Wall (2003).

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but could also cause instability. The red flag is related to the observation that financial innovations often aim at augmenting marketability and intertwine banks and financial markets. This makes banks subject to the boom and bust nature of financial markets.

We tend to conclude that the marketability created in banking via financial innovations has created a more opportunistic landscape prone to herding, fads and excessive risk taking. More instability seems an inherent part of this new reality. Our discussion on the value of partnerships which actually may contain unwarranted opportunistic behavior, and their disappearance, points at the need to find some new 'fixed points' in the financial system; not everything can be fluid.

What we have also argued is that market discipline might be rather ineffective. We described this as a paradox. When particular strategies have momentum in financial markets, the market as a whole may underestimate the risks that these entail. How then can we expect market discipline to work? It appears to us that market discipline might not be present when banks follow financial market inspired strategies. Things are even worse because these strategies will lead to a high correlation in actual exposures between financial institutions because all see the same opportunities and hence herding occurs. Systemic risk would then be considerable and not checked by market discipline.

What this points at is that market forces work against prudential behavior in banking. Regulation and supervision then face an enormous challenge. In part for this reason we believe that heavy handed intervention in the structure of the banking industry – building on the Volcker Rule – should ultimately be an inevitable part of the restructuring of the industry. Structural measures could help contain destabilizing market forces. The other challenge is the complexity of financial institutions. The complexity as it exists now makes it very difficult for supervisors to act. Timely intervention seems virtually impossible. The so-called living wills may lead to some improvements, but more transparent business and industry structures seem indispensable.

We do not believe that it is sufficient to only introduce behavioral measures like higher capital and liquidity requirements. These are undoubtedly needed, including also more system-oriented measures focusing on externalities and interlinkages, but they do not address the complexity nor misalignment between market forces and prudential concerns. Instructive in this regard are the counterproductive incentives that higher capital requirements might induce, e.g. banks might choose to increase their risk exposure following higher capital requirements in order to preserve a high ROE (which does not measure nor control for risk).[50]

We are not convinced by Allen Greenspan's recent statement that we should accept that the financial system is like Adam Smith's invisible hand – some type of complex eco-system that is beyond anyone's control or imagination, and is "unredeemably opaque."[51] Such status quo would seem unacceptable. However, he is undoubtedly right when he observes that any measure, and also the many measures proposed in the Dodd Frank Act, will have unintended side effects. This points at the potential costs of regulatory interference. Indeed, we know very little about the cost side of regulation (including those of structural measures), nor by the way is it easy to establish the costs of financial crises. A massive research effort is needed to build an understanding about what structure might offer the greatest benefits.[52] In our view, marketability has created considerable instability and warrants structural remedies. We are prepared to err on the safe side, and support a comprehensive approach to regulation.

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[50] As noted in section 4, the fallacy of considering the cost of capital more or less as fixed at a high level might push banks to manage based on maximizing the return on equity rather than the risk-adjusted return on equity (and in doing so, reestablish a high ROE on a now broader equity base).

[51] 'How Dodd-Frank fails to meet the test of our times,' *Financial Times*, March 30, 2011, p 9.

[52] This research effort should also look at the positioning of the financial secor vis-à-vis the real economy. Over the last two decades the financial sector has grown enormously relative to the real sector (OECD, 2009). To what extent is this growth welfare enhancing (see Haldane et al., 2010)? Or has there been a crowding out of the real sector?

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