Risk in Financial Conglomerates: Management and Supervision

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IN THE PAST DECADE we have seen financial conglomerates gain in importance. Financial conglomerates are groups that combine banking, securities, and insurance activities within one organization.[1] Trends such as disintermediation, globalization, and deregulation have made cross-sector consolidation possible. Consolidation has been driven by the search for revenue enhancement and cost savings and has been encouraged by improvements in information technology. So far most consolidation has been within sector and country. Nevertheless, some cross-sector groups of impressive size have been formed. An example is the ING Group, whose balance sheet at the end of 2001 equaled a little more than €705 billion. Although the external risks facing financial firms have not changed in essence, combining different activities within one organization presents new challenges both for the group's management as well as for regulators. In this paper we discuss the most important issues in this area.

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1. Reflecting continental European practice, we consider financial conglomerates that combine universal banking and insurance activities and not financial conglomerates that combine only banking and securities activities, as is more common in Anglo-Saxon countries. Thus a bank, in our definition, can be involved in both securities and commercial banking.

After outlining the developments that have led to the formation of large, complex, and diversified financial firms, or in other words financial conglomerates, we discuss the reasons that have been cited, mainly in the academic literature, for regulatory intervention, covering banking, insurance, and financial conglomerates in turn. Sheer size by itself, after all, does not merit the extensive regulation to which financial firms are subject. The reasons cited for banks are the possibility of bank runs, systemic crises, and moral hazard due to a lender of last resort and concerns regarding consumer protection. For insurance firms, the main reasons are concerns regarding consumer protection and, more generally, financial stability.

Given the good reasons that exist for regulation and supervision, within what institutional framework does this take place? Consolidation in the financial sector, for instance, would require closer coordination of regulation across the banking, securities, and insurance sectors. In the fourth section of this paper, we describe the—European—framework, with special attention to the Dutch situation. Since financial conglomerates were formed relatively early in the Netherlands, the regulatory response had to be formulated ahead of the curve as well. We highlight the motivations that played a role in creating the present Dutch regulatory structure.

Regulators are not the only stakeholders interested in the risk profile of financial firms. Many firms commit sizable resources themselves to monitor and manage risk. However, received wisdom is that, in the absence of market imperfections, risk management does not add any value. The reasons for managing risk are thus based on violations of the assumptions of the Modigliani-Miller irrelevance theorems. We discuss the most important digressions in turn. Given that both management and regulators are interested in the risk profile of financial firms, they have a shared interest in accurate measurement and, consecutively, management of risk. We then briefly outline measurement methods, primarily to discuss the most important hurdles that have to be taken before a firm-wide risk management system can be implemented adequately.

Finally, we discuss the interplay between the objectives of supervisors and the goals of financial conglomerates. Are these objectives in line with each other, or are there areas in which opposite interests are evident? In what way can supervisory regulation support the developments of firm-wide risk management systems, and is this beneficial to the

industry? The main issue addressed is what the framework for coming to an adequate risk management process, and thus a satisfactory level of capital, should look like. The central tenet here is the supervised institution's responsibility in this area. The concluding section summarizes our findings.

The Rise of Financial Conglomerates

An obvious definition of a financial conglomerate is a group of firms that predominantly deal with finance (that is, banks). In financial regulation, however, it has acquired a slightly different meaning: a financial conglomerate has come to mean a group of firms that engage in financial activities that have been kept separate, by law and regulation, for many years in many countries. Combinations of some of these activities—banking, securities trading, and insurance—are still forbidden in many countries. The Group of Ten gives the following definition: "A financial conglomerate is a conglomerate whose primary business is financial and whose regulated entities engage to a significant extent in at least two of the banking, securities, and insurance sectors."[2] The European Commission is proposing a more precise definition, in two steps: a group only qualifies as a financial conglomerate (a) if more than 50 percent of group activities are financial and (b) if the shares of the banking sector (including security activities) and the insurance sector in the total of the financial activities are within the range 10–90 percent. In addition, if the minority share has a balance sheet larger than 6 billion, the group also qualifies as a financial conglomerate. If the group is headed by an unregulated entity, it is called a mixed financial holding. This definition implies a rather flexible coverage, although the previously used definition in the Netherlands was even wider: any combination of banking and insurance would qualify as a financial conglomerate.

Consolidation in the financial sector has increased significantly over the last decade.[3] Most recent mergers and acquisitions involved firms

2. Group of Ten (2001).

3. Group of Ten (2001). As noted by National Bank of Belgium (2002) the direction of conglomeration in nonfinancial firms seems to be toward more unbundling or, in other words, refocusing. Focarelli and Pozzolo (2001) argue that regulatory restrictions are still slowing cross-border and cross-sector merger activity.

Table 1. Share of Financial Conglomerates in Bank Deposits, 2000

Country	*Percent*	*Country*	*Percent*
Austria	6	Italy	37
Belgium	97	Netherlands	93
Denmark	19	Norway	**??**
Finland	73	Portugal	67
France	67	Spain	10
Germany	10	Sweden	67
Ireland	45	United Kingdom	57

competing in the same industry and country. Nevertheless, a number of highly complex financial institutions that operate across many sectors and countries have been formed. Well-known examples of groups active in more than one sector are, for instance, Citigroup-Travelers, Credit Suisse-Winterthur, Dresdner-Allianz, ING Group, and Fortis.

In Europe, financial conglomerates have captured significant market share in a number of countries and markets. As an example, we show bank deposits in Table 1. Financial conglomerates' share is significant in some markets and relatively high in the Netherlands.

A primary motive for financial consolidation seems to be revenue enhancement and cost savings.[4] Consolidation has been encouraged by improvements in information technology, financial deregulation, globalization of markets, and increased shareholder pressure for financial performance.[5] Various domestic regulatory regimes and corporate and national cultural differences are, however, discouraging consolidation.

Another motive for cross-sector consolidation is that financial segments are melting into one another, as financial institutions venture into diverse product markets (banks now also sell insurance products, for example, and insurance firms sell unit-linked products) or offer innovative, mixed products (such as investment-based mortgages).[6] New distribution channels, including the provision of financial services through the

4. We do not discuss, from either a theoretical or an empirical angle, whether forming a conglomerate creates or destroys value. Theoretical discussion can, for instance, be found in Boot and Schmeits (2000). Empirical evidence for the alleged existence of "conglomerate discounts" can be found in Berger and Ofek (1995), Mansi and Reeb (2002), or Scharfstein and Stein (2000).

5. See, for example, van Lelyveld and Donker (2002)

6. See Allen and Santomero (2001) for a more general description of developments in banking.

Internet, reinforce this effect. Hence, financial institutions' activities are becoming more varied and generally more complex in nature. As their organizational structures are adapted to these developments, they too become more complex.

Several forces are driving these motives to be effectual. First and foremost are the technological innovations in the field of information and communication technology, which paved the way for the development of many new products and drastically lowered the operational costs per unit. Large financial institutions are generally better able to fund the extensive investment in information technology required. In addition, deregulation has opened plenty of new markets and allowed new cooperative links between, for example, banks and insurance companies. Moreover, in Europe the generation of shareholder value has become a far more significant concern to management as well. In practice, expansion and diversification are important tools in the strategic reorientation of financial institutions in response to mounting pressure, from both inside and outside the financial sector. In this process, the establishment of the European Monetary Union has acted as a catalyst, since the currency union advances the integration of financial markets and the consequent creation of a single competitive financial environment.[7]

Regulatory Concerns about the Risk Profile of a Conglomerate

Given the fact that financial conglomerates have gained in importance in recent years, the question arises, should supervisors be concerned? Below we discuss a number of reasons why supervisors would be interested in understanding and—if necessary—influencing the risk profile of any financial institution and, in particular, financial conglomerates.[8]

In the banking literature, the arguments have generally been phrased in terms of capital regulation. Thus, for instance, managers' incentives to gamble for resurrection at some point could be contained by prescribing some level of capital. Other, noncapital, instruments to control risk might, however, be just as effective. One could think of, for instance,

7. According to the evidence shown by Berger, Ongena, and Smith (2002), it seems that consolidation will never become total because there will always be a demand for "local" banks.

8. This section draws heavily on Bikker and Van Lelyveld (2003).

direct supervision instead. Generally, such measures can be accommodated within the existing, capital-focused literature. In the discussion, for brevity, we use "supervision" to denote both regulation and supervision.[9]

Consolidated supervision is an essential tool of (banking) supervision. In simple terms, it is a response to the fact that financial conglomerates frequently carry on part of their business—in some cases, the major part—through subsidiaries and affiliates. Moreover, a bank or insurer may belong to a group headed by a holding company, and in such cases supervisors need to take account of the activities of the holding company and fellow subsidiaries of the bank or insurer. Consolidated supervision is therefore a comprehensive approach to supervision that seeks to evaluate the strength of an entire group, taking into account all the risks that may affect an examined institution regardless of whether these risks are carried on the books of the examined institution or on those of related entities.

Motivation for Regulation of Financial Institutions

Financial institutions are regulated and supervised for many reasons. The most important are consumer protection (that is, delegated monitoring), the functioning of financial institutions and markets, the incentives for participants, market failures, and, finally, the special nature of financial products.[10] Critics of regulation argue that market failures are nonexistent or, at most, not serious.[11] Moreover, it is argued that regulation cannot prevent failures or imperfections or is too costly, whereas some forms of regulation might even generate new sources of moral hazard. Following Llewellyn, the instruments at hand are prudential regulation and conduct of business regulation.[12] The former aims to promote solvency and thus the general safety and soundness of institutions, while the latter concerns the customer-firm relationship. Conduct of business regulation is generally framed in a consumer protection framework. It should, however, be of interest to firms themselves as well and should be seen in

9. See, for example, Llewellyn (1999), who adds a further distinction between regulation (setting specific rules), monitoring (observing compliance), and supervision (observing bank behavior in general).

10. See Allen and Herring (2001, table I), for a discussion of additional motives, including corrective measures employed.

11. The fiercest opponents of government regulation can be found in the Free Banking School. See, for instance, Dowd (1994) or White (1984).

12. Llewellyn (1999).

a wider risk management setting. Witnessing the growing importance of product liability and the possibility of reputational fallout, it becomes increasingly more important for a firm to know what you sell to whom.

In the next three subsections we consider the need for regulation and supervision of banks, insurance firms, and financial conglomerates, respectively. In addition, the third subsection also seeks to establish whether the "silo" approach or the "integrated" approach is more appropriate for the supervision of financial conglomerates. In the silo approach, total risk is a simple sum of sectoral risks, whereas in the "integrated" approach risk reduction for diversification effects or an add-on for contagion risk is incorporated.

Reasons for Regulation of Banks

Contrary to other firms, banks may use deposits for their funding needs. Deposits differ from other types of debt in that a substantial part of deposits may be retrieved on sight. Demand deposits generate the possibility of a bank run on an individual bank, which is suspected to be insolvent. The first-come-first-served (FCFS) constraint, facing demand depositors, means that there is a strong incentive for depositors to be in the front of the queue.[13] In nonfinancial near-bankruptcies, it is more difficult to jump the queue and thus evade costs.

Another typical characteristic of banks (and other financial firms) is their opacity: it is hard to assess the total risk a bank is running. In particular, the value of longer-term investments that are not publicly traded is difficult to establish, especially at any specific point in time, let alone by relative outsiders such as (unsophisticated) depositors.[14] As the banking operations of many banks are fairly similar, financial stress emerging in one bank may indicate similar difficulties in others. In many cases it is difficult to distinguish bank-specific shocks from general shocks. Therefore, a run on one bank may generate runs on other banks, causing serious financial instability.[15] Contagion may also be reinforced because banks are interwoven through heavy interbank lending and cross-participation.

13. Chen (1999).

14. For that reason, the new Basel Capital Accord introduces a set of disclosure requirements to encourage greater transparency and reduce uncertainty.

15. Seminal contributions in this area are Bryant (1980) and Diamond and Dybvig (1983).

If bank runs are not triggered by true insolvency, they are detrimental to social welfare, because in a bankruptcy contracts have to be renegotiated or traded at a discount. Hence, special measures are required to reduce welfare-impairing bank runs and their threat of financial instability.

A typical feature of banks is that the contracts on both sides of the balance sheet have different maturities: funding is of a short-term nature, whereas lending is generally long term. This creates both liquidity risk, which is often the immediate cause of a bank run, and interest rate risk, which may damage solvency. Public authorities must act to monitor these risks and safeguard the public interest. Finally, banks have a pivotal role in the clearing and settlement of transactions and—above all—in the provision of funding, in particular to small and medium-size enterprises.

These risks are addressed by constructing a "safety net," usually including prudential regulation and supervision, a lender of last resort, and deposit insurance. A well-devised financial safety net consists of a mix of all three elements. First, the causal forces for financial fragility can be addressed with regulation and supervision, lowering the probability of financial instability. Best-practice standards on reporting can, for instance, reduce the opacity of a bank. Second, implementing a deposit insurance scheme for the deposits of households removes the panic that induces the FCFS constraint.[16] Finally, appointing the central bank as the lender of last resort, which may provide funds to illiquid but solvent banks (in principle, only against collateral), can, in some cases, also be the solution for bank-run problems.

Deposit insurance and a lender of last resort cause risk shifting. In the case of deposit insurance, risk is shifted from the bank's deposit holders to the insurer, which often consists of all other banks or taxpayers. This means that the risk of deposit holders is not priced, which makes this type of funding relatively cheap.[17] Risk insensitivity of funding creates an incentive for banks to expose themselves to more risky and thus more rewarding investment. Similarly, a lender of last resort implies that risk is

16. For an overview, see Garcia (2000). In most countries, banks pay premiums to fill a fund, whereas in others, such as the Netherlands, a pay-as-you-go system covers losses. An additional motivation for deposit insurance is consumer protection. For instance, in the Netherlands, all deposits are covered; not only the deposits that are directly demandable and hence contribute to the risk of a bank run but also nondemandable liabilities such as fixed long-term time deposits. Moreover, securities in trust are also covered to some extent.

17. Unless the deposit insurance is based on risk-sensitive premiums, as is the objective in a growing number of countries (Garcia 2000), but not in the Netherlands.

shifted from all funding parties of the bank to the taxpayer, which may provoke banks to adopt more risky behavior, because an unpriced insurance covers part of the possible damage. These moral hazard problems, brought about by instruments to reduce the fragility of banks, imply an additional reason for regulation and supervision.

Reasons for Regulation of Insurance Firms

The main reason why banking markets are thought to be unstable has to do with banks' funding by deposit holders, with their special FCFS status, in combination with their long-term assets. Insurance firms, however, are not funded by deposit holders but by policyholders, without the FCFS rights attributed to deposit holders. Policyholders have the right to surrender a policy, but processing a request to surrender takes time. This allows the insurance firm to liquidate investments under normal conditions, avoiding the "fire sale" a bank faces in a bank-run situation. In the Netherlands surrendering generally takes place under a certain discount, which covers at least the costs of administration and liquidation. Often tax treatment is less favorable if the policy is surrendered before legal minimum terms are met. Thus commuting insurance policies comes with substantial costs, and individual policyholders have no need to commute earlier than others. However, the situation may be different in other countries, where other legal conditions prevail for surrendering. Especially in the United States, the discounts may be lower and not always actuarially fair, which makes surrendering more likely and thus a greater risk for the firm.

In some respects, policyholders have a position similar to that of deposit holders: banks and life insurance firms are both opaque institutions, with a degree of riskiness, which is hard for the layperson to assess. Institutions can thus, without knowledge of the policyholder, behave in a—more—risky fashion. Firms might even attempt to gain market share with policies against actuarially insufficient premiums and then proceed to gamble with the received monies. Hence, consumer protection is an important and strong argument for prudential insurance supervision, similar to the motivation for deposit insurance. For many life insurance policies, the case for consumer protection is even stronger than for deposits, as the contracts last very long. Understandably, policyholders have difficulty assessing the current riskiness of insurance firms, but even the experts cannot foresee a firm's behavior in, say, five or ten

years, let alone over forty or sixty years. The objective of consumer protection is thus a much broader concept than can be attained by market-conduct regulation only.

Where banks and insurance firms share their opacity and the ensuing need for consumer protection, they seem to differ with respect to the other arguments for supervision. At first sight, insurance firms as stand-alone institutions are not likely to constitute a major threat to financial stability through sudden crashes. Even where—due to the opacity of insurers—financial difficulties in one firm may contribute to doubts regarding other insurance firms, this need not automatically lead to panic reactions similar to bank runs, as the surrendering of policies takes time and involves costs for the policyholders.[18] Liquidity risk is not a major problem for insurance firms because their balance sheets generally have a reversed duration structure[19] (life insurance firms) and claims go through a processing cycle, preempting surprises (property and casualty insurers). In addition, unlike banks, insurance firms do not play a role in maintaining the payments system.

However, some financial stability arguments remain or even become of growing importance. First, insurers have become increasingly more intertwined with the banking sector, taking on significant amounts of credit risk. A failing insurer could thus suddenly shift sizable amounts of risk back to the banking sector, possibly causing instability. Second, in particular, life and pension insurers have material equity holdings. Failure could imply the unwinding of these positions, putting downward pressure on equity prices. In particular, the expectation of a sell-off could have a relatively quick impact. Third, the stability of the insurance sector is crucial for the general confidence in the financial system and thus for economic growth. Since insurance firms supply a product with a long lifetime, disturbance of this market would have pronounced external effects.[20] Increased uncertainty could lead to reduced investment. Work by, for instance, Brunetti, Kisunko, and Weder shows that confidence in the "rules of the game" is an important determinant of economic growth.[21]

18. However, a certain contribution to the system risk may occur insofar as these institutions are heavily involved in credit derivatives.

19. Banks have liabilities with a short contractual duration combined with longer-running assets. Life insurers, in contrast, have long-term liabilities, while their assets are of a much shorter duration.

20. For example, Bencivenga and Smith (1991).

21. Brunetti, Kisunko, and Weder (1998).

Disruption of the insurance market, especially the life and pension insurance market, would certainly deal a blow to the confidence in the financial market. In conclusion, the main arguments for supervision of insurance firms are consumer protection and financial stability in general.

Reasons for Regulation of Financial Conglomerates

The current Dutch regulatory regime for a financial conglomerate is a silo plus approach. Separate requirements hold for the bank, the securities firm, and the insurance firm, as if they were independent institutions, ignoring diversification. In addition, various rules about the organizational structure apply to the financial conglomerate as a whole. In determining the total risk of the financial conglomerate, however, diversification effects should also be considered.[22] Although possible diversification effects are not a separate motive for supervision, they would influence the overall risk profiles and would therefore be relevant in supervision of a financial conglomerate.

An aspect of a financial conglomerate that could make regulatory intervention necessary is that of regulatory consistency. Regulatory inconsistency could lead to "double gearing," where the same capital, issued by the conglomerate, is being counted twice, to satisfy both banking and insurance capital requirements. Another result of inconsistency is "excessive leveraging," which can occur when the conglomerate issues debt and gives the proceeds as equity to the regulated subsidiary. Because of regulatory inconsistency, a financial conglomerate could shift activities from one of its banks to one of its insurance firms, or vice versa, if the respective capital requirements were lower.[23] Such arbitrage is particularly likely where the regulatory framework for banks and insurance firms differs in measuring risk and determining capital requirements. This may even be the case when the regulatory frameworks would be fully harmonized, as different motives for supervision may lead to dif-

22. For the moment, we ignore the fundamental measurement problems in integrating bank and insurance risk (that is, a common unit of risk and a common time horizon).

23. Evidence for such behavior has been presented recently by the International Association of Insurance Supervisors (IAIS 2002). The IAIS concludes, based on a survey, "Regulatory arbitrage is a factor in the 'underwriting' type of transactions but does not appear to be the main driver." In such "underwriting" activities, insurers are actively selling credit protection instead of taking on credit risk through direct ownership of assets with credit risk.

ferent regulatory requirements. Moreover, some activities could also be shifted to unregulated entities within the conglomerate.

A second aspect of financial conglomerates is that financial difficulties in one subsidiary in one sector could have contagion or reputational effects on another subsidiary in a different sector, especially when using the same brand name.[24] In that case, the conglomerate may be more vulnerable than its constituting subsidiaries. Similar contagion problems may also arise with unregulated entities in a financial conglomerate. If these entities can expect support when needed, a moral hazard problem arises, as they could be tempted to take on more risk than they would otherwise have done. Unregulated entities would, in a sense, lean on the deposit insurance or the ignorance of policyholders (the so-called free-rider behavior). Also banks and insurance subsidiaries themselves may expect help from the holding company in cases of financial stress and engage in more risky behavior as part of a financial conglomerate than as a stand-alone institute. These possible risks of contagion and cross-sector moral hazard form an argument for supervisory intervention at a financial conglomerate that would be stricter than the rules applying to its composing firms and that would also include supervisory requirements for unregulated entities.[25]

A third set of issues is related to the sheer size and complexity of financial conglomerates. First, there is the moral hazard associated with the "too-big-to-fail" position of many financial conglomerates. In addition, it becomes more difficult to manage and understand the operation of a firm as the organization grows. Both these issues are not unique to financial conglomerates. Nevertheless, these issues tend to come to the fore because financial conglomerates tend to be large.

Table 2 gives an overview of the various arguments for supervisory intervention that we have discussed. It is clear that combining banking and insurance within one entity poses additional challenges for supervisors. In addition to the arguments mentioned, diversification could be an important issue in the supervision of financial conglomerates.

24. See, for example, the outspoken comments in *The Economist* in reaction to the loss-leader pricing and reputational fallout from conflicts of interest of analysts at Citigroup. "Thanks a Bundle," *The Economist,* August 24, 2002, p. 12.

25. An integrated supervisory regime for financial conglomerates would raise practical problems, as supervision of insurance firms is based on host-country control, whereas supervision of banks is based on home-country control. As capital requirements of insurance firms are not based on an international agreement (such as the Basel Accord for banks), domestic and foreign insurance divisions face different regulatory treatment.

Table 2. Arguments for Supervision of Financial Firms

Banks	*Financial conglomerates*	*Insurance firms*
Bank runs—deposit insurance protection (moral hazard) stability Lender of last resort (moral hazard) Consumer protection Financial stability	Supervisory consistency Contagion risk Size of the firms	Consumer Financial

Developments in Regulation

The previous section established that supervisors have a stake in the well-being of a financial conglomerate. Before we turn to the discussion of the market failures that would cause financial conglomerates themselves to be interested in managing their risk, we first discuss two relevant issues. First, we briefly discuss the institutional structure of supervision in the Netherlands. Second, we turn to the regulation aimed at achieving supervisors' objectives.

Institutional Structure of Supervision

Historically, as in most countries, supervision in the Netherlands has been organized along sectoral lines. Banking supervision resided at the central bank (de Nederlandsche Bank, DNB), the Pensions and Insurance Board (PVK) was responsible for the pension and insurance industry, and the Securities Board (STE) was responsible for the securities firms and the exchanges. As early as 1990, however, supervisors realized that the changing financial landscape necessitated closer cooperation. To this end, the pension and insurance supervisor (the PVK) and the banking supervisor (DNB) signed the so-called protocol. In this document, the supervisors agreed to coordinate the supervision of banks or insurance companies in conglomerates. The protocol contains, inter alia, the requirement for financial conglomerates to report on group solvency, risk concentration, and intragroup transactions.[26]

26. A related issue to those mentioned in the previous footnote is that, in insurance, the supervisor currently focuses on the legal entity, while in banking, the supervisor focuses on the whole group.

Further consolidation of financial firms and increasingly similar product lines made policymakers realize that even further coordination of regulation and supervision was necessary. The sectoral supervisors for banking, insurance, and securities formalized cooperation through the establishment, in 1999, of the Council of Financial Supervisors. In the council, the supervisors coordinate rules and policy not specific to a particular sector. Although the council has been operating satisfactorily, it recently became evident that an even closer coordination is called for. Since September 1, 2002, a new structure of financial supervision has been in place in the Netherlands, no longer primarily organized along sectoral lines, but instead organized around functions. This function-based model closely mirrors developments in some other countries, which are also moving toward a more cross-sectoral supervisory model.

The central tenet in the new Dutch model is the distinction between prudential and market-conduct supervision.[27] Prudential supervision concentrates on the financial soundness of an institution. The aim of market-conduct supervision is to promote an orderly and transparent process in the financial markets and proper relations between market participants, thereby contributing to the protection of consumers. Systemic supervision remains the responsibility of DNB. Under the old model, the nature of the financial institution determined which supervisory authority was responsible, while under the new function-based model, DNB and the PVK both have a responsibility for prudential supervision. Closer cooperation between DNB and the PVK is currently institutionally embedded by cross-representation in their highest executive and supervisory bodies. The member of the executive board of DNB responsible for supervision and the chairman of the board of the PVK each sit on the other institution's board. The same cross-sector appointment applies to the chairmen of the supervisory boards of both institutions. Moreover, closer coordination of auxiliary services and joint research projects have been initiated. A special area of cooperation is the joint supervision of financial conglomerates. Further integration of both organizations is envisaged.

The Securities Board, meanwhile, is evolving from the supervisory authority for securities activities into an integral, cross-sector authority for conduct-of-business supervision, taking on a new name: the Authority for Financial Markets (Au-FM). The Council of Financial Supervisors

27. See Dutch Central Bank (2002) for a more in-depth discussion of the new Dutch institutional setup.

will remain as a consultative platform for common concerns such as issues of integrity (for instance, customer due diligence and anti–money laundering), new developments in supervision, and the evaluation of legislation and agreement on international operations. The new supervisory model does not entail any changes in the existing relations between the supervisory authorities and the minister of finance, nor between Parliament and the minister. The concept of "supervision at a distance" remains as important as ever for the independent and expert exercise of supervision of the financial sector.

Regulatory Policies

Regulation of financial conglomerates is changing as well. In the European community, community law supersedes national law. Once a directive has been passed in the European Parliament, national authorities have to enact these European laws in national legislation. Presently, the European Commission has proposed new regulation for supervision of financial conglomerates, which will supplement regulation covering banking, securities, and insurance.[28]

Instruments that have been defined in the new legislation are group-wide solvency requirements, reporting of large counterparties and intragroup transactions, and, last but not least, standards for internal organization and control. An important function that will be created is that of a coordinator selected from the supervisors involved. Such a coordinator will, for instance, collect and distribute prudential information, assess group-wide information, and coordinate supervisory activity, especially in times of stress. As noted, the proposed definition of a financial conglomerate contains a clause stating that the conglomerate qualifies if the balance sheet of the smaller sector exceeds €6 billion. The current definition used in the Netherlands is wider: any level of cross-sector activity qualifies a conglomerate as a financial conglomerate.

Risk Management in Financial Conglomerates

Next to the reasons for supervisors to be interested in the risk profile of a financial conglomerate, the conglomerate itself might also be inter-

28. European Commission (2001).

ested in its own risk profile. In the literature, a number of reasons have been suggested why this might be the case, as discussed in the next section. Then we discuss the fact that, given that a firm is interested in its risk profile, it faces a formidable task: it has to measure risk adequately across the whole conglomerate.

Why Manage Risk?

In the stylized Modigliani-Miller world of corporate finance textbooks, neither the capital structure nor corporate risk management affects the value of the firm. Investors are able to diversify their invested wealth, and a firm is not rewarded for taking on (or shedding) firm-specific risk. Only the remaining, nondiversifiable, systemic risk carries a return. There is thus no reason for a firm ever to alter its risk profile. If market inefficiencies are introduced, however, risk management and capital structure matter and (may) add value. Five major driving forces can be identified behind firm's risk management: (1) flow of information, (2) taxes, (3) bankruptcy costs, (4) distortions due to contracting problems between firms and investors, and (5) distorted incentives for management due to imperfect contracting between management and shareholders.[29] Let us discuss these driving forces in turn.

An important reason why a firm's management would like to invest in a firm-wide risk management system is the information flow that such a system can achieve.[30] This information enables management to make better-informed decisions regarding where to invest scarce capital in order to maximize profits. It might also make management aware of certain natural hedges.[31] More specifically, it makes it possible to link risk management and capital management, as highlighted by Froot and Stein.[32] In their analysis the desirability of a given investment depends on the extent

29. See Ligterink (2001) or Cummins, Phillips, and Smith (1998) for a further discussion of why firms would engage in risk management. Harris and Raviv (1991) give an excellent overview of the earlier theoretical and empirical work.

30. This seems to be a quite important argument, both for practitioners and regulators; for example, "Supervisors should monitor material risk concentrations on a timely basis, as needed, through regular reporting or by other means to help form a clear understanding of the risk concentrations of the financial conglomerate (Joint Forum 1999), and they should "recognize the interdependent nature of risks" (Lam 1999).

31. See Cumming and Hirtle (2001).

32. Froot and Stein (1998).

to which its nontradable risk is correlated with the nontradable risk of the institution's portfolio.

A second driving force is that if the tax system is progressive, there is an incentive to smooth earnings to minimize taxes.[33] Risk management can reduce volatility of earnings and thus reduce the overall tax burden. If firms are not allowed to carry losses backward or forward for reporting or tax purposes, the ability to smooth is even better appreciated. Reducing volatility is also likely to increase a firm's debt capacity because the likelihood of a costly bankruptcy is reduced. Debt holders thus demand a lower risk premium, increasing the ability to borrow. Since interest payments are deductible, this, in turn, increases the tax shield that holding debt supplies.

Third is the existence of bankruptcy costs: management's expectations incorporate these costs, and this is likely to lead to underinvestment.[34] Risk management reduces the volatility of earnings and hence the probability of default. This, in turn, leads to lower expected bankruptcy costs, and thus investment decisions are closer to optimum.

A fourth driving force is that information asymmetry between contracting firms and financiers can lead to distortions. These contracting problems can occur either before or after contracting. Prior to contracting, a firm generally has private information about its credit quality that the market does not have. Overcoming such informational asymmetry makes external financing expensive so that firms do not undertake all projects with a positive net present value.[35] A similar divide runs between old and new shareholders. Accurate measurement of risk and returns, with accompanying disclosure, can persuade financiers to invest in the firm.

After contracting, there is an incentive for the equity holders to change the risk profile of the firm. From their perspective, each additional "unit of risk" is typically expected to add value because of the equity holders' limited liability. Debt holders, however, are aware of these incentives and thus ask for a risk premium. Compared with optimum, this leads to underinvestment. Adherence to a strict policy to limit risks would reduce this problem (as long as such policies are credible).

33. Smith and Stulz (1985).

34. From management's point of view, bankruptcy poses a major cost, especially if they have invested (human) capital in the firm (Smith and Stulz 1985).

35. Myers and Majluf (1984).

A final reason why the investment decision can be distorted, and thus a firm-wide risk management system is helpful, is because of the so-called principal-agent problem: the informational asymmetry between a firm's management (the agents) and its owners (the principals), the equity holders. It is difficult for the principal to assess the ability (or effort) of management, even ex post. Accurate and transparent risk management make it easier for the equity holders (the principals) to reveal management's role.

A conclusion that can be drawn from the presented literature is that trying to control the volatility of cash flows is worthwhile. Tax considerations, bankruptcy costs, and various forms of asymmetric information can cause hedging behavior to add value for stakeholders. Most of the literature assumes shareholders to be the only stakeholders, but this restriction can generally be eased without loss of generality.

How to Manage Risk

Risk management presupposes adequate risk measurement.[36] Risk measurement, however, still differs across banking and insurance activities within financial conglomerates, reflecting, among other things, differences in the dominant types of risk that have traditionally been faced. Banks used to focus mainly on credit risk, but more recently they have paid some attention to other risks such as market, interest rate, and operational risk. Insurance companies, however, mainly focused on insurance risks, but recently they have paid more attention to risks on their asset side. To construct a common risk language across the whole of a financial conglomerate, differences in the sector-specific frameworks should be identified, and, if possible, agreement should be found consistently covering all relevant risks.

Risk measurement typically starts bottom-up in the different business lines within a financial institution. An example is the value-at-risk (VaR) model for market risk, which is common in banking. VaR was first introduced on trading floors of investment banks but is currently widely used in other areas. A consequence of the bottom-up approach is

36. Risk measurement, risk assessment, and risk management are often used interchangeably. Here risk measurement refers to the quantification of risk. Risk assessment is a broader concept in the sense that it also entails interpreting qualitative pieces of information. Risk management, in turn, encompasses risk assessment as well as risk mitigation.

that each individual type of risk is identified individually, and, consequently, its effect on the financial conglomerate as a whole is modeled separately. Since measurement methods have been designed with such diverse backgrounds, coming to a common measure of risk is quite a challenge. Within the industry, however, there seems to be a convergence toward a notion of "economic capital," which could serve as a common standard of risk. Economic capital can be defined as the amount of capital that a firm itself deems necessary to support the economic risk (that is, the unexpected losses) it originates given some tolerance level for default.

Since currently most enterprise-wide risk management systems are built on modular models, it is important to have a classification that covers all risks. Consecutively, a module for each risk area can be developed.[37] Many such classifications exist, and for the present purposes the exact demarcation between the risks is not relevant as long as all risks in both the banking as well as the insurance sector are encompassed.[38] An important remark in this respect is that the modular nature of measurement makes it difficult to incorporate diversification effects in the risk measurement framework. This effect is especially important for a financial conglomerate.

Depending on the type of risk being measured, managers can use value-at-risk, earnings-at-risk, or stress tests to assess the level of risk. Moreover, correct measurement of firm-wide risk should not only capture risk but also aggregate all relevant risks across an institution. In the aggregation, diversification effects should be taken into account. Due to its complexity, we do not discuss the technical details of adequate measurement in depth. Some remarks about the most important issues in risk measurement for financial conglomerates are, however, in order.

First, to come to a valid comparison of risk, the evaluation period should be comparable across areas of risk. The horizon over which risks are assessed is generally much longer in insurance than in banking. Second, another issue is the accurate measurement of returns, which is essential for risk measurement. Many assets and liabilities do not have an

37. Ideally we would like to identify all risk drivers (for instance, interest rates) and then jointly model the reaction to the volatility in the discerned risk drivers.

38. See Working Group on Economic Capital Models (2003) for a comprehensive typology of applicable risks.

easily observable market price. Fair value accounting might partly solve this problem if a reasonable, approximate price can be determined for nontraded assets and liabilities. Third, what is a reasonable frequency to compute economic capital?[39] Theory tells us that, for each individual investment, a firm should compute all relevant parameters.[40] For all practical purposes, this is not feasible, and many parameters will be determined only periodically. Finally, in many areas of risk, new measurement methods are continually developing. Operational risk, for instance, has seen considerable development. Business risk, however, is generally still a residual category of risk, notionally motivated by intoning the business environment. How do we combine information deriving from systems in different states of maturity?[41]

Once management has an adequate view of the risks present, objectives can be formulated. Risk management objectives can then be achieved in three ways: a firm can (1) modify its mix of activities or processes, (2) adjust its capital structure, or (3) hedge directly (using a financial instrument or insurance contract). These actions are not mutually exclusive; rather they complement one another. Note that the choice of "production methods" could also include accounting choices. Petersen and Thiagarajan present evidence that sometimes firms use accounting choices to reduce the volatility of accounting income.[42] With regard to the capital structure, it is obvious that one way the capital structure can be adjusted is through dividend policy. Another more direct way is through placement or buy-back of either equity or debt.

Risk Management in the Supervisory Review

As is well known, the proposed capital accord for banks (Basel II) comprises three pillars.[43] The first pillar is designed to set minimum solvency requirements, possibly using bank's internal models. In the second

39. An issue here, as noted by Kritzman, Lowry, and Van Royen (2001), is that risk is measured as the uncertainty surrounding returns at the end of a set period. Such a focus on the outcome ignores the effects of interim losses, no matter how severe. It thus assumes that a firm is capable of withstanding any level of interim loss.

40. Froot and Stein (1998).

41. Cumming and Hirtle (2001).

42. Petersen and Thiagarajan (2000).

43. Basel Committee on Banking Supervision (2001)

pillar, the supervisory review, the institution under supervision and the supervisor enter into a dialogue about the required level of economic capital, after jointly setting the desired level of solvency. Through disclosure of relevant information, transparency, an aspect of the third pillar, serves to enable stakeholders to take remedial action.[44] An important practical issue is, of course, the chosen supervisory model, a point we return to at the end of this section.

The second pillar constitutes a codification of the essence of prudential supervision. First, banks themselves are expected to be able to assess the amount of—economic—capital required, apart from any regulatory requirement whatsoever. This is an essential difference compared to the present approach in that the supervisor is no longer responsible for giving detailed prescriptions; rather the institution has its own responsibility. Second, supervisors, too, must be capable of forming an opinion. Such a judgment should not be confined to an evaluation of the process followed by the banks in assessing the economic capital requirement but should extend to the adequacy of the resulting level of economic capital as well.

The general spirit of the supervisory review approach could also be applied to insurance firms and hence to the whole of a financial conglomerate. The Dutch pension and insurance supervisor (PVK) has drawn up general principles that are very much in line with the Basel proposal.[45] Moreover, KPMG, in a study for the European commission, and Oliver, Wyman and Company, in a study for Dutch regulators, echo the same sentiments.[46] The present requirements for an insurer's technical provisions, for instance, can be seen as an analog to the pillar 1 minimum capital requirements. In addition to these minimum requirements, additional capital charges are levied for risks that are not fully captured in actuarial modeling. However, given the ample margin between actual and regulatory capital, it seems that, in the industry's view, not all risks are currently captured in the regulatory assessment of capital. An example of a risk that is not captured (sufficiently) could, for instance, be concentration risk. If it is clear that this risk is present, this should give rise to additional capital charges.

44. This last pillar also increases attention for what may be defined as "rating agencies capital," that is, the amount of capital required to maintain a given rating.

45. PVK (2001, p. 9). These general principles, however, still have to be worked out in detail.

46. KPMG (2002); Oliver, Wyman and Company (2001).

In the Basel II consultative package, the supervisory review is defined as proceeding from four general principles, which can briefly be stated as follows: (1) banks themselves should assess how much capital they require, (2) supervisors must review and evaluate the process involved by the assessments performed as well as the capital adequacy determined by banks, which in practice is likely to imply that (3) the solvency requirement as assessed by the firm is expected to exceed the minimum requirement according to pillar 1, and, finally, (4) supervisors must be able to intervene at an early stage before developments have reached a critical point.

Although all four general principles merit separate attention, we only discuss the general framework with a focus on general principle 2: How would a supervisor assess an institution's risk assessment and capital adequacy policy? General principle 1 has already been worked out to some extent in numerous general guidelines and best-practice papers like, for example, the Federal Reserve guidelines for reviewing methods of assessing economic capital.[47] Although formulating more detailed guidance would definitely be useful, this would go beyond the purpose of the present paper.

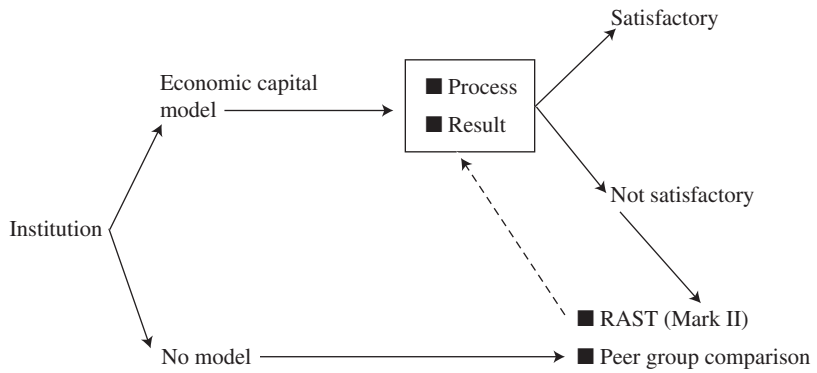
A possible general framework in which to implement a supervisory review might follow the steps shown in figure 1. Financial conglomerates would be expected to employ an internal model to determine economic capital. Supervisors would not require a financial conglomerate to use a separate, obligatory model to determine economic capital, and adequate implementation of general principle 1 thus would suffice.[48] The supervisor's role would be to assess the adequacy of the process though which the institution determines economic capital. This assessment would be comprehensive and would include measurement and capital management policy. In addition to assessing the process, the supervisor also would assess the outcome (that is, the level of economic capital).

It is important also to bear in mind that enterprise-wide risk management is currently the preserve of the more sophisticated (that is, larger) financial conglomerates. The wide definition currently proposed by the European Union Commission implies, however, that most financial con-

47. Board of Governors of the Federal Reserve System (1999).

48. See FSA (2002, p. 33), where output from banks' economic capital models "may be used as a substitute for determining capital in certain aspects."

Figure 1. Implementing a Supervisory Review



glomerates will not have implemented such a system. For institutions not using adequate models ("no model" in figure 2), supervisors shall need to form a judgment. This implies that supervisors must work toward a more comprehensive implementation of general principle 2. To this effect, the Dutch supervisors are still considering whether to extend the present method of risk analysis or to opt for an entirely novel method, possibly involving peer group comparison.

Internationally, supervisors use different methods for assessing an institution's degree of risk. A well-known categorization for bank risks is the one used by three major U.S. regulators: the CAMEL rating.[49] The components are Capital, Asset Quality, Management, Earnings, and Liquidity and are seen to reflect the financial performance, financial condition, operating soundness, and regulatory compliance of the banking institution. In 1996, in order to make the rating system more risk-focused, a sixth component—Sensitivity to market risk—was added to the CAMEL rating, resulting in CAMELS. Each of the component factors is rated on a scale of 1 (best) to 5 (worst), and these components are combined somewhat subjectively into a single rating, on a scale of 1 to 5. Many other systems are using categorizations that are more or less compatible.

The Dutch supervisors have taken a slightly different tack for some

49. The supervisors are the Federal Reserve, Office of the Comptroller of the Currency, and Federal Deposit Insurance Corporation..

time now.[50] DNB has a comprehensive risk analysis methodology in place, supported by a flexible Risk Analysis Software Tool (RAST). The pension and insurance supervisor, PVK, has a methodology (MARS) that is still in the development stage. Presently the Dutch banking supervisor and the pension and insurance supervisor are merging their respective approaches. For the merged approach, the exact delineation of the risk areas differs because, contrary to the American bank-focused CAMELS, insurance risks have to be explicitly accommodated, but this is a relatively innocuous point. More important, a clear conceptual difference is drawn between risks, on the one hand, and mitigating controls, on the other. This practical distinction does not conflict with the theoretical treatment of risks in the literature. Controls can be seen as a way to avoid negative returns and can thus be seen as part of the investment decision that is central in most theoretical papers.

The present risk analysis methodology is well suited to channel supervisory attention to those areas within a financial institution that are either opaque or risky from a supervisory standpoint. To move forward to pillar 2 capital requirements, however, will be quite a challenge.[51] First, the current method of aggregating individual scores to an overall score is designed to highlight extreme valuations, especially bad evaluations. However, if, based on the score from the risk analysis, an (additional) capital requirement will be levied, a suitable aggregation algorithm should be devised. Second, once a supervisor has determined the relative riskiness of an institution, he has to take the next step and move from the risk assessment to the capital requirement. How does one translate an assessment into a capital requirement? Third, once the appropriate level of capital has been determined, the institution has to be informed whether its own assessment of capital is deemed adequate. One option is to withhold comment as long as the institution's capital ratio is above the regulatory minimum. As long as this is the case, discussing capital with the institution is relatively easy for the line supervisor. However, since the assessment is an iterative process, it is conceivable that firms will try to sound out where the regulatory minimum lies. In the end, the institu-

50. Both Dutch approaches are similar in spirit and akin to ARROW, the approach of the English Financial Services Authority. The Norwegian and Swedish supervisors are developing risk analysis systems along very similar lines.

51. See FSA (2002) for thoughts on how the transformation could be achieved.

tion will discover where the minimum lies at the cost of some, possibly costly, uncertainty. Other important questions that remain to be answered are whether a supervisor can use an internal economic capital model without too many modifications and whether a supervisor should be able and willing to adequately replicate an institution's model or whether this is a lost race to begin with. It is clear that many challenges remain.

The described framework will also be evolutionary. If internal developments in the supervised conglomerates warrant this, the supervisor will be able to rely more and more on the internal models of the firms. A key ingredient in this "supervision at a distance" is good corporate governance. Only if the corporate governance structure is judged sound can the results of the internal models be incorporated in the supervisory review. Another development in this area is the convergence in supervisory practices. Since financial conglomerates have numerous supervisors, the supervisory approach, as seen from the perspective of the firm, will become more consistent as supervisory practices converge. Since a clear supervisory treatment is also in the interest of the supervised institution, because it reduces uncertainty, a converged approach can also start on a voluntary basis, as is, for instance, the case for Fortis. Fortis is a party in the memorandum of understanding between the Dutch and Belgian sectoral supervisors involved in this Dutch-Belgian financial conglomerate, and it voluntarily supplies extra information to the supervisors.

Presently, the Dutch supervisors are studying a number of outstanding issues. Following the Oliver, Wyman and Company study, Freshfields, a law firm, was asked to investigate the effectiveness of legal firewalls between the legal entities constituting a financial conglomerate.[52] If such firewalls could protect some parts of the conglomerate from adverse shocks occurring in other parts of the conglomerate, then the threat of contagion could be reduced. Another initiative is the Working Group on Economic Capital. In this group, supervisors and representatives of industry, both banking and insurance, are jointly investigating "best practice" for economic capital models in the Netherlands. The first report, describing how risks are measured in financial conglomerates, has been published recently.[53] Together with future reports, the working group's

52. Oliver, Wyman and Company (2001).
53. Working Group on Economic Capital Models (2003).

work should sketch a comprehensive picture of economic capital models and their uses.

Conclusions

Financial conglomerates have become an important part of the financial landscape in a number of countries. In the United States, the restrictions on cross-sector mergers have been eased only recently. In Europe such restrictions were lifted somewhat earlier and have, in some countries, led to financial conglomerates with significant market shares and of impressive size.

Sheer size alone, however, does not warrant the wide-ranging regulation and supervision that are applied to banking and, to a lesser extent, insurance. We discussed a number of reasons that have been cited in the literature for regulating and supervising financial institutions, summarized in table 1. For banks, the arguments discussed were the possibility of bank runs, systemic crises, and moral hazard due to a lender of last resort as well as concerns about consumer protection. For insurance firms, the main argument is consumer protection. Bringing banking and insurance together in a financial conglomerate yields the risks of supervisory inconsistency and of contagion. An ameliorating factor is that the combination of diversified (that is, less than perfectly correlated) activities will result in a diversification bonus. However, other concerns are related to the size of financial conglomerates. Since many conglomerates are large, the moral hazard of too-big-to-fail attitudes arises, resulting in additional risk.

After discussing the reasons for regulation and supervision, we turned to the institutional setup of supervision in the Netherlands. It is clear that, following the trend in the Dutch banking and insurance markets, the institutional setup had to be adapted accordingly. In a number of steps, the sectoral supervisors have come to a structure based on functional activity. Two bodies are responsible for prudential regulation and supervision: the Dutch Central Bank (DNB) and the Pensions and Insurance Supervisory Authority (PVK), currently linked through executive cross-representation and a memorandum of understanding. The Netherlands Authority for Financial Markets (Au-FM) is responsible for market conduct. Such a structure should result in the efficient regulation and super-

vision of financial conglomerates as well as of firms operating in just a single sector.

Financial firms have their own reasons to care about their risk profile. In the classical world of a Miller and Modigliani textbook, the capital structure of a firm is irrelevant. If investors are interested in less risk, they can reduce risk by diversifying their portfolio. The firm is thus only rewarded for that part of a firm's risks that is not diversifiable (that is, systemic risk). Firms, however, do care about their risk profile because reality deviates from the perfect world assumed by Miller and Modigliani. Information flow, taxes, bankruptcy costs, and imperfect information and incentives all supply motives for managing risk.

Both supervisors and the industry are thus interested in the management of risk. The question is how to converge to a modus operandi that allows for the most efficient way to achieve the stated objectives. The supervisory review, as proposed in the new Basel Accord, suggests a framework that would seem to be fruitful. The central tenet in the supervisory review is that it is the responsibility of the supervised institution itself to have a proper measure of risk and a process for managing this risk. The role of the supervisor is thus no longer one of supplying detailed guidelines but shifts to analyzing the integrity of the risk management process as a whole, including the resulting level of capital. A necessary condition for the incorporation of internal models in the supervisory review is that the corporate governance is adequate. Only then can we rely on "supervision at a distance."

The question of how to judge a firm's economic capital model, however, raises numerous issues that still have to be addressed. Issues are, among others, the accurate measurement of returns, the evaluation period, the frequency of computation, and the different states of maturity of methods across different risk areas. Together with the industry, the Dutch supervisors hope to find solutions to these issues. These solutions will not only be useful to industry but also help the supervisors to improve their assessment of the risk management processes and the resulting capital levels.

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