As noted in Chapter 3, proper governance and control require a firm to identify, measure, manage, and monitor variables that represent uncertainty or risk to the normal functioning of operations. This is especially true in the financial industry, where the essence of the business is to reward an institution for risks it assumes. The effective management of risks is typically accomplished through a framework that lets an institution control the different risks inherent in its line of businesses; this allows potential losses to be managed to firmwide tolerance levels and profits to be maximized.

As we have already indicated, any global financial institution involved in a variety of traditional banking services and products is subject to a broad range of financial risks. To review, these can include credit risk, market risk, liquidity risk, model risk, legal risk, and operational risk. In order for a bank to manage its affairs properly, it must consider all dimensions of risk. Through a governance structure, management and control units can be established to assume responsibility for each element. We know, for instance, that the corporate risk management department might be responsible for overseeing market risk, model risk, liquidity risk, and, through dedicated credit specialists, credit risk; the legal/regulatory department may be responsible for aspects of legal risk (including client suitability); the operations and systems departments might be responsible for operational and settlement risks. Although this type of departmental control framework is by now well established in many financial institutions, it may be less formalized or structured in others (particularly in corporate end users, despite the fact that they often face similar risks). With current industry and regulatory efforts pointed towards stronger governance
and internal controls, however, it is likely that even more institutions will come to feature similar control functions in coming years.

While addressing all aspects of risk is vital to the continuing success of an institution, discussion of each is well beyond the purview of this book. In fact, our sole focus is on the credit risk discipline. Implementation of a credit risk framework, part of a corporate governance process that involves counterparty management and product risk management, allows an institution to evaluate individual counterparties and manage its credit exposure, and potential credit losses, to such counterparties. While a credit officer must be able to accurately assess counterparty risk – which we again define as the risk that a counterparty to a transaction will fail to perform as expected, for reasons of financial deterioration or collapse – and must incorporate specific details on credit quality in the decision-making process and the expected credit loss framework, the purpose of this book is not to review what makes a counterparty a good or bad credit. Instead, we focus our attention on the product risk evaluation segment of the credit framework and, more specifically, of complex derivatives. This part of the process centers on valuing the credit risk an institution assumes when it enters into a derivative transaction with a counterparty. In a worst-case scenario, failure by the counterparty to perform on a contracted obligation will lead to a credit loss in an amount that can be estimated by determining the risk in existence at the time of default (less any special considerations, such as collateral or other forms of risk mitigation we have discussed). The loss estimate is typically determined by examining market risk, for reasons we consider at greater length below. We shall also provide a general commentary on the appropriateness and suitability of derivative transactions for counterparties of varying degrees of creditworthiness.

Since the book is limited to derivative transactions we will not concern ourselves with other forms of product risk that affect credit limits (that is, settlement risk, credit inventory risk, or contingent risk) until Part III, when we introduce a few additional concepts to aid in our consideration of credit portfolio risks. Our focus for now is on market risk, why derivative products carry market risk, and methods of estimating market risk for purposes of credit quantification. In this chapter we begin with a basic definition of market risk and then discuss risk equivalency: the banker’s means of placing market risk-based derivative products on a “loan equivalent” basis. We then discuss the development of risk factors, a key method by which to measure risk equivalency, and conclude by reviewing alternate risk quantification methodologies.

**MARKET RISK**

Market risk can be defined as the risk of loss due to an adverse movement in market prices or rates (note that when we discuss market risk and market