PART ONE

Contract Theory of the Firm
Introduction to the Theory of Accounting and Control

Three ideas are central to understanding accounting and control in organizations. First, all organizations are sets of contracts among individuals or groups of individuals. Second, provision of shared information among the contracting parties helps design and implement these contracts. Finally, control in organizations is a sustainable balance or equilibrium among the interests of its participants. It should be distinguished from control of organizations, which suggests manipulation or exploitation of some participants by others. We start this overview by stating these ideas briefly, leaving most definitions and details for the following chapters. We conclude with a summary of ideas about micro and macro aspects of accounting and control presented in the book.

Organizations as a Set of Contracts

Organizations are many things to many people. Business firms, for example, are employers to those who work for them; customers to the purveyors of goods and services; suppliers to their own customers; benefactors to those who receive their charity; investors to those who save; taxpayers to the government; a threat to the livelihood of their competitors; impersonal bureaucracies to the powerless; and pillars of free enterprise to the believers. Organizations are variously seen as complex networks of human relationships, production functions, hierarchies, even garbage cans. They are praised for being storehouses of culture and civilization, and for being engines of change. They are also pilloried as sources of vulgarity and as roadblocks to progress in society.

We take no issue with these and other ways of looking at organizations. However, for our limited purpose of trying to explain the nature of accounting and control in organizations, we will use an appealing old idea supported by such scholars as Cyert and March, Simon, Barnard, and Rousseau: an organization is simply a
set of contracts among agents. Contracts are mutual understandings, whether formal or informal. Both an apartment lease and a lunch date with a friend are contracts. Agents are either individuals or other organizations. We assume agents to be rational: they do not knowingly choose what they do not like.

**Shared Facts for Conflict Resolution**

Disputes waste resources; provision of shared knowledge helps avert and settle disputes. Unsettled conflicts among agents weaken, or even wreck, the complex fabric of socioeconomic exchanges from which so much of our prosperity is derived. Industrial strikes and lockouts are an example. The practice of carefully collecting and sharing information arises to meet this fundamental demand for a means to preserve our socioeconomic system. Sharing of knowledge and expectations is a large part of acculturation and socialization.

Many conflicts in families, neighborhoods, the workplace, and trade are averted or settled with the help of shared information. The judicial system relies on written documents and the testimony of witnesses—both forms of shared information. However, only a minuscule proportion of all conflicts ever enter the courts of law. Most conflicts are promptly and inexpensively resolved through systematic provision of shared information outside any formal system of conflict resolution.

Defining executable contracts among agents requires common knowledge. Information X is common knowledge between agents A and B if A knows X, and B knows X, and A knows that B knows X, and B knows that A knows X, and A knows that B knows that A knows X, and so on. In the English fable, when the boy shouted that the emperor had no clothes, everybody already knew that the emperor had no clothes; he only made it common knowledge.

When variables that are not common knowledge are used in contracts, contention or deception can arise. Common knowledge is more than the observability of an event by all parties. It also requires that every party be aware of its observability to the others. When everybody knows about the event, but not about others’ knowledge of it, some may be tempted to use such information to their own advantage, and create avoidable conflict. Common knowledge helps reduce such conflict and the concomitant losses.

Accounting and control in organizations produce common knowledge to help define contracts among the agents. However, common knowledge is a theoretical abstraction. Translating it into practice is as difficult as making a mathematical point visible on a chalkboard. No physical representation of a point can be dimension-free, although freedom from dimensions is the essence of the mathematical definition of a point. Yet we can teach geometry, design and build bridges, and gain myriad other advantages that flow from abstractions without insisting that the physical and practical analogs be true to the fundamental concepts in all respects. The concept of common knowledge, likewise, has no exact representation in the practical world.
When deciding what to do, we may face two kinds of uncertainty. We decide under imperfect information if the rules or structure are common knowledge, only we do not know about events and actions of others. Roulette, for example, is a game of imperfect information because the players do not know where the ball will stop on the wheel. They all know the rules of the game, and the chances of various outcomes. Similarly, when we think of accounting as an information system for decision making, we assume that all parties know the rules of the game and accounting only provides information about various events and the actions of others.

If we do not know the rules or structure of the situation, we decide under more difficult circumstances, called incomplete information. In The Wizard of Oz, Dorothy faces a game of incomplete information. She does not know the rules nor the players in the game who keep popping up to surprise her. Accounting, as a system for implementing contracts or as an accountability system, must function effectively in an environment of not only imperfect but also incomplete information. In the less certain and more complex environment of incomplete information, accounting informs not only about events and the actions of others, but also about the structure of the game and the relative positions of players in that game. Some parts of accounting and control (e.g., public disclosure of financial statements) may appear to be redundant until we look at organizations as games of incomplete information.

Control in Organizations as Balance and Equilibrium

Conflict and cooperation coexist in economic exchanges. The desire to pursue what we want promotes contradictory instincts of cooperation and conflict. In an economic exchange, the gain from exchange or the total surplus is the difference between the maximum amount the buyer is willing to pay and the minimum amount the seller is willing to accept. This sum of consumer and producer surpluses is the organizational glue that drives agents toward cooperation, trust, goodwill, and sharing.

The actual transaction price determines the division of the total surplus between the buyer and the seller. This division engenders conflict, competition, and fear, and threatens to pull organizations apart. Control in organizations moderates this centrifugal force by helping mitigate and resolve conflicts. When conflict overpowers cooperation, the organization disintegrates. Pan American Airlines, the greatest airline in the world at one time, folded because the conflict between the employees and the shareholders could not be resolved to the satisfaction of both.

The idea of control in organizations is distinct from control of organizations. The former connotes balance and equilibrium among interests of agents; the latter suggests manipulation, even exploitation, of some agents by others. Control of organizations implies that the organization is an instrument of an agent or a group who uses it to attain its objectives, emphasizing the disparity in the relative bar-
gaining powers of the controlling agent and the others. Under the concept of control in organizations, we look at organizations more symmetrically, from the point of view of various participants. In a modern corporation, even the chief executive officer does not control the rest of the organization because the CEO also is subject to the control system of the firm. We will focus attention on the larger and more general problem of control in organizations.

The accounting antecedents of this book lie in the work of Yuji Ijiri. He looked at accounting as a "system to facilitate smooth functioning of accountability relationships among interested parties," and distinguished this way of looking at accounting from the then-prevalent decision-usefulness approach along three dimensions:

1. significance of the process as well as the output of accounting,
2. the accounting system as an equilibrium outcome of the game among the parties involved and not something chosen arbitrarily by the accountant, and
3. the symmetry of the accountee-accountor (that is, principal-agent) relationship as opposed to the asymmetry inherent in the master-servant metaphor. This last idea echoes Barnard's and Simon's analyses of authority relationships and, historically, Rousseau's analysis of the relationship between the ruler and the ruled. Consent of the ruled is as important as the ability of the ruler in these relationships.

Throughout this book we will assume that individuals choose actions to achieve their goals, within the constraints of their environment, knowledge, and capacity, and that they are rational in the sense that they do not deliberately choose courses of action whose outcomes are undesirable to them. The rationality assumption links people's goals to their actions.

This book is organized in three parts. The contract model of the firm, and functions of accounting and control in implementing the contract set are laid out in the next chapter. The six chapters of Part Two examine the attitudes and the actions of three major classes of agents—investors, managers, and auditors—under the label of microtheory of accounting. Attention is focused on the attitudes and actions of each class of agents, while the attitudes and actions of the remaining agents are assumed to remain fixed. In Part Three, under the label of macrotheory, we look at the problems of social choice, role of government, interaction between law and accounting, institutional structure of accounting, and problems of control in public goods-producing organizations. The remainder of this introductory chapter summarizes the main ideas of the book.

**Microtheory of Accounting and Control**

Organizations consist of individuals, each obligated to contribute resources and entitled to receive compensation in exchange. Individuals' pursuit of self-interest
can induce conflict as well as cooperation. Accounting and control systems are designed to ensure that the centrifugal forces of conflict do not overcome the cooperative instinct. This is accomplished through five functions in implementing and enforcing the organization's contract set: (1) measuring everybody's contributions; (2) measuring and disbursing entitlements to each participant; (3) reporting to the participants about the extent of contract fulfillment; (4) distributing information to potential participants to maintain liquidity of the various factor markets from which the organization draws its resources; and (5) distributing certain information as common knowledge to help reduce the cost of negotiating contracts. Chapter 2 looks at how various forms and aspects of accounting can be understood in terms of these five functions.

Contracts that define the rights and obligations of each individual in an organization vary, depending on the nature of the resources each party has to offer and is willing to accept in exchange. As mentioned earlier, rational agents participate in an organization only as long as they receive, or expect to receive, greater compensation from the organization than they can get elsewhere in exchange for the resources they have to offer. Some resource flows can be measured more easily or more precisely than others (e.g., cash versus managerial effort). Contractual links of the agent to the firm, and the accounting and control mechanisms to carry out the contracts, are chosen to fit one another. That is why the contractual forms of shareholders, managers, factory workers, sales people, and customers take such diverse forms. Their participation in the accounting and control of the organization also varies accordingly.

Managers and Income

Managers are the most important group of agents whose interests and behavior are key to understanding the structure of an organization and its accounting and control. Their contribution to the firm is difficult to measure. Control systems are designed so organizations can operate efficiently without directly measuring managers' input. In order to induce managers to deliver on their obligations, their compensation, promotion, and retention are linked to those output data that are observable as well as informative about their contribution. Accounting and control systems are designed to produce these data.

Top managers and their subordinates directly negotiate the latter's contracts. Unlike public financial reports, design and enforcement of managerial contracts is not governed by across-firm standards. Top managers' performance, however, is monitored by investors and auditors who deal simultaneously with many firms. Since financial reports of business firms are also used for evaluating the top managers and investments, such reports are partially standardized.

Managers tend to pick accounting methods that suit their own interests. Managerial contracts are designed to withstand such self-serving behavior. Many puzzles about accounting choices (e.g., LIFO, leases, troubled loans, and research and development costs) can be understood within this context.
Income, often considered the singlemost important number in financial reports, serves several functions. It is a measure of the resource entitlement of the shareholders, and is a basis for rewarding managers whose input cannot be measured directly. Most important, income is the residual left after the cost of all production factors except equity is subtracted from revenue. This residual nature of net income renders it a valuable signal about the continued viability of the firm. When income becomes negative for reasons that are not thought to be temporary, all participants in the organization are put on notice that their existing contract set must be modified or dissolved in the not-too-distant future. The use of income figures in managerial compensation and in stock valuation also motivates managers to expend resources to opportunistically “manage” income to their own advantage.

Shareholders, Stock Markets, and Auditors

Shareholders constitute the second important group of contracting agents. Their contract has four major characteristics:

1. shareholders as a class are precommitted to the firm in the sense that they put their money down long before they can expect to receive any returns;
2. their resource entitlement is a residual (i.e., whatever is left after entitlements of all other agents have been set aside);
3. their contractual rights are transferable, and the market for shares of larger firms are often quite liquid; and
4. the shareholders as a class have the right to choose managers and auditors and to dissolve the organization.

The protection afforded to the shareholders through items (3) and (4) compensates them for the risks imposed by items (1) and (2).

Managers control the information generated in the firm and are tempted to disseminate it selectively. Shareholders need information to protect their interests against managerial incompetence or malfeasance. To limit selective screening of information, publicly held firms engage the services of independent auditors and require disclosure of verified information. Managers present their reports to auditors and give them access to the corporate records so the reports can be verified independently. The auditors provide verified reports to the investors and other participants in the firm so they can make their own decisions about continuing participation in the firm.

The audit fee is the price shareholders pay to reduce the chance of being misled by erroneous reports from managers, and to buy insurance against auditors’ negligence or complicity with the managers. Without verification, managers would have an incentive to try to conceal unsatisfactory performance and to exaggerate good performance. Auditors receive fees for their professional services and for the risk of attesting to reports produced by managers.
Managers' role in the process is more complex. The audit fees reduce the net income of the firm available for the shareholders, as well as the financial remuneration of the managers. Enhanced credibility of managers' reports in the eyes of investors compensates the managers for this loss.

All agents—shareholders, managers, and auditors—seek accounting systems that will make them better off. They resist adverse changes and adjust their behavior to fare the best when changes do occur. This adjustment to others' behavior is a poorly understood, complex, dynamic process that continues until the system reaches equilibrium and no agent can increase his or her welfare by changing his or her behavior. Accounting theory is the study of this decision and adjustment process and the nature and conditions of accounting equilibrium.

**Macrotheory of Accounting and Control**

Conventions of accounting are distinguishable from its economic features. Conventions are those features that derive economic value entirely from coordination among agents. None of their value arises from the specific choice of the convention per se. For example, it is valuable to use the convention that debits be placed on the left and credits on the right. If the placement of debits and credits were reversed, the convention would be just as useful. All other features of accounting (such as entity, valuation, double entry, and accrual) have direct economic consequences and should not be called conventions. Some other basic features (such as uniformity and comparability) have doubtful theoretical support in contract theory. They are often used as rhetorical devices in accounting debates.

**Social Choice Criteria, Mechanisms, and Standardization**

Standardization of certain aspects of accounting captures gains from social coordination. But it is hard enough to tell what is good for an individual, let alone what is good for society as a whole. Consequences of decisions are often uncertain and spread over time. To arrive at a standard, somebody must collect data about individual preferences and then combine these data to find out what is best for society. Both steps are difficult. Even if the physical collection of data is cheap, getting people to reveal their private tastes and information is not easy. And if we know what each individual wants, it is not clear what is best for society as a whole, unless everybody prefers the same option. A variety of social decision mechanisms (e.g., markets, elections, courts, and bureaucracies) have evolved to handle, but not necessarily solve, this problem. Selection of accounting standards uses all these mechanisms in various stages.

There are two ways of thinking about rules and standards: constraints or reward/punishment functions. If we think of them as constraints, rules tell us what we can and can-not do. If we think of them as reward/punishment functions, rules simply attach a reward or punishment to whatever choices we make without pro-
hibiting anything. The former implies an unrealistic assumption that rules can be enforced perfectly; the latter interpretation is consistent with the economic perspective.

There are several levels of accounting standards, and a variety of motivations lie behind standardization. The mechanisms chosen for setting standards, the types of standards chosen, and the magnitude of sanctions used to enforce them all have significant effects on the contractual systems firms choose, on the structure of the auditing profession, and on accounting education.

**Government and Public-Good Organizations**

Government plays three important accounting roles. First, government is a contracting agent in ordinary firms, sometimes as a customer or vendor, and almost always as a tax collector. Since the government must simultaneously deal with millions of taxpayers, the economics of tax collection dictates relatively objective, nonjudgmental methods of accounting for the determination of tax liability of individual taxpayers. The bilateral monopoly between the federal government as a customer and defense contractors as vendors of weapon systems generates custom-designed accounting systems for enforcing defense procurement contracts.

Second, the government acts as a super-firm in setting the laws, rules, and regulations in certain areas of accounting. This effort produces template contracts that can form the starting point of negotiations among the agents participating in an organization. These templates save negotiating effort, search costs, and time, just as preprinted lease forms do for tenant and landlord. The template contracts are fleshed out in negotiations among the participating agents. The imposition of mandatory audit requirements on publicly held firms and the laws governing the training and licensing of auditors are examples of such template contracts.

Finally, government itself is an organization. It, too, is a set of contracts among a large number of agents. These contracts also need to be implemented and enforced efficiently. Accounting and control systems of government and many not-for-profit organizations differ significantly from those of business organizations. These differences can be understood in terms of the economic characteristics of the output of various organizations. Customers of private goods must be enticed to buy them in arm’s length transactions. These customers impose a market discipline on the managers. This discipline is weak in natural monopolies and absent in public-good-producing organizations. Additional constraints on managerial behavior and lower levels of discretionary freedom granted to such managers is an attempt to provide an equilibrium system of controls for them. The differences in the accounting and control systems, and indeed, in their organizational structure, can be understood in terms of the economic characteristics of the output of natural monopolies and government and not-for-profit organizations.
Summary

A theory of accounting must cover all important aspects of accounting activity in an integrated framework. The contract model of organization provides such a simple but comprehensive framework. The thumbnail sketch of contract theory of accounting and control given in this chapter is fleshed out in the remainder of this book.

Notes


5J. J. Rousseau, op. cit.