Management for Professionals

Wing Sun Li

Strategic Management Accounting

A Practical Guidebook with Case Studies

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Acknowledgments

As a professional practitioner for more than 25 years and then an academic faculty until now, I am fortunate to accumulate substantial practical experiences and academic knowledge in the management accounting profession. I hoped to write a book about strategic management accounting. The book would conclude what I learned from academic research and my previous employments as management consultant and senior management in a few international firms. I wrote a few chapters and held back for a couple of years. Two years ago, I met William Achauer of Springer. Publishing in an Asian academic conference, who encouraged and helped me sign up a writing contract with Springer, that I had no excuse to delay further and the book was finally completed in one and a half year.

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About the Author

Dr. Wing Sun Li is a teaching faculty at the Hong Kong Baptist University in PRC. He had been practising in diverse industries including ICT, foods, and management consulting professions. He left his vice president position in a global telecom company and began his teaching career.

Dr. Li holds a doctoral degree in management and a CPA (Hong Kong). He had served many professional bodies including a past chairman in North Asia Regional Board of CIMA (UK). Dr. Li has publications in local journals and international journals.

Introduction

1

Abstracts

This chapter provides a brief background of strategic management accounting (SMA), its definitions, and boundary of focuses. It outlines how the book is organized and the focus areas of discussion in each chapter. This introduction chapter enables readers to have a preview of the subject matters and throws some ideas of how the SMA knowledge in the book can assist in the practical work.

Keywords

Strategic management accounting • SMA • Management accounting • Strategic cost management • Strategic value • Managing customers • Managing competitors • Managing corporate value

1.1 Introduction

Strategic management accounting (SMA) is always an appealing topic for management accountants. From the context of meaning, SMA is dealing with strategy and management accounting. Management accounting (factory accounting) in the 1960s was confined to job costing, cost computation, cost evaluation, standard cost variance analysis, and inventory control. The scope of work was gradually extended to management control and decision making areas in 1970s, such as design and implementation of management control system, financial information for decision making, transfer price analysis, responsibility accounting, and other product and segment profitability analysis. A more profound change of management accounting role began at early 1980s where large firms became even larger in scale and operations. The trend of deregulation and the concept of globalization have lured large national firms to go international. Meanwhile, the age of computing crept in silently to revolutionize the entire business worlds. More new inventions replaced traditional products. Product life cycle was shorter than the past, and customers became

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less loyal but more elusive. Technological advancement produced destructive impact to the operations of established firms and traditional industries. Traditional norm of business operations could no longer survive in face of these challenges. The whole world was ready for change.

Incidental to this phenomenal context, management accountant's role was gradually reshaped to meet new business orders in the organization. New management accounting concepts and techniques were introduced or became more matured in the 1980s and 1990s, for example, value chain analysis, economic value analysis, target costing, value reengineering, activity-based costing, benchmarking, total quality control analysis, competitor analysis, customer analysis, attribute costing, life-cycle costing, strategic positioning analysis, and balanced scorecard, just to mention a few. These new concepts and techniques equipped management accountants with new knowledge to understand new processes and new tools to deal with new business requirements. The "business mindset" training of management accountants made them more performable in sophisticated work environments. Furthermore, the expertise of accountants in collecting, analyzing, collating, concluding, and monitoring information provided them opportunities to deal with more information not only internally but also externally, as well as more nonfinancial information in their daily work. Management accountants have taken more important roles in organizations. Management accountants were also involved in strategic management issues in which SMA was fit for this mission. In fact, the new roles also increase demands in professional requirements of management accountants.

In sum, management accountants were transformed from a factory cost accountant to management accountants to look after business operations by late 1960s and then have taken more new roles in 1980s and 1990s in the wake of new business order. Management accountants' role in an organization was changed from internal focused to dual focuses, both internally and externally. Management accountants' mindset was changed from operations focused to strategic focused as well. New roles increase demand for SMA knowledge. This makes strategic management accounting an appeal topic to all management accountants.

1.2 Boundaries of SMA

There are many definitions of SMA. I opine that the most apprehensible conceptual ideas came from Roslender and Hart, which is "SMA is about making management accounting more strategic (p.272)."[1] The definitional concept has two implications. First, SMA is confined within the management accounting framework – the design of management control system or provision of management information to management for decision making and planning. Second, the orientation of the information extends to strategic decision, planning, and control. This strategic perspective expands a broader scope of view for management accountants to think, judge, and decide not from the operational view, but also from a higher level of strategic view.

[1] In Roslender and Hart (2003), p. 272.

The design of system and performance measures are no longer restricted to an efficiency perspective (cost saving), but expand to the effective perspective (does the strategy fit for the business). This also ties management accounting to a long-term view of shareholders' value (value concept) instead of short-term profitability (cost concept). This conceptual idea provides a general framework of boundary for SMA.

In the refined boundaries, SMA can be further broken down into four focus areas, which are (a) competitors focus, (b) strategic cost management focus, (c) marketing focus, and (d) strategic value focus. The following highlights the characteristics of each focus area.

1.2.1 Competitors Focus

There is an influential article written by Simmonds[2] in 1981 which drew great attention to leading scholars[3] in contributing papers to promote and investigate the use of strategic management accounting. His view was also shared by Johnson and Kaplan in their articles[4] which concerned the importance of a firm's own direct costs below its rivals. Competitor analysis approach emphasizes the comparisons of the firm with its rivals. Information is collected to facilitate investigation in competitors' accounts, cost structure, price, market share, sale volume, and relative competitive position. Information can be sourced from public domain, such as financial reports, business press, market database, or from informal channels such as suppliers, sale team, or even market intelligence agency. In fact, information can be both financial and nonfinancial oriented. The part of competitor analysis in this book was originated from Simmonds' concepts and ideas about competitor information.

1.2.2 Strategic Cost Management (SCM)

SCM was particularly advocated from the US scholars (e.g., Shank, Govindarajan) who looked at strategic management accounting from the strategic cost perspective – the use of management cost accounting in making strategic decisions. SCM sees the cost structure of a firm as the result of its strategic choice from the specific strategic positioning the firm was anchored, and where the firm has the competitive advantages. Management information should be designed and used to facilitate these strategic purposes. Three central themes were recommended by Shank and Govindarajan. First, SCM should assist strategic positioning analysis – the best strategic choice in the market position based on both market and internal conditions. Second, value chain analysis is employed to find out from vertical industry value chains (from suppliers to ultimate end users) the best combination of linkages which would deliver optimal benefits to the firm from its competitive advantage in the

[2] Simmonds K. (1982), CIMA publication.

[3] Including John Shank, Bromwich who contributed many influential research papers in SMA.

[4] Johnson and Kaplan (1991).

market. Alternatively, a firm may investigate from the horizontal value chain analysis within its boundary to distinguish value-added processes from non-value-added processes and determine which value-added processes should be strengthened and which processes should be removed. The cost driver analysis refers to examination of structural drivers (e.g., organization, technology, scope) and execution drivers (e.g., people, skills set) to find out how these factors create competitive strength to an organization.

In fact, SCM emphasizes that a firm's design and use of information hinge on its choice of generic strategy. Firms in cost leadership strategy would put more weight on cost control, standard cost assessment, and tight budgetary control, whereas firms in product differentiation strategy would regard external marketing cost analysis as utmost importance.

1.2.3 Marketing Focus

Marketing focus approach emphasizes "the marriage of accounting and marketing." The leaders of this marketing focus approach include Gupta, Roslender, and Bromwich[5] who stress the infusion of knowledge of these two disciplines to promote SMA. Given the umbrella of marketing approach, the focus on the concept of marketing is different from these scholars. Gupta focuses more on customer as assets which link customers to generate corporate value. Bromwich promotes the importance of product attribute and encourages to identify links of product attributes to cost and benefits for monitoring purposes. Roslender and Hart suggest a close collaboration and cooperation of the marketing and accounting team to pursue conceptualization of marketing controllership. As brand management is seen by the public to be more critical for the success of a business, they further propose to set up accounting for brand management and emphasize that the close cooperation between accounting and sale team is indispensable for this new discipline.

1.2.4 Strategic Value Focus

Strategic value focus approach underscores the importance of long-term value of a firm which comes from a careful charting of the business objectives and implementation of strategies to meet optimal shareholders' value. Economic value analysis (EVA) and value-based management (VBM) are the representatives of this discipline in which Stewart's[6] advocates on strategic value were acclaimed from academic, professional, and business supporters. Stewart's VBM framework has been one of the popular monitoring models in business sectors in the 1990s, comparable

[5] Published papers promoting marketing focus include, for example, Gupta's and Lehman 2003; Roslender and Hart 2004; Bromwich 1990

[6] Stern Steward as a chief contributor to this management tool. Please also read O'Hanlon and Peasnell, 1998.

in terms of popularity to Norton and Kaplan's balanced scorecard – also the tool for corporate planning and performance evaluation.

VBM framework emphasizes the creation of corporate value from business objectives through identification, measurement, management of business value drivers, monitoring strategies and action plans, and linking strategic performance evaluation system to incentive and reward system of the firm. VBM is an organization-based strategic management vehicle which makes management accountants (or business controllers) in an absolute advantageous position to navigate the corporate change. Nevertheless, it also asks management accountants to possess the required calibers and confidence in managing change.

1.3 Objectives of This Book

Though it is rare in an organization to set up a specific accounting unit to deal with SMA exclusively, the work exists and permeates particularly in large organizations which are confronted with high business uncertainty and intimidating competitive environments. These works may be done by management accountants, business controllers, business analysts, project managers, product controllers, market analysts, strategic planners, even management consultant, etc. SMA work remains active in organizations. The concepts, skills, and techniques of SMA are still required by management accountants or the professional in the similar capacity. In fact, no matter it is from CMA in the USA or CIMA in the UK, SMA is one of the mandatory topics in these professional examinations. SMA is a required knowledge for any professional positions pertaining to strategy and management accounting disciplines. SMA knowledge has provided learners with an intrinsic value to strengthen business insights and an instrumental value to increase personal capabilities for career growth. Notwithstanding the above, there is few in book stores which provide a comprehensive and practical guide book in SMA, without ignoring the important key theoretical underpinning. Quite often, these SMA books are full of difficult academic theories without drilling into practical skills. This is the purpose of writing this book – to strike a balance in both ends. I set specific objectives for the book as follows:

(a) Provide a comprehensive writing on each major topic with examples if possible.
(b) Provide theoretical background on each topic but avoid going into unnecessary details.
(c) Provide cases with solutions to encourage readers to learn from cases.
(d) Explore new management tools from different academic disciples (e.g., economics, management theories) which could be of practical use in work.
(e) The book could be readable by readers even without accounting background (I try my best efforts).

1.4 Organization of the Book

Four parts has been organized in this book. A brief note on the content of the chapters in each part is highlighted for reference.

1.4.1 Part I: Fundamental Concepts (Cost and Value)

This part provides an introduction on some general concepts on cost and value, especially those concepts relevant to strategic management accounting.

It has two chapters. Chapter 2 introduces a general approach in cost analysis, i.e., functional, behavioral, and strategic cost approach. It outlines with examples the employment of behavioral approach as a traditional cost analysis to management decision. It also summarizes a new approach of strategic cost management and highlights major differences between traditional behavioral approach and strategic cost approach. In addition, it also introduces activity base costing and how this concept is used in an organizational context.

Chapter 3 focuses on value concept. In particular, value chain analysis in terms of Michael Porter's horizontal value chain analysis and Shank and Govindarajan's vertical value chain analysis is discussed. The latter value chain analysis approach increases a firm's competitive advantages through exploiting the advantages of backward and forward integrations. Examples are given to illuminate how these value analysis exercises are performed. Furthermore, a brief note on net present value concept is introduced to help readers understand how discounting cash flow analysis is performed, which will be used in subsequent chapters.

1.4.2 Part II: Managing Customers

This part attempts to explore two main themes in managing customers: who are the firm's ideal customers and how can the firm create value from these customers. Chapter 4 discusses about cost to serve (CTS) and customer selection and why firms failed to manage CTS. A system of classification of customers is proposed in this chapter. Customers are divided into four customer clusters: value champion, value defenders, value exploiters, and value savers. Customer performance management grid is employed to sickle those non-performed customers. Chapter 5 discusses customer profit and customer value. It distinguishes customer profit from customer value and proposes various key measures of these two dimensions. It also discusses advantages and disadvantages in the application. In addition, the chapter will also explore in a greater detail about the concept of customer lifetime value (CLV), especially a short-cut method of modified CLV model introduced by Gupta and Lehmann. This modified method is particularly useful for telecom operators or e-business firms in valuing subscribers.

1.4.3 Part III: Managing Competitors

This part analyzes competitors from three main themes: (1) how to anticipate competitor's market behaviors from the dyadic strength, (2) how to solicit and analyze competitor information by reconstructing competitor's predictive model, and (3) how to anticipate particularly competitor's pricing strategies based on game theory. Therefore, it contains three chapters. Chapter 6 discusses about competitor analysis. It discusses how competitors are classified and the implications of competitor identification. It then discusses about competitors' market behaviors in response to possible threats. Professor M.J. Chen's famous awareness-motivation-capability analytical framework was borrowed to perform competitors' behavioral analysis. In fact, the model was adopted from strategic management discipline, and the conceptual dimensions in respect of market commonality and resource significance indexes can be converted into matrix for action reference. Chapter 7 is a continuation of the previous chapter but emphasizes on reconstruction of competitor's accounting model. The first part of this chapter develops a framework to depict accounting for competitive positions. This analytical framework is tested using four global telecom equipment providers' annual financial data (i.e., Ericsson, Nokia, Alcatel, Huawei). Simmond's recommended relative strength indicators were employed to perform benchmark analysis on their competitive positions. The second part of this chapter goes into detail how to reconstruct competitor's accounting information based on the competitor intelligence database. The implications of the competitor accounting model are discussed. Chapter 8 is to explore how to use game theory to estimate competitor's interactive responses. Different scenarios about competitors' assumptions, constraints, and possible payoffs are explored.

1.4.4 Part IV: Managing Corporate Value

The part embodies three chapters with the main themes to emphasize: (1) how strategies create value, (2) how to value businesses, and (3) how to create corporate value through strategic alliances. In each particular topic, Chap. 9 discusses about strategic value analysis. It elaborates how a firm searches value starting from its value proposition and key strategies. This chapter takes reference of both VBM and SCM frameworks to guide analysis of businesses and development of key strategies. The chapter uses an ABC Coffee chain to showcase how key strategies were set based on the selected strategic positioning. Chapter 10 continues with the prior chapter but focuses how firms value business. Two important processes emerge. The first process relates how key strategies can be converted into a corporate blue print (financial forecast) for future direction. The second process pertains how financial forecast can be converted into free cash flows to facilitate business valuation using discounting cash flow technique. Chapter 11 (the final chapter) is about value creation through strategic alliance. This chapter explores the determinants of synergy value through strategic alliance, discusses the incentives of partnership in terms of expected payoff structure (private vs common benefits), and evaluates partnership

symmetry in terms of strategic, organizational, and operational fit. Finally, it discusses how relational risk and performance risk interrupt the stability of partners' behaviors. Risk mitigation measures are also explored.

Many mini cases, examples, and illustrations were taken from the telecom industry and e-commerce businesses. On one hand, it is due to my long working experiences in the telecom industry in which my accumulated knowledge about the industry may add value to these cases. On the other hand, a strong impact of technological influence on these two industries makes the market landscape very different from other industries. It would be meaningful to shed light on these digital industries, especially the emerging online businesses. Therefore, managing corporate value for these firms is also different. These examples hopefully provoke readers to think more from SMA perspective.

1.5 Appreciation for Great Ideas

I am indebted to the distinguished scholars whom I was inspired by their outstanding ideas, great thoughts, methodology, and theories which enrich the contents, knowledge, and quality of the work in this book. Most of the valuable concepts were originated from these scholars. I serve the role of proliferating and disseminating the knowledge and ideas to practitioners who may find the knowledge useful in their work. I like to convey our humble thanks and utmost respects to the following professors. They are Shank and Govindarajan's SCM concepts in Chaps. 2 and 3; Kaplan's cost to serve concept helps me develop customer performance management grip in Chap. 4; Gupta and Lehmann's modified customer lifetime value model in Chap. 5 simplifies parameters in CLV model especially for new business models. M. J. Chen's awareness-motivation-capability framework, as well as market commonality and resource significance formulae in Chap. 6, enlightened me to identify proxy measures for competitor analysis. Simmonds' advocates of competitor's accounting model in Chap. 7 provided me direction to make a trial from this approach. Dyer and Singh's relational competitive advantage approach opens a new perspective for analyzing strategic alliance formation which is the main theme of discussion in Chap. 11. Khanna, Gulati, and Nohria's private to common benefits analysis in the subsequent section inspired the development of private to common benefits ratio (PCB ratio), a new concept in understanding partnership stability. Many of the above scholars are not from the accounting disciplines. However, their inspiring concepts and ideas have created new windows for SMA development.

1.6 Concluding Remarks

This is a practical guide book for professionals, practitioners, and also graduate students who want to learn strategic management accounting from a practical approach with some background about its theoretical arguments. The scope of SMA topics has been carefully selected to reflect the most valuable conceptual ideas of

the time. Of course, these great ideas were initiated from distinguished scholars who are pioneers and experts in the areas. My contribution of the writing is from selection of great ideas in SMA, creation of management tools for practical application, and development of cases based on my long working experiences in the accounting and consulting professions. My further contribution would be the readers' increasing interests in the subject and continuous enthusiasms to explore new knowledge about SMA.

References

Bromwich, M. (1990). The case for strategic management accounting: The role of accounting information for strategy in competitive markets. *Accounting, Organizations and Society, 15*(1–2), 27–46.

Gupta, S., & Lehmann, D. R. (2003). Customers as assets. *Journal of Interactive Marketing, 17*(1), 9–24.

Gupta, S., Lehmann, D. R., & Stuart, J. A. (2004). Valuing customers. *Journal of Marketing Research, 41*(1), 7–18.

Ittner, C. D., & Larcker, D. F. (2001). Assessing empirical research in managerial accounting: A value-based management perspective. *Journal of Accounting and Economics, 32*(1), 349–410.

Johnson, H. T., & Kaplan, R. S. (1991). *Relevance lost: The rise and fall of management accounting*. Boston: Harvard Business Press.

Langfield-Smith, K. (2008). Strategic management accounting: How far have we come in 25 years? *Accounting, Auditing & Accountability Journal, 21*(2), 204–228.

Lord, B. R. (1996). Strategic management accounting: The emperor's new clothes? *Management Accounting Research, 7*(3), 347–366.

O'Hanlon, J., & Peasnell, K. (1998). Wall Street's contribution to management accounting: The stern Stewart EVA® financial management system. *Management Accounting Research, 9*(4), 421–444.

Roslender, R., & Hart, S. J. (2003). In search of strategic management accounting: Theoretical and field study perspectives. *Management Accounting Research, 14*(3), 255–279.

Shank, J. K. (1989). Strategic cost management: New wine, or just new bottles. *Journal of Management Accounting Research, 1*(1), 47–65.

Simmonds, K. (1982). Strategic management accounting for pricing: A case example. *Accounting and Business Research, 12*(47), 206–214.

Part I

Fundamental Concepts: Cost and Value

Cost Analysis

2

Abstracts

This chapter discusses two fundamental concepts of cost analysis approaches – traditional cost analysis and strategic cost analysis. Cost behavior approach addresses cost structure with respect to output level. It is particularly instrumental in contribution margin analysis. However, it is deficient to deal with complicated competitive market with strategic focus. Strategic cost analysis bridges the gap and sees cost analysis from the competitive advantage of a firm. Cost structure is not an intended choice but a manifestation of strategic choice of cost drivers in gaining competitive advantages in the market position. The chapter ends with an illustration on how to use activity-based costing (ABC) concept to evaluate strategic performance for organizational activity centers.

Keywords

Cost structure • Cost behavior • Strategic cost analysis • Strategic positioning analysis • Activity-based costing to strategic performance analysis

2.1 Introduction

Before going through the main topics of this book, I would like to give a brief note to readers some basic concepts and application techniques about management accounting. This chapter will discuss a few capstones of cost analysis concepts, and the next chapter will explore major concepts and techniques on value analysis. Two approaches are commonly applied in strategic review and cost management analysis. These two chapters provide a fundamental knowledge of strategic management accounting discipline and essential techniques for readers in understanding and applying strategic management accounting in studies and in practical works.

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Traditional cost analysis begins from cost classification. Two major approaches emerge pertaining to functional usage and cost behavior. Functional approach divides cost and expenses according to its specific functional uses. For example, materials, labor force, and equipment for production are regarded as material costs, labor costs, and factory overheads (i.e., depreciation charges for the equipment) which are allocated to product units. Personnel costs, administration costs, sales and advertising costs, or R&D expenses are classified as expenses to their respective functional usages. Functional approach emphasizes where those costs/expenses are spent, not how these costs/expenses are related to activity. Functional approach is strong in clarifying resource allocation, particularly how these resources are spent on the operation model of a firm. This is more relevant to assist in value chain analysis because costs are traced by their specific activity drivers. However, functional approach is deficient in its purpose to relate costs/expenses to output levels (will be discussed in Chap. 3).

Cost behavior approach reflects how costs react to output activity level (production level or sale level) with respect to the variability of the cost, i.e., variable and fixed costs. According to the cost behavior approach, variable costs are costs that can be traceable and identifiable to activity (i.e., output). Costs will be incurred when activity arises but will disappear when there is no activity. On the other hand, fixed costs are the paid expenses irrespective if activities are involved or not. These are the sunk costs having been paid or are committed to be spent but have no relevance to output activity within the range of operation. Cost behavior approach addresses the variability of cost to sale or production activity. Cost behavior of a firm determines the scale of operations and the ability of a firm to control cost, set price, contribute profits, and thereby capture market share. Cost structure (i.e., variable vs fixed costs) of a firm plays a significant role in the above business decisions and financial performance. However, cost behavior approach overemphasizes volume dimension (sale or production) of the firm but fails to link cost from strategic perspective.

More recently, some ideas emerge from strategic perspectives which improve the width and depth of cost analysis. Strategic cost analysis sees cost analysis from the competitive advantage position of a firm and emphasizes the importance of using cost information in strategic positioning analysis. Cost structure is a manifestation of strategic choice of cost drivers (will discuss shortly). It is selected because of its comparative advantages in the market position. This is not the choice of specific cost structure per se. The choice of cost structure entails a profound implication to the competitiveness of a firm, which includes both internal and external considerations. Activity-based costing (ABC) is another inspiring idea. It is a cost allocation method which uses multiple allocation keys to allocate indirect and common costs of a firm from activity drivers – the activities that attribute to occurrence of costs/expenses. ABC method improves the accuracy in cost allocation to products. In addition, ABC has led to a development of activity-based management (ABM) which applies the activity driver concept to a wider area including organization units. This ABM approach opens a new technique in conducting strategic performance evaluation.

This chapter is aimed to provide a general understanding of cost analysis as an introduction part of this book. Therefore, it will revisit some basic cost concepts and new application techniques. This chapter will also articulate the employment of cost analysis based on both conventional and more strategic perspectives. To ease for clarity, deliberations of each discussion topic will accompany examples as appropriate. Major topics to be discussed in this chapter include:

(a) Cost structure
(b) Revisit contribution margin analysis
(c) Strategic cost analysis
(d) Activity-based cost

2.2 Cost Structure

Why is cost structure important? It is important because it determines how flexible a firm can be in strategizing its corporate policies within a short to intermediate period. A firm with a high fixed cost structure means that the firm is less flexible in reducing cost when sales drop (i.e., overcapacity), thereby exposing to a high operating risk and increasing loss potential. In contrast, a low fixed cost structure firm can be agile to cost adjustment (may lower the cost easily). However, its trade-off is a lack of economy of scale and slow response to the booming market due to capacity shortage. It may be a loss of market opportunity. Low fixed cost structure also limits the ability to adjust price level, a powerful key sale driver for market expansion. Low fixed cost firms are bound to be in a small niche market (or focus market), which sets a constraint to the strategic choice.

A firm with a high fixed cost structure implies that it has a higher operating capacity in face of market expansion. It builds capacity for future expansion and prepares itself to compete in the fierce market conditions. It creates operating buffers and allows price to fall to boost expansion. The firm has equipment to make production and more sale outlets and large advertising budgets to sell its own goods. With a large sale output, the firm can lower its fixed cost per unit. Table 2.1 illustrates how cost structure of firms influences their competitive position.

In Table 2.1, both the high fixed cost and low fixed cost firms have the same total cost (TC) of $500,000 at sale quantity of 1000 units. The difference is that one firm has a high up-front fixed cost (FC) of $400,000, while the other firm has a low fixed cost of $300,000. It means that the high fixed cost company has a lower variable cost (AVC) of $100 per unit, while the low fixed cost company has a higher variable cost of $200 per unit. Total cost for the high fixed cost firm rises slowly than the low fixed cost firm as sale output increases. As a result, the average total cost per unit (ATC) of output decreases faster in the high fixed cost firm than in the low fixed cost firm. Compare the sale levels at 1000 and 5000 units, ATC is $500 for both firms at a sale level of 1000 units. At a sale level of 5000 units, ATC for the high fixed cost firm is $180 compared to the low fixed cost firm of $260, making a cost difference of $80 per unit. The example illuminates one salient point about competitive cost

Table 2.1 High fixed cost and low fixed cost firms

QTY	FC	AVC	TC	AFC	ATC
'000	In $'000	(a) $	In $'000	(b) $	(a) + (b)
High fixed cost firm					
1	400	100	500	400.0	500.0
2	400	100	600	200.0	300.0
3	400	100	700	133.3	233.3
4	400	100	800	100.0	200.0
5	400	100	900	80.0	180.0
Low fixed cost firm					
1	300	200	500	300.0	500.0
2	300	200	700	150.0	350.0
3	300	200	900	100	300.0
4	300	200	1100	75.0	275.0
5	300	200	1300	60.0	260.0

advantage of a high fixed cost company during market expansion – leveraging the economy of scale. In short, the above example demonstrates a few implications for cost structure:

- A high fixed cost firm will benefit from economy of scale.
- It loses flexibility in adapting business environment and increases operating risk (i.e., high sunk cost).
- However, a high fixed cost firm is more dynamic in price strategy in line with the intended market shares.
- There is a strategic choice for a firm in its cost structure with the given market expectations (in terms of fixed investment).

Cost structure is the constraint of a firm in the short run as pricing or sale strategies are subject to variability of cost to output level. However, cost structure is a manifestation of strategic choice in the long run (will discuss shortly). Firms have selected their optimal structure driven from its comparative advantages in the competitive market.

2.3 Contribution Margin Analysis

Contribution margin is built from the cost structure of a firm, i.e., variable and fixed costs. As discussed earlier, variable cost is subject to change in sale volume, but fixed cost is insensitive to sale volume within a range of activity. Fixed cost in the short run cannot be adjusted (committed or incurred already) and therefore is irrelevant in the decision making process. Given this, profit formula of a firm can be reconfigured in the following manner:

(a) Profit = Sales – Variable cost – Fixed cost

Fixed cost is shifted to the profit side and the equation is rearranged in (b) below:

(b) Sale amount − Variable cost = Profit + Fixed cost

This is the equation of contribution margin. Contribution margin refers to the residual amount of sale (sale price x quantity minus AVC x quantity). On the other hand, contribution margin also consists of fixed cost and profit. Therefore, contribution margin has two interpretations as represented by the equations (c) and (d). They are in fact two sides of a coin:

(c) Contribution margin = Sale amount − Variable cost
(d) Contribution margin = profit + Fixed cost

What do the above equations stand for? Equation (c) is the residue amount of sale amount minus variable cost, while equation (d) is the breakdown of the residue amount. The more sale a firm generates, the more residue amount the firm can retain for fixed cost recovery and profit. Contribution margin expands the "profit" definition in a wider scope – i.e., residue amount. It is because fixed cost is irreversible and irrelevant to the pricing decision in the short run. Revenue earns after paying out variable costs becomes the "earnings" to recover fixed cost and retained profits. With the concept in mind, the choice rests with the assumption of market expectation (sale volume), and the price strategy is determined by how sensitive the demand is in boosting sale volume.

Going back to Table 2.1 above, let's assume a sale price of $500 per unit. For both the high fixed cost firm and low fixed cost firm, the contribution margins for sale quantity at 1000 and 5000 units are shown as follows:

Contribution margin of the sale level at 1000 units for high fixed cost firm:

(i) Sale amount − Variable cost: ($500 − $100) × 1000 = $400,000
(ii) Fixed Cost + Profit = $400,000 + 0 (breakeven)

Contribution margin of the sale level at 1000 units for low fixed cost firm:

(i) Sale amount − Variable cost: ($500 − $200) × 1000 = $300,000
(ii) Fixed Cost + Profit = $300,000 + 0 (breakeven)

Contribution margin of the sale level at 5000 units for high fixed cost firm:

(i) Sale amount − Variable cost: ($500 − $100) × 5000 = $2,000,000
(ii) Fixed Cost + Profit = $400,000 + 1,600,000 = $2,000,000

Contribution margin of the sale level at 5000 units for low fixed cost firm:

(i) Sale amount − Variable cost: ($500 − $200) × 5000 = $1500,000
(ii) Fixed Cost + Profit = $300,000 + 1,200,000 = $1500,000

High fixed cost firm generates more profit at a higher sale level than the low fixed cost firm. It also means that high fixed cost firm has a more flexible price strategy to induce sale.

2.3.1 Contribution Margin (CM) Calculators

In application analysis, contribution margin can be further rearranged into two CM calculators:

- Contribution margin ratio (CMR) = contribution margin/Sales
- Contribution margin per unit(CMU) = Contribution margin for each unit

CMR represents the amount of contribution margin to be generated from each $ of sale amount. This CM number provides a quick way to find out anticipated sale level (e.g., budget sale) or break-even sale. Let's look at the information of the high fixed cost from Table 2.1: (i) what is the contribution margin ratio; (ii) what is the break-even sale; and (iii) what is the sale amount with a target profit of $200,000?

(i) CMR = (Sale price − Variable cost per unit)/Sale price = ($500 − $100)/$500 = 0.8
(ii) Break-even Sale = Fixed Cost/CMR = $400,000/0.8 = $500,000

(because contribution margin is equal fixed cost at a break-even sale with a zero profit)

(iii) Sale at a target profit of $$200,000 = (Fixed Cost + Profit)/CMR = ($400,000 + $200,000)/0.8 = $750,000

By the same token, CMU can be used to compute sale units:

(iv) Break-even sale quantity = Fixed Cost/CMU = $400,000/$400 = 1000 units
(v) Sale at a target profit of $$200,000 = (Fixed Cost + Profit)/CMU = $600,000/$400 = 1500 units

Contribution margin is a very powerful concept and technique in price decisions, capacity management, or operational decisions. For example, a firm can decide a change of pay scheme for sale teams in order to boost sale efforts.

2.3.2 More Illustrations

Contribution margin analysis can be applied in many occasions. The following are the typical examples in commercial practices. Here are a few illustrations on these occasions.

2.3.2.1 Special Price Decision

KK garment factory wants to consider a special order to an overseas customer who promises not to reimport the special garment back to the local market, so the potential to disturb the existing local customers is low. The factory has spare capacity to take this special order of 5000 dozens of T-shirt without additional fixed cost. If each T-shirt costs a variable cost of $ 120 per dozen and KK wants to makes a profit of $20 per dozen. What should be the minimum ex-factory price for the special order?

Solution

The minimum ex-factory price should be:

Variable Cost + Target Profit = ($120 + $20) = $140 per dozen

In this case, fixed cost is not relevant for the decision as fixed cost is a sunk cost, and there is no opportunity for the spare capacity to be used elsewhere. The total amount for the order is:

Extra order amount: 5000 × $140 = $700,000
Extra profit margin: 5000 × $20 = $10,000

2.3.2.2 Sale Incentive

King's Arm has a sale team with a salary based on a monthly fixed payroll. The management wants to increase sale incentive to promote sales, and proposes to change 30% of the fixed salary into a bonus based on sale amount, assuming that the current monthly sale is $250,000 and the sale can increase by 15% if the new salary structure is implemented. Total fixed cost is 40% of the current sale amount, and variable cost is 40%. Salary cost for the sale team is 20% of the total fixed cost. What should be the proposed sale commission system to make benefits for both sale team and the firm from the scheme?

Solution

The overall purpose of the new scheme is to increase sale by motivating salesperson to sell. As current monthly sale is the achievable target for the sale team, salespersons should at least keep the same salary payment with the current target and anticipate additional bonus for extra sales. The management of King's Arm will have additional profit if the sale team can excel above the current monthly sale. Based on this principle, the detailed new scheme is computed as follows:

Total salary payment for the sale team: $250,000 × 40% × 20% = $20,000
Portion of the fixed salary converted into commission: $20,000 × 30% = $6000
Commission rate based on sale amount: $6000/$250,000 = 2.4% on sale amount
For target sale exceeding 15% of $250,000 (assuming no capacity problem):
Salespersons' additional commission: $250,000 × 15% × 2.4% = $900
The firm's additional profit: $250,000 × 15% × (1–40%) − $900 = $21,600

2.3.2.3 Capacity Management

Sam's company has an operating capacity of 10,000 units of output per year. Sam's current sale is 80% of the current capacity. Sam can double sale if sale price is decreased by 15%. However, Sam needs to increase capacity by 10,000 units with a capital investment of $34,000 with a depreciation life of 2 years. If the current unit sale price is $10 and variable cost is $5, should Sam implement this low price strategy for market expansion?

Solution

Sam should compare whether there is an incremental income for the additional sale after deduction of the investment.

Contribution margin under the current scenario:
($10 − $5) × 10,000 × 80% = $40,000
Contribution margin under the low price strategy:
($10 × (1 − 15%) − $5) × (10,000 units × 80% × 2) − ($34,000/2) = $39,000

Apparently, Sam should not employ low price strategy which will reduce the contribution margin by $1000. From a longer-term view, Sam can increase sale volume (market share) to strengthen the market position. The excess capacity (4000 units of extra capacity) can help further expansion in the booming market. Sam may reconsider this new price strategy from a strategic view.

2.3.3 Limitations

Contribution margin analysis relates cost structure to price, volume, and profit margin. It is instrumental in financial decision making in which cost behavior (i.e., fixed vs variable costs) is the cornerstone of the contribution margin concept. Cost structure constrains a firm's corporate decision in the short term (especially in the market volume consideration), but the intended corporate strategy shapes cost structure in the long term. Strategic cost analysis identifies a more profound implication of cost structure derived from the strategic choice based on the firm's competitive advantages. Contribution margin analysis addresses the issues of cost structure within a specific short-term timeframe. Its long-term implications can be explored from the strategic cost analysis. Let's explore some conceptual inputs along this strategic cost view.

2.4 Strategic Cost Analysis

Strategic cost analysis focuses on how cost position changes with respect to the change in competitive advantage position of a firm. Strategic cost analysis also pursues an optimal cost structure of a firm. However, optimal cost structure is not driven by a volume-driven market strategy, as assumed in conventional cost

behavior approach. It is actually the result of composite strategic considerations dictated by the strategic choice of generic positions. This perspective has been strongly advocated by Shank[1] in his publications. Generic positions are generic strategies defined by Michael Porter in terms of cost leadership or product differentiation positions. These competitive advantages determine how a firm selects its strategic position and how corporate strategies are orchestrated to serve the strategic missions and objectives. From the strategic perspective, cost analysis plays a role different from the conventional cost approach. This approach emphasizes the strategic processes in aligning corporate missions and objectives, including (a) identifying the SWOT position of the firm, (b) anchoring a competitive market position, (c) formulating strategies toward the strategic positioning, (d) implementing strategies and detailed plans, and (e) evaluating and revising the plan to meet the end. The analysis of cost position should be aimed to explore how *effective* the cost structure is built for the strategic choice and how *efficient* cost drivers are built to optimize long-term profits. The following Fig. 2.1 outlines the role of cost analysis in different stages of the strategic processes.

As shown in Fig. 2.1, cost (including market data) information has unique emphasis on different stages of strategic process. SWOT identification stage is the inception stage in the strategic process cycle as it is always the questions a firm

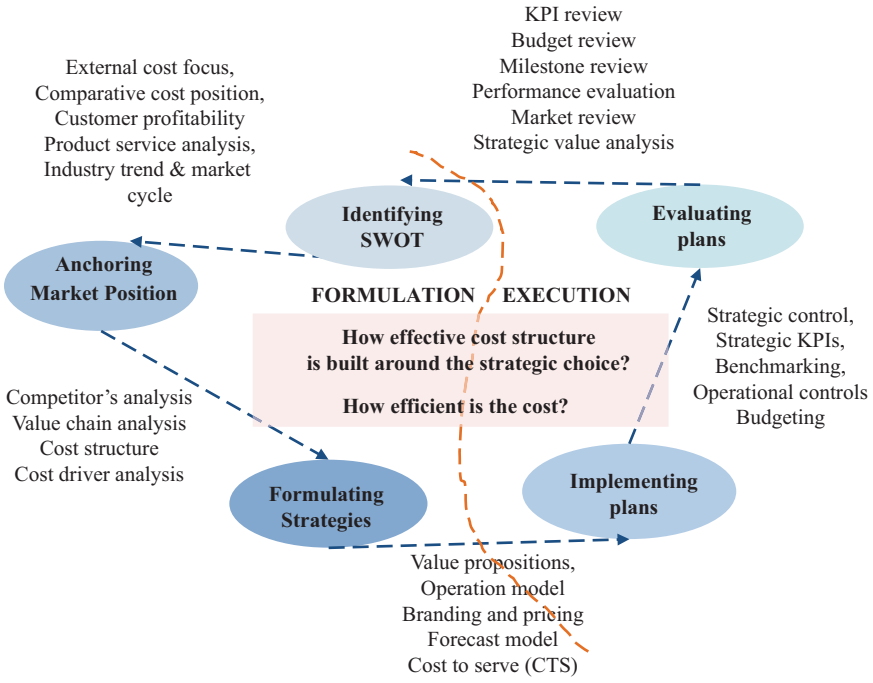

Fig. 2.1 Cost information served at different stages of strategic process

[1] The concepts were adopted from Shank (1989).

would like to know relative to the market key players such as competitors, customers, suppliers, or other resource providers (e.g., employees). At this stage, cost information is externally focused, relative cost position between the firm and the general market is emphasized, and information pertinent to competitive advantages of the firm are sought. The second stage of the strategic process is anchoring in a market position. This stage makes use of cost information to find out what should be the preferred markets the firm should anchor leveraging its competitive edges. What drives the unique advantage of the firm, what are the cost drivers, what are the value chain of the firm and its cost structure that enables strategic choice, and how can a firm quantify competitive advantages through competitors' analysis? This is an important stage as it determines the overall generic strategy of the firm and it also affects how the overall orientation of a strategic cost information system is to be geared.

The third stage is formulating strategy. This stage establishes the type of generic strategies being chosen. Broadly speaking, Michael Porter defines generic strategies from cost leadership and product differentiation. Generic strategy also determines a firm's choice of value proposition to customers. This strategic choice has implications for cost information system. It determines whether the information system design is geared toward superior value generation through differentiation strategy or economic value through cost advantage strategy. In the former one, premium value is sought from the product/service portfolio to maximize profit and market share. In this context, how effective is the strategy in meeting these strategic purposes. In the second choice, economic value to customers is achieved through low-cost operation resulting from economy of scales, wider scopes of services and reasonable cost-to-serve. Under this premise, how efficient is the low-cost operation in strengthening the market position through flexible pricing? In short, the first, second, and third stages form the formulation phase of the strategic process.

The fourth stage is implementing plans to deliberate detailed plans, strategic controls, and performance benchmarks. This is the stage to convert ideas into plans, strategies into actionable tasks, and tasks into definable control measures so that actual performance can be evaluated and performance milestone can be reviewed and compared against the overall corporate plan. Apart from regular forecasts and annual budgets, balance scorecard system (BSC) introduced by Kaplan and Norton[2] has contributed significantly in the strategic control and performance information.

Briefly speaking, BSC is a new financial system concept which provides critical financial and nonfinancial dimensions (e.g., sale and marketing, operations, HR, or learning) in which each dimension has linkage in cause-effect relationships. For example, sale market contributes to financial performance in sustained market growth. Operational success enhances customer relationship management in sale and marketing. Balance scorecard system is a long-term strategic control which establishes short-term key performance indicators (KPIs) periodically quarterly and yearly and links those KPIs to the long-range strategic plan. Measuring KPIs in each period, management can be able to understand what is the progress and what causes

[2] They are the pioneers and inventors of the balanced scorecards. Read Kaplan and Cooper (1997).

the performance gaps in different dimensions. BSC is a logical and effective control system which deliberately links short-term goals to long-term goals and attaches KPIs to facilitate performance review and causes and roots analysis.

Finally, evaluating plans is the final stage of strategic processes which emphasizes identification of performance gap, cause and root analysis, and a stage to revisit the strategic plans. Cost system is internally focused, supplemented by new market information in search of explanations for market landscape change. More detailed cost analysis is in place to substantiate strategic plan revision or rectification plans. Strategic process is a looping cycle, and cost information in the final stage provides inputs to the new loop. The performance evaluation results and revision plan form the background information for the next round of strategic process. The fourth and fifth stages constitute the execution phase of the strategic process.

From the above elaborations of strategic cost analysis approach, it is not difficult to understand that a firm's cost structure is the result of strategic choice arising from a set of complicated cost factors which have both external (e.g., market, competitors) and internal (e.g., technology, resources) origins. Strategic cost analysis approach should examine how the strategic choice gains market power in the competitive market, not the unilateral volume consideration from traditional cost behavior.

Focus

Strategic Choice with Choice?

Does a firm have choices for the strategic shift? The answer is probably *no*. It is difficult for a firm to make a big shift from one generic strategy to another generic strategy. Firms employing a cost advantage strategy would also build a frugal corporate culture which looks at efficiency as the most important value. Firms choosing a differentiation policy would choose best resources and expensive facilities, and very often lavish corporate culture ensues. Effectiveness is their moral soul, the others are secondary. These cultural values ingrained in their organizational growth and the change of value would meet with strong resistance and cultural conflict. Many lessons were learnt from large telecom equipment players in the past. They could not continue to lead (e.g., Motorola, Nokia, Ericsson) in the fast-changing business landscape. In fact, firms possessing both cost efficiency and differentiation advantages are the winners. Huawei is an example of these winners, which is now no. 1 global player in telecom equipment and no. 3 in mobile phones in 2015. (More discussion will be made in Chap. 7.)

Strategic cost analysis places attention to two major areas. First, it stresses on the strategic choice of cost drivers[3] to build competence and competitive edge. Cost

[3] Both cost drivers and strategic positioning are the central theme of strategic cost analysis as suggested by Shank and Govindarajan.

drivers evolve from structural and execution capabilities of a firm. Structural capabilities include scale, scope, experience, technological choice, and operation complexity. For example, how large (scale) is the operation of a firm? How much vertical integration (scope) is a firm with its suppliers or customers? How much experience the firm has in the operations? How much technology is involved in the firms' value chain activities? How broad is the product portfolio (complexity)? All these constitute the economic structure of a firm in shaping its operation. Furthermore, execution capabilities refer to how well the firm has achieved in operational excellence (e.g., management, employees, products, suppliers, customers). Strategic choice of these cost drivers determines the cost structure of the firm and its competitive advantages relative to its competitors in the intended market. A careful analysis and monitoring of these cost drivers provide a competitive condition for the firm in gaining market position.

Second, strategic positioning analysis is another area of attention. It is about how well the generic strategies (cost leadership or product differentiation) in general and specific strategies in particular (e.g., market strategy, product portfolio strategy, HR strategy, technological strategy) serve the firm's intended position in the market. How well cost information assists in strengthening the preferred strategic positioning? In this particular issue, cost information is designed to (a) assess business risk of the market relative to the strategies employed, (b) establish realistic timing of milestones, (c) determine the amount of investment, (d) set up proper performance evaluation, and (e) arrange effective incentive scheme for motivation. In fact, firms taking a cost leadership strategy tend to be internally focused, while firms seeking a differentiation strategy are more externally focused. Differentiation strategy requires more attention on customer perceptions, innovative technology, and product variety. This creates more difficulty in predictability for differentiation strategy than for low-cost strategy. Therefore, differentiation strategy increases intensity of complexity. The strategic choice of low-end or differentiation strategies affects resource orientation, quality of products, brand perception, and resource capability requirement. All these factors affect the strategic positioning of a firm.

In fact, many cases provided in this book have adopted a strategic cost analysis approach focusing both competitive strength of a firm and the relative market position in strategic decisions. For example, Artal Food (in Chap. 4) discusses how a firm makes customer selection decision relative to its internal competitive strength and intended strategic change. Net Ltd. (in Chap. 11) discusses how a firm selects its strategic partner in improving its internal strength in face of a shift of competitive landscape. In the ABC *Caffe* case (in Chaps. 9 and 10), it discusses the feasibility of business expansion in Hong Kong and China based on cost drivers and strategic positioning analysis. Many mini cases and examples have employed strategic cost approach in making analysis. Readers are kindly reminded to have a better understanding of this approach.

Focus

Strategic Choice in Automobiles

There are many examples how companies choose their cost drivers in beating the competitors. Their choices led to business repercussions. Ford[1] beat down the giant leader – General Motors – by trimming down cost, reducing models series to a few, and focusing on quality control (fine-tune operations complexity). Ford gained substantial unit cost reduction between 1985 and 1992 and beat down General Motors in 1993. GM's complex product line portfolios made the operations costly and quality control a challenge. BMW[2] addressed the slow sale crisis in 2010 in the North America by introducing a mass customization program on a X3 series model by increasing customer specification, online video, and shortening lead time for delivery (transfer of production plant to the market). This increases product differentiation. Cost drivers came from process innovation and operational excellence. Sale bounced back in 2011. Toyota[3] conquered the North America market in 1990s and bypassed GM as no. 1 in the world in 2008. It was done by value innovation program, i.e., a massive cost cutting in no. of components, material quality, and suppliers expansion. It worked very well with a low cost reduction of 40–50% over the period and made it very competitive in the world market. However, the aggressive policy compromised the traditional "total quality management" practice with series of report accidents in brakes over the period of the 2000s. The legend smoked in a serious traffic accident (brakes again) in 2009 which cost Toyota huge penalty fees, public trust, and company goodwill.

Source: Shank and Govindarajan (1993)[1]; Alenuska and Schotter (2012)[2]; Andrex et al. (2011).[3]

2.5 Activity-Based Costing

It is easy to allocate direct costs (e.g., materials, direct labor hours) to products directly with no confusion. However, indirect cost allocation is much thorny because costs are not traceable directly to individual product items or different operating units. It becomes more cumbersome for management to allocate these indirect costs with a single or very limited allocation keys which may result in a high degree of cost bias. In fact, traditional cost allocation method produces more serious problems in today's complex manufacturing environments, more diverse product mix, and market competition. The traditional approach has been criticized by scholars[4] and business practitioners in making inaccurate pricing for products or misleading management in reviewing product performance. ABC has been developed a few decades ago as an alternative to the traditional costing method in product costing, value

[4] E.g., Johnson and Kaplan (1991).

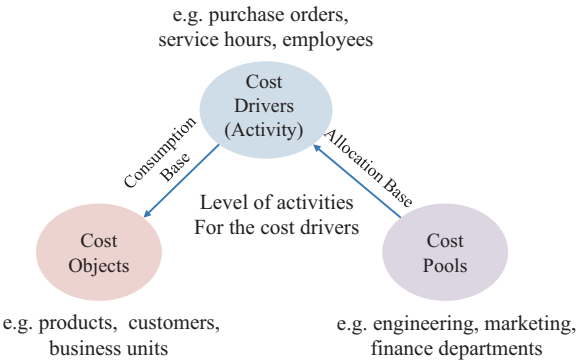

Fig. 2.2 ABC components: cost objects, cost drivers, cost pools

chain analysis, and other strategic analysis. I like to give a brief note on how to use ABC as a strategic tool for analysis.

2.5.1 ABC Overview

ABC emphasizes the importance of linking indirect costs to activity in the cost allocation exercise. It argues that cost is derived from activities. When there are more activities, more costs will be incurred. Based on this logic, cost should be allocated according to the activities that drive costs to the cost object. As depicted in Fig. 2.2, cost objects are the defined objects for allocation of indirect costs, e.g., product portfolio, customers, or business units. Cost pools are the costs gathered to serve similar functions, e.g., production, marketing units, and finance department. Cost drivers are the key attributes or proxies which are the causes of spending, e.g., no. of purchase orders for purchase department, service hours for engineering department, and no. of employees for human resource units. Cost drivers serve as allocation base for allocation of cost to cost objects, and the degree of costs allocated rests with the level of activity (in terms of the consumption base). Using this allocation method, cost can be more accurately allocated to the cost object.

2.5.1.1 Illustration

Grand Ltd. produces foods products. Grand wants to allocate cost incurred by its quality control unit (QC) and engineering unit (EN) to buns and pizza products. The January expenses for QC and EN were $55,000 and $30,000, respectively. The activity base for QC was no. sample tests, and EN was service orders (billable hours). The levels of activities for the products were listed in Table 2.2.

As noted above, cost allocation of QC expenses was based on their usage % (e.g., bun and pizza at 12.9% and 33.6%, respectively), resulting in the costs absorbed by these two products which were $7112 and $18,491, respectively. The same token also applies to EN expense allocation to bun and pizza. Based on the level of activity, cost allocation was more accurately apportioned to the cost objects.

Table 2.2 Computation of allocated indirect costs from quality control (QC) and engineering (EN) units

In US$	Activity drivers	Amount	Buns	Pizza	Other	Total	Bun $ Alloc.	Pizza $ Alloc.
			(Based on attributes of the activity drivers)					
QC	No. of samples	55000.0	750	1950.0	3100.0	5800.0	7112.1	18,491.4
			12.9%	**33.6%**	53.4%	100.0%	**12.9%**	**33.6%**
EN	Billable hours	30,000.0	150	200	350	700	6428.6	8571.4
			21.4%	**28.6%**	50.0%	100.0%	**21.4%**	**28.6%**

2.5.2 ABC in Strategic Performance Analysis

ABC can also be applied in strategic performance review. There is a handicap of the traditional cost and accounting system using simple allocation keys to apportion cost to product or allocate common expenses to operating units. The reason for adopting the simplistic approach is its readiness to operate from the work level. However, the allocation method is inevitably arbitrary. More recent years, leading scholars such as Kaplan and Cooper (1997) advocate the use of ABC in allocation of common costs in product or operating units. Other scholars such as Shank and Govindarajan (1993) believe that, while ABC is not a replacement of the traditional cost and accounting system, it will be particularly useful in evaluating strategic performance of product lines. The following gives an example to demonstrate the application of ABC (cost drivers) in strategic performance analysis.

2.5.2.1 Illustration

GHF Homemade Factory is a medium-sized foods factory to supply three types of foods – bakery, confectionery, and packed cooked meat (e.g., hams and sausages). The management wants to evaluate the performance of the three product divisions especially the meat division which has just been in operation for a year. The management was not particularly confident in the current allocation method which was simple and sometimes unrealistic. However, the allocation method has been ingrained in the cost and accounting system for ages and the management did not want to make a big change. GHF appointed a management consultant to do a strategic review on cost allocation based on ABC method. The consultant picked up a recent quarterly performance report from the company. He rebuilt an ABC allocation bases on indirect and common expenses. He also collected comparable prices (benchmark on main competitors) and market share on those similar products provided by the market. Table 2.3 provides a summary of business performance for these three product divisions.

Table 2.3 (panel a) provides sale information and market comparable for reference. As shown, confectionery food was the core business of the firm which was 67% of the total sale amount. Bakery and meat were nearly the same in sale amount. However, sale volume (in kg) was lower for meat than bakery because of the sale value.

Table 2.3 (Panel a – market information) – strategic performance review

Quarterly performance	GHF Homemade Factory							
Sale in HK$'000	Bakery		Confectionery		Meat		Total	
	6400.0	17%	25000.0	67%	5700.0	15%	37100.0	100%
Volume (in 1000 kg)	250.0	34.5%	400.0	55.2%	75.0	10.3%	725.0	100%
Average price	25.6		62.5		76			
Benchmark price	28.0		60.0		60.0			
Market share	10%		20%		3%			

In terms of average price, bakery was a low value item ($25.6 per kg), while confectionery and meat had more than doubled the value of bakery, especially meat which was three times of bakery. Looking at the market share and benchmark price, confectionery had a good market size with the price slightly higher than the benchmark price (main competitors). Bakery items had an average price lower than the benchmark price, and market share was 10% (reasonable market size). Contrarily, meat business had the average price much higher than the benchmark price, but the market size was very low.

Let's read the cost and expenses for each product line in Table 2.4 (panel b – costs on current system) below. The allocation basis for each cost item was given on the last column. Indirect cost allocation bases for the current system were set as follows: (i) overhead rate (in note (a)) at 0.67 ($4948/$7385) of labor cost was applied to overhead costs; (ii) common cost allocation on sale and marketing and administration expenses was based on the proportional sale amount on each division; (iii) whereas common cost allocation on delivery support unit was based on proportional sale volume (in kg) on each division. Based on this traditional cost allocation basis, all product divisions were making profit contribution. Meat had a good sale; even the average price was 20% above the benchmark. Also, bakery was also making good profit (19.4%) even though the average price was around 8% below the market.

What happened when the ABC method was adopted? Let's read the numbers carefully on Table 2.5 – panel c – which was recalculated based on ABC method. The recalculated bottom lines on divisional performance have unveiled a loss on meat ($313,000, −5.5%) instead of a profit-making division. Confectionery improved a lot on the ABC method. Bakery's financial result was at par. Apparently, confectionery division cross subsidized meat division according to the current allocation system.

Let's read those items with changes in allocation method. There are changes in those items denoted by note (b) and note (c). The detailed activity drivers and the respective change in numbers are shown in Tables 2.6 and 2.7 below. As indicated in Table 2.6, breakdowns on the cost pools (e.g., plant site, QC units) with their selected activity drivers (cost drivers) were tabulated in the table, and the aggregated costs collected from each cost pool were summed up in the cost object (e.g., bakery division) to reflect activity caused by such costs. The same ABC method was also used in the support division – sales and marketing, delivery, and administration

Table 2.4 (Panel b – costs on current system) – strategic performance

	Costs based on traditional cost allocation (current system)								Allocation base
	Bakery		Confectionery		Meat		Total		
Direct materials	1920.0	54%	9500.0	53%	1710.0	42%	13,130.0	35.4%	Direct
Labors	960.0	27%	5000.0	28%	1425.0	35%	7385.0	19.9%	Direct
Overheads	643.2	18%	3350.0	19%	954.8	23%	4948.0	13.3%	Note (a)
Total	3523.2	100%	17850.0	100%	4089.8	100%	25463.0	68.6%	
Gross margin	2876.8	45%	7150.0	29%	1610.3	28%	11,637.1	31.4%	
Sales and marketing	258.8	17%	1010.8	67%	230.5	15%	1500.0	4.0%	Sale $ %
Delivery	1034.5	34%	1655.2	55%	310.3	10%	3000.0	8.1%	Vol.%
Administration	345.0	17%	1347.7	67%	307.3	15%	2000.0	5.4%	Sale $ %
Net margin	**1238.5**	**19.4%**	**3136.3**	**12.5%**	**762.2**	**13.4%**	**5137.1**	**13.8%**	

Table 2.5 (Panel c – costs on ABC) – strategic performance based on ABC

	Costs based on ABC allocation								Allocation base
	Bakery		Confectionery		Meat		Total		
Direct materials	1920.0	53%	9500.0	56%	1710.0	36%	13,130.0	35.4%	Direct
Labors	960.0	26%	5000.0	29%	1425.0	30%	7385.0	19.9%	Direct
Overheads	770.0	21%	2600.0	15%	1578.0	33%	4948.0	13.3%	Table 2.6
Total	3650.0	100%	17100.0	100%	4713.0	100%	25,463.0	68.6%	
Gross margin	2750.0	43%	7900.0	32%	987.0	17%	11,637.0	31.4%	
Sales and marketing	200.0		1000.0		300.0		1500.0	4.0%	Table 2.7
Delivery	900.0		1400.0		700.0		3000.0	8.1%	Table 2.7
Administration	400.0		1300.0		300.0		2000.0	5.4%	Table 2.7
Net margin	**1250.0**	**19.5%**	**4200.0**	**16.8%**	**(313.0)**	**−5.5%**	**5137.0**	**13.8%**	

Table 2.6 Activity drivers (note b)

Note b – activity drivers						
		Bakery	Confectionery	Meat	Total	
In HK$000	Activity drivers	(Based on attributes of activity drivers)				%
Plant site	Facility usage	400.0	1300.0	698.0	2398.0	48.5%
Engineering	Billable hours	150.0	350.0	250.0	750.0	15.2%
QC	Samples	100.0	250.0	350.0	700.0	14.1%
Packing	Labor hours	120.0	700.0	280.0	1100.0	22.2%
Overheads		770.0	2600.0	1578.0	4948.0	100%

Table 2.7 Activity drivers (note c)

Note (c) – activity drivers						
		Bakery	Confectionery	Meat	Total	
	Activity drivers	(Based on attributes of activity drivers)				%
Sale and marketing	Events, no. of job hours, sale orders	200	1000	300	1500	23.1%
Delivery	Job hours	900	1400	700	3000	46.2%
Administration	No. of employees	400	1300	300	2000	30.8%
Total		1500	3700	1300	6500	100%

units. Table 2.7 shows the activity drivers and the recalculated numbers for those support units.

Using activity drivers to realign cost to cost drivers, the more accurate spending patterns of each division were ascertained. The spending for meat division was far higher than that in the traditional method by $1 million. Confectionery division performance had a better performance under a more realistic allocation method.

From the perspective of strategic cost analysis, ABC review method has highlighted some salient points for attention to the GHF management.

(a) Confectionery had delivered solid profit contribution to the firm with a good market size and reasonable price compared to competitors.
(b) Meat business performance was overstated. Meat requires a massive increase in price by $13.3($1 M/75000 kg) in order to meet the existing performance level. This means that the average price will go up to $88.3 ($75 + $13.3) compared to the benchmark ($60 per kg) offered by main competitors. It is unlikely that meat can sustain in this price increase. Given the low market share, GHF has no competitive advantage in the meat market.
(c) Bakery has a potential for growth. With the high profit margin (around 20%), bakery business can compete with main competitors (cost advantage) with a lower price to capture a larger market share.
(d) Though the relative price (per kg) between meat and bakery is 3 ($75/$25), the overheads to generate 1 kg of meat and 1 kg of bakery product are $21 ($1578 K/75 K kg) and $3 ($770 K/250 K kg), respectively, seven times of overhead spending for 1 kg of meat compared to the same weight (1 kg) of bakery product. The management should weigh the efficient frontier (comparative advantage) between these two products.

2.5.3 Limitations

ABC aligns causes (activity) to cost in cost allocation and therefore links cost drivers to cost objects. It provides more accurate bases in cost allocation. The above example has demonstrated what a powerful and convincing analytic tool of ABC on strategic cost review. Given the different approach of ABC to the traditional cost allocation method and the complexity of ABC in the allocation process, it may not be an ideal substitute cost allocation method for the traditional method but a good analytical tool for an ad hoc review, i.e., strategic review. In Chaps. 3 and 4, I will employ the ABC concept in the case review.

The other setback of ABC method is its static view. That is to say, all costs are apportioned using ABC method to trace cost to cost drivers. However, ABC does not question (a) value added to the activity or (b) any justifications for the cost spending. The first question will be addressed in Chap. 3 in the value chain analysis, and the second question will be dealt with in Chap. 4 in the cost to serve analysis.

2.6 Conclusions

This chapter has recapitulated a comprehensive review on cost analysis, as well as the implication on a firm's cost structure. Both the traditional cost behavior view and a more recent strategic view were discussed, and its limitations were explored. As discussed, strategic cost analysis approach looks cost structure as a result of a firm's strategic choice among various cost drivers in terms of structural capabilities and execution capabilities, not solely from a single lens in volume driver as advocated from the conventional view. Strategic cost approach provides a wider scope of perspectives in terms of time (also long term) and business (external and internal) dimensions in cost analysis. The next chapter will explore the operation model of a firm from the value concept – the concept in recent years gains prominence both in the academic and business fields.

Takeaway Tips

- Cost structure is a key determinant of a firm in shaping corporate decisions.
- Strategic cost analysis delineates a firm's choice of cost structure in the context of its competitive position and strategic positioning.
- Two strategic focuses spring out from the strategic cost analysis: structural drivers and execution cost drivers. These two sets of drivers shape the choice of strategic positioning.
- A new paradigm shift is called forth in understanding *cost*. This paradigm shift realigns cost structure also from an external perspective.
- Activity-based costing (ABC) is a good analytical tool for strategic cost evaluation.

References

Andrex, A. P., Simon, J., Tian, F., & Zhao, J. (2011). Toyota crisis. An economic, operational and strategic analysis of the massive recall. *Management Research Review, 34*(10), 1064–1077.

Cooper, R., & Kaplan, R. S. (1991). Profit priorities from activity-based costing. *Harvard Business Review, 69*(3), 130–135.

Johnson, H. T., & Kaplan, R. S. (1991). *Relevance lost: The rise and fall of management accounting*. Boston: Harvard Business Press.

Kaplan, R. S. (1992). In defense of activity-based cost management. *Strategic finance, 74*(5), 58.

Kaplan, S., & Cooper, R. (1997). *Cost and effect – Using integrated cost systems to drive profitability and performance*. Boston: Harvard Business Review Press.

Shank, J. (1989). Strategic cost management: New wine, or just new bottles? *Journal of Management Accounting Research, 1*.

Shank, K., & Govindarajan, V. (1993). *Strategic cost management: The new tool for competitive advantage*. New York: The Free Press.

Value Concepts

3

Abstracts

This chapter begs a question of how activities add value to an organization. Two value analysis approaches are discussed. The first approach is taken from Michael Porter's horizontal value chain analysis emphasizing the ways to assess value-added activities from internal activities across the horizontal departmental value chains of an organization. The second approach adopted from Shank and Govindarajan extends value chain beyond the firm and explores from the backward and forward integration of the industry value chain on how a firm creates value from external vertical linkages. An example is presented in each approach to elucidate how value analysis is performed. The chapter also discusses how net present value concept is employed to enhance net cash flow analysis.

Keywords

Value chain analysis • Industry value chain • Value-added analysis • Net present value

3.1 Introduction

Chapter 2 has discussed in a greater detail about the cost behavior approach and strategic cost approach. This chapter will focus on the third cost approach – functional cost approach. Functional cost approach is particularly relevant to the value analysis because it manifests itself in its own operational model – operation setup to serve customer needs that create value to the firm. This chapter will delineate how value is interpreted from strategic operations of a firm. The following topics will be addressed in this chapter:

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(a) Value chain analysis
(b) Vertical value chain analysis
(c) Present value for DCF analysis

The first two topics provide conceptual framework, methodology, and techniques to conduct value analysis of a company. The third topic pertains to convert the value of all sums of money across a time series into a single period – present value. It is the key concept of discounted cash flow analysis (the technique will be used in Chaps. 5, 8, and 10).

3.2 Value Chain Analysis

Michael Porter[1] in its competitive advantage analysis emphasizes the importance of value chain analysis in identifying the internal strength of an organization to deliver value to customers. By definition, value chain is the set of activities and resources of a firm to deliver value as perceived by customers. From this perspective, it is important to distinguish the kinds of activities which are treasured by customers and the resources (cost) spent on the activities to satisfy customer needs (value creation). In all sets of activities in the value chain, Michael Porter divides the activities into two categories: primary and supporting activities. Primary activities are more on the front line of operations, while supporting activities provide internal services to the organizations. Inbound and outbound logistics, operations, marketing and sales, and services are classified as primary activities. On the other hand, human resources, R&D, and administration are supporting activities. How a firm selects business activities within the value chain and the employment of strategies rest with its competitive advantages in the industry.

In fact, different firms will set their activities according to their choice of generic strategy. For example, Xiaomi, a famous China brand in low price mobile phone cannot afford to spend too much on R&D beyond the good-enough principle,[2] nor it can be lavish on marketing and advertising because of its low-cost advantage market position. Being the second largest global top brand in mobile phone, Samsung cannot slow down investment on R&D and marketing activities at the peril of disruptive consequences to its market position. These two firms show a very different cost structure in their operational model. Xiaomi looks for value for money, while Samsung defends its premium brand perception. Their value chain in the operational model reflects their value propositions.

In a value chain analysis, one needs to examine whether each activity in question adds value in the value chain. Along this logic, one should identify value-added activities from non-value activities and reduce or eliminate non-value-added activities in the value chain. Value-added activities are those activities that add value in the eyes of the target customers. Non-value-added activities are those activities in which customers have no perceived benefits. These non-value-added activities can

[1] In his classic book, Competitive Strategy (1980).

[2] Refer to Chen & Wen's working paper.

cause colossal cost to firms as well as financial burdens. It may also explain why a particular firm can be more mean and lean compared to their competitors.

Many examples of non-value-added activities can be found in the operations of a firm. Customers increase their willingness to pay when product design and functionality fit their needs. However, mobile surveys discovered that users normally know 10–20% of the phone functionality. Did phone makers provide more functionality than customer needs but customers bear the full cost? Did customer benefit from it? Production processes that create reworks, scraps, high inventory buffers, and redundant processes (excess controls) also cause cost but have no gains to customers. Delay in distribution and wrong delivery increase customer complaints and counterproductive in customer value. Truthful advertising increases brand effects. Misinformed advertising increases customer disappointments. Furthermore, useful and helpful after-sale service is good for customers. Poor after-sale service creates excess customer expectations that can never be delivered. Also, excess support service to customer increases cost to serve but destroys corporate value (will discuss in Chap. 4).

Though non-value activities do not create value to customers, it is not to say that these non-value activities should be entirely eliminated. There are activities (e.g., controlling or planning activities) which are important for the well-being of an organization (core activities) but may not be prominent in the eyes of customers. These activities are necessary but at an absolute minimum. On the other hand, there are some value added but not core activities of the organization (e.g., help desk in telecom). These activities can be managed by a third party at a lower cost. IT services, financial transactions report, human recruitment, help desk, and manufacturing are the popular areas being outsourced by large corporations.

Figure 3.1 below provides a summary of the value-added and core activity dimensions in a 2 × 2 diagram. This summary matrix expedites directional action plan to be taken pertinent to each category of activities in the value chain. For example, all non-value-added activities should be eliminated in the value chain which is noncore to the company but should be minimized at all times when they are core activity (e.g., financial control, corporate management). Similarly, all noncore but

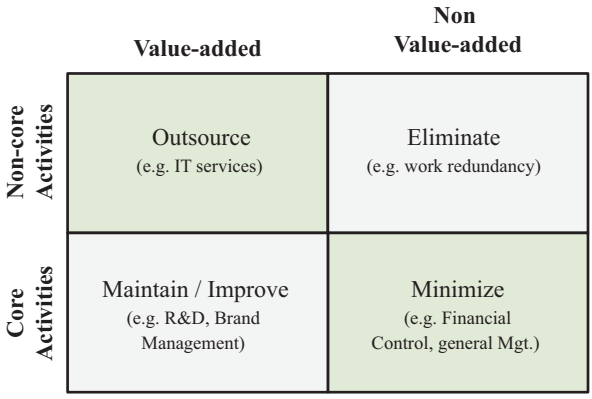

Fig. 3.1 Value-added versus core activity dimensions

value-added activities can be outsourced to mitigate cost or save management time in managing the activities.

The next section will give an illustration on how a value chain analysis is conducted in a toy factory.

3.2.1 An Example on Value Chain Analysis

Gino Toys wants to know whether there is room for price reduction by 20% for its toy products in face of the market consolidation. Gino Toys anticipates the price reduction will force exits of its direct competitors. If Gino Toys insists the current price level, it may lose 40% of sale volume. If it keeps up with the new market price, it may gain further 5% growth. Gino Toys needs to prepare for the new market reality and questions whether there is room for operation improvement. Gino Toys hired an external consultant team to conducts a value chain analysis. In particular, Gino Toys wants to:

(a) Identify non-value-added activities in the value chain and its cost impact
(b) Evaluate the cost, volume, and profit impact on the price change
(c) Explore potential room for cost improvement

Table 3.1 below shows 2 months' financial data in January and February of the current year. Additional information includes production cost, and other operating expenses contain 60% and 85% of total fixed cost, respectively. Inventory level remains stable throughout the period. The firm has excess capacity to meet growth expansion.

(a) Non-value-Added Activities and Cost Impact

Non-value-added activities refer to those activities such as work duplication, resources redundancy, excess buffers, and excess support. These non-value-added activities are found in each major activity component (e.g., delivery, customer service). Using ABC method (as discussed in Chap. 2), key attributes (e.g., work hours) of each cost pool (e.g., purchasing, sale operations) are employed to calculate % of non-value-added activities from the total activities. Based on this approach, non-value-added cost impact on each activity component can be segregated from the valued-added cost. Table 3.1 provides the detailed breakdowns. Overall, the table shows 25% (about $2.48 M) of cost, and expenses are classified non-value added. It is also equivalent to 22.4% of sale amount ($2.48 M/$11.06 M). In addition, core activity components are separate from noncore activity components. Noncore activities are those support functions, less critical to the operations.

A parsimonious review on major activity components indicates those items with 50% or more non-value-added activities include inspection, storage, customer complaints, financial reporting, and other general administrations. In addition, those nonmanufacturing activities having a high % to total cost include delivery, storage,

Table 3.1 Value-added analysis on major activities

Major activities in value chain	Value added	Non-value added	Total activities	Value added	Non-value added	Total cost $ (TC)	%	$ per sale unit
	(No. of activities)			(Cost of activities $)				
Sale amount in Jan. and Feb						**11,064,000**	**100.0%**	
Sale volume (units)						**922,000**		
Unit sale						**12.0**		**12.0**
Manufacturing activities (a)						**5,610,000**	**50.8%**	**6.085**
Setups	90%	10%	100.0%	135,000	15,000	150,000	1.4%	0.163
Materials handling	70%	30%	100.0%	31,500	13,500	45,000	0.4%	0.049
Inspection	50%	50%	100.0%	60,000	60,000	120,000	1.1%	0.130
Production	90%	10%	100.0%	4,050,000	450,000	4,500,000	40.7%	4.881
Packing	80%	20%	100.0%	520,000	130,000	650,000	5.9%	0.705
Engineering works	60%	40%	100.0%	87,000	58,000	145,000	1.3%	0.157
Nonmanufacturing activities (b)						**4,168,000**	**37.7%**	**4.521**
Product design	100%	0%	100.0%	90,000	–	90,000	0.8%	0.098
Purchasing[a]	80%	20%	100.0%	200,000	50,000	250,000	2.3%	0.271
Storage[a]	50%	50%	100.0%	175,000	175,000	350,000	3.2%	0.380
Delivery[a]	60%	40%	100.0%	270,000	180,000	450,000	4.1%	0.488
Sale operations	90%	10%	100.0%	720,000	80,000	800,000	7.2%	0.868
Customer support	80%	20%	100.0%	120,000	30,000	150,000	1.4%	0.163
Customer complaints	10%	90%	100.0%	6000	54,000	60,000	0.5%	0.065
Customer service	50%	50%	100.0%	39,000	39,000	78,000	0.7%	0.085
Financial reporting[a]	50%	50%	100.0%	40,000	40,000	80,000	0.7%	0.087
Treasury[a]	60%	40%	100.0%	36,000	24,000	60,000	0.5%	0.065
Other general admin	40%	60%	100.0%	720,000	1,080,000	1,800,000	16.3%	1.952
Total spending (a + b)				**7,299,500**	**2,478,500**	**9,778,000**	**88.4%**	**10.605**
				74.7%	25.3%	100.0%		

[a]Noncore activity components

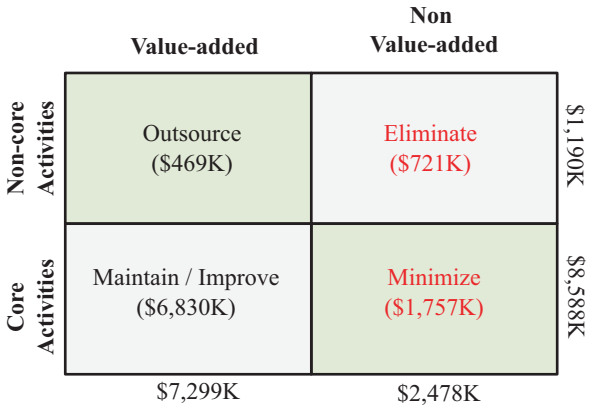

Fig. 3.2 Cost allocation by category of value-added versus core activity dimensions

sale operations, and other general administrations. These identified activities need a higher priority attention. Figure 3.2 sums up the cost of each category according to value-added vs core activity dimensions. As shown in the matrix, an amount of $2.4 M (non-value-added activities in red) can be reduced or totally eliminated. Core activities in the value chain are those activities in which the firm has core competence or the management believes it is the core integrative processes of the entire organization.

(b) Cost, Volume, and Profit Impact on Price Change

Fixed cost in production = $5610 × 60% = $3366 K
Fixed cost in non-production = ($4168 K) × 85% = $3542.8 K
Variable cost per unit = ($9778 K − $3366 K − $3542.8 K)/922 K = $3.1
Unit contribution margin (UCM) = sale price – variable cost = ($12 − $3.1) = $8.9

(i) Current profit level = $11,064 K − $9778 K = $1286 K
(ii) No price change (40% drop in sale vol.) = Sale Units × 60% × UCM – Fixed cost = 922 K x 0.6 x $8.9 − $6908.8 K = −$1985.3 K
(iii) Twenty percent drop in price with constant sale volume = 922 K × ($12× .8 − $3.1) − $6908.8 K = −$915.8 K (i.e., 2 months)
(iv) Twenty percent drop in price with 5% growth = 922 K × 1.05 × ($12× 0.8 − $ 3.1) − $6908.8 K = −$616.2 K (i.e., 2 months)
(v) Compute the full-year impact on (iii) = −$915.8 K × 6 = −$5494.8 K
(vi) Compute the full-year impact on (iv) = −$616.2 K × 6 = −$3697.2 K

It appears from the above price scenarios, it appears that a huge drain in profit during market consolidation. A 20% drop in price will lead to a multiple million dollar loss in (v) and a still significant loss even with a 5% growth in (vi). It is quite

likely that scenario (vi) will emerge. The firm will face a tough period during the market downturn.

(c) Cost Improvement

Apparently, the elimination of non-value-added and noncore activities improves the profit level of Gino Toys by about $4.3 M (see Fig. 3.2: $721 K × 6). In addition, a cost reduction program on the non-value-added but core activities may also further increase profit level. In fact, it was found a big savings in this area. For example, 50% reduction in the non-value-added cost in core activities generates a saving of $5.3 M, ($1.76 M × 50% × 6). It will help the firm a lot during the bad time by recovering at least 75% of the original profit level (see (i): 1.29 M × 6). In the longer-term, the firm should consider outsource of the noncore activities to spare management time for other core activities. Also, the management can also think of strengthening the core activity to improve market position, e.g., increasing investment in product design.

To recap, the approach for a value chain analysis can be conducted under the following steps:

- Identify the value chain activities in an organization.
- Identify cost drivers, cost pools for each activity component (preferred using ABC approach preferred).
- Separate core from noncore activities as discussed with the management.
- Select a representative period (most recent periods) for the exercises.
- Find out the cost impact on each category (see Fig. 3.2).
- Compute the full-year impact on each component.
- Propose action plan for each categorical activity and calculate the forecast impact.

In order to survive, Gino Toys needs to reduce operating cost within the value chain activities of its functional operation. This is the horizontal value chain analysis. In another approach, Gino Toys can search along its industry value chain and exercise forward or backward integration of the industry value chain to gain synergy from the vertical integration.

3.3 Vertical Value Chain Analysis

Shank and Govindarajan advocate an insightful industry value chain analysis beyond the bounds of a firm (other than Michael Porter's value chain analysis within the boundary of an organization). They argue[3] that value-added chain analysis confines the study within the bounds of the firm without extending the analysis to the backward linkages (supplier side) and forward linkages (customer side) of the firm.

[3] Shank and Govindarajan (1989).

Therefore, the potential synergetic effects of the intercompany linkages cannot be materialized.

To illuminate the external linkages, industry vertical value chain is described in Fig. 3.3.

As shown in Fig. 3.3, the industry value chain configuration represents the upstream suppliers which add value to the process of production down to the next value chain activity until the downstream final end users who pay the whole product (also service) bill. That is to say, the invoice value received from the end users are distributed to the market players in the entire industry. Not all market players have shared similar profits but depend on different markets in the industry.

Now, let's us explore how a firm leverages the competitive edge from external linkages. External linkages can be done in two approaches. A firm can align with suppliers or customers to enhance its market position. Also, it can also be a more direct control over the external linkages – i.e., equity investment. Toyota has a strong supply chain with loyal local suppliers as its strategic partners working for Toyota. Those suppliers have a long-term relationship with Toyota and share its production plan and product design. Toyota has more direct influence over those suppliers on cost, quality, and production deadline. BP and China Petroleum keep on exploring oil extraction fields to ensure input resources. In high-tech companies, it is of paramount importance to influence the technological standard (Huawei and Ericsson lead 5G mobile system standard) and possess more patented rights. These are critical assets for commercial success. These are exemplified in backward integration or linking.

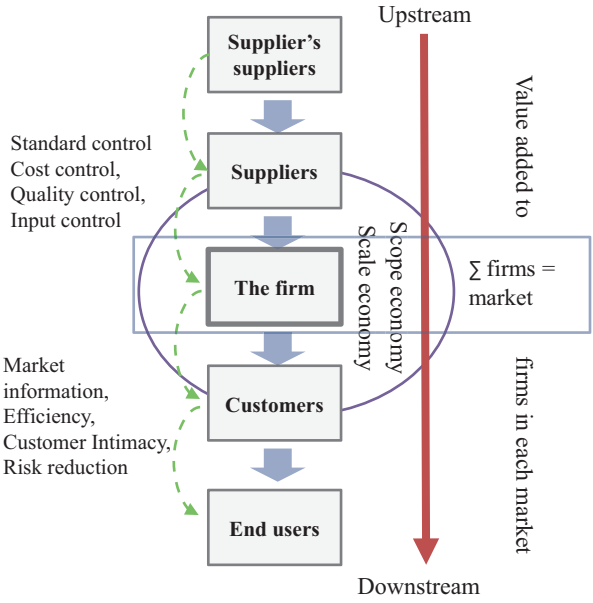

Fig. 3.3 Industry value chain configuration

On the other hand, forward integrating and linking enhance firms' access to marketing information, efficiency, and customer intimacy and reduce risk. For example, Coach has its own flagship shops and licensed retailed partners in its branded clothing to acquire more direct market information about target customers. Banks operate branch offices at universities to nurture customer relationship with universities. Telecom providers develop and test new products with customers to share experiences and reduce innovation risk. Firms through direct investments, strategic alliance, or partnership strengthen their vertical integration in order to gain synergy and dynamic capability to cope with changing market conditions. These are also the manners that firms differentiate themselves from competitors in developing their uniqueness. The following example compares the industry value chain of four famous smartphone brands, Xiaomi, Samsung, Apple, and Huawei.

Focus

Toyota's Suppliers Association

Toyota was one of the least vertically integrated auto manufacturers which nurtured a very close relationship with its tiers of suppliers. This well-organized and reliable suppliers enabled Toyota to be lean in its production process and carried out just-in-time operations. Toyota divided its suppliers into different tiers. Tier-one suppliers delivered large integrated systems to Toyota directly. Tier-two suppliers supplied parts or components to Tier-one suppliers or Toyota. Tier-three suppliers make components for tier-two suppliers, and the rest is tier-four suppliers. These suppliers formed a supplier association which involved tier one – three suppliers. Over years, Toyota through the supplier association helped suppliers to align operational plans and strategic direction, shared latest technology knowledge, and resolved production problems. Toyota also sent field engineers to supplier's plant to assist them to fix production issues. Such knowledge sharing improves coordination between Toyota and suppliers and improves product quality. Suppliers' increased competitive capabilities also enhance Toyota in implementing the renowned Toyota production system (TPS). Toyota through the supply chain management benefited from the vertical value chain without too much direct investment in the backward integration.

Source: Andrews et al. (2011) Toyota Crisis, Management Research Review

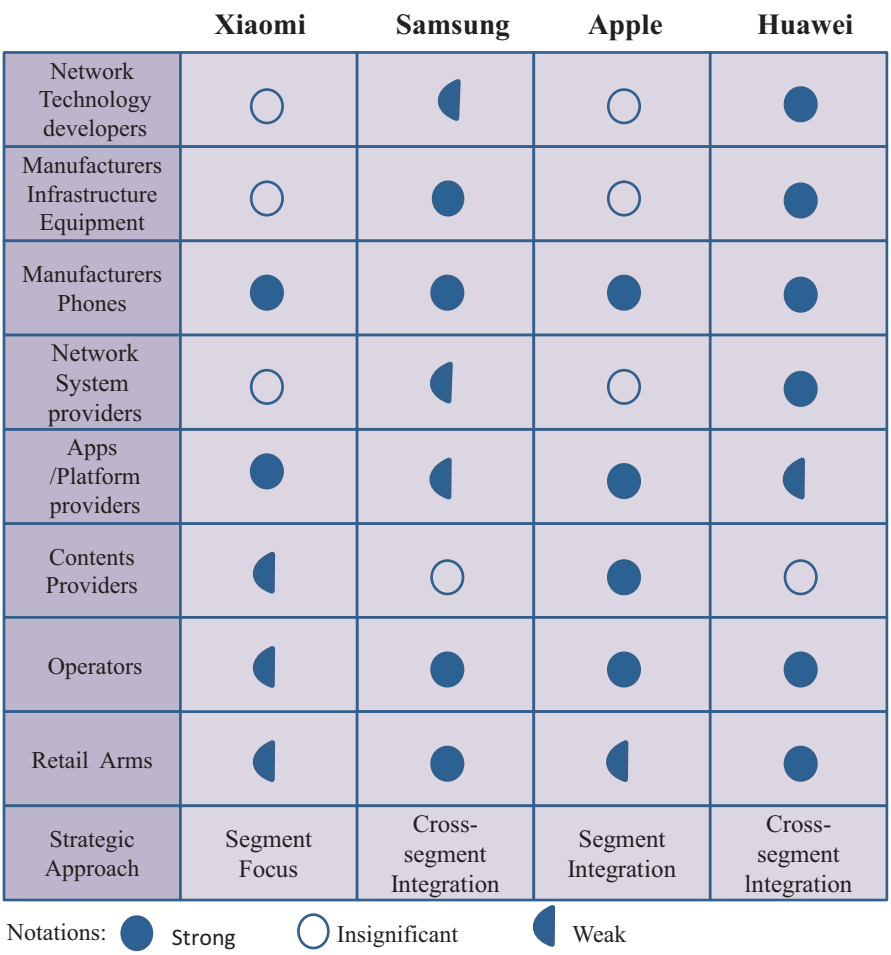

Fig. 3.4 Comparison of telephone industry value chains among four market players

3.3.1 An Illustration in the Telecom Industry on Network and Phone Businesses

Figure 3.4 depicts the vertical value chain of telecom industry including network and phone[4]. The left-hand column represents the vertical value chain of both network and consumer phone segments from upstream activities to downstream activities. Network segment refers to the telecom infrastructure and equipment for operators, covering the hardware and system activities to transmission and receiving of voice/data over the air to the phones used by consumers. Critical system standard and technology are important for network business segment to offer enabling services to telecom operators and phone makers to add features to their phones (e.g., 4G to increase speed and transmission capacity to increase data transfer travel for 4G phones). These are the essential value chain for the network businesses. For the phones as consumer products, it must

[4] Refer to Dekker (2003); Lee and Lee (2016); Bielinski (2016); and Chen and Wen (working paper)

increase phone design, features (e.g., camera, games function), as well as user contents to increase attractiveness. Phone's advanced features require networker's technological capability to perform over the network system. These cross value chains in these two segments conclude the integrated advantages of network and phone makings. Let's examine each telephone brand one by one.

Huawei owns both the telecom network and consumer phone. It is strong in the upstream value chain in both segments. Leveraging its leading technological edge in network and connection with network operators and strong distribution network, it builds a good brand in Huawei phone and seizes a very strong market share in the smartphone business (no. 3 in phone sale worldwide in 2015). Huawei is employing a cross-segment integration in the industry with high complementarity on both businesses. Its network sale also reached the top of the world in 2015.

Similar to Huawei, Samsung has good market presence in upstream value chain of network and phone business. Samsung is a conglomerate in other electronic technologies, e.g., computer chips, memory, and screen technology. These comprehensive cross-segment technological edges also assist Samsung in developing dynamic technology for Samsung products. Leveraging on the Android platform, its own patented technology, well-founded consumer brands, and strong distribution channels. It has been no. 1 in world sale in volume (three times as much as Huawei) for a long period of time. However, Samsung's network market is not as large as Huawei. Samsung is also using cross-segment integration but with a very strong competitive advantages in phone segment.

Equipped with a supreme premium brand and good knowledge about consumers' needs, Apple emerged from a different PC industry but soon led the smartphone market with its unique business model. Apple employed a legacy system building its owned developed platform system, apps, and contents and set restrictive access from foreign brands. Apple also led the market with innovative technology and product features in the phone that creates price premium. Apple is one of the most valuable brands in the world which is also no. 1 in sale revenue and profits in the smartphone business in 2015 (though no. 2 in volume worldwide). Apple sells through online sale, flagship sale outlet, and telephone operators and focuses more on the bundled downstream value chains in the phone segment. Apple holds innovative phone technology that integrates iPhone with its other own generic products, PC and iPack. Apple is adopting a segment integration.

Finally, Xiaomi was a start-up venture that began operations in 2011 and very quickly reached the fifth worldwide top sale smartphone in 2015 (90% was China local sale). As a private-funded venture capital with limited resources, its business model was simple. It manufactured smartphones with platforms and features modified from android and Apple systems. Its phones were of good quality, reasonable features, and good value price. It invested less in R&D compared to the counterparts. It made a few apps and limited contents. It provided limited choices of products and sold most of its products in its own portal. Sale grew very fast but flattened in 2015 with a slight growth of 3%. Limited by the resources, Xiaomi employed a segment focus in its overall strategy. Xiaomi focused on cost-conscious consumers that restrict the price to rise and sale to grow. More recently, Xiaomi increased more contents development (e.g., i-music) as an alternative for service opportunities. Niche focus is a good choice for firms with limited competitive advantage, but these firms will soon face a bottleneck in capability which retards their growth potential.

The above demonstrates how vertical integration of value chain industry shapes a firm's uniqueness in market competition. The firm's vertical integration broadens scope economy and enables scale economy in a mass production, meaning that products can be low cost and differentiated. As mentioned in Chap. 2, scope and scale are structural drivers of a firm to strengthen firms' competitive advantages. Huawei and Samsung have the scope and scale economies combining both network- and phone-integrated value chains. In contrast, Xiaomi's development was restrained from its limited scope (weak technological backup), and its scale economy was confined to its local market (90% from China sale). However, it does not mean that all firms can gain from scope and scale economy. Ericsson and Nokia, once telecom leaders in both network and phones, exited the consumer business (phone business) and refocused on network business after the advent of Apple iPhone. Both of them lost in the changing market landscape. Therefore, the selection of the scope of activities in the vertical integration also relies on firms' competence skills.

In sum, a firm can deliberate its vertical value chain to its competitive advantage. This structural integration can create sustained advantages in the market but may also create diseconomies (both scope and scale) due to increased complexity in an organization. Business analysts need to solicit more thoughts particularly in terms of the firm's competence capability, strategic positioning, and corporate vision.

Focus[5]

Xiaomi's Struggle for Growth

Xiaomi is a China' smartphone-making company which started operation in July 2010 and became the sixth global highest smartphone sale company in 2014 with a worldwide sale of 5%. Xiaomi was named one of the innovative companies in the world. Xiaomi used a very different business model. It used a follower strategy with technology features modified from key competitors, such as Apple and Samsung. Xiaomi has minimum inventory (make to order), small advertising budgets, or very few retail outlets. It sells a majority of phones over its own online portal and at a low price but with decent quality and product features. Its price could be 40–50% of the average market price. Xiaomi claimed not to make profits from smartphone but on software and Internet services platform. It makes use of social media, fan's club to create publicity and promote and generate sales. By 2014, it had about 8.5 million followers in the portal. Xiaomi adopted a unique serviced-based business model in which smartphone is a hardware platform to attract customers. Revenue is earned from apps and contents. However, up to 2014, revenues other than smartphone sale were less than 10%, and the sale growth for smartphone flattened in 2015 (3% compared with 2014 and the 100% growth in prior years). Xiaomi kept on spending monies for product development, and its water pipe from venture capital funds depended on a promising growth. Could Xiaomi continue with its miraculous growth accompanied its aggressive policy strategy with low profits from its core business and the potential of service-based revenues has yet to be verified?

[5] Also refer to Gupta and Dhillon (2014)

3.3.2 Guides in Vertical Integration Analysis

These are the essential guidelines for assessment of prospective vertical integration. The crux of the exercise is to ascertain incremental economic benefits in the vertical integration process which strengthen the long-term sustained competitive advantages. Key inquiries about the prospective vertical integration comprise the following:

- What are the economic benefits derived from the prospective backward/forward integration?
- What are the economic costs?
- What are the asset investments for the prospective integration?
- What are the value drivers in integrated processes?
- Can the firm maintain the competitive advantages in the long term?
- What are the qualitative advantages and disadvantages for the integration, particularly from the selected strategic position in the market?
- Can a benchmark company be found in similar activities of the value chain?

3.3.2.1 An Example on Vertical Integration

La Rose Bakery has a factory plant with a capacity to produce 4000 kg bakery products a day. A utilization rate of 70% is employed currently to serve exclusively for a supermarket chain. Its average net price for bakery items to the supermarket is $8 per kg and whose retail price is $11.5/kg at the hand of ultimate consumers. *La Rose* also owns a flour mill to provide flour exclusively for the plant. It has a production capacity of 3000 kg daily and current utilization rate of 60%. The transfer price of flour raw materials to the factory plant is $1.9 per kg, using an arm's length price.

La Rose wants *to* explore the feasibility to operate its own sale outlets and build a new brand for the future franchise business. It plans to operate eight shops initially with an average asset investment at $0.3 million per shop. It expects that annual operating (fixed) expense for each shop is $0.3 million. With the new brand, the same product can be sold at $12.5 per kg. *La Rose* expects to increase the output level to 90% of the capacity level. *La Rose* plans to put $1 million for the brand investment in the first year. Unit analysis on the current situation was provided in Table 3.2.

Currently, *La Rose*'s average assets for the mill and factory plant are $1.3 million and $7 million, respectively. Industry benchmarks indicate that ROA for flour mill operation, factory plant, and sale outlet businesses are 10%, 14%, and 20%, respectively. Comment on *La Rose*'s vertical integration and its proposal for operating sale outlet and franchise business.

****

Analysis The above case presents an example of vertical integration comprising three activities in the industry value chain: flour mill ➜ factory ➜ sale channel. Let's work out key financial numbers for each value chain in the integration process using margin contribution approach.

Table 3.2 Unit analysis

Unit per Kg	Flour mill		Production plant	
Average price $	1.9	100%	8.0	100%
Variable portion				
Raw mat.	1.14	60.0%	3.20	40.0%
Labor cost	0.30	16.0%	1.20	15.0%
Factory O/H	0.10	5.0%	1.20	15.0%
Del. Charge	0.04	2.0%	0.40	5.0%
Total variable	1.58	83.0%	6.00	75%
Fixed portion				
Factory O/H	0.10	5.0%	0.40	5%
Admin.	0.15	8.0%	0.80	10%
Net profit	0.08	4.0%	0.80	10%
Capacity		60%		70%

Flour Mill

Total annual output at full capacity = 3000 kg × 365 days = 1,095,000 kg
Current output capacity = 1,095,000 kg × 60% = 657,000 kg
Contribution margin per kg = ($1.9 − $1.58) = $0.32
Fixed cost = 657,000 kg × ($0.1 + 0.15) = $164,250

Factory Plant (OEM Sale)

Total annual output at full capacity = 4000 kg × 365 days = 1,460,000 kg
Current output capacity = 1,460,000 kg × 70% = 1,022,000 kg
Contribution margin per kg = ($8 − $6) = $2
Fixed cost = 1,022,000 kg × ($0.4 + 0.8) = $1,2264,000

Own Sale Outlets

Total annual output at full capacity = 3000 kg × 365 days = 1,095,000 kg
Current output capacity = 1,095,000 kg × 90% = 1,314,000 kg
Contribution margin per kg = ($12.5 − $6) = $6.5
Fixed cost = same as factory plant = $1,2264,000
First-year brand investment (advertising) = $1 million
Average outlet operating expenses = $0.3 million × 8 shops

Based on the initial financial inputs, Table 3.3 below provides a summary to compare financial performances of the mill, factory plant, and sale outlet (assuming no tax and constant inventory level). Mill operation performance was underperformed in terms of capacity utilization (60%), profit margin (4%), and low ROA (3.7%) compared to the industry benchmark of 10%. The mill plant was built to support internal sale, but there was no cost advantage for the factory plant (using the arm's length price). In fact, the mill plant could reach the industry ROA only (i.e.,

Table 3.3 Financial performance for the value chain

	Flour mill		Production plant		Sale outlets	
Capacity per annum (kg) % utilization	1,095,000.0	100.0%	1,460,000.0	100.0%	1,460,000.0	100.0%
	60.0%		70.0%		90.0%	
Current output (in kg)	657,000.0	60.0%	1,022,000.0	70.0%	1,314,000.0	90.0%
Average sale price $	1.9		8.0		12.5	
CM$ per kg	0.32		2.0		6.5	
Sale revenue	1,248,300.0	100.0%	8,176000.0	100.0%	16,425,000.0	100.0%
Variable cost	1,036,089.0	83.0%	6,132,000.0	75.0%	7,884,000.0	70.0%
Contribution margin	212,211.0	17.0%	2,044,000.0	25.0%	8,541,000.0	30.0%
Fixed cost	164,250.0	13.2%	1,226,400.0	15.0%	1,226,400.0	7.5%
Outlet operating expenses	–		–		3,400,000.0	
Profit margin	47,961.0	4.0%	817,600.0	10.0%	3,914,600.0	23.8%
Industry ROA	**10.0%**		**14.0%**		**25.0%**	
Profit margin (current level)	47,961.0	4.0%	817,600.0	10.0%	3,914,600.0	24%
Incremental profit (full capacity)	140,160.0		876000.0		949,000.0	
Average asset	1,300,000.0		7,000,000.0		9,400,000.0	
ROA (current output level)	3.7%		11.7%		41.6%	
ROA (full capacity level)	14.5%		24.2%		51.7%	

10%) when it operates at least 90% of production capacity. Given its mediocre financial performance and the absence of competitive uniqueness, *La Rose* has no reason to keep the flour mill business.

Production plant has a profit margin of 10%, ROA of 11.7%, and capacity rate of 70%, compared to the industry benchmark of 14%. *La Rose* operation performance could have beaten the industry benchmark substantially in full capacity (24.2%). *La Rose*'s problem comes from its single customer whose high buyer's power would disallow the price to increase and the output is constrained at its request. Under this situation, *La Rose* has no point to make product differentiation to increase profit margin. This is the dilemma of *La Rose* today. *La Rose* has no brand and has difficulty for further growth.

Sale outlet operation can revert the business fatalism. *La Rose* can leverage its production skills, logistic flows, and experience of customer taste to build its own brand and sell bakery items in its own shops. The direct sale approach lets the firm acquire more market information from customers, enables the firm to build brand,

increases diversity of product portfolio, and regains sale autonomy. In fact, it is not aggressive to set the price ($12.5/kg) slightly higher than the retail price ($11.5/kg) given the brand effects and more "fresh and crunchy" in bakery products sold by its own shops. Given the forecast, *La Rose* could achieve a higher profit and dwarf the industry benchmark (20% + 14%). It can be possible to reach full capacity level (ROA, 51.7%) through franchise businesses in which sale growth is exponential.

Putting its future business in the vertical value chain, *La Rose* should set its blue print similar to Fig. 3.5

From the overall review, the above sketch sums up a few points for *La Rose*'s attention:

(a) The industry ROA suggests more returns on the vertical chain from the downstream activity.
(b) There is no point to keep the flour mill as it increases management burden but has no cost benefits to the firm. It should be divested and use the monies for investment in sale outlet operations.
(c) Operation of sale outlet provides a synergy for *La Rose* as "the direct-sale approach" provides more business opportunities and the scope economy increases its profit potential.
(d) Brand differentiation increases the ability of *La Rose* to raise price and to operate bakery franchised stores.

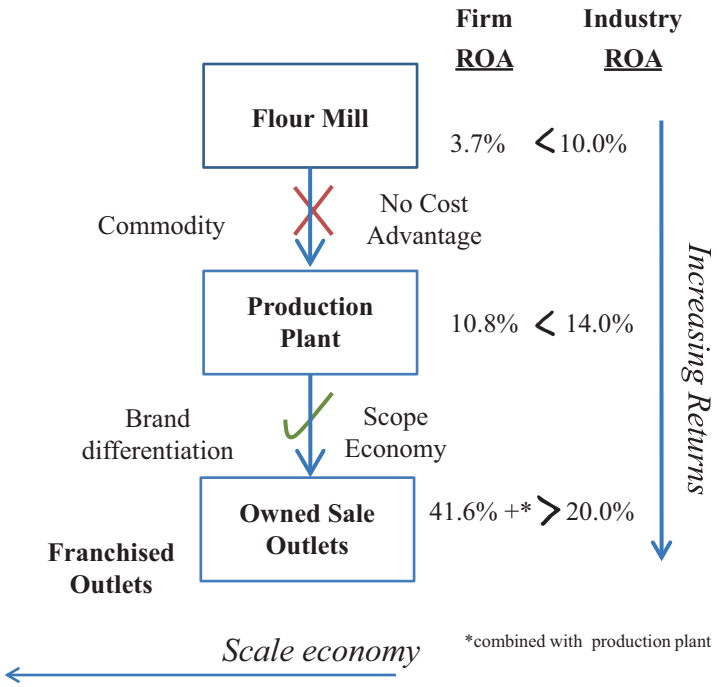

Fig. 3.5 LA Rose's blue print

(e) With a successful brand, *La Rose* can expand output and operate franchise shops to leverage on the scale economy.
(f) *La Rose* should keep the supermarket meanwhile and operate new sale outlets as a pilot test with the excess capacity it has currently. It should build a new brand and accumulate more direct sale experiences for the future business.

The above example demonstrates how a firm makes use of vertical value chain to gain competitive advantage for this strategic positioning. Very often, it takes years to transformation of the business, and the financial effects will appear in a series of years. Present value is a financial evaluation technique to deal with returns of long-term capital investment in a series of years.

3.4 Present Value

Present value concept is the basic concept for discounting cash flow technique. Present value concept refers to all nominal values of cash in a time series and discount back to a single period – today's value. It is easy to comprehend the concept of taking money value $100, today. If today's $100 is put into a bank and an interest of 5% p.a. is received 1 year from now, this means that the money of $100 will become $105 1 year from now. Future value of $100 (today) will be equivalent to $105 by 1 year. This concept can be written as follows:

Present value of money (PV) = $100
Future value 1 year from now = $ 100 × $(1 + 5\%)^1$ = $105

Conceptually, the above calculation can be written into the equation for future value.

Future value (FV) n year from now = PV × $(1 + r\%)^n$

where n = 1, a time period; r =interest rate.

By shifting the $(1 + r\%)^n$ to the other side of the equation, a new formula will appear like this:

$$\text{Present value } (\text{PV}) = \frac{\text{Future value } (\text{FV})}{(1+r\%)^n} = \frac{\$105}{(1+5\%)^1} \tag{3.1}$$

The rewritten formula tells us about the present value that is equivalent to FV divided by $(1 + r)^n$. In fact, the value of money in the future is not equivalent to the present value of money today. When dealing with future money (e.g., corporate forecast in a no. of years), all future cash flow streams are required to discount to the present value by a discount rate (here is interest rate of 5%p.a.). Imagine that there is a stream of cash flows to continue for 5 years, all future cash flows (5 years) are required to be converted into the present value (today as a common denominator).

Example
What is the present value of a cash flow stream in which an annual $1000 will be received for 5 years starting 1 year from now? The current interest rate is 10%p.a.

An interest rate of 10% is applied as discount rate for the PV. What is the present value of $1 after 1 year, 2 years, and so on? We can easily calculate the answer by the equation e.q. 3.1 above, i.e., PV $=1/(1 + r)^n$:

PV of $1 in year 1 $= 1/(1 + 10\%)^1 = 0.909$
PV of $1 in year 2 $= 1/(1 + r)^2 = 0.826$

Let us examine the PV computation in Table 3.4 – Computation of PV.

Table 3.4 shows a 5-year cash flow which has a constant cash flow of $1000 each year. The DCF factor (df @10%) represents the discount of 1$ by 10% at year *n*. In this column, the discount factor of year 1 is 0.909 and year 2 is 0.826 until year 5 at 0.621 $(1/(1 + 10\%)^5)$. In fact, a present value table shows all numbers of a range of discount rate across *N* years. By computing cash flows with DCF factor, we can calculate the PV in each year. There is a point that deserves attention in this table. PV of the same dollars (i.e., $1000) diminishes as it moves away from the present time (t_0). For example, the present value of year 1 ($909) is much higher than the present value of year 5 ($621) though both periods have the same nominal value of $1000. Let's go through the case of *La Rose* again to see what happens to the business transformation.

Table 3.4 Computation of PV

Year	*df* at 10%	Cash flows	PV
1	0.909	1000	909
2	0.826	1000	826
3	0.751	1000	751
4	0.683	1000	683
5	0.621	1000	621
Total present value			3790

3.4.1 An Illustration of Present Value Concept

La Rose Bakery asks a management consultant to prepare a corporate cash flow forecast for the blue print which covers 3 years. Assuming a discount rate (r) at 10%, what should be the present value of these cash flows stream?

Year 1	Residue income for disposal of mill operation, $2 M
	Net cash income for the factory plant, $1.2 M
	Net cash income for new shops, $0.5 M
	Cash investment in new shops, $2 M
Year 2	Net cash income for sale outlets, $3.5 M
	Cash investment in new shops and brand building, 4.5 M
Year 3	Net cash income from sale outlets, $4.5 M
	Net cash income form new franchised, $1.2 M

The net cash flow for each year from year 1 to year 3:

Year 1: $2 M + $1.2 M + $0.5 M − $2 M = $1.7 M
Year 2: $3.5 M − $4.5 M = −$2 M
Year 3: $4.5 M + $1.2 M = $5.7 M

Taking reference from the present value table in Table 3.4 above, the present value of the cash stream during the year 1 to year 3 is computed as follows:

PV = $1.7 M × 0.909 − $2 M × 0.826 + $5.7 M × 0.751 = $4.17 M

As seen in the computation, the nominal value of the 3-year net cash is $5.4 M (1.7 M–2 M + 5.7 M), but the present value of the entire 3-year cash flow is $4.17 M, which is 77% ($4.17 M/$5.4 M) of the nominal value. The reason is the large sum of nominal money appears in year 3 which has a discount rate of 0.75. It is also noted from this example the importance of discount rate (r) in computation of present value. Discount rate will be fully discussed in Chap. 10.

Present value concept is an important topic for valuation when involving a multiple period of time. The technique will reappear in the coming chapters.

3.5 Conclusions

The above sections have gone through the most important value topics which have enriched substantially the contents of traditional management accounting topics. It provides a new perspective to the management in assessing corporate performance, charting corporate direction and strategies, as well as creating value for the organization from a multiple lenses both internally and externally. We will see the complementarity of cost and value concepts and its interactive effects to alter management accounting concepts. We will provide more examples when we go through the remaining chapters of this book.

Takeaway Tips

- Financial analysis from value dimension forces the firm to examine from an external perspective of how to deliver value to customers.
- Value chain analysis leads management accountants to question from each value activity component of the firm. It also identifies what are value-added and non-value-added activities from each key functional areas of the firm.
- An examination from the industry value chain identifies the firms' competitive strength from backward and forward integration.
- A proper orchestration of the vertical linkages increases potential of firms to gain competitive advantages in the marketplace through economies of scope and scale operations.
- Money value across a time series can be translated into a common single-period present value at t_0, a fundamental concept for discounted cash flow technique to deal with financial valuation.

References

Andrews, A. P., Simon, J., Tian, F., & Zhao, J. (2011). Toyota crisis. An economic, operational and strategic analysis of the massive recall. *Management Research Review, 34*(10), 1064–1077.

Bielinski, T. (2016). Innovation and human capital as a main source of competitiveness of Chinese economy. *Forum Scientiae Oeconomia*, 4(1).

Chen, S. H., & Wen, P. C. (n.d.). Working paper. The evolution of China's Mobile Phone Industry an good-enough innovation.

Dekker, H. C. (2003). Value chain analysis in Interfirm relationships: a field study. *Management Accounting Research, 14*(1), 1–23.

Gupta, S., Dhillon, I. (2014). Can Xiaomi shake the global smartphone industry with an innovation "services-based" business model? *AIMA Journal of Management and Research*, *8*(3/4).

Lee, K., & Lee, P. (2016). Creative imitation as catch-up strategy: A business model. *Asian Journal of Innovation and Policy*. doi:10.7545/ajip.2016.5.1.001.

Porter, M. (1980). *Competitive strategy*. New York: The Free Press.

Shank, J. K., & Govindarajan, V. (1989). *Strategic cost analysis*. Homewood: Richard D. Irwin.

Part II

Managing Customers

Cost to Serve and Customer Selection

4

Abstracts

This chapter explores strategic issues in managing customer performance. First, it examines why large firms failed to implement cost-to-serve (CTS) policy for customer accounts and the consequence of CTS mismatch on the corporate performance. Second, it illuminates the necessity to separate customers by value contribution to the firm (i.e., customer clusters). Third, it discusses new rules for customer selection and resource allocation. A new tool of customer performance management grid (CPMG) is introduced which links CTS to customers by value contribution. Management can make use of this new tool to establish pricing and CTS policies based on customer clusters (i.e., CP/CTS ratios). Furthermore, management can examine business potentials and customer compatibility between the target customer and the firm to decide action strategies for customer investment. To integrate total customer performance management, sale performance monitoring system which links customer clusters, customer fit, and customer investment is discussed.

Keywords

Cost to serve • Customer selection • Customer clusters • Customer performance management • CP/CTS ratios

4.1 Introduction

Firms regard customer relationship as a key factor for company's success. These firms would spend more monies on those large target customers to build relationship and satisfy their high demand. The monies invested are expected to exchange for loyalty, revenue, and profitability. However, this proposition is problematic. Let's see some research comments below.

W.S. Li, *Strategic Management Accounting*, Management for Professionals,
DOI 10.1007/978-981-10-5729-8_4

Airline industry uses frequent flyers as customer segmentation and design royalty plans to reward those frequent flyers. IBM conducted a study[1] on airline's customer relationship management (CRM) in the USA and discovered in one sample that top 1000 customers (by revenue) accounted for 60% more revenue than its top 1000 customer by mileage. In another case, IBM noted 15% of customers accounted for 40% of revenue. The study pointed out that high-value customers are more important than large mileage (royal customers). They are far more valuable than the frequent royal customers. Ticket value per customer is the key for customer relationship. CRM should nurture loyal customers with high ticket values but not loyal customers with large mileage. Only high ticket value customers can contribute economic value to corporations.

Often, firms have misconceptions on large customers that they could generate good returns. Business researchers[2] such as Kaplan and Narayanan found an anomalous phenomenon in many firms that more customers are making loses than making profits. Surprisingly, these are the large corporate clients. They epitomized the observations in a whale curve of customer profitability by Pareto 80-20 rule. Let us look at the Fig. 4.1 – A typical whale curve.

As shown in the diagram, customers are ranked on the horizontal axis from most to least profitable, and cumulative % of net operating profit is provided on the vertical axis. Whale curve of cumulative profitability shows that 20% of most profitable customers generate 180% of profits, while 20% of least profitable customers lose 80% of net operating profits. The remaining 60% of customers are about breakeven.

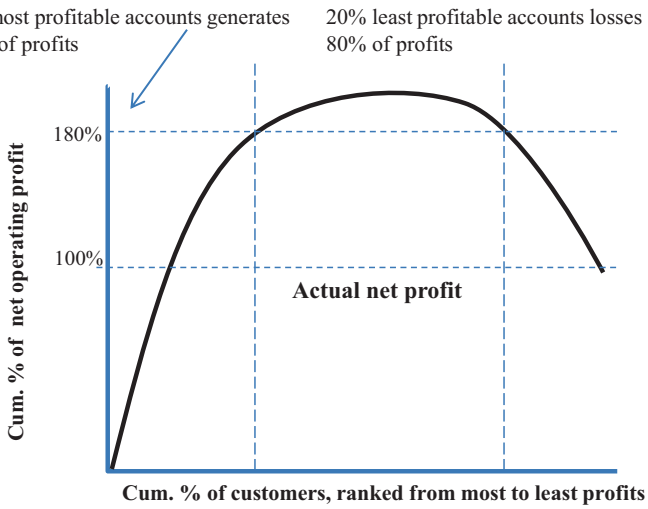

Fig. 4.1 Whale curve

[1] The survey was mentioned in "The future of CRM in the airline industry: A new paradigm for customer management" by Declan, Doug, and Sean. IBM Institute for Business Value.

[2] Kaplan, R.S. and V.G. Narayanan, 2001. "Measuring and managing customer profitability." JOURNAL OF COST MANAGMEENT. September/October: 5–15.

In fact, the researchers also discovered that the largest customers are clustered at the 20% least profitable area. The plausible reason is that large customers ask for high service demand but also request a high price discount. This makes the business transactions unprofitable. This is a management paradox that firms serve large customers as kings, even forgoing their legitimate profit rights (Fig. 4.1).

4.2 Cost-to-Serve (CTS)

In fact, Kaplan[3] attributed this corporate misgiving to excessively high demand from customers without due pricing on services. Exceptional high CTS erodes profit margin on these large customers, and firms fail to understand the consequences. Kaplan provides a guideline to distinguish the characteristics of high cost-to-serve customers from low cost-to-serve customers. Their characteristics are shown in Fig. 4.2, Cost-to-serve profit contribution.

In Fig. 4.2 below, high cost-to-serve customers are characterized by ordering customized products, small order quantities, unpredictable order, customized delivery, frequent changing delivery requirements, manual processing, large amounts of presale support, large amounts of post-sales support, and slow payment. High customer demand results in high marketing, selling, delivery, and administrative (MSDA) expenses and also large working capital to support customer sales. In contrast, low cost-to-serve customers are typified of standard products, high-order quantities, predictable order, standard delivery, no change in delivery requirements, electronic processing, little presale support, no post-sales support, and pay on time.

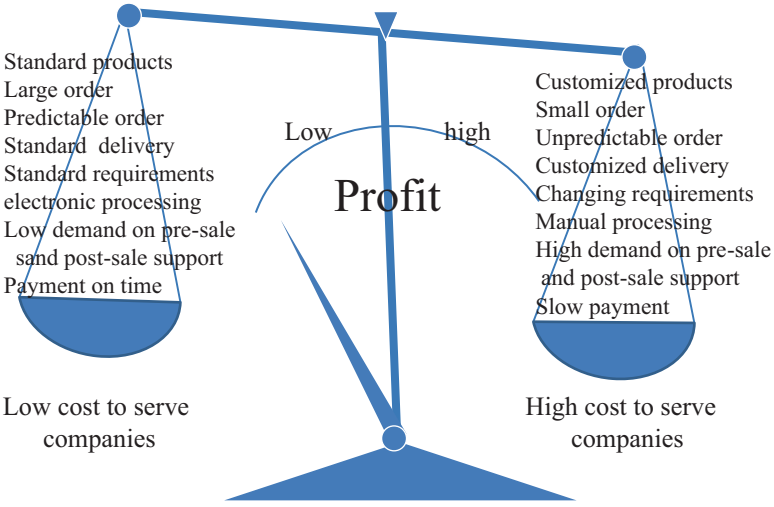

Fig. 4.2 Cost-of-serve vs profit contribution

[3] Ditto.

Customers with low service demand reduce firms' MSDA activity expenses and improve working capital turnover. Firms could not be compensated by good profit contribution from those firms with high CTS and results in imbalance of profit contribution between high CTS and low CTS. Low CTS firms subsidized large high CTS firms. Is it legitimate to build and retain customers by a good CRM?

Firms should cultivate a good discipline to guide price setting in line with customer service level. Firms should nurture customer relationship, but not at the expenses of profits and shareholder value. The above airline and whale curve examples have reflected the irrational behaviors of firms, without asking what benefits these customers can contribute to the corporate well-being. Shall price and service package be viewed in a bundle rather than a separate transaction? What are the principles and measures in offering customer relationships? These management issues require a proper attention.

4.3 CTS and Customer Life Cycle

Businesses and products have life cycles, and so for customers. Customer life cycle (CLC) can be defined in four phases: acquisition, development (also deepening), retention, and exit. Each phase has different time scale. However, firms from different industries or under different market competitive conditions would change the time scale of CLC. In fact, some industries may have a combined acquisition and development phases together (will discuss immediately). Let's discuss each phase of CLC and its MSDA patterns in the following:

Acquisition phase This is the initial stage where customer relationship starts. "Acquisition" can be defined as offering company's services to new firms at no or low prices. It should be a brief timeline in this phase. A huge proportion of CTS should spend in marketing development activities. Immediate profit is not the desired aim.

Development (deepening) phase This is the deepening stage of customer relationship. More interactions are made between the firm and customers. The depth of relationship is evolved from molding customer expectations. This is the stage where sale orders would accumulate and sale routines would ensue. There will be relatively high MSDA expenses on marketing activities, though expenses related to sale transactions are low. This investment phase cannot last too long. Profit margins should creep in gradually.

Retention phase This is the phase where expectations between selling and buying parties have established and good experiences have turned into efficient working practices. Customer relationship can be maintained through quality service, good value, management of mutual expectations, stable personnel, and market conditions. In fact, there should have less marketing development activities compared to the prior stages, and MSDA expenses are more geared toward sale transaction activities. The firm in this phase should maintain a reasonable profit margin.

Exit phase When market situation changes and/or internal problems drive customer out of the normal business relationship, it is time for customer exit. This phase is characterized by low MSDA activities with only little administrative expenses. Profit is gone and business is shrinking.

In fact, different industries have different levels of CTS in various phases of CLC. Those firms in an industry with a high upfront investment (e.g., telecom operators) would invest heavily on customers at the acquisition and development stages, tolerating higher immediate loss for promising profits in coming years. Customers facing a higher exit barrier would be more difficult to exit from suppliers, and firms may have a longer retention period in the CLC. Conversely, customers who can easily switch to other suppliers may not receive immediate benefits from suppliers during the acquisition and development phases. These firms tend to provide relatively low CTS on customers but risk for customer exit. Firms from trading industries (especially on commodity types) are examples of this category.

The distribution of MSDA expenses in CLC can be graphically presented in Fig. 4.3 – MSDA distribution in CLC. As depicted, high proportion of marketing expenses should appear during the early phases of CLC. However, sale transaction-related expenses such as selling expenses, delivery, and administration would be predominant at the later phases. More MSDA should be spent on income generated sale transaction activities. Even marketing expenses are used in more sale-related programs, e.g., advertising sponsorship and joint promotion, rather than entertainment types of marketing expenses. An understanding of distribution pattern of MSDA in each phase helps corporate management to control CTS.

Focus

When CTS Is Approaching Zero

People argue that online business has an operation model which has a huge fixed cost but a negligible variable cost (marginal cost) in the operations. No matter if it is Google Search, Facebook, or WhatsApp, these online business operators cannot charge fees to major users because there is no additional cost to users. Price theory in microeconomics also supports that a firm with a zero marginal cost must be zero both in marginal revenue and average price (MC = MR = AP = 0). Apparently, Internet's free-of-charge price policy has found its theoretical ground.

However, we may also argue that cost does not determine price but value to buyer (also from microeconomics). Users don't bother free-of-charge service when there is no value to them. Value to buyer is a perception issue. For a majority of users, they can easily switch to other e-service platform and wouldn't pay a penny to these services. However, advertisers find a derived value from "the mass subscribers" and are willing to undertake the whole bills. Zero CTS creates an online business model that discriminate price by segments (subscribers and advertisers).

More than that, zero CTS also shapes online business in a long tail model. It is particularly relevant for the online retail businesses. Long tail concept was raised by Chris Anderson[4] in early 2000s that suggests low (or negligible) distribution, and inventory storage costs enable online shops to provide more varieties and less popular individualized products in the overall product portfolio. Online shops can sell a few popular items for regular customers and also offer niche items to those customers with odd demand. Such niches items can expand to form a long tail in the overall production portfolio. Online businesses such as eBay, iTunes store, and Amazon employ this selling strategy. This long tail strategy works over time. For example, Amazon in 2008 recorded a sale of 37% of niche books on total sale amount.[5] Niche items will contribute more value to online businesses as more powerful search engines emerge in the Internet worlds. Long tail business creates more choices for individual customers and allows online shops to select "niches for richness.[6]" Once again, zero CTS overturns conventional business rules and opens new business opportunities in the digital worlds.

[4] Anderson, Chris. "The Long Tail" Wired, October 2004.

[5] Bynjolfsson, Erik; Yu (Jeffrey) Hu, and Michael D. Smith, 2010, "The Longer Tail: The Changing Shape of Amazon's Sales Distribution Curve".

[6] Brynjolfsson, Erik; Hu, Yu Jeffrey; Smith, Michael D. (Summer 2006). "From Niches to Riches: Anatomy of the Long Tail." 47 (4). Sloan Management Review: 67–71.

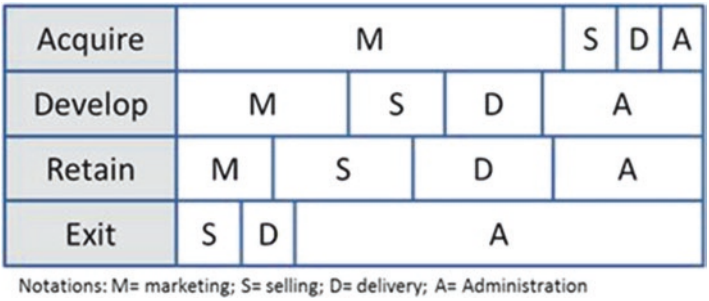

Fig. 4.3 MSDA distribution in CLC

4.4 Linking Customer Profit to CTS

4.4.1 Customer Profit

What is customer profit? It can be defined as anticipated (or actual) profits to be generated from doing businesses with the customer. It can be direct and indirect customer profits. Direct customer profit (DCP) is a financial benefit contributed directly from the customer, e.g., profits earned from sale transactions. Indirect customer profit (ICP) is the imputed financial benefit(s) derived from the customer because of connectedness with the customer. Sale reference is an example where firms get the sale order because of the credential to trade with a reputable customer. In theory, customer profit can be formulated as follows:

- Customer profit (CP) = direct customer profit (DCP) + indirect customer profit (ICP)

While DCP is simply based on a company's net operating profit, ICP is however less straightforward. "Firms should set a very strict discipline and definitions for benefit rider" derived from a third party customer should the ICP be counted. For simplicity reason, only direct customer profit will be counted in this chapter.

4.4.2 CTS

CTS is instrumental to sale realization. Individual customer's CTS is arrived after proper allocation of customers' related expenses. Direct expenses can be easily traceable to the customer, while indirect expenses can be allocated using ABC approach (as discussed in Chap. 2). For example, sale order administration expenses can be allocated according to no. of orders processing for the customer. Sale team's

expenses can be apportioned based on the number of hours spent on each customer. Delivery charges are based on time spent on the delivery order.

CTS is like a two-bladed sword. Too low the CTS would affect CRM development, but too high of it would hurt company bottom line. Where should the line be drawn? The purpose of CTS has an ultimate profit motive. Capability to contribute benefit is the key driving factor. Therefore, CTS should be measured in terms of customer profit (CP). In fact, firms should always ask: how much profit the firm can earn for each dollar of CTS spent? In so doing, ***linking profit to CTS forms a rational basis for customer performance evaluation***.

4.4.3 CP/CTS Ratio

CP/CTS ratio can be defined as financial benefits accrued for costs spent to secure sale with customers. The ratio indicates the profit to be earned on each dollar of CTS. High CP/CTS ratio means high efficiency of CTS in profit generation, whereas low CP/CTS ratio means the contrary. Firms prefer high CP/CTS ratios to low CP/CTS ratios and may terminate business relationship with customers with negative CP/CTS ratios. From the firm level, high average CP/CTS ratio entails a healthier company, but low average CP/CTS ratios exhibit profit problem. Firms should be conscious of the overall selection process and pricing strategies. This new approach helps identify valuable customers and abandons customers with more burden than benefits.

4.5 Valuable Customers?

Customer is king as long as it can generate financial benefits to firms. Key customers should be those who contribute high-value revenue to firms. Firms should establish policy and measure to administer CTS to customers. The matching of CTS and customer profits are the base of decision, not from subjective assumptions on greatness or customer loyalty. Firms should redefine "who are the key customers." As discussed earlier, large customers may not contribute profits to the firm. Loyal customers may increase firms' CTS without due increase in financial benefits. Firms should find a new customer management approach. CP/CTS ratio is a yardstick to measure high-value customers – the preferred kings. They ought to be value contributor to the firm.

Let's suggest a new approach to manage customer performance by using customer performance management grid (CPMG). It is a systematic approach to manage customer performance. Basically, it is an analysis of cluster patterns of customer CP/CTS ratios along different performance zones. Based on the density of cluster patterns on the performance zones, the responsible management staff can assess visually the overall customer performance and identify problems for remediation.

Figure 4.4 below summarizes customer performance management grid. The vertical axis of the chart is used to measure CP/CTS ratios, while horizontal axis is

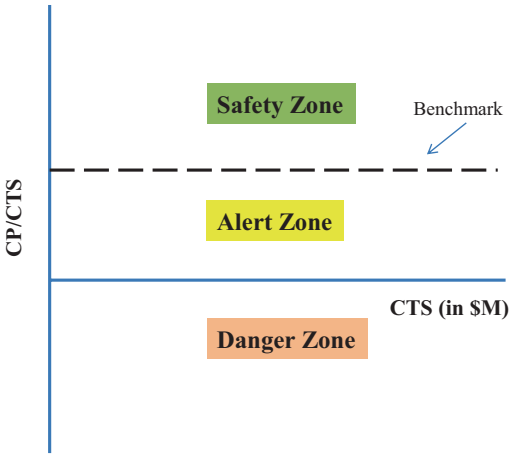

Fig. 4.4 Customer performance management grid

individuals' CTS. A dotted line is drawn parallel to the horizontal axis, which is a standard benchmark line to reflect the average CP/CTS (or the target CP/CTS) for the entire firm. In fact, the farther the standard benchmark is away from the horizontal axis, the better the company's overall profitability will be. The nearer the standard benchmark is from the horizontal axis, the more vulnerable the company profitability will be. Standard benchmark line reflects the firm's "health" condition in profit generation.

The grid is divided into three zones, i.e.:

Safety Zone: This is the area where customers' CP/CTS ratios are above the standard benchmark line. These customers are performing above the company average.

Alert Zone: This is the area where customers' CP/CTS ratios are between the standard benchmark line and the horizontal axis. Customers within this area are underperformed and are required to keep monitoring. The nearer the CTS ratio is from the horizontal axis, the more vulnerable these customers will be in the customer performance.

Danger Zone: This is the area where customers' CP/CTS ratios fall to unacceptable zone. A more immediate action is required to be taken to rectify the situation, including an exit plan.

CP/CTS ratios can be a powerful measure (along sale performance indicators) in monitoring profitability because it addresses both profitability and cost to serve. In addition, CPMG is a powerful visual management tool to unfold customer performance both from sale efficiency and company profitability dimensions.

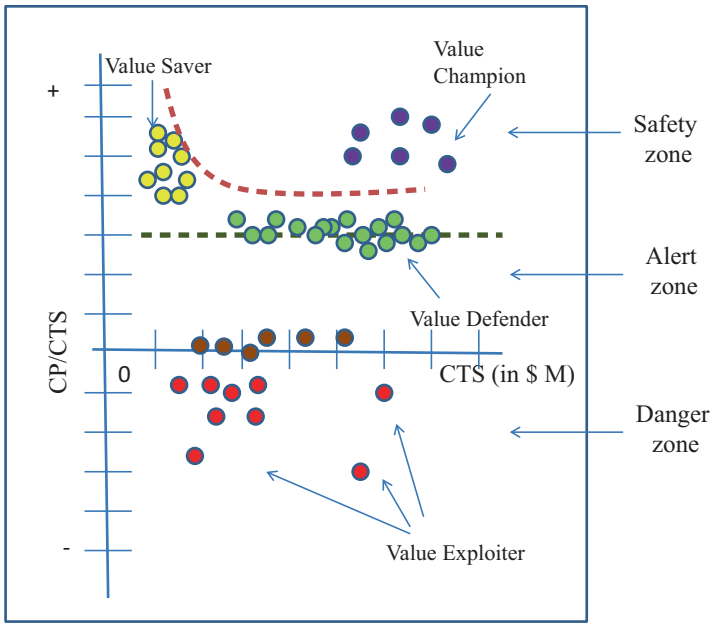

Fig. 4.5 Four customer clusters

4.5.1 Locate Valuable Customers

Customer is king as long as it can generate profits to the firm. The matching of CTS to customer profit is the base of decision. Along this logic, customers can be defined directly by their CP/CTS ratios. The categorical groupings of customers are described in Fig. 4.5 – Four customer clusters.

As shown in Fig. 4.5 above, four clusters emerge in the grid. They are value exploiter, value defender, value saver, and value champion:

Value exploiters: These are customers who are causing financial losses or diminution of shareholder value to the firm. They are in the danger zone of the grid. The firm should pay close attention to these customers especially those customers who are farther away from the left (zero). Firms provide high CTS but with substantial loss. An immediate action is required including an exit plan.

Value defenders: These customers are clustered around the standard benchmark. They should be the majority in the customer portfolio. These customers should deliver the anticipated performance.

Value savers: These customers are located at the left hand side of the standard benchmark (safety zone) and to the left of the red dotted line. Profits are secured from these customers simply they do not demand service. However, they are price-sensitive and less loyal to the firm.

Value Champions: These customers are located at the right hand side of the safety zone. They contribute high CP/CTS ratios. They are high value customers - the kings of the firm. They deserve privileged rights and top attention. These are the champions that the firm should invest more and explore further mutual interest in business endeavors. These customers may demand high service level. However, they can pay higher prices for extra services.

In sum, a few implications can be drawn from the distribution of customer clusters:

1. The more proportion of customers falling in the alert and danger zones, the more vulnerable the company will be. The firm will face more business volatility.
2. Vulnerable situations aggravate when the standard benchmark is nearer to the horizontal axis and where there is a high data density (CP/CTS ratios) in the area.
3. Firms enjoy operating efficient if there is high data density above the standard benchmark line.
4. Firms' profit propensity is high when there is an abundance of champion customers who can pay high price though with high service demand.
5. Firms benefit from value savers due to low service demand. There is a warning that these customers are also price sensitive and less loyal.
6. High concentration of profits in the hands of a few customers (especially when the standard benchmark line is low) makes the firm at the peril of hijack.

Firms need a new way to manage CTS. Valuable customers are grounded in profit generation capability. CP/CTS ratios are the best ruler of measure. CPMG serves as radar in managing CTS spending. Management can monitor customer performance by price and CTS policies based on clusters of customers. For example, value champions' service demand should be satisfied as much as possible. Value savers should be governed by more restrictive pricing policy. Value defenders have to accept a close cost scrutiny and control to improve cost efficiency. Finally, there should be an exit rule and restrictive credit and sale policy for value exploiters should they consistently contribute loss to the company. Restrictive measures include zero sale credit, deposit requirements, and zero trade discounts. In sum, management should also understand that the more CTS can be rationalized, the better will be the financial performance of a firm.

4.6 Customer Selection

Customers are distributed among different stages of customer life cycle. Customer portfolio requires to add new customers, which may sacrifice short-term profits for long-term benefits. This is particularly true for a growing market in which business opportunities ensue. However, existing customers in a mature market are strategically important because competitors are also interested in them under a very intense

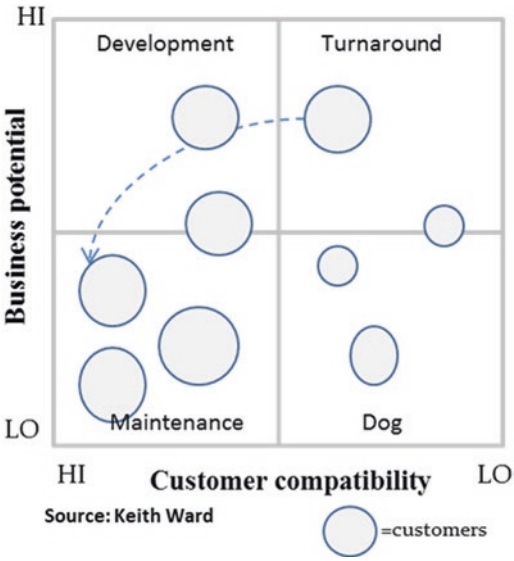

Fig. 4.6 Directional policy matrix

market competition. This is a zero sum game. The more customers walk to competitors, the lower chance the firm can survive in the market-killing fields. Old customers should be kept if possible. Under such situations, low or even negative CP/CTS ratios appear in the customer portfolio. In fact, it is inevitable that there are variations in customers' CP/CTS ratios. However, more important of it is the rationale behind the decision. What are the overall strategies for these customers? How should the firm determine resource allocation in customer acquisition, development, and retention phases? When is the time for customer exit if inevitable? Keith Ward[7]'s directional policy matrix (see Fig. 4.6) provides a clear strategic evaluation direction. As stated by Keith, the tool can also be employed in strategy development for business segments and sale channels.

4.6.1 Business Potential Versus Customer Compatibility

As illustrated in Fig. 4.6, the horizontal axis represents the relative compatibility factor for different customers or customer groups. Customer compatibility is referred to how compatible the firm can match customer needs and expectations. Compatibility should be judged from the customer perspective. High compatibility means a close matching between the firm and the customer needs and expectations. Low compatibility means remoteness in the need-and-offer matching. It begs a question on why customers choose your firm other than your competitors. What are the firm's competitive advantages? What product offerings does the firm make to customers?

[7] In Keith Ward's book "Strategic Management Accounting," Chapter 6.

The vertical axis represents business potential with target customers. Business potential is related to the business the firm can offer to the target customer. High business potential means that there is more room for expansion. Low business potential means that there are limited offerings to the target customer.

Firms need to evaluate customers from these two dimensions simultaneously and ask the questions of (1) how compatible the customer is pertinent to the firm's offerings and (2) how much business potential can be further developed with the customer.

To begin from the turnaround box (upper right hand box in Fig. 4.6), customer compatibility is low but business potential is high. The sale team needs to ask whether they can tune customer perceptions and expectations about the firm. What competitive advantages does the firm have over the competitors, and how can the customer be enlightened to increase perceived compatibility? Does the firm need to spend monies on customers in the transformation processes? These are "converts" in the acquisition phase that they have been successfully transformed, or they fall into the downward "dog" (exit) box.

If new customers or "transformed" customers are in the high compatibility and business potentials areas (upper left-hand box), sale and business development team needs to put perception into actions – sale volume. What strategies does the company need to increase customer sale? Price, quality, service, and relationship are the key. This is the development phase that customer expectations can be molded particularly in relation to CTS level. As sale increases, customers can choose between (1) cheap price with a lower service or (2) a higher price for a better service. If sale and marketing team chooses to ignore the guideline, the firm will suffer at the later stage. In fact, spoiled customers (low CP/CTS ratio) may create "expectations" problems for customers. The firm cannot afford to continue the "indulgence."

In the maintenance stage (lower left-hand box), customer growth will be stagnant. Business potential is limited though compatibility remains high. These customers are in general stable. However, they are also the target of the competitors. Strategies should be devised to uphold customer loyalty.

Finally, there are customers who will fall into the dog box (lower right hand box) directly or finally. Exit strategies may include close monitoring of receivables, inventory, and direct related assets and offload of these assets and other financial burdens as soon as the possible. Customers have no value to the firm at all.

In sum, customer portfolio should be kept in a dynamic manner. New customers can bring in new business potentials with high compatibility with the company offerings. Old customers can secure company's stable business and profitability. However, customers with low business potentials and compatibility should let go.

4.7 Action Strategies

Firms should implement different action strategies for different customer types pertinent to the CTS monitoring. Four strategies are depicted as follows:

Hold: Maintain the status quo and keep the CP/CTS as it is.
Invest: Increase cost investment in customers and allow a slight decrease in CP/CTS.
Reduce: Reduce cost spending with the given price level and anticipate an escalation of CP/CTS.
Exit: Freeze further cost spending, prepare for exit, and disapprove sale transactions with negative profits.

The above action strategies provide a few rules of thumb to manage CTS. However, ultimate decisions are contingent on the contextual condition based on compatibility and business potential dimensions. At this point, there are a few directional guides to the sale management with respect to the four customer clusters upon each contextual condition (compatibility versus business potential). Figure 4.7 provides a summary of the action strategies to be employed for each customer cluster under each business potential and compatibility condition.

Compatibility dimension relates to how well company's product/service match with the target customer's demand and how fit is the target customer as against company's market position. On the other hand, business potential dimension pertains to the extent of business opportunities that have been explored – whether it is fully explored or underdeveloped. Management should ask whether customers have high compatibility with the firm and whether business potential can be further explored with customers (within say 6 months). Should the firm provide resources (both manpower and finance) on forging the customer performance? With this

Fig. 4.7 Action strategies on compatibility and business potential matrix

critical assessment on customer potential performance, firms can now give a clear directional guide to the action strategies based on the compatibility and business potential dimensional matrix.

Box 1 presents low compatibility and high business potential. This is the scenario where product compatibility restricts company's further business potentials with target customers. The firm may consider exit strategy for value exploiters while keeping constant CP/CTS level for other customer clusters. Box 2 indicates high compatibility and high business potential. It exhibits high expectation on customer's business prospect, and therefore the firm allows more time for the sale team to cultivate more opportunities. Box 3 shows high product compatibility and low business potentials with the target customers. Cost consciousness policy is the key for all types, except value champion customers where further investment can be allowed. Finally, Box 4 reflects the most pessimistic scenario among all four boxes with both low compatibility and business potential. The firm should set a more stringent cost control strategy. There should be an immediate cut-loss for value exploiters and a reduction in cost spent on value defenders and savers. Similarly, the company should defend value champion against further deterioration.

By mapping respective action strategies on each customer cluster against the compatibility and business potential matrix, firms can find a set of logical rules to guide sale teams to manage the CTS with various profit levels. A strict compliance of the directional guideline would help cultivate a sale culture in a firm which puts customer relationship and profit contribution on an equal footing. The following introduces a sale performance monitoring process and system to assist sale team to take the ownership of customer performance.

4.8 Sale Performance Monitoring System

Different customer clusters in different compatibility business potential scenarios may need different action strategy. Sale units are the task groups to implement these actions. There should be a reporting system to assist sale units in taking ownership of customer performance and the management to monitor sale performance. The action strategies on each cluster have taken into consideration of the market and internal constraints, while at the same time, such action strategies are ingrained in the sale performance management process. A sale performance management report can be designed to reflect each sale team for their actions and monitor customer quality. Table 4.1 below suggests a report format for implementation of this report system.

In Table 4.1 below, the first column represents action strategies assigned to each sale team. The second column stands for customer clusters owned by the sale team. The customer no. in the row indicates the no. of customers owned by each sale team (e.g., each team has 20 customers). The left of the bi-column on each sale unit stands for % of action strategy, while the right of the bi-column shows the % of customer cluster type owned by the sale team. The bi-column for each sale team shows two things: (1) direction of CTS spending and (2) overall customer quality. To ease clarification, four scenarios were built in Sale Unit 1 to Sale Unit 4 above for illustration purposes:

Table 4.1 Sale performance management report

		Sale unit 1		Sale unit 2		Sale unit 3		Sale unit 4	
Customer No.		20		20		20		20	
(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Hold	Champions	30%	20%	20%	20%	20%	20%	20%	20%
Invest	Savers	40%	50%	10%	50%	40%	20%	5%	20%
Reduce	Defenders	20%	25%	60%	25%	20%	40%	65%	40%
Exit	Exploiters	10%	5%	10%	5%	20%	20%	10%	20%
Total		100%	100%	100%	100%	100%	100%	100%	100%

(a) Sale Unit 1 has both high percentage of "Hold" and "Invest" strategies and customer clusters in the safety zone (i.e., champions and savers).
(b) Sale Unit 2 has low percentage of "Hold" and "Invest" strategies and the same combination of customer clusters as in point (a).
(c) Sale Unit 3 has high percentage of "Hold" and "Invest" strategies but low percentage of customer clusters in the safety zone.
(d) Sale Unit 4 has low percentage of "Hold" and "Invest" strategies and low percentage of customer clusters in the safety zone as in scenario (3) above.

What are the implications? For Sale Unit 1, customer quality is the best with a majority of customers reside in safety zone, and both internal and market conditions are promising (in terms of compatibility and business potential). Cost control can be relaxed.

For Sale Unit 2, customer quality is satisfactory but with pessimistic business prospect. It is very likely that a lot of defenders fall into the low business potential. Cost scrutiny is required.

For Sale Unit 3, customer quality is mediocre but with optimistic market sentiments given good compatibility and business potential (i.e., in Boxes 1 and 3 in Diagram 3 above). Reasonable cost relaxation is acceptable.

For the last Sale Unit 4, customer quality is yet to be improved but with a gloomy business prospect. A more stringent control is mandatory.

In fact, management can make use of this report to exercise CTS control for the whole sale division of the firm and set customer quality target for individual sale teams for compliance. For example, the firm may set a KPI for Sale Unit 3 to reduce exploiters out of the scene and increase champions and savers by 10%. The report provides an effective operational target for improvement both on cost control and customer quality.

4.9 Conclusions

Firms like to chase after large customers. However, their excessive demand may hurt the company profits. These irrational behaviors may produce farfetched adverse effects on customer performance in the long run and set a bad sale culture for CTS

management. Allowing such behaviors to continue is dangerous and absolutely intolerable. The new methodology suggested in this chapter intends to remind the management to refocus customer performance on profitability. The new practice will revitalize a proper sale discipline and culture, reduce exorbitance, and avoid profits from being exploited unreasonably.

A detailed case discussion on customer portfolio selection (Art Food Limited) will be discussed in Chap. 12.

Focus

The Value of Old Customers?

There was an anomalous phenomenon in many telecom operators who used every effort including expensive free gifts and premium package to attract new customers. However, these privileges were not applied to customer renewal. It often required a very lengthy negotiation between operators and the renewing customers to come to an acceptable package. It is very likely that the deal could be concluded not until customers threatened to terminate the account. Are new customers more precious than loyal customers? Is new acquisition rate more important than churn rate? Telephone operators are always interested in competitors' customers than their own. They want to buy them at a high cost. However, renewed customers may be happier if operators can treat them as new customers. As will be discussed in the next chapter, customer value comes from its retention rate and value contribution, not from the number of subscribers. Aggressive acquisition plan for new subscribers creates excess expectations from customers on price, making profit more difficult to continue. Conversely, sensible retention plan keeps customer loyal and create more customer value. Are operators spending CTS in the wrong ends?

Takeaway Tips

- Firms should align customers' cost to serve to their long-term profits.
- Firms should classify customers by reference to four value categories: value exploiters, value defenders, value savers, and value champions.
- Firms can make use of the customer performance management grid to sickle the non-performed customers.
- Firms should establish policy and procedure in customer selection and retention.
- Sale performance monitoring system is an integrative system to ensure proper attention to each value group of customer accounts

References

Declan, D., & Sean. (2002). *The future of CRM in the airline industry: A new paradigm for customer management*. IBM Institute for Business Value.

Guerreiro, R., Rodrigues Bio, S., & Vazquez Villamor Merschmann, E. (2008). Cost-to-serve measurement and customer profitability analysis. *The International Journal of Logistics Management, 19*(3), 389–407.

Kaplan, R. S., & Cooper, R. (1988). Get your costs right. *Harvard Business Review, 66*(5), 96–105.

Kaplan, R. S., & Narayanan, V. G.. (2001, September/October). Measuring and managing customer profitability. *Journal of Cost Management*, 5–15.

Raaij, E. M., Vernooij, M. J. A., & Triest, S. V. (2003). The implementation of customer profitability analysis: A case study. *Industrial Marketing Management, 32*(7), 573–583.

Ward, K. (1992). *Strategic management accounting*. Routledge.

From Customer Profit to Customer Value

5

Abstracts

This chapter provides a holistic view from customer profitability to customer value creation. In particular, it discusses a fuller range of measures of these two dimensions and their use to monitor corporate performance. Customer profit and customer value are two interrelated concepts, but there exists priority conflict. Traditional customer profitability is an accounting concept, with less contextual meaning in financial value. A complete view from customer profit to customer value creation permits management to manage the firm from these two dimensions and strike the balance between short-term to long-term goals. Furthermore, this chapter discusses in a great length the concept of customer lifetime value and the application of this concept to evaluate customer value contribution. The customer lifetime value concept is particularly relevant in today's e-business valuation. Their use and implications are discussed.

Keywords

Customer profitability • Customer value • Customer lifetime value • Customer retention • Economic value added • Return on asset • Return on investment

5.1 Introduction

Chapter 4 has discussed the types of valuable customers that are treasured by firms. Of the services provided to customers, firms want to obtain financial benefits from customers. This chapter will discuss in detail what these financial benefits are and how firms should prioritize the financial benefits.

Firms analyze customers' profitability. Customer profitability is simply an equation of sales minus all costs of goods and cost-to-serve customers. The customer profit model is simple, easy to understand, and compliant with accounting practices. However, firms are often misled by its simplicity, and the numbers created by

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accounting rules may not be apt for evaluation of business performance with customers. The major pitfalls lie in its short-term nature, omission of cost of financial capital, absence of risk measure, and disconnection with corporate value. Simple customer profitability analysis provides a snapshot of operating performance. It tells a truth but not the whole truth of customer profitability in a broader sense – business performance able to deliver ultimate value creation to the corporation. This is also the ultimate aim and strategic goal of a corporation. However, this simple short-term-based profit analysis falls short of some major management concerns.

An obsession with short-term profits has problems in many ways. Management may be misguided by the customer profit contribution. Management myopia aims to seek short-term profitability at the expense of sustainable long-term value. Also, sale teams have no clue in knowing how their efforts are related to corporate value creation which supposedly is the legitimate base to reward good performers. Furthermore, management has no rule to decide whether to invest or not on customers from a long-term perspective, having regard to the fact that investment in customer acquisition or retention has long-term repercussions on customer value.

The objective of this chapter is to provide a holistic view from customer profitability to value creation. In particular, the chapter will discuss a fuller range of dimensional measures and their relationship to prevalent financial indicators currently employed by firms. Customer profit and customer value are two interrelated concepts, but there exists priority conflict. Traditional customer profitability is an accounting concept, which is different from financial value. A complete view from customer profit to corporate value creation enables management appreciate the links between profit and value and strike a balance between short-term and long-term goals. This chapter will elaborate more fully all these financial measures.

5.2 An Overview of the Customer Performance Reporting Model

To provide a fuller meaning of the range of choices, Fig. 5.1 outlines major components of this reporting model, its dimensional focuses, and the choices of measures. The upper layer indicates key attributes of customer profitability. These are the key value drivers for profitability. Customer profit and customer value will dissipate when firms' competitive advantages no longer exist. Can firms continue to deliver product with a stable quality service level or even an improved service level as perceived by customers? Are the functionalities unique, similar, or inferior to competitors? All these help firms get premium prices from customers due to product/service differentiation. Are they making good cost-to-price performance? Is the volume large enough to enable them to obtain good profits even at a lower price rate? We know that cost advantage is an effective pricing strategy to gain both market shares and profit margins. Is customer relationship management (relationship and trust) effective to secure long-term customers? These are the conditions to determine the level of compatibility between the firm and customer demand requirements and

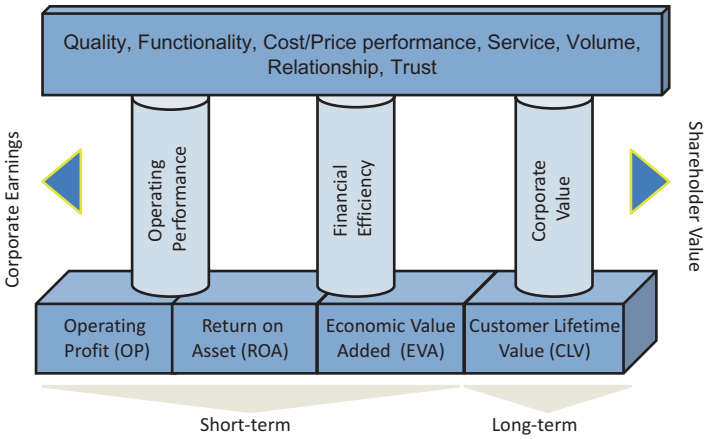

Fig. 5.1 Customer performance reporting model

therefore the ability to secure premium profit. With the coming of the big data era, the analysis provides a valuable guideline for customer behaviors.

The second layer of the diagram denotes different dimensions of financial measures. They are operating performance, financial efficiency, and corporate value. Operating performance dimension measures customer financial performance. Customer's operating profit (COP) is the result of sale revenue generated from customers, after deducting **all costs** associated with good and services provided to the customers. Operating performance simply focuses on *absolute profits*, without questioning the *relative profitability* of the same amount of financial asset for other investment opportunities.

Financial efficiency dimension mends this handicap. It asks how efficient the company employs scarce financial assets to generate corporate earnings. Return on assets (ROA) is a typical measure of this dimension. ROA evaluates the profit % on each dollar of asset invested. With the same dollar denomination, it is easy to evaluate the *relative profitability* of investment among all customer accounts. This is an improvement of operating performance dimension. However, this is still not good enough. Both operating performance and financial efficiency are annual basis measures, not going beyond the short-term timeframe into the long-term goal of the firm – value growth. In addition, profit concept is derived from accounting rules, which is different from the financial value concept addressing "cash basis." This alternative dimension must embed value component.

Corporate value dimension addresses shareholder value directly. It attempts to link customers' sale transactions to the corporate value. With the inclusion of "value creation" element in the evaluating and monitoring reporting system, management will pay more attention toward value creation activities. Two financial measures spring out during recent decades and are representations of corporate value dimension. Economic value added (EVA) represents the short-term measure of shareholder value creation, and customer lifetime value (CLV) reflects a long-term

measure of shareholder value. Both financial measures incorporate "value component" in the calculation and put more emphasis on value creation. Therefore, they provide meaningful insights in customer contribution toward corporate financial performance and its ultimate value growth. These four measures are the spotlight in this chapter.

COP, ROA, EVA, and CLV have different roles and implications. The first three measures represent short-term goals, and the fourth one reflects the long-term goal. I will explore and discuss what they are, how to use them, their implications on firms, and their limitations in application. Building financial measure system based on various perspectives of the reporting pillars helps the firm navigate its corporate value more effectively.

5.2.1 Customer Operating Profits, Return on Assets, and Economic Value Added

Let's examine the equation of customer operation profit:

- Customer operating profit (COP) = sale revenue – cost of goods – MSDA

COP is the result of sale revenue generated from customers, after deducting **all costs** associated with goods (cost of goods) and services (MSDA) provided to the customers. MSDA include expenses incurred for marketing, service, delivery, and administrative activities I like to use the case BAX Container Ltd (please read Case 12.2, Chap. 12) to compare these three measures. As shown in the customer profitability statement (see Case 12.2, Chap. 12), Daxing's gross margin was $2.2 M and Everbright was $1.2 M. Also, Daxing's OP was $0.92 M and Everbright was $0.54 M. Daxing was better than Everbright both in gross margin (27.5% vs. 20%) and profit (11.5% vs. 9%).

Tentatively, the results from the operating performance dimension can be interpreted as follows:

- Daxing is better than Everbright in terms of higher operating incomes.
- New product is better than standard product in profit margin (each dealer only deals with a single product for BAX).

However, it is premature to conclude the profitability performance because the amount of financial capital has not been considered in the equation. Operating profit analysis cannot tell how efficient the financial resources are being employed. Remember that firms always have financial resource constraints. They will not have unlimited funds to do whatever they like to invest. They have funding costs (cost of capital). The efficiency of asset employment becomes one of the important measures to compare with other alternative investments how efficient these assets are to generate the return (i.e., operating profits). Return on assets (ROA) provides comparison of financial efficiency on these two customers:

- Return on assets (ROA) = net operating profits/average asset employed

ROA is interpreted as customer profits (before tax) compared with the average amount of assets being employed for the customer account. In this particular context, customer assets include net fixed assets (after depreciation) and working capital to support specific customer demand requirements, special testing equipment (fixed assets), and special inventory and receivables (working capital). Average assets are referred to the average amount of asset holding between opening and closing of the period (say if opening period is $10 M and closing period is $6 M, the average asset will be $8 M over the period). High ROA means that higher profits are generated with the same amount of resources. Low ROA means that the company is relatively poor in asset employment. ROA distinguishes customers making good financial returns from customers not making good returns based on the same asset employment basis.

After applying the average assets employed for Daxing and Everbright, the conclusions of their financial performance have changed. ROAs for the respective customer show

- Daxing: $0.92 M/$(3 M + 4 M)/2 = 26.3%
- Everbright: $0.54 M/$2 M = 27%

Both firms gained similar financial efficiency. Everbright was slightly better than Daxing (ROA, 27% vs. 26.3%). In fact, relative profitability gives the firm a direction of how to allocate resources to customers on the relative profitability of the asset assets (i.e., higher ROAs). However, ROA cannot measure whether corporate returns are adequate to reward the firm? Also, it remains silent on whether customers are contributing shareholder value. Let's apply economic value added (EVA) to find out which customer has a better contribution in shareholder value:

- Economic value added (EVA) = NOPAT (after tax) – (net assets X cost of capital %)

Economic value added (EVA) is the extra monetary value (in terms of net operating profits after tax (NOPAT)), after deducting the calculated cost of capital[1] based on net assets. Net assets are defined as net fixed assets (net of depreciation) plus current assets (e.g., inventory or receivables), *less* current liabilities (e.g., account payables) pertinent to a specific customer. Cost of capital is the required rate of return (in %) computed by the firm to compensate the funding costs to finance capital employed (both equity and debts). As NOPAT is profit after tax, a notional tax rate (i.e., corporation tax rate) is employed to reduce the tax portion of net operating profits.

[1] For simplicity, I prefer a broader definition of cost of capital to the traditional weighted average cost of capital (WACC).

EVA calculation looks complicated but the logic is simple and clear. Profits after funding cost of capital and tax deduction are the remaining balance in the pocket of shareholders, which contributes to an increase in shareholder value. EVA addresses shareholders' key concerns about the potentials of *value creation*.

There is one major difference between ROA and EVA in interpretation of the operating profit and asset employed concepts. ROA uses a *gross* concept, meaning that operating profit is applied before tax (OPBT), while asset employed is calculated before deduction of current liabilities. On the contrary, EVA employs a NET concept. It refers to operating profit after tax (OPAT) and net assets employed after deducting relevant current liabilities.

Let's review Case 12.2 again, tax rate was 25%, cost of capital was 10%, and current liabilities were 5% of current asset employed; the EVAs for Daxing and Everbright are

- Daxing: \$0.92 M × (100% − 25%) − \$4 M × (100% − 5%) × 10% = \$0.31 M
- Everbright: \$0.54 M × (100% – 25%) − \$2 M × (100% − 5%) × 10% = \$0.22 M

With EVA, it is confirmative to say that Daxing is better than Everbright in generating more shareholder value by \$0.09 million. Now, more specific conclusions can be drawn from these two customers: Daxing is better than Everbright in an absolute profit amount. Both financial numbers are very close in terms of financial efficiency. However, Daxing generates more shareholder value than Everbright using EVA analysis. This is an encouraging outcome as Daxing represents a hope for BAX because of its exclusive sale for the new product.

Focus

Amazon Says Long Term and Means It

Amazon was selling so much but earning so little. A lot of money was spent on the long-term growth activities. It was one of those long-term growth activities when Amazon wanted to become not only an online retailer but a mega retailer. It built huge logistic hubs and shipping facilities and undercut price and profits. The aim is to share the lion market share with Wal-Mart. Jeff Bezos' mathematics was simply like that: the loss in short-term profits may bring in long-term virtuous cycle that leads over the long term to much larger dollars and creates more valuable Amazon.com.

The same logic also applies to the case when Amazon sold its Kindle e-reader devices and Fire tablet at a loss. Amazon thought of the Kindle business in a totality, the economics not only the devices but also the content. Profits will come down the road when Kindle users buy content through Amazon. They think of the lifetime value of the devices.

(continued)

Jeff Bezos once explained what he meant long term. It was the engagement in 5–7 years because very few firms were willing to do it. By lengthening the time horizon, he could engage in endeavors that could never otherwise pursue. Long-term growth coins two major benefits: (1) acquiring the kind of economies of scale enjoyed by Wal-Mart and (2) eliminating or weakening competitors.

Is Amazon doing the right thing? Numbers speak to the fact. It is one of the leading growth firms, and its stock has soared 122 times since its IPO (up to the end of 2011), and it is 5 times faster than retail over all.

Source: James B. Stewart, New York Times, Dec 16. 2011

The above operating profit, ROA, and EVA analysis have explained how customers contributed to corporate profit and value. However, all analyses are performed in the same year. These short-term measures cannot effectively monitor a longer-term goal – value creation – because of its inadequacy in translation from a profit-based measure to a cash-based measure. Customer lifetime value (CLV) possesses these characteristics and therefore becomes a good candidate for this monitoring role. CLV calculates all cashes (at present values) the firm can earn from the customer over its specified lifetime period. However, CLV requires the employment of free cash flow technique. Free cash flow analysis is a popular technique to convert profit concept into cash concept. It can also easily expedite valuation of asset value over time. Prior to further discussion of customer value, this is good at this point to give a brief review of free cash flow concept and its computation method.

5.3 Free Cash Flows

Free cash flows concept can be defined as the net cash flows generated from the firm's operating activities. For the specific context of customer's free cash flows, it is interpreted as the net cash flows generated from business transactions with the customer. Free cash flow concept has advantages over accounting rule at least for three aspects: (a) It comes from actual cash flows. It is free of encumbrance or bias from accounting rules, which is always regarded the root cause of corporate earnings management. (b) "Cash flow" is the basic unit to calculate firm value in investment valuation appraisal. This is rather straightforward and comprehensible by layman. (c) It is the cash that is available to provide a return on investors' capital, or residual cash for investors. It is self-explanatory.

For computing customer free cash flows, the following working format can be adopted.

Free Cash Flows Working Format

Net operating profit
+ depreciation and amortization
= earnings before depreciation and amortization (EBTDA)
– tax payments
= after tax cash flows from operating activities with the customer (EAT)
– increase (+ decrease) in net operating working capital (current assets less noninterest-bearing current liabilities)
– investment in fixed assets and other long-term assets
= **Free cash flows**

The above computation format articulates how free cash flows are derived on a step-by-step basis. Being a sectional analysis (by customers), certain expenses are apportioned on some predetermined basis. Two assessment criteria are required when considering apportionment basis: *relevance* and *practicality*. We should always ask ourselves these two questions:

(a) Is the subject matter relevant to the apportionment exercise? If we do not have the customer, do we need to spend the money? *(Relevance)*
(b) Isn't the approach of apportionment causing unnecessary administrative cumbersome? Is benefit higher than cost in seeking very accurate numeracy? (*Practicality*)

In fact, the above free cash flows exercise is a conversion process to revert traditional accounting profits back to actual cash profit basis by eliminating noncash items (e.g., depreciation, accruals, etc.) in the calculation. It also takes into computation the full cash effects of assets (both current and fixed assets) over the acquisition year instead of asset-depreciated life according to accounting rules. Let us go back to the BAX Case again and get more information from the case. Daxing wanted a booth investment for exhibition of new product. The equipment was bought by BAX during the year 2014 with an amount of $30,000 which had a depreciation life of 3 years. A total amount of $100,000 was spent during the year for replacement of existing computing equipment for the sale team. This is the company policy to replace computing equipment every 4 years. Let us compute the free cash flows for the Daxing account.

According to the above free cash flows schedule in Table 5.1, Daxing's net operating profit turns to be a negative free cash flows balance (−0.51 M). With the free cash flow analysis, it is very obvious that Daxing account did not generate free cash flows to BAX, mainly due to the need to invest in new product. BAX was looking

Table 5.1 Free cash flows schedule

Daxing's free cash flows schedule	
For the year ending 2014 (in $ million)	
Net operating profit	0.92
Depreciation and amortization	0.01
EBTDA	0.93
Tax payment (M0.92@25%)	−0.21
EAT	0.72
Change in net operating working capital (4 M − 3 M) × (100% − 5%)	−0.95
Investment in new equipment during the year	−0.30
Free cash flow	−0.53

forward to future positive free cash flows at the expense of short-term financial loss from Daxing.

A few points deserve further explanations. First, depreciation on booth investment was added back but not the computing equipment. Special equipment was acquired for Daxing *exclusively* and therefore falls under the definition of *relevance* criteria. Computing equipment was purchased for the general use, therefore not being counted. For this reason, purchase of special equipment was included but not for computing equipment. Second, change of operating working capital was based on the difference between year beginning and ending of the year. When the net change of working capital is positive, there is an increase in working capital (e.g., current asset), and therefore less current assets are being converted back into cash. It generates negative cash flow. On the contrary, positive cash flow appears when net change in working capital decreases. Third, this is impossible to apply actual tax payment basis as tax payment is often paid in arrear. A notional corporate rate is used instead. Also, neither it is cost-effective nor practical feasible to match every transaction of suppliers' credit to customers. This is a practical and cost-effective way to apply an approximation rule (e.g., corporate tax rate and % of current assets for the case) to deal with these trivial or noncritical matters.

Free cash flow is an essential concept for computation of monetary cash flows or cash profits which is the base component for corporate valuation. In the next section, cash flow concept is used to assess customer value.

5.4 Customer Value Concept

For a long-term financial measure, individuals' customer performance has profound implications to corporate value. Customer value emphasizes how much corporate value an individual customer can accrue in the active business relationship, as customers are important company's intangible assets and key contributors for corporate value. A longer-term financial measure should reflect this corporate value correlation. Customer lifetime value is a good measure in the customer dimension. Customer lifetime value is a mature concept that has been widely used especially

for direct marketing or Internet sales. It is also popular for customer-centric firms as marketing strategies are a pivotal role in their overall corporate direction. They would like to select a long-term view on customers and nurture customer relations for a specific lifetime. However, firms would be interested to know whether those marketing strategies are effective in acquisition and retention of customers. They would also like to evaluate whether the measures lead to corporate profitability or value creation in the long term.

The use of customer lifetime value for a longer-term performance measure has the following purposes. (1) It serves to support market decisions (e.g., acquisition and retention of customers) in business transaction. (2) It serves to evaluate and measure business performance with customers. (3) It serves as a proxy of corporate assets – linking customers to the firm value. This is particularly true in Internet businesses in which subscribers are the most valuable intangible assets apart from tangible assets. It is also true for telecom operators whose active subscribers are the crux for the business success (will explain later).

In sum, customer value is a central theme to alert management to be rational in investing customer relationship management (CRM) without depriving corporate value. It also reminds management to take a longer term in customer profitability enabling maximized shareholder value as an ultimate goal.

5.4.1 Customer Lifetime Value

By definition, customer lifetime value (CLV) is the summation of present values of all future cash flow profits generated from a customer over the "specified life" of the customer relation. The basic equation of CLV is similar to employment of traditional discounted cash flow technique discounting all future cash flows to the present value:

- Customer lifetime value = $FCF_0 + FCF_1/(1 + r) + FCF_2/(1 + r)^2 + FCF_3/(1 + r)^3 + \cdots + FCF_n/(1 + r)^n$

As noted above, free cash flows (FCFs) are distributed over a period of time (n), and money has time value. It is imperative to convert all future cash flows into a common timing yardstick, i.e., discounting all future cash flows into the present values ($1/(1 + r)^n$). For this reason, we need to select a discount rate (r) to make such conversion. There is a wide range of selections for discount rate. However, it is recommended to use the weighted average cost of capital (WACC) in line with EVA computation.

Let us return to Case 12.2 again by adding a scenario as given in Chap. 12, Case 12.3.

Table 5.2 provides Daxing's forecast schedule of present values of free cash flows from year 2014 (actual) and forecast from the year 2015 to 2019. Customer lifetime value of Daxing account over the next 5 years amounts to $5.79 M. Apparently, Daxing creates 5.79 M of customer value to the company over 5 years based on a

Table 5.2 Schedule of Daxing's present values of free cash flows from year 2014 to 2019

Year	FCF_n	Nominal value	Discount factor WACC@ r = 10%	Present value ($)
2014(t_0)	FCF_0	−0.51 M	1	−0.51 M
2015(t_1)	FCF_1	1.1 M	$1/(1 + 0.1) = 0.9901$	1.09 M
2016(t_2)	FCF_2	1.2 M	$1/(1 + 0.1)^2 = 0.9803$	1.17 M
2017(t_3)	FCF_3	1.3 M	$1/(1 + 0.1)^3 = 0.9706$	1.26 M
2018(t_4)	FCF_4	1.4 M	$1/(1 + 0.1)^4 = 0.9610$	1.35 M
2019(t_5)	FCF_5	1.5 M	$1/(1 + 0.1)^5 = 0.9515$	1.43 M
	Total	5.99 M		5.79 M

Table 5.3 Schedule of Everbright's present values of free cash flows from year 2014 to 2019

Year	FCF_n	Nominal value	Discount factor WACC@ $r = 10\%$	Present value ($)
2014(t_0)	FCF_0	0 M	1	0 M
2015(t_1)	FCF_1	1.22 M	$1/(1 + 0.1) = 0.9901$	1.21 M
2016(t_2)	FCF_2	1.22 M	$1/(1 + 0.1)^2 = 0.9803$	1.20 M
2017(t_3)	FCF_3	1.22 M	$1/(1 + 0.1)^3 = 0.9706$	1.18 M
2018(t_4)	FCF_4	1.22 M	$1/(1 + 0.1)^4 = 0.9610$	1.17 M
2019(t_5)	FCF_5	1.11 M	$1/(1 + 0.1)^5 = 0.9515$	1.06 M
	Total	5.99 M		5.82 M

discount rate of 10%. Management can put the yearly and 5-year free cash flows as a performance target for the sale director.

There are a few clarifications regarding the above schedule. First, present values of all FCFs can be obtained by using the format of Table 5.1. For those cash flows that appear in the current year can be grouped under year 0. It can also apply cash flows of prior years should there be a necessity for reinstatement in the calculation. It is noted that present values of all free cash flows over the period (5.79 M) must be lower than their nominal values (5.99 M) because nominal value loses its intrinsic value over time (t). Second, there is a need to define a retention period because it determines the period of cash flow stream. Retention period can be defined by reference to a chronicle of customer of the similar type (e.g., segment, channel) or a specific period of concern. Third, discount rate is critical in determining the present value of future cash flows as this is the rate used in the discount factor ($(1/(1 + r)^n)$), bearing in mind that the higher the cost of capital (discount rate), the lower will be the factor in discounting the nominal value. If the cost of capital is 20% instead of 10%, a nominal value of $1 will be down to 0.4019 (based on 20%) by year 5 instead of 0.9515 (based on 10%) of cost of capital (as noted in Table 5.2). Therefore, cost of capital is critical in determining the economic value of free cash flows. For the time being, weighted cost of capital (WACC) is the preferred discount rate.

Because CLV also reflects creation of corporate value, management can use it to make decisions on various options. As regards the schedule of Everbright in Table 5.3, it reveals a few interesting observations.

Firms have the same free cash flows over 5-year period of the exclusive dealership. Everbright generates a slightly better value creation of 5.82 M (Daxing,

5.79 M). With the same nominal cash at 5.99 M on both customers, Everbright has higher nominal cash at the beginning of the period than at the later stage. Therefore, it gives higher present values of all cash flows over the period. The scenario demonstrates the implications of cash flow streams over the period on customer value. It also illustrates that CLV can distinguish which customers can generate a higher customer value even they have the identical nominal value of cash flows. Using discounting cash flow technique approach to calculate CLV requires a detailed analysis of individual customers with a reasonable knowledge about the general sale pattern (including growth), expense requirements, and company's general retention rate for customers. It is time-consuming and requires a high level of certainty about the cash flow outcomes. More recently, the emergence of new business models emphasizing critical mass of customers (e.g., Internet and direct sale businesses, telecom operation) requires massive acquisition and retaining investment to maintain a large customer base. In these cases, CLV model needs to be adjusted to accommodate a more aggregated level of analysis on customer value (e.g., sale program, the entire company, or customer segment). The modified CLV model is particularly relevant to the recent business fads on direct marketing and Internet sale businesses.

5.5 Modified CLV Model

Two Columbia professors, Gupta and Lehmann, modified the traditional CLV model by making the following assumptions on the model. (a) Margins are constant over time, (b) retention rate is constant over time, and (c) projected period is infinite. In so doing, the modified model does not require intensive data on individual customers and can work out the customer value with minimal and generally available information. The revised CLV equation now becomes like this:

- $\text{CLV} = m(r/1 + i - r)$

(where m = average margin, r = retention rate, i = discount rate)

Constant average margin (m) is simply an annual revenue minus operating expenses divided by the number of customers. The average margin assumption is based on the argument that there are two opposing forces that shape average margin from customers. On the positive force, customers would increase sales (including cross-selling) over time or reduce cost of doing business with that customer. Contrarily, the negative force comes from those customers who do not spend too much money or decline in sale over time. Therefore, average margin should be the reasonable estimation for all customers. Both professors used empirical evidence to support the argument.[2]

[2] See Gupta and Lehmann (2003). Customers as Assets. *Journal of Interactive Marketing*. Vol.17, 1, pp. 9–24.

Table 5.4 Margin multiple

	Discount rate (i)				
Retention rate (r)	10%	12%	14%	16%	18%
40%	0.57	0.56	0.54	0.53	0.51
50%	0.83	0.81	0.78	0.76	0.74
60%	1.20	1.15	1.11	1.07	1.03
65%	1.44	1.38	1.33	1.27	1.23
70%	1.75	1.67	1.59	1.52	1.46
75%	2.14	2.03	1.92	1.83	1.74
80%	2.67	2.50	2.35	2.22	2.11
85%	3.40	3.15	2.93	2.74	2.58
90%	4.50	4.09	3.75	3.46	3.21
95%	6.33	5.59	5.00	4.52	4.13

The modified CLV model uses constant retention rate (r) instead of the traditional estimated projected length of customer value. It is not necessary to estimate the customers' projected length of stay as retention rate automatically accounts for the fact. For instance, if the retention rate is 80%, the chance of a customer staying in the company in 10 years is $(0.8)^{10} = 0.1$, and the chance of staying for 20 years is $(0.8)^{20} = 0.01$. Though the modified CLV model is applying an infinite time horizon, the financial impact will be very minimal after a certain period (say, 10 years).

As a matter of fact, the part of $(r/1 + i - r)$ in the equation can be regarded the margin multiple. A margin multiple table in Table 5.4 shows margin multipliers based on the parameters of retention rate (r) and discount rate (i).

Margin multiple table provides a reference for computation of multipliers for every dollar of margin. For instance, the multiplier of a retention rate of 85% with a discount rate of 14% is 2.93, meaning that every dollar of margin can contribute $2.93 of customer value to the company. The table also demonstrates the implications of retaining customers. Again, the effort to increase retention by 10% from 80% of retention rate at a discount rate of 12% will change the multiplier value from $2.5 to $4.09, an increase of 63.6%. The numbers reflect the value of retaining customers.

As a general rule, multiplier values are low when discount rates are high (i.e., risky venture). For example, the value of 60% retention rate with a discount rate at 10% (1.2) is higher than the same retention rate but with a discount rate of 18% (1.03). On the contrary, higher retention rates generate higher multiplier values. For example, the multiplier value of 90% of retention rate with a discount of 10% (4.5) is higher than the multiplier value of 60% retention rate with the same discount rate (1.2).

With the assumptions on constant values on margins and retention rate, the conditions to apply free cash flow concept can be relaxed, and estimated customer lifetime can be replaced by retention rate. Constant values can be reasonable proxies for cash flows and lifetime. Customer value can be computed based on the available information on retention rate (or churn rate). This is of particularly relevance to the emerging new economy (telecom, e-business). The following examples help explain how the modified model facilitates management analysis and decision making.

5.5.1 Examples

The following provides examples on application of the modified CLV model.

Example 1 Evaluation of sale and marketing program for the telecom industry

CnT, a telephone carrier in China, launches a new sale program for a bundled voice and data usage package. This phone subsidization plan provides new customers with a new 4G mobile phone by signing a 2-year service agreement at a monthly fixed sum of rmb90. CnT subsidizes each customer rmb800 for the new phone. CnT has budgeted rmb20 million for this program including 25% of the budget on advertising. Assuming general operating expenses are 30% of the tariff revenue, average churn rate is 40%, and discount rate is 14%:

(a) *What is CnT's customer lifetime value? Should CnT launch this sale program?*
(b) *What is the break-even point (in customer no.) for the sale program?*
(c) *Should CnT's churn rate fall to 50%, what additional retention cost can CnT pay to maintain the existing churn rate, assuming the same 14% discount rate?*

Solutions (a) CLV of CnT:

Margin = rmb90 × 24 × (1–30%) = rmb1512
Retention rate (r) = (1–40%) = 60% (churn rate = 40%)
Discount rate (i) = 14%
Margin multiplier = (r/1 + i − r) = 0.6/(1 + 0.14 − 0.6) = 1.11
CLV = margin × margin multiplier = rmb1512 × 1.11 = $1678

This sale program is workable as the customer value at rmb1678 is higher than the acquisition cost of $ rmb 800. The sale program contributes additional customer value to the firm.

(b) New customer target no. is rmb20 M × (1–25%)/rmb800 = 18,750 customers.

The media ads budget for the new program is rmb20 M x 25% = rmb5 M.

For the break-even, there is no value creation. Let Z be the ultimate no. of new customers; zero value creation is equivalent to

rmb1678 × Z = rmb800 × Z + rmb5 M
Z = 5,000,000/(1678 − 800) = 5695
1/3 of the new target customer (5695/18,750) = 30%.

(c) Margin multiplier with retention rate of 50% and discount rate at 14% = 0.78

CLV = margin × multiplier = rmb1512 × 0.78 = rmb1179 when churn rate is 50%. CLV falls to rmb1179 from rmb1678.
CnT can pay up to additional rmb499 retention cost to maintain the churn rate level at 40% (retention rate 60%).

The above example exemplifies the parallel significance of new customer acquisition and retention of existing customers. This is particularly true for telecom industries characterized by high investment costs, fierce competition, changing technology, and dynamic market environments. A fall in retention rate destroys corporate value heavily particularly with its high-risk leverage (meaning high discount rate). In this case, an increase in 10% of churn rate will deprive the operator of around $499 per customer. Retention expense can be spent on customer royalty program or improving customer service level. Having said that, the fundamental premise is the same to upkeep customer contribution margin which is the source of all spending.

Example 2 Online banner ads versus direct mail

Woohoo Plc. is a direct sale company which has a budget for advertising and promotion. Woohoo has identified two media sources: banner ads and direct mail. A web portal has an active subscriber base of 10 million and offers to sell banner ads at $28,000 per week, while electronic direct mail (EDL) charges each mail at $50. A behavioral research reports that the click rate for subscribers on banner ads is 0.5% and the purchase rate for those subscribers who click and buy is 1%, whereas the response rate for direct mail is 1%. Assuming that the direct sale company has an average margin contribution of $50 for each buyer, the retention rate from Internet customer is 80% and from direct mail customer is 50%. With a 10% discount rate, (a) what is the acquisition cost for each option; (b) which media channel should be selected?

Solutions (a) Acquisition cost of EDL = $50 per customer; acquisition cost of banner ads = acquisition cost/(subscriber base × click rate × purchase rate) = $28,000/10,000,000 × 0.5% × 1% = $56 per customer

(b) CLV for each channel:
From EDL customer = $50 × (0.5/(1 + 0.1–0.5)) = $50 × 0.83 = $41.5
From banner ads = $50 × (0.8/(1 + 0.1–0.8)) = $50 × 2.67 = $133.5

The acquisition cost for direct mail ($50) is lower than banner ads ($56). However, the retention rate for each type of customer is different. It may be due to positive brand equity effect of banner ads on customer retention. With a higher retention rate for the banner ads, CLV is higher for banner ads customers ($133.5) than direct mail customer ($41.5). In fact, low CLV of direct mail customer has generated negative value for the new customer ($41.5–$50 = −$8.5).

5.5.2 Customer Retention

Customer retention rate is rare to be shown in profitability analysis reports despite the fact of its important impact on customer management (even an internal report for management). Its significance is grounded on three main causes. First, customer retention rate is highly associated with customer satisfaction that is a key performance indicator for any customer-centric company. Second, a combined review of margin and customer retention rate has brought to the management some clues in pricing and operation decisions. High margin with high customer retention reflects a good match between pricing and service level. High margin with low customer retention rate indicates potential sale problems. Low margin with high customer retention rate signals customers' sensitivity to price. Firms have to be consistent with the cost and competitive strategies. Finally, low margin with low customer retention rate predicts a very difficult business that the management should take an immediate rescue action.

Furthermore, retention rate is crucial information to compute customer value. It creates a link from sale performance to corporate value, which is the ultimate corporate objective for most of firms. Corporate value drivers derive from sale performance. Sale team should have an overall understanding of how they contribute to company's value creation. In sum, retention rate links present business performance to future business prospect and predicts what will be the business outlook. The following example demonstrates how customer retention and CLV are interpreted in a reporting system.

Example 3 Market segment analysis

MX Internet sale company has three separate brands for its B2B, B2C, and C2C businesses. The first two brands use a direct sale model of selling its own goods. The third brand provides a trading platform between customers for sale exchange and receives commission fees out of the transactions. The 2015 annual information was given below: (a) B2B – sale, $35 million; customer, 5500; gross margin %, 10%; operating expenses, 3% of sale; churn rate, 35%. (b) B2C – sale, $60 million; customer, 100,000; gross margin %, 12%; operating expenses, 10% of sale; churn rate, 15%. (c) C2C – commission, $10 million; customer, 90,000; operating expenses, $9 M; churn rate 50%.

Analyze market performance for each brand given an industry benchmark of 14% discount rate: (a) evaluate brands' profit performance, (b) comment on the CLV of each brand and the overall future prospect, and (c) propose corporate direction.

Solution The sale performance for each market segment (brands) of MX Internet Sale Co. was summarized in Table 5.5:

(a) B2B had the highest profit contribution ($2.45 M) for the company, followed by B2C ($1.2 M) and C2C ($1 M). B2B contributed one third of total revenue and more than 50% of profit, whereas C2C had the highest margin ($10 M) but was the last in profit contribution ($1 M). C2C had incurred the highest operating expenses among three business lines (more than 50%).

Table 5.5 Sale performance for the year 2015

Brands	Customer no.	Revenue ($'000)	Margins ($'000)	Margin%	Op. exp. ($'000)	Customer retention	Customer profit ($'000)	Profit per customer ($)	Total CLV ($K)[a]	CLV per customer($)
B2B	5500	35,000	3500	10%	1050	65%	2450	445.5	3259	592.5
B2C	100,000	60,000	7200	12%	6000	85%	1200	12.0	3516	35.2
C2C	90,000	10,000	10,000	n.a.	9000	50%	1000	11.1	780	8.7
Total	195,500	105,000	20,700		16,050		4650	23.8	7555	38.6

Notes:
[a]CLV for B2B = $2450 × (.65/(1 + .14 − .65)) = 2450 × 1.33 = 3259
CLV for B2C = $1200 × (.85/(1 + .14 − .85)) = 1200 × 2.93 = 3516
CLV for C2C = $1000 × (.5/(1 + .14 − .5)) = 1000 × 0.78 = 780

(b) The CLV of each brand was provided at the appended note as shown above. B2B had a good customer value though with a moderately low retention rate. Both B2C and C2C had low customer values. C2C's poor retention rate (50%) dragged down its customer value below even the average profit per customer. The company made great effort to keep the sizable customer base exemplified by high operating expense for the C2C brand. Among all brands, B2B can contribute more profit margin and customer value. B2C had more loyal customer than the other two brands. B2C could be further developed. C2C was most vulnerable business given the low retention rate and high operating expenses. Due to its aggregator role in the C2C business, it is rather difficult to manage the service level on both buyers and sellers and make the business more volatile.
(c) MX should keep the sale performance of B2B business but needs to improve the retention rate. Apparently, it should promote more direct sale business (B2C) and if possible migrate C2C customers to B2B. B2B has loyal customers, lower operating expenses per customer, and higher customer value. It can generate more stable business. Given the low C2C margin and retention rate, MX may study to position on direct sale only, both for the business (B2B) and general customers (B2C).

No matter whether the traditional DCF approach or a short-cut approach of modified CLV model was applied, the message of CLV is the same. The company should (a) avoid taking a short-term view on profit margin of a customer, (b) consider the lifetime of customers, and (c) recognize the importance of customer retention (i.e., lifetime) which has impact on customer value. As noted in the margin multiple – Table 5.4 – the margin multiplier will be less than 1.0 if retention rates are 50% or less, meaning that the actual value of customer is less than the current year short-term profits. If the short-term profit target is employed for rewarding the sale team, the incentive purpose may be misaligned. If customer acquisition plan is based on the short-term profits, financial criteria for investment of new customers may be misguided. Emphasis on customer lifetime value leads the management away from taking a short-term dimension in evaluating and managing customer base. It also directs the management to think from the corporate value perspective – as customer value contributes significantly on the overall corporate value. As a matter of fact, CLV changes the customer relationship management strategy in two directions: both embracing a *long-term* customer relationship and investing the relationship *wisely*. They are working in tandem.

Customer value is a significant intangible asset for the firm. It accounts for a firm's high market capitalization that can be many times above the net worth of a firm. For those firms which do not have high tangible assets, customer value can be a good proxy for corporate value. This is especially applicable to e-businesses in the new economy in which new ideas, customers (subscribers), employees, e-portal, and business networks are the core assets of the firm. Company earnings and financial track records are yet to be tested. Customer base is the key driver for corporate value. Therefore, it is natural that customer value can provide useful insights about the value of the firm. Gupta, Lemann, and Stuart[3] performed statistical correlations

[3] Gupta et al. (2004). JMR, Feb. Vol.41.

between corporate value and customer value in five US firms – E*Trade, Ameritrade, Capital One, Amazon, and eBay – using published annual reports information in 2002. The results show that the first three e-firms have the market value fitted to the customer value, while the market values of Amazon and eBay were underestimated. They claimed that the underestimation was due to the growth rate not being included in the formula. The results suggest that CLV provides a good guideline (especially the new economy). However, caution should be made that they may not account entirely the total source of market value of a company.

Focus

What was a hell of a price to pay!

Deutsche Telekom offered an unexceptional high price of $5.6 billion to acquire VoiceStream in mid-2000. VoiceStream at that time was only a year's old wireless carrier with a subscriber base of 2.3 million. The stock price of DT plunged by 10% the day after the announcement. Why did the DT management pay such a hell of a price, as commented by Dennis Gross of Williams De Broe, a wealth management and investment research organization.[4]

DT wanted to be the global telecom after other European counterparts such as Vodafone and BT. Building a foothold in the USA could make DT a true global player in the telecom industry. At that time, VoiceStream was the only independent telecom company in the USA owning wireless licenses covering two thirds of the population. VoiceStream was the fourth largest wireless carrier nationally after Verizon, AT&T, and Sprint PCS. The consideration for the deal was about $22,000 per customer, while prior telecom acquisition deals were in the range of $3000–$7000 per customer (e.g., Vodafone acquired AirTouch at $7000 per customer). Was it a good deal?

Let us work out the value of customer by using the modified CLV model. The average ARPU of VoiceStream in 2001and 2002 was about $50 per month, resulting in an annual margin of $600. The average churn rate for the first 2 years was around 45% (i.e., retention rate 55%). Assuming the discount rate was 12% (a common WACC for large firms at that time), the margin multiple is therefore 0.965 (0.55/(1 + 0.12 − 0.55). This produces a customer value $$600 × 0.965 = $579. With the acquisition cost of $22,000 per customer, it requires 38 years to make the deal breakeven, not to mention that it was not the sale of 100% stockholding of VoiceStream.

Apparently, DT was too generous for the deal though it is admittedly easy to make this comment in a hindsight. Anyway, CLV can provide a quick check.

Source: Background information extracted from Wall Street 24, June, 2000; ARPU numbers by reference of Statista data.

[4] Extracted from *Los Angeles Time*, 24th of July, 2000.

5.6 Key Driver Performance and Financial Outcomes

The above sections have mentioned that customer profitability should be viewed both from the short-term and long-term dimensions. Firms may suffer in the long-term if management is interested in the short-term profits only. Management should strike a balance in the priority between customer profit and customer value should this dilemma arise. To facilitate the use, I summarize the relationship flow of the key drivers and the four measures in Fig. 5.2, which provides a structural view of how the four measures are operated.

As depicted above, key driver performance level is equivalent to first layer in customer performance reporting model. These key drivers can be viewed into three key groups – product drivers, service drivers, and customer relationship management (CRM). Different firms have their own choice of main attributes of these key drivers, and their performance influences the second level – cost/price performance.

Cost/price performance level has significant meaning in two aspects. First, it affects how the firm gains profits from customers. It also influences how customers perceive the value of goods and services based on their relative cost/price performance with the firm's competitors. Does the firm deliver higher perceived cost/price performance or not in the eyes of customers? The perception will then determine customers' intention to continue purchase with the company and the amount of orders subsequently. This level has important impact on subsequent business transactions with the concerned customer.

The customer account level indicates three categories of outcomes. The first category is financial contribution outcome. It pertains to customers' profit contribution. Is the firm making profits from customers? The second category relates to productive commitment outcome – how much asset the firm has provided to customers to make sales. It is the firm's pledge of service level commitment (e.g., special facility,

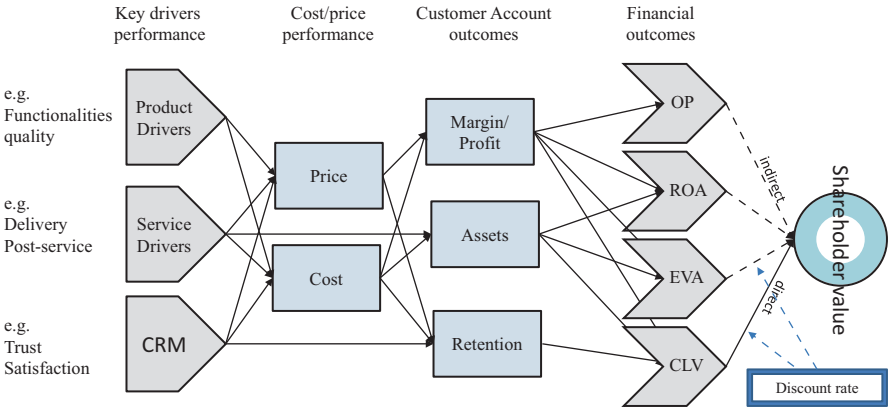

Fig. 5.2 Structural attributes of four measures

working capital). The third category is the relationship outcome. Customers' willingness to stay with the firm depends on cost/price performance, cost-to-service (retention cost), and also CRM performance. This level affects directly the four financial measure outcomes.

The four financial measures in the final level of financial outcomes have been discussed extensively in this chapter. One point is noted here that customer account outcome components affect each measure differently. OP and ROA measures affect shareholder value indirectly because corporate value is absent in their calculation. EVA and CLV are more value-centric with direct measure on value creation. In particular, CLV is a long-term measure. It is more relevant for monitoring customers' long-term profitability. Finally, discount rate is outside the chain flows because it is related to the firm's overall risk lever than on individual customers.

5.7 Concluding Remarks

Prior chapter has cautioned firms to select customers carefully. Not all customers are contributing profits and values to firms. There should be a means to evaluate customer profitability and value. Customer profit and customer value are two distinct concepts that always have priority conflict. These two measures are included in company's ultimate objectives. Very often, management is myopia in the short-term profit while putting the long-term value at risk. Long-term goal is the company's ultimate aim, and this vision must be cascaded throughout the management control system – the system that presents customer profit, customer value, and the priority clearly. The system should also reward sale team based on value creation. Jeff Bezos is the founder and chairperson of Amazon. He has an unconventional view on profit. Jeff once said, "every minute spent thinking about the short-term stock price is a minute wasted." He leads the world by example, and Amazon's stunning financial performance confirms his conviction.

Takeaway Tips

- There are many ways to measure customer profit. Profitability is only the starting point.
- There is a cost of capital for the assets invested in customers. It needs to be counted.
- Firms need to measure both customer profit and customer value. These are two different concepts and in priority conflict.
- Customer lifetime value makes the firms aware of the importance of customer retention to generate customer value.
- Firms need to justify the spending of acquisition and retention activities from customer value.

References

Ekinci, Y., Uray, N., & Ulengin, F. (2014). A customer lifetime value model for the banking industry: A guide to marketing actions. *European Journal of Marketing., 48*(3/4), 761–784.

Gupta, S., & Lehmann, D. R. (2003). Customers as assets. *Journal of Interactive Marketing, 17*(1), 9–24.

Gupta, S., & Zeithaml, V. (2006). Customer metrics and their impact on financial performance. *Marketing Science, 25*(6), 718–739.

Gupta, S., Lemann, D. R., & Stuart, J. A. (2004). Valuing customers. *Journal of Marketing Research, 41*(1), 7–18.

Gupta, S., Hanssens, D., Hardie, B., Kahn, W., Kumar, V., Lin, N., Ravishanker, N., & Sriram, S. (2006). Modeling customer lifetime value. *Journal of Service Research, 9*(2), 139.

Ryals, L. (2005, October). Making customer relationship management work: The measurement and profitable management of customer relationships. *Journal of Marketing, 69*(4), 252–261.

Part III

Managing Competitors

Competitor Analysis and Accounting Model: Competitor Analysis

6

Abstracts

This is the first part of competitor analysis and accounting model. This chapter attempts to build an analytical framework for competitor analysis. Starting from market analysis with respect to competitive position, competitive scope, market power, and market capacity, a firm gets to know its competitive drivers. However, an in-depth knowledge about competitors requires an interfirm rivalry analysis. The firm has to identify its close and direct competitors and speculate the possible behaviors of those competitors in the competitive dynamics. ML Chen's awareness-motivation-capability model is very useful to evaluate how the dyadic pair competes at the interfirm level. Market commonality and resource endowment are conceptual dimensions to help evaluate motivation and capability of the competitive dyad. Awareness is increased by market commonality and resource endowment, which is the condition for any market behaviors (i.e., attack, retaliation, or no action). Furthermore, market power moderates the competitive tension of market rivalry. As a matter of fact, proxy measures of market commonality, resource endowment, and market power can be formulated in indices with data obtained from financial information. The chapter explains how the market commonality, resource endowment, and market power index measures are derived and demonstrates how they are employed to evaluate the competitive tension and possible actions of competitive dyads with some guided examples.

Keywords

Market commonality • Resource endowment • Market power • Competitive dynamics • Interfirm rivalry analysis • Awareness-motivation-capability

W.S. Li, *Strategic Management Accounting*, Management for Professionals,
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6.1 Introduction

The search for competitive advantage has been firms' ongoing exercises. Firms look for an anchor point in the market where they can leverage their competitive edge to make competitors subservient to their dominance. In this strategic exercise, market intelligence plays a key role for firms to formulate, implement, and control strategic actions in order to secure a strong and sustained market foothold. Market intelligence has two orientations of focus – *customer-focused orientation* and *competitor-focused orientation*. The former is oriented toward customer needs where market actions are aimed at creating and delivering superior value to customers. Market information is driven by understanding and anticipations of customer needs and wants. The latter type of competitor-focused market intelligence is specifically attended to incumbent competitors or potential competitors. Its purpose is to outperform competitors by specific strategies. Competitor intelligence is sought around competitors' short-term strengths and weaknesses, as well as long-term capabilities and strategies. Strategic actions are focused at testing waters, speculating competitor's interactive responses, and restraining competitors' market encroachment. In fact, competitor-focused market intelligence is particularly effective for a market environment which is stable, less competitive, having fewer close substitutes, and high industry concentration. Firms can target a few immediate or potential competitors. Market information is related to diagnosis of competitors' intents, tracking of their business performance and market reception, identification of their strengths and weaknesses, monitoring of their sale and marketing activities, and follow-through of pricing strategies.

Admittedly, some people would argue that customer is king, and customer-oriented information is better to serve customer needs and create customer value, particularly when market environments become more precarious (i.e., intensified market competition). It is legitimate to say that if the general public has the same market demand, subservience to particular customers' demands (e.g., low price) without reference to competitor's response to the same demand may destroy customer value rather than create it. Delivering excessive customer value beyond the market needs precipitates market deteriorations and intensifies market competition. These market response actions damage the overall market environment and destroy firm's own shareholder value. Therefore, it has a practical need to build a competitor-focused market intelligence system to serve a dual role. First, it monitors competitor's actions and interactive actions in the market. Second, it draws a rational line to rebut customer's excessive demand beyond the general market demand. This is important for firms to maintain corporate value even at times of business chaos.

Competitor's intelligence helps firms guide, formulate, execute, and monitor market decision. Competitor behaviors are judged based on market perceptions and competitors' internal constraints. As *The Art of War* (a Chinese classic book written 2000 years ago) from the author – *Sun Tzu* – reminds us, "*know your enemy and your good self, you can win a hundred victories in a hundred battles.*" Competitors' internal resource, capabilities, strengths, weaknesses, constraints, and critical concerns are critical information for firms to win a competitive war. These are traits and

reasons why rivals manage business operations. This is the rationale how they organize key resources. The information discloses the causes of their financial strengths. Competitor intelligence is an essential and crucial repertoire for managers to strategize action plans. This competitor repertoire should consist of competitor's market information, cost, and price information. The source of information can be obtainable from trade, suppliers, customers, employees, published information, paid-market intelligence, and many others. Among all sources of available information, competitor-accounting information plays a pivotal role in the total competitors' intelligence system.

Competitor accounting has been regarded a good summary of competitor's financial position and business performance over the review period. Company's accounting standards and practices make comparative analysis possible between firms and the target competitors. An in-depth review and analysis of accounting information helps understand competitors' business model, cost and operation structures, internal operations and capabilities, as well as constraints and concerns. Furthermore, competitors' forecast model built from rivals' accounting and market information provides a powerful tool to predict competitors' possible market behaviors. Examining market antecedents, interfirm rivalry, competitors' priori factors, competitors' accounting, and forecast model in a total perspective approach would enhance predictability of competitors' market behaviors. This is the purpose of this chapter and the next chapter to discuss and elaborate how to apprehend this total perspective approach, build analytical and forecast models, and find proxy variables for analysis.

6.2 Analytical Framework

The following presents the overall analytical framework. Overall speaking, the entire review and forecast process consists of five major components: (a) competitive analysis, (b) competitor identification, (c) interfirm analysis, (d) forecast model, and (e) scenario test. Figure 6.1 summarizes the overall process and analytical framework of this model.

As noted below, the first component of competitive analysis is referred to the target industry in general and the focal firm's market condition in particular. Review is concentrated on market constraint and the focal firm's market power. Competitor identification is the next process in evaluating the implications of the categorized competitors. In the interfirm analysis, three analytical lenses are introduced – market commonality, resource similarity, and market power. How may the interplay of these lenses influence the interfirm rivalry and their likely market behaviors? In fact, these three components belong to the analytic domain with the purpose to develop a review methodology and proxy measures to assist competitor analysis. These are the topics for discussion in this chapter.

The fourth and fifth components pertain to the forecast domain and will be discussed in the next chapter. Forecast model includes competitor attributes, major characteristics of the target competitor, and its strength *relative to* the focal firm.

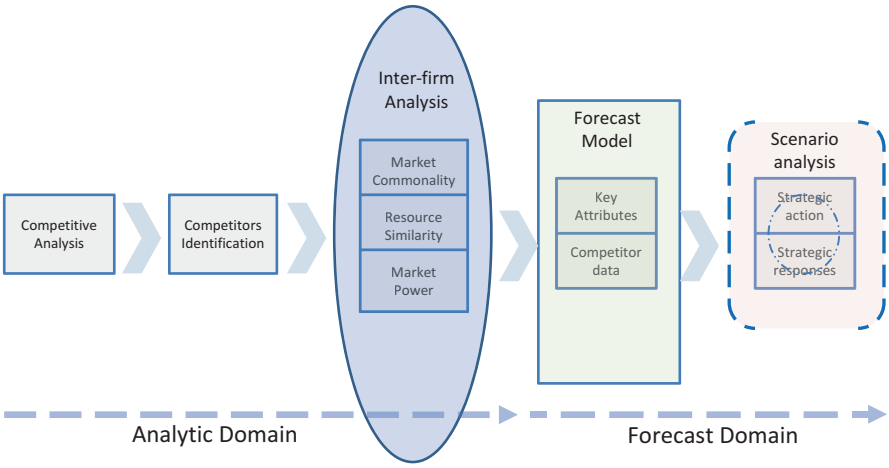

Fig. 6.1 Analytical framework

Competitor data are the key financial information of the target competitor, now or in the past. Based on the market and financial information available from the public or other sources, the focal firm can forecast what likely actions the target competitors have in response to the firm's intended market actions, e.g., pricing decisions, new product trends, and market penetration strategy. Scenario test as the final component can help management of the focal firm to predict the strategic response of competitors and the stress impact of the firm.[1]

6.3 Competitive Analysis

A firm in a competitive market needs to ask why it chooses the target market segment and where the best market position for the firm is. Even with a long market presence, the firm from time to time needs to revisit its market competitiveness position. Therefore, firms as a market player should review and assess the prevailing competitive situations that may have impact on the firm's choice of actions. Among all significant factors, four key competitive factors are identified. They are competitive position, competitive scope, market power, and market capacity. These four key dimensions impose market constraints on the firm and restrict the firm in its choice of strategic market options as against competitors. Figure 6.2 below shows key factors and their interrelationships.

[1] e.g. Bromwich (1990), Brothers and Roozen (1999) also advocate to build a systematic models and tools for competitive analysis.

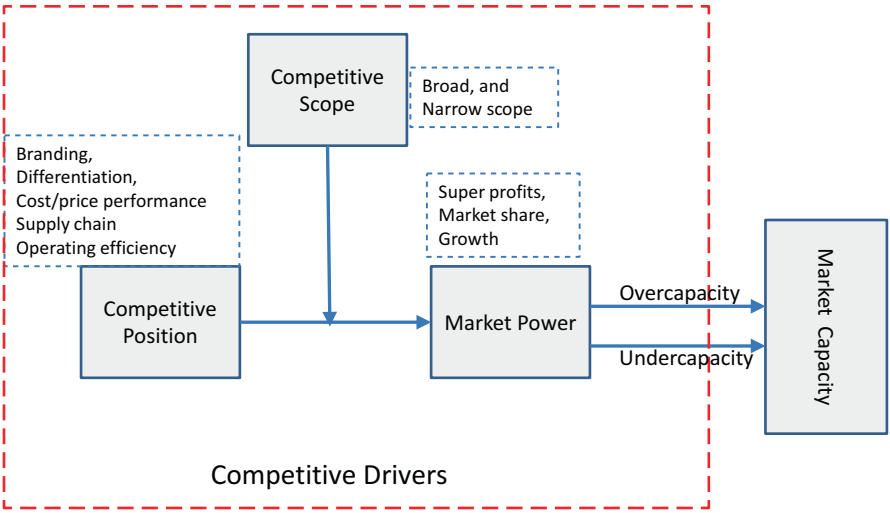

Fig. 6.2 Competitive drivers and market capacity

6.3.1 Competitive Position

This is a fundamental question of the firm about its survival in the killing field. Competitive position determines the firm's operating performance. Its relative capability in the market reflects business potentials. Key attributes include company image, product branding, differentiation, cost/price performance, supply chain effectiveness, operating efficiency, etc. High competitive position means that the firm is in a secured competitive position. Low competitive position means that the firm may expose the risk of unforeseen market vulnerability.

6.3.2 Market Power

Market power permits a firm to exercise a higher market influence over the target market. Market power also allows a firm to have a higher profit relative to peer competitors. It is not rare in industries where a handful firms control a high proportion of industry profits or market share. General Motors, Ford, Volkswagens, and Toyota have taken the largest market shares and industry profit of the US automobile industry. Apple iPhone, Samsung, and Huawei have dominated the global market share and profits of smartphones. Market power is characterized by the firm's super profits, market share, and high growth rate. Particularly in market growth, it foresees whether the firm's market power can continue in the near future. High market power enables the firm to continue the market influence and affords more offensive market actions (e.g., price war), whereas low market power restrains the firm to a passive role.

As noted in the above diagram, competitive position has relation with market power. Good competitive position strengthens market power, and weak competitive

position puts the firm at a vulnerable position. Market power determines the firm's market competitiveness. However, high market power players require the firms to possess some unique capabilities of market needs which can exert strong market influence on competitors and customers, such as trend setting or innovative features.

6.3.3 Competitive Scope

Competitive scope determines the breadth of market segment a firm can focus. Competitive scope relates to firms' capabilities such as financial resources, R&D, brands, sale and distribution networks, innovative products, operation strength, etc. As pointed out by Michael Porter, a firm with a broad competitive scope fits for a broader market segment, whereas a firm with a narrow competitive scope goes for a niche market.

In fact, competitive scope moderates the competitive strength of the firm. Firms with a high competitive scope strengthen the competitive position of a firm, whereas firms with a low competitive scope constrain its market position. Competitive position, market power, and competitive scope represent the overall market competitive factors of the firm. A firm having a high market power, competitive position, and competitive scope will be enshrined in the high market competitiveness position. On the contrary, a firm with low market power, competitive position, and competitive scope suffers from weak competitive forces. A firm enjoys a high competitive position but with its low competitive scope may restrain its market power, resulting in a mediocre market competitiveness. Market competitiveness determines the range of strategic actions a firm can select. However, it is also subject to market capacity constraint. A sample checklist for review of market competitive factors and market capacity constraint has been relegated at Appendix A.

6.3.4 Market Capacity

Market capacity is critical as it addresses the key issue whether firms in the market can gain a good profit or succumb to a humble subsistence level. This is a supply-side issue whether the aggregate output production capacity of all firms at the industry level is greater than the overall market demand. In the business world, there is a time lag in market information. Firms build production capacity with reference to business performance and growth potentials. Incumbent firms and new entrants increase production capacity to meet the burgeoning market demand. However, business climate overturns when there is oversupply of capacity or a drop in market demand. Firms may scramble for a price cut, and the plummeting price may expel inefficient firms out of the market. Market consolidation dampens business prospects, and excess capacity sweeps out profit opportunity. Excess capacity increases a firm's business volatility and operating risk and lures the firm to go for suicidal pricing strategy.

Market capacity constraint affects various aspects of the market including market cycle, entry barriers, substitute products, price, and supply issues. Market undercapacity invites incumbents and potential firms for a faster business growth. However, market overcapacity makes business more difficult and induces business chaos. Firms with high market competiveness may not cause serious problems to themselves. Overcapacity beats those firms heavily when their market competitiveness is fragile. Apple iPhone has a strong competitive position, wide competitive scope, and high market power. It can maintain premium profits even though there is overcapacity in the market. On the other hand, Nokia suffered from deteriorating competitive position. Adverse market conditions pushed it to the edge of bankruptcy. Similarly, Blackberry faced the similar vulnerable situation. It is strong in a niche market (corporate data phone with strong encryption capability) but narrow in competitive scope (i.e., finance and R&D not strong enough). With the fast product cycle and technological innovation, Blackberry had a big trouble during this market turbulence.

6.4 Competitor Identification

It may be dubious at a first glance to consider that this is a taken-for-granted basis in the identification process as daily interactions with competitors in the marketplace have clearly indicated who are the competitors. This is nevertheless a dangerous assumption. Competitor identification is an important business process to elevate awareness of competitive threats and opportunities. This is also a process to permit managers to sharpen their eyes and broaden their minds on possible "enemies" who may attack the firm not today but in the future. An unbiased identification process avoids managerial myopia in design of competitive strategies and reduces blind spots in the competitive market. A narrow scope of definition on "market and its competitors" weakens firms' alertness in other market development. Polaroid and Kodak in 1990s set a good example. There were fighting against the instant camera market but were unaware that the photo print market would soon be replaced by the digital camera market. The real war came later from the Japanese competitors – Sony, Cannon, and Nikon – who were not prominent at the start. The new digital technology created a creative disruption to overturn the photo business. Digital photo technology provides diversity of source of images, richness in color tones, amenability, and friendliness in usage. The new digital technology quickly outdated the chemical technology and took away the mass market. A more vigorous competitor identification may enhance firms' preparedness and readiness in dealing with extended markets where new competitors creeps in without notice.

Competitor identification categorizes competitors in separate groups: direct competitors, nondirect competitors, potential competitor, and noncompetitors. Bergen and Peteraf[2] employed Chen's market commonality and resource similarity

[2] This identification concept was developed by Bergen and Peteraf based on M.J. Chen's famous article (1996) in AMR.

constructs to coin an identification matrix. Market commonality[3] is defined as the degree of competitors' overlap with the focal firm in serving customer needs in the market. The locus of market commonality is customer needs, which can be viewed from product perspectives such as functions, designs, or even substituted products. It can also be viewed from various market perspectives such as geographic locations, customer types, consumer segments, business types, sale channel, etc. Market commonality considerations unleash managers from the confined market definitions and encourage them to look beyond existing product market for possible threats and opportunities. In fact, firms need to set their own definition of "market domains" in the domain categorization. Appendix B provides a sample checklist for assessment of market commonality for the focal firm and its rival dyads.

Firms compete for serving customer needs. Market commonality based on customer needs diverts firms' attention to evaluate the degree of overlap of customer needs that both candidate competitors and the focal firm can provide in the market. The degree of market commonality determines the degree of competition. For example, firms competing in multiple markets (e.g., customer segments, geographical markets, similar product portfolio) have a high degree of market commonality. There are rivals everywhere that intensifies rivalry. These rivals may be in direct competition with each other. On the other hand, there are a few competitors that are not direct competitors, but their products can be a substitute for the focal market. These can be potential competitors for the focal firms. In all these customer need considerations, one primary question is asked: *whether the focal firm and the candidate firms are serving the same customer needs now, or do they have the ability to do so in future*?

In fact, the overlap of customer needs is not the only criteria for identification of direct competitors. There is one more dimension to determine whether they are direct or indirect competitors. The consideration comes from resource similarity – supply-side consideration.

The supply-side consideration relates to the similarity of resource endowments and capabilities. Resource similarity is defined as "*the extent to which a given competitor possesses strategic endowments comparable, in terms of both type and amount, to those of the focal firm*."[4] These are the unique bundle of resources, tangible and intangible, and some inimitable capabilities derived from the firm's history, direct experiences, staff, technology skills, and management and organizations. A locus of comparison in *resources similarity* is scope and strength. It is opined that similar bundles of resource endowments would offer similar capabilities. Also, better comparative capabilities produce competitive advantages of one firm over the competitors. Based on this resource-based view, these supply-side considerations look to many factors such as quality level; cost structure; vertical integration; organizational and technological capabilities; financial strength; scale of operations; market and geographical coverage; strategic partners' strength, reliability, and trust; government support; etc. The strength of resource endowments reflects competitive

[3] Defined by Chen M.J (1996), AMR.

[4] Ditto.

edge of the rivals in the market and its relative competitive position toward the focal firm. In fact, firms have to determine their key resource endowments and capabilities prior to performing any of the mapping exercises. In short, resource similarity construct aims to assess *how well both firms serve the same customer needs with their competitive strength.*

Figure 6.3 depicts how market commonality and resource similarity dimensions determine the category of competitors. This 2 × 2 matrix categorizes four groups. The group of *direct competitors* has both market commonality and resource similarity at a high level. Most of the direct competitors in this group are head-on competition. The group of indirect competitors belongs to those who provide substituted goods or who do not have the similar level of resource endowments. Since the group of indirect competitors can serve a high level of customer needs, they can compete with the focal firm directly if there is an availability of resource endowments. For example, they can strengthen technological skills, increase scale of operations, raise financial sources, etc. This group needs close monitoring though there is no urgency for actions. Customers may go to those rivals should they make successful realignment of resource endowments. *Potential competitors* have similar level of resource endowments though market commonality is not the same as the focal firm. This group of competitors has the potential to challenge the focal firm should they be interested in the similar customer/market segment. The focal firm is to be alerted of their possible intrusion. The least indefensible group comes from noncompetitors which are low in market commonality and resource similarity. There is a low chance for them to compete with the focal firm for the time being, but they cannot be ignored over time.

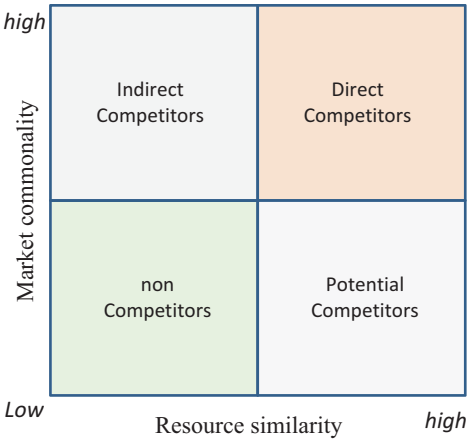

Fig. 6.3 Competitors mapping

Focus

How Huawei Was Enthroned in the Telecom World

Huawei, a Chinese telecom equipment manufacturer, was insignificant in the eyes of global counterpart during 1990s. Set up in mid-1980s, Huawei was a private enterprise with a majority of equity contributed by employees. Ren Zhengfei, the founder and the chairman of Huawei, owned only 1.4% of the total shareholding. Ren had been a PLA army officer working in the communications division. Ren had a very clear strategic intent when he started the business: great, global, generic, and agile. Ren looked to a long-term goal and wanted to set up a world-class company. Huawei developed instead of importing technology. It spent more than 20–30% of sales on R&D in its early stage, emphasizing the importance of generic technology. It hired talent event from its rivals. One classical example was that Huawei set up R&D regional center in Stockholm to hire R&D staff and engineers from Ericsson who were laid off during Ericsson's bad years around 2000. This strategy accelerated Huawei's 3G mobile telecom technology and allowed Huawei to catch up 3G technology in a short period of time. For market entry, Huawei noticed its inadequacy and incapability to contest with global telecom leaders (e.g., Ericsson, Nokia). Huawei started the sales from rural cities which were bare bones as viewed by the "esteem" leaders. Huawei's products were tested in these rural areas, and features were modified according to customer needs. In fact, Huawei showcased its products to telecom operators who were also state-owned enterprises. They had no excuse to say NO to Huawei under the pressure of government. With this strategy, Huawei gradually entrenched the local market, and telecom leaders started to feel the pain. By late 1990s, Huawei had taken 20% of switch sale in China and started to focus on its second product – mobile network equipment. Ren did not deny that he learned from chairman Mao Zedong's strategy of "surrounding the city with the countryside." Huawei spent tremendous efforts in 3G and 4G (LTE) development and proved to the world the good cost/performance of its products. Huawei was still a follower in 3G but leapfrogged in its 4G LTE businesses. It had the highest installations in China in late 2000s that dwarfed its global competitors.

The same story repeated in the international scene. Started in Russia, Huawei subsequently gained market in the emerging markets (e.g., Thailand, Brazil, and South Africa) with good equipment, low price, vendor financing, and customer-centric support. Building confidence internationally, Huawei started to sell in advanced markets such as Dutch and Germany in 2001 and managed to be in the preferred list of British Telecom (BT) in 2005. It was also the year where overseas sales had surpassed the local sale. By 2007, Huawei had businesses in 17 out of 50 top operators in the world. Huawei's sale growth accelerated and peaked in 2007 and 2008 with the growth rate of 51% and 43%, respectively. In 2015, it became the king in network

(continued)

infrastructure, taking the throne from Ericsson which had been in the telecom industry over 100 years.

Huawei's success was not by accident. It had a strong leadership, clear strategic direction, government policy support, and customer-centric policy flexible to meet customers' demand. Internally, Huawei had a die-hard team with high efficiency, technical competence, and good discipline. Huawei's wolf culture (as described by Ren) characterized by aggressiveness and perseverance bit its rivals seriously. Finally, its commitment on R&D (15–20% of sale) and high patent registrations kept Huawei ahead of competitors in the technology arena. Huawei has embraced an imitable experiences and valuable resource endowments, making it unbeatable in the frontline of the telecom war.

Competitor identification process helps individual firms to be fully aware of incumbents and potential rivals in the dynamic competitive world not only from the anchored markets but also from the related markets. Competitors' focus markets and resource endowments can be reshaped to threaten the focal firm's market competitiveness, thereby increasing the intensity of rivalry. Let us explore these competitive dynamics in Fig. 6.4 below. Figure 6.4 ranks the competitor groups in terms of the level of managerial awareness. As noted, the higher the awareness, the more immediate threats rivals challenge the focal firm's market position. In fact, rivals may reposition market focuses and improve and rearrange resource endowments. This gap mitigation process may alter the focal firm's market competitiveness. Business analysts and accountants should be alert of the possible shifts. With this in mind, *direct competitors* with the highest level of awareness should receive the highest attention among all groups. Within the group, those rivals who have multimarket competition, more shared markets, and market interdependence tend to be the primary direct competitors of the focal firm. Nikon and Cannon have the similar customer segments, product range, and physical market presence. The pairs of firms have head-on competition with tense rivalry because of multimarket contacts and similar resource endowments. Therefore, close scrutiny on those primary rivals is necessary (i.e., market development, performance, more possible threats and opportunity) in particular with high overlap of multimarket contacts.

Potential competitors second to direct competitors in competition awareness as similar resource bundles can be easily shifted to the similar focus markets as the focal firm to become a head-on competition. Caution should also be made so that rival firms can increase market overlap (e.g., market expansion, horizontal acquisition, increase new brands). Lenovo acquired IBM PC to become a true global company with market presence throughout the world. This strategic stride increased multimarket contacts as well as resource endowments (by acquiring the IBM global sale channels, plants, and experienced staff worldwide). It also puts Lenovo in the front-end competition with Dell, HP, and Apple worldwide.

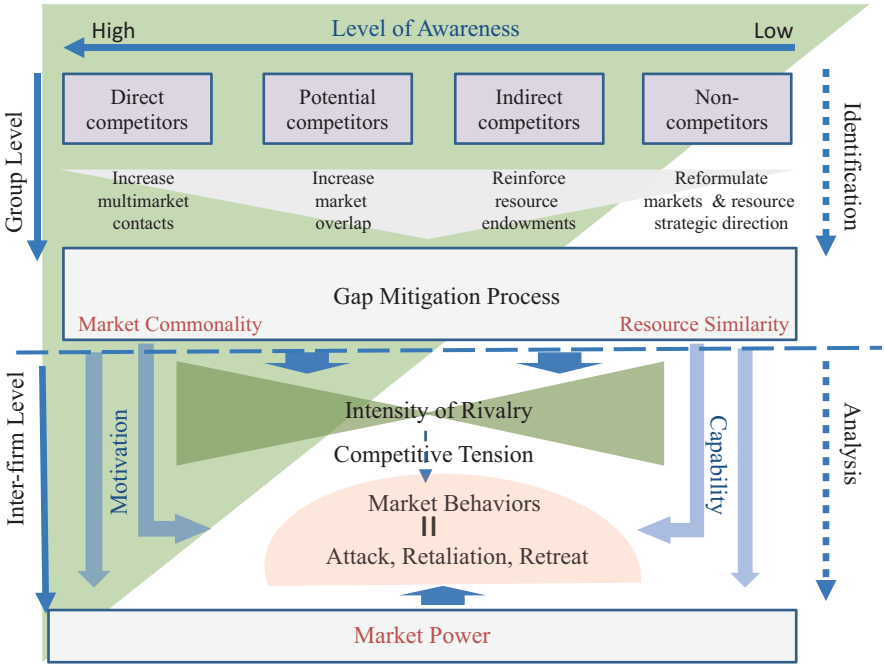

Fig. 6.4 Competitive dynamics

Indirect and noncompetitors deserve attention as well, though with a lesser scale. Indirect competitors have a high market commonality (i.e., similar market segments) but with heterogeneous resource endowments and/or less resource strength. They may require a strengthening of resource endowments both in terms of scope and amount in order to be a head-on proponent of the focal firm. *Haire* has been China's top brand in white goods, who also dominated the mid to low range of brands in the emerging markets. *Haire* wanted to conquer the US markets and challenged the traditional white goods giant, Whirlpool. It requires a reinforcement of resource endowments in the US markets including brand development, sale channel, product innovation, experienced international management, production delivery, etc. Care should be taken not only in the product market but also the factor market (i.e., technology, key employees, suppliers) because this is the quick way to escalate resource endowments. With a good foundation on organizational capability and strong financial resources, *Haire* may overcome these challenges over time. Noncompetitors can also transform themselves into a great competitor over time with an appropriate strategic direction both in terms of market development and resource endowments. Twenty years ago Huawei was an insignificant Chinese manufacturer for telecom equipment. Huawei surpassed traditional leaders such as Nokia, Ericsson, and Motorola and became the top sale global company in 2015 for the industry.

6.5 Interfirm Market Rivalry

In fact, the upper part of Fig. 6.4 depicts the group dynamic of competitors with special emphasis on the implications of group identification and classification. In the lower part of the diagram, it explains how individual pairs of rival and the focal firm (i.e., firm dyad) compete at the interfirm level. Chen[5] argued that each firm has a unique market profile and resource specialties, and the competitive relationship of a given firm dyad is different from the group. Also, the given firm dyad may not exhibit similar market behaviors (e.g., attack, retaliation, or inaction) because of the notion of competitive asymmetry – firms perceive competitors differently. Therefore, interfirm analysis (rather than at market level) allows the focal firm to investigate rivals in a meticulous manner. Market commonality relates to the market context of strategy, whereas resource endowment pertains to resource-based view. Both dimensions emphasize the *relative market* and *resource contexts* of the rival compared to the focal firm. They are therefore good reference points for analysis of each pair of competitive dyad.

How do these two dimensions influence competitive relationship, and how does the tension of rivalry affects each dyadic pair's initial market actions and subsequent responses? Competitive tension is the pivotal process of the entire competitive actions. According to Chen and his colleagues,[6] competitive tension changes the static dyadic relationship into a dynamic competitive interplay which may end up in aggressive actions. Competitive tension comes from two sources: perceptual and structural natures. Perceptual tension arises from decision makers and stakeholders (e.g., financial analysts, investors) who forge market expectations on the relative performance between the focal firm and its target rivals. Competitive tension accumulates as performance fell short of market expectations. Structural tensions derive from industry structure or market conditions. This is particularly true for an industry which has low-entry barriers, innumerable market players, overcapacity, or limited customers. Adverse market conditions may push competitors to the corner especially those nasty direct competitors having close markets and similar resource endowments with the focal firm.

Focus

Telecom Warfare

By the turn of the twenty-first century, there was a fierce competitive war around the telecom world in 3G tender bidding. Around ten 3G global equipment providers competed for less than a hundred 3G tenders within a relative short period of time – around 2 to 3 years. Telecom operators bargained heavily for price concession on the new 3G equipment because they had paid a huge sum of license fees to their local governments and ran out of money. 3G equipment providers were desperate for cash and 3G orders because they had huge 3G investment commitment. Buoying market expectations had driven telecom equipment providers crazily to secure 3G orders at all costs. Those

(continued)

[5] The concepts were borrowed from Chen's famous propositions and empirical evidence in his published articles in 1996 and 2007 in AMR and AMJ, respectively.

[6] In Chen, Su, and Tsai's articles (2007) in AMJ

3G equipment providers, having close market commonality and similar resource endowments, received the similar pressure from the public. Finally, 3G equipment price plummeted heavily at its early deployment, and many giant telecom equipment providers were involved in acute financial problems (e.g., Lucent, Nortel) or exit the 3G market (e.g., Motorola, Siemens) because of inadequate 3G orders. The worldwide telecom industry collapsed (both operators and equipment providers) in 2001 evidenced by innumerable company go-busts. This incident exemplified how perceptual and structural tension aggravated market rivalry and interrupted market stability.

Chen provides an awareness-motivation-capability perspective to link the above two dimensions in the interfirm rivalry analysis. Awareness is increased by market commonality and resource similarity (see Fig 6.4 above) which is the condition for any market behaviors. Firm size, visible market actions, multimarket contacts, shared markets, territorial interest, etc. affect firms' motivation to attack or retaliate. Capability to contest depends on resource profiles. Firm dyads will consider these two components when planning any attack or calculating the consequence of retaliation.

According to prior research, firm dyads in a direct and immediate competition may not exert too much pressure to the counterpart. Firms need to consider the potential responses in initiating attacks. In those firm dyads particularly with multimarket contacts, or market of significance in each party, the defender may attack with its mighty capability at the same market or across markets. The counteractions can be very damaging on both parties. Given this high interdependence in the market, these firm dyads will be very careful on engagement of any competitive actions because they do not want to rock the boat. Numerous research studies[7] also pointed that there was a close relationship between multimarket contacts and collusive behaviors which existed in many industries – banking, airline operation, foods, and manufacturing. When the no. of competitors increases in the market, firms have incentive to redistribute market power among the market and products they operate. Multimarket contacts facilitate this collusion. Research finds that firm dyads intensify market competition at a low-level multimarket contact. As the number of contacts increases, the firm dyad has formed an implicit bond to maintain a status quo so as to avoid the expensive cost of revenges by the defender in the same market or across the market. High level of multimarket contacts between the competitive dyad reduces competitive tension.

In fact, market commonality is more visible than resource capabilities. High multimarket contacts are very visible in the market. On the other hand, resource similarity predicts the potentials to act but not a motivation for market actions. These strategic resource endowments, varying in scope and strength, tend to be less transparent in the market. Market commonality rather than resource endowments puts more competitive tension on each rival in the interfirm rivalry.

[7] For example, research in studies such as Pilloff, S.J. (1999) and Bernheim & Whinston (1990)

The bottom of Fig. 6.4 depicts the relationship of these two dimensions on market power. Market power is a composite dimension of a firm pertinent to the extent of market control over its peer competitors. This is a composite dimension to foretell the impact of market actions on the target rivals. In fact, market power moderates the relationship between market commonalities and resource similarity on one hand and the competitive tension of market rivalry on the other hand. Firm dyads with a balanced market power will be more cautious in their competitive moves, whereas firm dyads with imbalanced market power will put weak rivals in the dyad vulnerable to be attacked and likely to retreat from the killing fields.

Taking this awareness-motivation-capability perspective, the implications of the three dimensions on interfirm rivalry are summarized as follows:

- The greater market commonality in the given firm dyad, the less likely any of the party will initiate attack on the other. One the other hand, the lower market commonality in the firm dyad, the more likely the stronger rival will initiate attack on the other party.
- The greater market commonality in the given firm dyad, the more likely the defender will respond to the attack. Contrarily, the lower market commonality in the firm dyad, the less likely the weaker rival will retaliate on the other party.
- The no. of multimarket contacts increases, the more likely both firm dyad will cooperate and maintain a mutual forbearance.
- The greater resource similarity in the given firm dyad, the less likely any of the party will initiate attack on the other. However, the more divergent in strength of resource similarity, the more likely the stronger rival will initiate attack on the weaker.
- The greater resource similarity in the give firm dyad, the more likely the defender will respond to the attack. Whereas, the more divergent in strength of resource similarity, the less likely the weak defender can fight back.
- Market commonality is more predictive than resource similarity in competitive attacks and responses.
- Market power moderates the strength of the market and resource factors on competitive tension. Imbalance of market power between the firm dyad will increase the competitive tension.

6.6 Proxy Measures

As discussed above, market commonality, resource similarity, and market power provide perspective for competitive action analysis. To be instrumental for business analysis, the concepts have to be transformed into proxy variables. Three equations have been formulated to suggest ways to set up these proxy measures. The ideas of construction of the first two proxy measures (market commonality and resource similarity) were inspired by Chen from his internationally acclaimed articles.[8] Market power measure was adapted from Lerner's index, an index used by economists to measure monopolistic power. These three proxy variables provide a powerful analytical tool in evaluating firm dyads' possible market behaviors.

[8] Reference was taken from Chen's two articles – one from his own in 1996 and the other with two authors in 2007.

6.6.1 Market Commonality Index (MCI)[9]

Market commonality is the extent of market overlap the focal firm has relative to the rival. By definition, market commonality can be geographical locations and business types, products, or customer segments, as appropriate in the context of analysis. The more market overlap with rivals, the stronger market commonality will be between the firm dyad. More precisely, market commonality can be further interpreted by two factors, namely: (i) the significance of the overlapping markets with the focal firm and (ii) rival's market share in the overlapping markets. Mathematically, market commonality index can be derived from Eq. (6.1):

$$\text{Market Commonality Index} = \sum_{M=0}^{n}\left[\begin{array}{l}\left(\%\ \text{of the focal firm s market } M \text{ to its total business}\right)\\ \times\left(\text{Rival's market share } M\right)\end{array}\right] \tag{6.1}$$

Equation (6.1) consists of three parts. The first part relates to the salience of the market *M* to the focal firm's total business value. The second part refers to the rival's market share to the total market *M*. The summation of all overlapping markets *M* from *0* to *n* (multimarket contact points) concludes the final part of the equation. Market refers to the defined "market domain" (e.g., country, business type, consumer segments). The choice of market domains should be consistent with the purpose of competitive analysis. This purpose can be aimed at understanding the rivalry situation in terms of various market domains such as market segments, consumer segments, sale channels, region, etc. The following summarizes the choice of market domains in Table 6.1.

Table 6.1 Choice of market domains

Market domain	Purpose	Proxy variable	Examples
Country, Region	Analyse business performance by region	Sale amount, volume	Analyse overall market position of a company
Customer	Analyse customer performance by customer types, or by trade	Sale amount, volume	Analyse general retail customers, premier customers, and corproate customers contributin in a bank
Business type	Analyse business performance by types of businesses	Sale amount, volume	Analyse prouduct, and service segment of a white good company
Product	Analyse product performance by product type,	Sale amount, volume	Analyse smart phone, low-end mobile phone, mobile for corporate users
Sale channel	Analyse business performance by sale channel such as retail, wholesale, direct sale, online vs offline	Sale amount, volume	Analyse supermarket, discount houses, and sales by owned stores

[9] Ditto.

Example 1 (a) Calculate MCI of R1, R2, and R3 with the information provided in the table below.

	Focal firm	R1	R2	R3
Market	A+B+C	Market share in market (M) A, B, C		
A	25%	20%	0	10%
B	25%	10%	20%	
C	50%	5%	0	40%
Firm's total sale %	100%	40%	70%	75%

(b) Identify the extent of market overlap and multimarket contacts of each rival.

Solution

(a) Computation of MCI for each rival

The first column denotes Market A, B, and C. Second column shows the focal firm's business contribution to the total sale value. As seen, Market C has the highest business contribution of 50%, followed by A (25%) and B (25%) accordingly. Market A, B, and C account for 100% of the focal firm's total business. The other three columns represent rivals' market share. For example, R2 has the market share of 20% for market B. With the % business to total sale and the market share of rivals on the target markets, MCI can be computed as follows:

1. R1 = 25% × 20% + 25% × 10% + 50% × 5% = 0.11
2. R2 = 25% × 20% = 0.05
3. R3 = 25% × 10% + 50% × 40% = 0.31

R3 has the highest MCI (0.31), followed by R1 (0.11) and R2 (0.05). Higher percent of business contribution of the respective markets on the focal firm and higher market sale of rival on the same market will push up the MCI.

(b) Market overlap

The information also indicates that R1 has only 40% of market overlap though there are three multimarket contact points. In contrast, R2 and R3 have high market overlap (70% and 75%, respectively) though multimarket contact points are less than R1.

6.6.2 Resource Significance Index (RSI)[10]

Resource significance index measures the extent to which the dyadic rival shares the resource endowments that are also vital to the focal firm. Resource endowments

[10] Ditto.

refer to both firms' capabilities in terms of scope and strength. Resource endowments can be defined in a broad term or a specific term. For a broad term, resource endowments are the general capability levels of the firm (e.g., financial capability, manpower). For a specific term, resource capability is related to a key, specific, and representational pool of resources. These key resource capabilities present the uniqueness or competitive edge of the focal firm. In fact, the choice of key resource endowments as objects of measure is dependent on the nature of businesses. Resource significance index can be derived from Eq. (6.2) below.

$$\text{Resource Significance Index}(\text{RSI}) = \sum_{M=0}^{n}\left[\begin{array}{l}(\%\ \text{of the focal firm's resources}\ J\ \text{allocated to the market}\ M) \\ \times(\text{Rival's share of the resources}\ J\ \text{as against the market}\ M)\end{array}\right] \tag{6.2}$$

Again, RSI consists of three parts. The first part relates to the proportionate relevant resources spent on the defined "market M." The second part pertains to the strength of similar resources invested by the rivals relative to the entire defined market. The third part is the summation of the resources allocated to the defined markets. Resource endowments can be defined from the total asset of the company or from production capacity (a broader term) or units of shops and R&D strength (specific term) for consumer goods or technological market, respectively. To present a meaningful analysis of MCI and RSI analysis, both proxy measures being selected have the relevance to the purpose of analysis. Table 6.2 below provides a list of examples of proxy variables for resource endowments. As shown, proxy variables are selected on the base of test purposes. For a broad analysis, resource endowments are related to firm's overall strength.

Total asset allocation to each target market can be based on its proportionate sale contribution by units or amount. This is the most common proxy variable used for the purpose because of its source readily accessible from published annual reports. For other analysis, information such as R&D spending, patents owned can also be

Table 6.2 Examples of proxy variable for resource endowments

Test purpose	Proxy variable	Nature of business	Source	Suggested allocation basis
Test the overall strength of a firm	Total assets, productive fixed asse,	All	Annual report	By market size, sale turnover
Technological strength	R&D spending, R&D headcount, owned patents	Technology	Annual report	Actual, allocation by headcount, business size
Production capability	Output capacity, labor force	Production	Suppliers	Actual, estimated output qty.
Specific resource constraint	Units of special resources	Production	Suppliers	input-output relationship
Sale accessibility	Sale outlet units	Trading	Physical count	Direct sale contribution

available from annual reports of most listed companies. However, proxy variables such as individual firms' output capacity, labor no. may be available from suppliers, labor markets, or other private channels. Proxy variable such as sale outlets (for retail business) can be easily found from firms' website directories. In fact, the focal firm can develop a no. of resource significance indices for different purposes. For example, one RSI is developed for total asset, and another RSI is employed for R&D strength or advertising spending.

Example 2 (a) Continued with the above example, calculate RSI of R1, R2, and R3 with the information given below.
(b) Comment on the resource strength (productive capacity) of each rival.

	Focal firm	R1	R2	R3	Total	Focal firm
Market	Production capacity (units in million)					% Alloc.
A	30	40	–	15	85	23%
B	45	30	40	–	115	35%
C	55	15	–	60	130	42%
Unrelated	–	100	70	40	210	0%
Total	130	185	110	115	540	100%
Market	% of production capacity contributed by each party					
A	35%	47%	0%	18%	100%	
B	39%	26%	35%	0%	100%	
C	42%	12%	0%	46%	100%	
Unrelated	0%	48%	33%	19%	100%	
Total	24%	34%	20%	21%	100%	

Solution

(a) *Compute RSI*

The key resource endowment used in this example is productive capacity unit, which means the production capacity of the focal firm and its rivals with respect to each market in common. From the information shown above, all capacity units have been allocated to each target market. First, we look at % total productive capacity (130 million units) of the focal firm on each market. The allocated productive capacity for each market segment in the focal was as follows: Market A, 23% (i.e., 30/130); Market B, 35%; and Market C, 42%. Second, each rival's share of resources on each market was also given in the above table. For example, R1 in Market A has the share of 47% (i.e., 40/85). With all information in place, the RSI for each rival was calculated below:

1. R1 = 23% × 47% + 35% × 26% + 42% × 12% = 0.25
2. R2 = 35% × 35% = 0.12

3. R3 = 23% × 18% + 42% × 46% = 0.23

(b) *Comment on resource strength of each rival*

R1 and R3 have relatively similar resource strength (0.25 vs 0.23). R2 (0.12) has the weakest strength among all and had a single market contact point with the focal firm which made R2 the subject of possible attack by the focal firm. R1 is formidable because it has the ability to attack the focal firm with its possession of one third of resource endowments (185/540) among of all four firms added together.

6.6.3 Market Power Index (MPI)

Market power index measures the market influence of a firm. Economics textbook teaches that market power exists because of monopolistic power. Customers will not mind to pay a firm a higher price for a product instead of reducing purchases. Firms with a high market power enjoy abnormal profits (or higher profits). One method economists used to measure market power index is Lerner index which is equated as *(P – MC)/P*. Price (*P*) is the average price, and marginal cost (*MC*) is the additional cost to produce one additional unit of output. In the real world, it is difficult to find *MC* by a simple calculation. ROS is a good surrogate of the index.

ROS is an accounting term which is the return on sale. Mathematically, ROS = profit × output quantity/price × output quantity. By eliminating output quantity, it represents the profit margin of a product (i.e., Profit/Price). In fact, there is research evidence[11] that ROS has a high correlation with the Lerner index. Therefore, price level reflects super profits a firm can obtain. The higher the price, the higher market power a firm will be. The lower the profit level, the more the firm has reached an intensified market competition. In fact, profit concentration on a few firms reflects the industry power curve. Industry power curve is steep when profits are seized by a handful of firms with strong market power.

On top of the profit level, market share is another signal to reflect market power. Market share reflects how popular the product of a firm is for customers. High market share also indicates market influence and leading role of a firm in the market. This is particularly true for those industries where critical mass is important for economy of scale, standard setting, barrier building, trend setting, etc. Market share can be another proxy for market power.

As discussed above, market power index should be computed in a broad-based firm level to reflect the composite market influence of a firm. However, firms may have diversified businesses in other areas. As such, market power can be summated by business segments to produce a weighted composite power. Therefore, market power index can be formulated as follows:

[11] For example, Gimeno and Woo (1999, p. 246) in AMJ found substantial convergent validity in a Pearson correlation between Lerner Index and ROS.

Broad-Based Level

$$\text{Market Power Index}(\text{MPI}) = \text{ROS} \times \text{Market hare}$$

Diversified Business by Segment Level

$$\text{Market Power Index}(\text{MPI}) = \sum_{B=0}^{n} (\text{ROS B} \times \text{Market Share B}) \times \%\text{Business contribution B} \tag{6.3}$$

The above formula has implications in threefold. First, profit is the outcome of market power, the logic consistent with economic interpretations. Second, the breakdown of market power into ROS and market share indicates the source of market power. Does it come from huge market dominance? Does it come from high product differentiation (high profits)? Or does it come from both? Third, market power can be accessible from basic accounting information. The following provides an illustration to compute market power index.

Example 3 (c) Continued with the above example, the focal firm and rival R1, R2, and R3 have ROS and market share and profit contribution as shown in the table below.

	Focal firm	R1	R2	R3
ROS_A	25%	35%	15%	22%
ROS_B	–	–	25%	–
Market share_A	20%	40%	12%	18%
Market share_B	–	–	30%	–
Profit Cont:A:B	–	–	40:60	–

Required

(a) Compute MPI of the focal firm, R1, R2, and R3
(b) Comment on the market influence of each firm.

Solution

(a) *Compute MPI*

From the information provided in the table, only rival R2 has two business segments A and B; the remaining firms have only one business segment. MPI was computed based on Eq. (6.3):

1. Focal firm = 25% × 20% = 0.05
2. R1 = 35% × 40% = 0.14

3. R2 = (15% × 12%) × 0.4 + (25% × 30%) × 0.6 = 0.06
4. R3 = 22% × 18% = 0.04

(b) *Comment on the MPI of each firm*

Focal firm and R3 have an average MPI, exemplified from modest ROS and market share. R1 has the strongest market influence, demonstrated by its high ROS and market share. R1 is most dangerous to the focal firm when RSI is considered jointly. R2 is the weakest among all (both ROS and market share). It can be the bait of the predator. R3 has a balanced strength compared to the focal firm, in terms of MPI and RSI.

6.7 Guide to Use Proxy Measures in Interfirm Competitive Analysis

As a general guide, the establishment of a proxy measure system for competitive analysis is instrumental for strategists and business controllers to arrive at a high-level strategic map for the war plan. As emphasized above, market commonality and resource similarity dimensions are important lenses for analysis. The proxies of these two dimensions should be representations of firms' critical and relevant key factors. To enable a useful interpretation of MCI and RSI analysis, the proxies for MCI and RSI combined should form a perspective of analysis. For example, regional sale has association with asset deployment to each region. Sale volume by business types has bearing on production capacity. The former proxy examines the capability of resource reallocation on firms' business performances. Whereas, the latter example examines the constraint of production capacity on market penetration. As a matter of fact, more than one proxy measures can be used so that a multidimensional analysis can be made to enhance the quality of interpretations.

Among all proxy measures, accounting proxies are preferred to other marketing proxies. Accounting data (e.g., annual report, 10 k, 20f forms to SEC of US) has consistence across all firms and industries. Very often, it is inevitable to make estimations on a few numbers based on past facts or announced forecast. Relevance, applicability, and consistency are more important than accuracy as management accounting data are geared toward decision making and evaluation. As long as assumptions are valid and appropriate, the outcomes derived from estimations will constitute high degree of validity, relevance, and testability.

The following provides a summary of step-by-step approach for employment of MCI, RSI, and MPI for interfirm competitive analysis.

Step 1: Decide the proxy measures for MCI and RSI. Establish the purpose of analysis.

Step 2: Select a portfolio of rivals for analysis. These rivals should be close competitors or direct competitors (refer to competitor group identification).

Step 3: Conduct a preliminary analysis of these competitors (e.g., close competitors, market overlap, multimarket contact points[12]).

[12] e.g. see Coccorese and Pellecchia (2009) about multimarket contact points.

Step 4: Prepare MCI for the focal firm and rivals. Identify who are the close and immediate competitors who should have the close resemblance with the focal firm. It can be used as a benchmark rival for further analysis.
Step 5: Use a reverse lens to compute how the rivals see the focal firm. As discussed, there is always competitive asymmetry between the firm dyad. Try to find out the difference of perceptions (example of competitive asymmetry).
Step 6: Prepare RSI. Check again the relevance of RSI proxy to MCI proxy variables.
Step 7: Prepare MPI. Use a broad-based proxy measure for general purposes.
Step 8: Combine rivals' interfirm rivalry position in a MCI vs RSI matrix, which facilitate review of those rivals.
Step 9: Interpret intensity of rivalry for each firm dyad by reference to the awareness-motivation-capability (AMC) perspective if applicable.

A comprehensive case (Superstores) with solutions has been been relegated at Chap. 12 (Case 12.4). This case will illustrate how competitors are categorized, and what a high level strategic plan is made based on the outcome of competitor analysis using the above MCI, RSI, and MPI indexes.

6.8 Conclusions

The above new approach in interfirm competitor analysis provides an analytical framework to estimate how common market, internal resource, and market power can determine market behaviors of competitive dyads. As noted, there is flexibility for selection of variables in the equations as formulated above. Individual firms have uniqueness in their firm level and industry level. The above guidelines shed light on how to proceed with the strategic analysis. In the next chapter, I will illustrate how to build a rival's forecast model and use it to forecast various situational changes.

Appendices

Appendix A

Please use these questions to evaluate the strength of the market factor of your firm.

	Market forces	High	Low
I.	**Competitive position**		
1	What is the overall customer loyalty to the firm?		
2	How is product/service differentiation from the market overall?		
3	How is the price range of products in the market?		
4	How is the brand effect of products or the corporate overall?		
5	How is the cooperative relationship with suppliers?		
6	In general, can the firm able to withstand market challenges?		
7	What is the cost of production relative to competitors?		

(continued)

	Market forces	High	Low
8	To what extent the firm can stay ahead of the general market within the next 2 years?		
II.	**Competitive scope**		
1	How is the overall capability of the firm?		
2	What is the synergy of competitive capabilities of the firm?		
3	What are the overall competitive advantages of the firm?		
4	How long can competitive advantages of the firm stand?		
III.	**Market power**		
1	What is the overall influence of the firm in the market?		
2	What is the relative operating profit % compared to the total market profits?		
3	What is the operating profit?		
4	What is the market share?		
5	What is the growth potential?		
IV.	**Excess capacity**		
1	What is the chance for the market to be consolidated within one or 2 years?		
2	What is the chance for new market entrants threatening the balance between market demand and supply?		
3	What is the chance for customer drain-out of the market?		
4	What is the chance for substituted goods threatening the market?		
5	What is the price erosion within the year?		
6	What is the chance for the market in excess capacity?		

Appendix B

Please evaluate how in (I) demand-side considerations (market commonality) and (II) supply-side considerations (resource similarity) the strength of each component.

	Dimension	Attributes	High	Low
I		**Demand side considerations**		
1	Product line	Series, types, breadth		
2	Feature	Packing, physical outlook, design, materials, terms and conditions		
3	Functionality	Performance, reliability, durability, ease of use, variety		
4	Service	Warranty, training, help desk, installation, maintenance		
5	Accessibility	Sale distribution channels, online/offline, geographical markets		
6	Customer psychology	Brand effect, corporate image, value delivery		
7	Price	Price meeting target customers' expectations		
II		**Supply-side considerations**		
1	Input materials	Material types, quality, and material costs		
2	Suppliers	Supplier types, degree of integration		
3	Labor costs	Labor skills, education, experience, wage level		

(continued)

	Dimension	Attributes	High	Low
4	Technology	R&D strength, patents owned, level of technological		
5	Logistics	Coverage of logistic hugs, owned or outsourced, level of support		
6	Finance	Financial resource, financial performance, financial leverage		
7	Scale of operations	Firm size, market coverage, geographical support		
8	Partner networks	Intimacy of partner network, scale of partners, reliability of partners		
9	Government networks	Relationship with governments, local/national, degree of influence		
10	Stakeholder relationship	Trade unions, community, labor relationship, corporate social responsibility		

Takeaway Tips

- Know your enemy is "an art of war" and a prerequisite for winning a business war.
- Competitor intelligence provides inputs for decision making.
- Classification of competitor groups facilitates monitoring of competitors' market responses.
- Predictability of competitors' market behaviors can be improved using awareness-motivation-capability analytical framework.
- Market commonality index, resource significance index, and market power index are proxy variables to detect rivals' market actions and responses. In fact, many of the surrogates can be sought from annual reports and published information.

References

Ahrens, N. (2013). *China's competitiveness: Myth, reality, and lessons for the United States and Japan: Case study: Huawei*.

Bergen, M., & Peteraf, M. A. (2002). Competitor identification and competitor analysis: A broad-based managerial approach. *Managerial and Decision Economics, 23*(4–5), 157–169.

Bernheim, D., & Whinston, M. D. (1990). Multimarket contact and collusive behavior. *RAND Journal of Economics, 21*, 1–26.

Chen, M. J. (1996). Competitor analysis and interfirm rivalry: Toward a theoretical integration. *Academy of Management Review, 21*(1), 100–134.

Chen, M. J., Kuo-Hsien, S. U., & Tsai, W. (2007). Competitive tension: The awareness-motivation-capability perspective. *Academy of Management Journal, 50*(1), 101–118.

Coccorese, P., & Pellecchia, A. (2009). Multimarket contact and profitability in banking: Evidence from Italy. *Journal of Financial Services Research, 35*(3), 245–271.

Gimeno, J., & Woo, C. Y. (1999). Multimarket contact, economies of scope, and firm performance. *Academy of Management Journal, 42*(3), 239–259.

Markman, G. D., Gianiodis, P. T., & Buchholtz, A. K. (2009). Factor-market rivalry. *Academy of Management Review, 34*(3), 423–441.

Pilloff, S. J. (1999). Multimarket contact in banking. *Review of Industrial Organization, 14*(2), 163–182.

Competitor Analysis and Accounting Model: Accounting Model

7

Abstracts

This chapter continues with the prior chapter but focuses on the use of accounting information (with minor part on nonfinancial data). It starts from the assessment of competitors' competitive position based on accounting information. A systematic approach of competitor position analysis is adopted to articulate the relative strength of three key levers of a firm compared to the competitors, i.e., financial lever, capability lever, and efficiency lever. Four telecom global players Ericsson, Nokia_Siemens, Alcatel_Lucent, and Huawei are selected to elucidate how competitor position analysis can be performed. The chapter then demonstrate how to build a predictive model of competitor based on the available financial and market information. With the predictive model on hand, it further discusses how the model can be effectively used to examine competitor's possible market responses based on financial and capability constraints.

Keywords

Accounting for competitive position analysis • Competitor accounting model • Relative financial strength • Competitor forecast model

7.1 Introduction

Chapter 6 has outlined an analytical framework of competitor analysis. This is the second part of the framework which focuses on the forecast domain – i.e., emphasis on the use of accounting information.

Prior chapter has indicated market commonality, resource similarity, and market power as means to identify the strength of rivals and as the business parameters to set ahead courses of actions for competitive moves against its rivals either taking an aggressive attack, passive retaliation, or simply at abeyance. All actions have taken full considerations with respect to external market situations and internal resource

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capability. As a matter of fact, different rivals have encountered different market responses from the focal firm because their situations are different.

In the interfirm analysis, rivals have been categorized according to their relative resource strength, and a few "real rivals" have been identified for close monitoring. They are *strong rivals* in the trade. Their actions may have profound effects on the market. In fact, *direct rivals* are close to the focal firm in terms of market and resource strengths. Their market behaviors are particularly salient to the focal firm. Conversely, *weak rivals* are always subservient to market dominance. They are the bait of predators. However, whatever action plan being set, the firm also needs to include possible responses to the strong rivals and its close rivals. Therefore, a firm needs to sort out satisfactory solutions to the following questions in planning for any substantial attack action.

- Is the offensive strategy fit for the competitive position?
- Can the defender have resource capability to contest?
- How long can the maneuver stand?
- How much is the bill of action?
- Is it worthwhile to proceed?
- What will be the responses from close leading competitors and close competitors?

After all, the above questions are about relative competitive position of the firms.

7.2 Assessment of Competitive Position

Prior chapters have elaborated that a firm's competitive position determines its market power, evidenced by profit level, market size, and market growth. A firm with a strong competitive position will exhibit a higher market power and demonstrate a high performance in terms of returns on sale, sale turnover, and spectacular sale growth. Conversely, a low competitive position means that the firm is poor in return on sale, sale turnover, and sale growth (or negative growth) in relation to its rivals. The performance of a firm reflects how accurate it can put its products and resource efforts in a specific market positioning. More precisely in a strategic inquiry, this is the question about proper matching of the firm's resource capabilities to the right market segment *given* the right strategy.

Of course, one may argue that performance problems are not entirely the responsibility of the firm itself but rather a change of customer needs or from competitors' effective market strategies. In this market shift, the firm's competitive advantages can no longer be sustained. The firm has gradually lost its vigor in the market competition, thereby necessitating a corresponding change to the new market landscape. In fact, deteriorating situation does not come suddenly. Rather, it goes through a gradual process in which traits of decay are insignificant at the early stage. Nevertheless, these adverse symptoms of a firm can be detected in an assessment of firms' competitive position in which idiosyncratic outcomes of the firm are exposed in its change of relative market strength. In sum, assessment of competitive position

of a firm provides accurate reflection on the firm's competitiveness in face of changing market landscape. The benchmark study provides quantitative measures on the firm's market position *relative* to its rivals.

Focus

The Downfall of Nokia

Nokia emerged from a tire maker and succeeded to convert into a mobile phone maker during the 1990s. It soon rose to be the top-gear leader of the industry by 2000. In 2007 when Apple introduced its first iPhone, Nokia had seized 50% of the mobile phone profit worldwide.

Though a new kid in town, Apple managed to redefine the smartphone business in terms of form factors and functionalities and used its own legacy system to support its apps and contents. Apple very quickly took the cream of the smartphone business. On the other side, with the coming of an open source Android system to provide free apps and increase contents to low-end users, low-end mobile phone makers could also give similar functionalities and features to their users.

The world has changed. Smartphone followed a new trend. There were Apple and Samsung in the upmarket to entertain high-spending users. There was also a massive growth of low-end customers such as Xiaomi which could produce economic smartphone to users who could afford to pay for reasonable prices. However, Nokia's market position was awkward. It could not compete in the upmarket in terms of form (slow response to touch screen format), functionality (slow processing time in Symbian and Windows IOS system), and limited contents, nor could it survive in the low-end market due to the high cost. Nokia was stuck in the muddle.

Only in a few years, Nokia lost its predominant market position in the mobile phone industry. Its brand value drained into the ditch. By the time Nokia sold its mobile phone business in 2013, its business value was only one fifth of its value in 2007. It was a tragic story of Nokia's downfall in which the guilt came from its blind spot in market pace and competitors' changing strength.

7.2.1 Accounting for Competitive Position

Accounting information provides meaningful and useful information for assessment of competitive position. A rich source of accounting information can be available in the public information repertoire, e.g., annual reports, annual returns, and Google Finance. Also, accounting disclosure rules have already set up a standard accounting framework in which consistent accounting data definition and computation methods permit comparability of accounting performance and financial position in different accounting periods within the firm and between firms. This provides a sound foundation for making financial assessment of firms. Furthermore, a

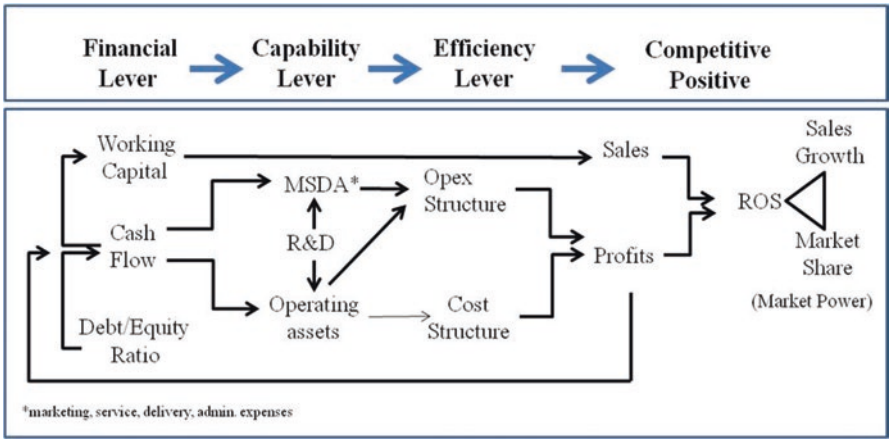

Fig. 7.1 Accounting for competitive position

detailed diagnosis of financial report statements will unveil the operating model that the firm has selected, together with its financial strength. For example, operating model can be viewed from the operating performance statement. Financial strength, liquidity position, and financial leverage can be read from balance sheets and cash flow statements. Also, the quality of operating production can be evaluated from the percent of depreciation against original book value.

Prior to conducting financial assessment, let's discuss how key financial numbers are employed to assess competitive position of a firm. Figure 7.1 provides an articulation of key financial numbers pertaining to key dimensions (levers) of a firm's market position.

As seen, the header of Fig. 7.1 indicates the strategic levers for a firm's market position. Firms build and maintain operations and business with a sound financial strength – financial lever. Firms establish operating capabilities through organizational learning and strategic choice and permit themselves to compete in the competitive markets – capability lever. In the process of employment of assets and implementation of operating and business strategies, firms create operating efficiency to meet customer needs and to adapt to the changing market – efficiency lever. These three levers determine sale and profit levels as well as the firm's competitive position in the market. In short, the three levers provide conditions for the firm to gain competitive position and improve the market power through the triangular performance of return on sales (ROS), market share, and sales growth. The relative performance of these triangular forces provides hints for the effectiveness of the overall strategy.

In fact, competitive position of a firm can be examined through a series of financial numbers in the report. The baseline of a firm is to maintain market power demonstrated by reasonable return on sales (ROS), market share adequate to make market influence, and sale growth in line with market change. Profit arises from the firm's operating efficiency in which efficiency lever sets proper operating expenses

(Opex) and cost structure to fit customer expectations and operating needs. For example, a firm can appropriately adjust economies of scale to meet market expansion or retrenchment plan; it can install effective cost control without sacrificing product quality and future businesses. The percent change of operating expenses and cost of goods relative to the percent change in sale provides a reasonable yardstick to measure the firm's operating efficiency.

Capability lever and financial lever represent the firm's capability to implement strategies to meet the competitive position. MSDA mix (see Chap. 4) reflects the kind of strategy the firm has employed. High marketing and service expenses mean the adoption of product differentiation strategy, while low market and service expenses indicate the employment of cost advantage strategy. Similarly, high R&D refers to the firm's employment of technology strategy, while low R&D hints a short-term-focused cost saving strategy. In fact, R&D expense is particularly important for technological driven industry, which has a long-term impact on product innovation as well as process innovation. Operating assets imply the firm's operating ability to address scale and service needs. However, high operating assets increase capacity problem especially when the business is at the ebb. Capability lever affects the effectiveness of efficiency lever.

Finance is most important to keep the business alive. Cash flow (including profit claw back) provides liquidity for the firm. Working capital supports sale transactions. Debt/equity ratio reflects borrowing ability of the firm. These three indicators in the financial lever indicate the energy level of the firm. Falling energy creates financial stress and affects the firm's vitality. Firms' competitive position will deteriorate with a weak financial strength.

In fact, it is difficult to assess business performance in a single year because of timing effects of investment and business activities. For example, an increase in R&D will hurt the short-run financial performance but will benefit companies in the long run. Cutting customer service or using low-cost materials may improve profit margins in the short run but damage the brand value in the long run. Both cases will affect the competitive position of a firm in a longer turn. Therefore, accounting for competitive position requires a multiple-period assessment and benchmarking with rivals. The following presents an example to show how to analyze relative change of competitive position on telecom leading firms.

7.2.2 Competitive Position Analysis

The following shows financial numbers of the telecom leading firms – Ericsson, Nokia_Siemens, Alcatel_Lucent, and Huawei are the key global players in the telecom infrastructure businesses. All financial numbers were obtained from published accounts and public information. Table 7.1 summarizes sales, gross margin, and operating profits of these four telecom equipment providers. All four firms carried out network equipment production business, except Huawei which also has mobile phone businesses (phone businesses were 22%, 24%, and 26% of total sale during the review period from 2012 to 2014). A 3-year period was chosen because a firm's

Table 7.1 Comparative analysis of sales, gross margin, and operating profits on Ericsson, Nokia_Siemens, Alcatel_Lucent, and Huawei

(In US$ Million)	Sales (Host Curr.)	Sales	YoY%	*Relative strength*	Gross margin	Gross margin%	YoY%	*Relative strength*	Operating profits	Operating margin%	YoY%	*Relative strength*	FX
	(In SEKM)	*(In US$M)*			*(In US$M)*	**Ericsson**			*(In US$M)*				
Y2012	227,983	33,902	–	*1.00*	11,052	32.6%	–	*1.00*	2,068	6.1%	–	*1.00*	6.7247
Y2013	227,376	34,899	2.9%	*1.00*	12,145	34.8%	9.9%	*1.00*	3,420	9.8%	65.4%	*1.00*	6.5152
Y2014	227,779	32,906	–5.7%	*1.00*	12,043	36.6%	–0.8%	*1.00*	2,632	8.0%	–23.0%	*1.00*	6.9222
3-Year Average	227,713	33,902	–0.1%	*1.00*	11,747	34.6%	9.0%	*1.00*	2,707	8%	27.3%	*1.00*	
	(In EUR)					**Nokia_Siemens**							
Y2012	13,372	16,129	–	*0.48*	4,952	30.7%	–	*0.45*	984	6.1%	–	*0.48*	1.2062
Y2013	12,709	16,234	0.7%	*0.47*	6,835	42.1%	38.0%	*0.56*	666	4.1%	–32.3%	*0.19*	1.2774
Y2014	12,732	15,407	–5.1%	*0.47*	6,825	44.3%	–0.1%	*0.57*	200	1.3%	–69.9%	*0.08*	1.2101
3-Year Average	12,938	15,924	–4.8%	*0.47*	6,204	39.0%	37.8%	*0.53*	617	4%	–79.6%	*0.23*	
	(In EUR)					**Alcatel_Lucent**							
Y2012	13,764	16,602	–	*0.49*	4,831	29.1%	–	*0.44*	(579)	–3.5%	–	*–0.28*	1.2062
Y2013	13,813	17,645	6.3%	*0.51*	5,505	31.2%	13.9%	*0.45*	245	1.4%	–142.4%	*0.07*	1.2774
Y2014	13,178	15,947	–9.6%	*0.48*	5,334	33.5%	–3.1%	*0.44*	692	4.3%	182.2%	*0.26*	1.2101
3-Year Average	13,585	16,731	–4.3%	*0.49*	5,224	31.2%	10.4%	*0.44*	119	0.7%	–219.6%	*0.04*	
	(In CNY)					**Huawei***							
Y2012	220,198	35,353	–	*1.04*	14,070	39.8%	–	*1.27*	3,217	9.1%	–	*1.56*	6.2286
Y2013	239,025	39,463	11.6%	*1.13*	16,180	41.0%	15.0%	*1.33*	4,815	12.2%	49.7%	*1.41*	6.0569
Y2014	288,197	46,515	17.9%	*1.41*	20,560	44.2%	27.1%	*1.71*	5,535	11.9%	15.0%	*2.10*	6.1958
3-Year Average	249,140	40,444	30.9%	*1.19*	16,937	41.9%	46.1%	*1.44*	4,522	11.2%	72.1%	*1.67*	

Source: Company annunal reports

**Sales from Consumer business (mobile phones) during Year 02-04 were 22%, 23.8%, and 26.1% of the total amount respectively*

competitive position cannot be concluded in a single year. A 3-year movement shows a reasonable competitive trend.

A concept of relative strength was included in this benchmark study to elucidate the competitive strength. Relative strength shows how strong a firm is compared to its rivals in a specific area of benchmarking. The concept of relative strength was raised by Simmonds' famous article in 1986[1] which demonstrated how accounting was used for assessment of competitive position. The benchmark study requires a focal firm. In this study, Ericsson was taking the role of focal firm. Table 7.1, compared the performance of Ericsson with its three rivals. The year-to-year % (YoY%) denotes a growth rate of the firm, whereas the 3-year average in YoY% indicates the percent change over a 3-year period. Sales, sales growth, gross margin, and operating profits were extracted from their respective annual reports. These are good proxy measures for competitive position, as already been explained in the prior section. Let's examine the financial numbers of each firm during this 3-year period from 2012 to 2014. From the market size perspective (i.e., sales), Ericsson had the highest sales in fixed and mobile network (including service and support sales) among all four firms in 2012. Nokia_Siemens and Alcatel_Lucent were half the size of Ericsson sales, and Huawei was about 80% of the relevant segment sale (Huawei had 22% of sales from consumer segment – mobile phones). In fact, Ericsson was the traditional market leader in the telecom network business. In terms of gross margin%, they were close with each other except that Huawei's gross margin% was much higher than its counterparts. The high % gross margin reflects Huawei's good cost control in production compared to rivals. Profit level is a good indication of market power. Huawei once again had the best business performance, seconded by Ericsson and Nokia_Siemens. Alcatel_Lucent was the worst performer due to some operation problems. In sum, the relative strengths of Ericsson to its rivals reflect this business reality. Ericsson was better than its European rivals (the rivals' relative strength less than 1) but worse than its Chinese rival (Huawei's relative strength higher than 1). All relative numbers reflect a progressive change in competitive position in those firms. The 3-year average shows that Huawei had outperformed Ericsson and others evidenced by a solid sale growth, good cost control in production, and a marvelous profit performance. The relative strengths of Ericsson and Huawei reflect their rivalry intensity. Huawei took the lead to be the sale champion in 2015 in network infrastructure (including service and solutions). In fact, detailed analysis on business unit performance (i.e., in network, services, and solutions) of these firms can also be performed based on the same approach. Companies listed in matured financial markets (e.g., the USA) have mandatory disclosure for business segment performance.

Though the above competitive position analysis shows comparative strength of rivals in their market performance, it lacks the root-cause analysis. For example, what particular internal factors attributed to the performance. How does the financial strength shape the growth? A lever analysis may provide the hints.

[1] In Simmonds' article (1986), European Journal of marketing

7.2.3 Efficiency, Capability, and Financial Lever Analysis

A more in-depth analysis in terms of efficiency, capability, and financial levers was performed and summarized in Table 7.2. The analysis of each lever was separately shown in three panels. Relative strength measure was once again applied to

Table 7.2 Efficiency, capability, and financial levers

Panel I	Opex/ sale %	Relative strength	COS/ sale %	Relative strength	Sale/ employee[a]	Relative strength
Efficiency lever			**Ericsson**			
Y2012	25.3%	1.0	67.4%	1.00	0.31	1.0
Y2013	24.9%	1.0	65.2%	1.00	0.31	1.0
Y2014	27.7%	1.0	63.4%	1.00	0.28	1.0
3-year average	25.9%	1.0	65.3%	1.00	0.30	1.0
			Nokia_Siemens			
Y2012	23.0%	0.9	63.9%	0.86	0.26	0.8
Y2013	20.7%	0.8	57.9%	0.85	0.27	0.9
Y2014	22.1%	0.8	55.7%	0.93	0.27	1.0
3-year average	22.0%	0.8	59.2%	0.91	0.27	0.9
			Alcatel_Lucent			
Y2012	32.6%	1.3	70.9%	1.05	0.23	0.7
Y2013	29.9%	1.2	68.7%	1.05	0.28	0.9
Y2014	29.1%	1.1	66.6%	1.05	0.30	1.1
3-year average	30.6%	1.2	68.7%	1.05	0.27	0.9
			Huawei			
Y2012	30.7%	1.2	60.2%	0.89	0.23	0.7
Y2013	28.8%	1.2	59.0%	0.90	0.25	0.8
Y2014	32.4%	1.2	55.8%	0.88	0.28	1.0
3-year average	30.7%	1.2	58.1%	0.89	0.25	0.8
Panel II	Total assets	Relative strength	Operating assets	Relative strength	R&D expenses	Relative strength
Capability lever			**Ericsson**			
Y2012	40,893	1.0	1709	1.0	5390	1.0
Y2013	41,317	1.0	1755	1.0	4956	1.0
Y2014	42,408	1.0	1927	1.0	5232	1.0
3-year average	41,540	1.0	1797	1.0	5193	1.0
			Nokia_Siemens			
Y2012	36,167	0.9	1726	1.0	3715	0.7
Y2013	32,179	0.8	710	0.4	3344	0.7
Y2014	25,488	0.6	866	0.4	2018	0.4
3-year average	31,278	0.8	1101	0.6	3026	0.6

(continued)

Table 7.2 (continued)

Panel II	Total assets	Relative strength	Operating assets	Relative strength	R&D expenses	Relative strength
			Alcatel_Lucent			
Y2012	27,566	0.7	1367	0.8	2810	0.5
Y2013	29,128	0.7	1373	0.8	2897	0.6
Y2014	28,351	0.7	1370	0.7	2680	0.5
3-year average	28,348	0.7	1370	0.8	2796	0.5
			Huawei			
Y2012	33,716	0.8	3270	1.9	4831	0.9
Y2013	40,300	1.0	3667	2.1	5211	1.1
Y2014	49,997	1.2	4398	2.3	6592	1.3
3-year average	41,338	1.0	3778	2.1	5545	1.1
Panel III	Cash and S-T investment	Relative strength	CF from operations	Relative strength	Debt/ sale%	Relative strength
Financial lever			**Ericsson**			
Y2012	11,407	1.0	3276	1.0	12.6%	1.0
Y2013	11,832	1.0	2669	1.0	13.0%	1.0
Y2014	10,424	1.0	2702	1.0	10.6%	1.0
3-year average	11,221	1.0	2882	1.0	12.1%	1.0
			Nokia_Siemens			
Y2012	8589	0.8	−354	−0.1	44.7%	3.5
Y2013	7297	0.6	72	0.0	52.7%	4.1
Y2014	3905	0.4	1275	0.5	22.5%	2.1
3-year average	6597	0.6	331	0.1	40.0%	3.3
			Alcatel_Lucent			
Y2012	4606	0.4	−135	0.0	27.0%	2.1
Y2013	6102	0.5	−212	−0.1	33.5%	2.6
Y2014	5084	0.5	116	0.0	30.3%	2.9
3-year average	5264	0.5	−77	0.0	30.3%	2.5
			Huawei			
Y2012	11,503	1.0	4009	1.2	9.4%	0.7
Y2013	13,529	1.1	3724	1.4	9.6%	0.7
Y2014	17,114	1.6	6739	2.5	9.8%	0.9
3-year average	14,049	1.3	4824	1.7	9.6%	0.8

Source: data compiled from the respective annual reports
[a]In million USD

benchmark the comparative performance of selected proxy variables through the 3-year review period.

The first panel section relates to three proxy variables of efficiency lever: operating expense/sales ratio, COS/sale ratio, and sale per employee. The first two ratios

pertain to operation and production efficiency, while the third proxy variable relates to sale efficiency. Relative strength less than 1 means the respective efficiency better than Ericsson, while relative strength higher than 1 implies worse off. On the sale efficiency ratio, higher relative strength means sale efficiency better than Ericsson and vice versa. Once again, relative strength indicators of Ericsson show that Nokia_Siemens had a stronger operation and production efficiencies though sale per employee was behind Ericsson. Alcatel_Lucent's operation, production, and sale efficiencies were lower than Ericsson. For Huawei, operation and sale efficiencies were not as good as Ericsson, but production efficiency (i.e., COS/Sale%) was better than Ericsson. The lower sale efficiency may be due to the fact that Huawei had consumer products which were far less expensive than infrastructure goods (i.e., low sale/employee). The other reason was that Huawei had a very strong R&D team which was 45% of the total headcount. These people were hired not for the present but for future business and sales.

The second panel section refers to capability lever, represented by total assets, operating assets, and R&D expenses. The first two proxy variables reflect critical resources of firms and operation capability in gaining scale of economy in the telecom industry. The third relates to a firm's rare and inimitable resource in gaining technological competitive edge. Strong relative strength relative to Ericsson means the indicator is above 1. Ericsson and Huawei were high in all three measures, while the other European counterparts were lower than 1, meaning that the former two firms had the dominant capability. Huawei's relative strength indicators rose and exceeded substantially than Ericsson. Huawei's rising capability challenged Ericsson's leading role. These two European firms were merged finally in 2016. In fact, Huawei became the top network provider in 2015. Due to the relative low R&D investment, Nokia_Siemens and Alcatel_Lucent were no longer a threat to Ericsson. Furthermore, Huawei became a direct and close competitor of Ericsson in the network industry.

The third panel section relates to financial capabilities. Cash and short-term investments relate to liquid funds to meet short-term commitments. Cash flows from operating activities reflect the firm's capability to generate cash funds. Debt/sale ratio relates to the financial leverage issue. Once again, the higher the first two cash flow proxies, the better relative to Ericsson. Whereas, the higher the number of relative strength in debt/sale ratio, the weaker the position. The two European competitors were weak in all three variables, while Huawei was strong in these measures. This financial lever supports Huawei's rising power in the global context, while Nokia_Siemens and Alcatel_Lucent lagged behind due to cash flow problems.

In short, the above example elucidates how financial numbers explain competitive position of a firm. Competitive position is evidenced by a strong market power arising from good profits, high market share, and strong finance. Firms high in market position can expand the business and compete with their rivals. Conversely, firms fragile in the competitive position need defensive strategies to respond to possible market entrenchment from rivals. Cash is after all the energy for growth.

Focus

Internet War: OTO

Alibaba (including Taobao and Timou) and JD.com are two huge Internet platforms in China doing online businesses. These two local Chinese firms provide mega online shopping platforms with sophisticated supply chain systems and configurations to attract billion of subscribers online. Alibaba is far larger than JD.com with a market share of 50%, 30% higher than JD.com, the second largest online shop in China (according to Alibaba's 2014 Road Show for NYSE listing). These two mega online shops accounted for more than 10% of consumer GDP in China since 2012.

JD.com is smaller than Alibaba. However, it is not subservient to Alibaba's dominance. JD.com is particularly good in electronic goods (including mobile phones) and is recognized by the market in its good value, excellent services, and *no-fake* goods, according to market perceptions. JD.com owns its merchandized goods and its own delivery team and builds a nationwide web of warehouse hubs to facilitate distribution. Physical operation network and logistic hubs (down to suburban areas) enable prompt delivery and quality service. With its strong and direct relationship with manufacturers, JD.com develops a strong and reliable supply chain and strengthens its competitiveness even in face of a legendary competitor.

Compared to Alibaba, it does not own merchandized goods. It has to rely on its C2C (Taobao) and B2C (Timou) online trading members. Alibaba has a penalty system for dishonest traders, but the system cannot stop sale of fake goods. Alibaba was once teased by *Times Magazine* "the world's greatest Fake goods on-line shop." In 2015, Alibaba acquired a substantial share of Suling – a no. 2 national electrical appliance retail chain in China. The purpose was obvious. Alibaba wanted to leverage the strong foothold of Suling in its nationwide physical shops, warehouse facilities and logistic hubs to provide quality-proven products and operational hubs to withstand further encroachment from JD.com.

E-commerce platform is a valuable resource asset of an Internet firm. However, the online platform alone does not guarantee sustained business success. Virtual operations with physical operations (OTO) provides a solid and reliable resource endowment for business to grow and compete. Alibaba learnt a lesson from its competitor.

7.3 Predictive Model

Competitor accounting provides valuable information to the focal firm wanting to know its close competitors' operation and financial performance. This is particularly necessary for the firms which are close in terms of products/service offerings and customer profiling. Their difference in operation performance indicates the

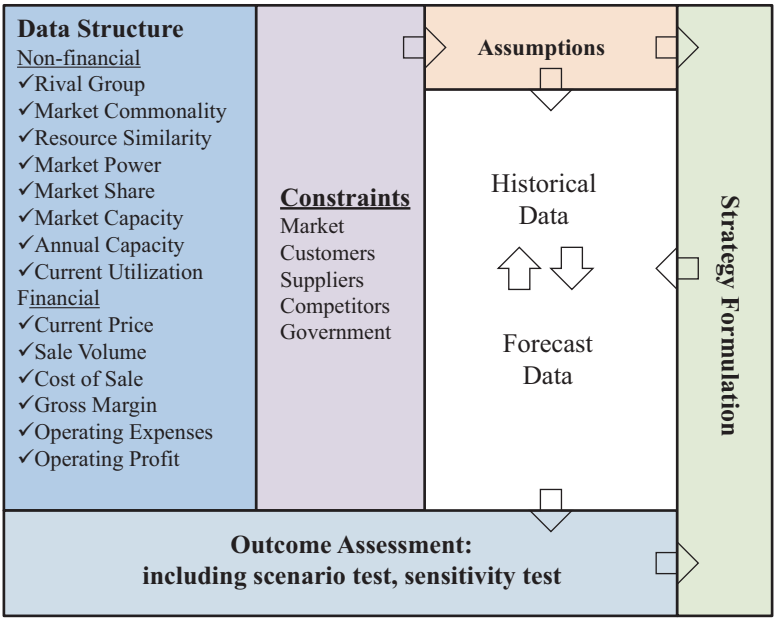

Fig. 7.2 Predictive model for competitor's actions

extent of appropriateness in their market selection and their relative strength in the competitive position. In fact, the focal firm uses accounting information not only for analyzing competitor's financial position but also for making predictions on financial outcomes from its initiated market actions. The predictive accounting model is based on historical facts and incorporates assumptions grounded in evidence, market information, and professional judgments. Therefore, this predictive model is a brainstorm tool for management, a simulation model to forecast outcomes, and a calculator for risk assessment. The predictive model can also help management to finalize strategic actions.

The framework of the predictive model was provided below to show how it can be employed to explore rival's financial consequences. The model also integrates the market parameters that are the firm's perceptions of the market. The model is aimed to address a specific segment of a firm. Therefore, the model should focus itself to a specific product or market. Figure 7.2 shows the content structure and its interactive components.

The above predictive model comprises various sections. Let's start from the data structure, nonfinancial and financial data sections.

I. Data Structure

Nonfinancial Data

Much discussion has been made in Chap. 6. This area provides a direction of what the focal firm can do for the target rival. Nonfinancial data are more geared

toward external market or comparative information between the focal and target firms.

(a) Rival group: close and direct rivals are the target for actions. Potential rivals are not of immediate urgency for action.
(b) Market commonality: high market commonality means that both the competitive dyads (refer to Chap. 6) have high market overlaps. They may also have multiple market contact points (or mutual forbearance). Low market commonality means the contrary. However, it also implies a potential for initiating attack, of course always subject to its resource similarity.
(c) Resource similarity: high resource similarity means having a comparable strength with the target rival. For the firm wanting to initiate attack, it requires a second thought because the response to attack will be very forceful. Low resource similarity implies a good chance to attack if the focal firm is stronger than the target rival. In fact, market power provides a strong indication whether customers will react to the market actions because it is the customer who makes final decisions in the end.
(d) Market power: there is no point for the focal firm to attack rivals with strong market power, unless it is a response to attack. This is an important indicator for the focal firm to decide market actions on the rival firm.
(e) Market share: as discussed in Chap. 6, market share is a determinant of market power. High market share means the product offerings are being accepted by the market (i.e., customers) and economies of scale can be used to reduce cost or increase profit. The target rival may go for a mass market. Low market share means the target firm is a follower or it focuses on a niche market only. The implication of market share on the target rival is required to be examined with the market power determinant. This market information can be obtained from published information or market agency.
(f) Market capacity: this is the estimation of demand capacity from the market. With high entry barrier, competitors can be able to expand capacity with less threats from new entrants. However, when entry barrier is low, excessive new entrants may pose market overcapacity problem. This is also a signal for market maturity. As mentioned earlier, excess market capacity causes more problems to firms with a lower market power than those with a stronger market power. It may be time for the powerful firms to expel those inefficient firms out of the market.
(g) Annual capacity: it is the productive capacity of rivals to meet the market demand. It sets a cap of market share for the target rival. In fact, company balance sheets and the required disclosure can be the source of information. As more firms do not own their own production plants but go for production outsourcing to third party suppliers, capacity information can be sought from third party suppliers. All in all, suppliers, market intelligent agents, published accounts, and its own sale team are providers of intelligence information.
(h) Current utilization: it is an important piece of information because it shows whether or not there is excess capacity for the competitor. Low utilization

means a higher fixed cost being allocated to each unit of cost of production. Conversely, high utilization means that the firm is fully loaded and the firm has achieved optimal low cost of production. Strategically, a firm with excess capacity will attempt a more aggressive pricing strategy to reduce unit cost and capture more market share. However, it will also instigate and intensify market rivalry.

Financial Data

This *section* outlines rival's financial operational model. As we know that operation performance statement of a firm not only reflects how good the firm performs but also exposes its business logic and operational setup. As such, financial data contained in this section represent the current financial performance of the target firm (in historic data), and its forecast data predict how the market action will be responded. Let's review the data content in this section.

(i) Current price: this is the latest price of the target firm on its product offering. Further inquiry on whether the price is below, at par, or above the market or the focal firm. Pricing information can be readily available from the firm's sale team, market intelligent agents, or published information.

(j) Sale volume: it refers to the sale quantity of the product. Similar to price information, information can be sought from sale teams, market intelligent agents, and sometimes published information.

(k) Cost of sales: it refers to the cost structure of the target firm and cost efficiency of its production. A firm having a low unit cost (assuming there is no change in inventory level) at a high sale volume and a high unit cost at a low sale volume indicates a high-cost structure in fixed cost. A firm with high cost at all sale levels may mean inefficiency or simply a strategy issue. Cost structure in this instance requires examinations jointly with the target firm's product strategies – differentiated versus cost advantage strategies. It is often from the match of cost structure and the overall strategy of a firm reveals suitability of the firm's strategy in its target market position. In fact, we can make use of the knowledge from market research, rival's value curve, operation configuration, headcounts, and payroll information from the published company accounts, suppliers, market intelligence agency, and sale teams.

(l) Gross margin: this is the difference between sale amount and cost of sales.

(m) Operating expenses: these are expenses pertaining to marketing, service, delivery, and administration, as well as R&D. Similar to cost structure, the structure of expense (i.e., % to sale) reflects business logic and strategy of the firm. A firm using product differentiation strategy would normally have a high percent to sale in marketing and sales, R&D, whereas a firm using cost advantage strategy would have an overall low percent to sale in operating expenses. Firms in different industries have unique industry cost structure. For example, firms selling consumer goods have relatively higher marketing cost. Technological firms would spend more money in R&D. In fact, many published accounts have detailed operating expense, and firms in some industries would specifically disclose key expenses in

the reports. One instance can be quoted from telecom industry in which firms in the industry often separate R&D expenses in the annual reports. In fact, a more detailed breakdown of the operating expenses can be acquired through market intelligence or its own professional judgment.

(n) Operating profit: this is the profit from sale of goods after deducting cost of sales and operating expenses. Operating profit show the overall operation performance of the firm. For comparison purposes, operation profit is taken before tax and interest expenses.

II. Constraints:

Constraints are the preconditions of some states of outcome in which the target firm will never be able to perform. General market demand capacity (over/under), target rival's market influence, product unique characteristics and substitution, etc. create market constraints. Materials, accessories, internal production capacity, suppliers' cooperation, shipment schedule, outsourcing arrangements are the constraint factors to be considered from the supplier constraint. Customer's preference, loyalty, and price sensitivity are also matters to be considered in customer constraint perspective. Finally, government's inclination is also a major constraint for any market actions. For example, government may dislike any market action of a firm making itself a de facto predominant market player. Any unfriendly market action challenges the government limit will be subject to some sort of government sanction. Firms should be sensitive to the government's response. This is especially important for any regulated market industry.

III. Strategic Formulation

This section pertains to formulation of market actions toward the target rival. Target rival's likely responses based on its motivation-capability situation (discussed in Chap. 6), market constraint assessment, and the focal firm's intended market position are the subjects of investigation. The strategic actions can be the aim to eliminate the weak rivals by a deep price cut or the intention to regain market leader with a strong product differentiation policy supported by marketing or technological innovations. Whatever the actions, the firm needs to assess the rival's ultimate operation performance and its financial stress. That is the important part of the model – outcome assessment.

IV. Outcome Assessment: To complete the assessment, it is common to make available scenario assessment. In this particular competitive context, scenarios may be related to rival's "market response" and "no response situations," together with a sensitivity analysis. Sensitivity analysis tests how sensitive one key variable responds to the change of another key variable. Sale volume is sensitive to the change in sale price: change in cash flow in response to change in price. Upon completion of all testing exercises, the firm can be able to identify various market actions, assess all possibilities and risk, and conclude a final strategic action plan.

In order to allow readers to better grasp a more comprehensive understanding of the use of this model, a case has been prepared at the end of Chap. 12 (Case 12.5)

to illustrate how this model is employed to formulate a strategic market action. Readers are reminded to pay attention to the working steps of this strategy formulation based on the relative competitive position and in conjunction with the relative financial strength of both competitive dyad. For ease of reference, the following provides a summary of major steps to make predictive actions.

- Analyze financial performance of the focal and rival firms.
- Compare and sum up financial issues between two firms.
- Spell out assumptions.
- Evaluate constraints.
- Propose tentative options and work out financial calculations (all scenarios).
- Perform sensitivity analysis.
- Evaluate different options with arguments and evidence including cost and risk assessments.
- Propose final recommendation.

7.4 Conclusions

This and the prior chapters have articulated how competitive analysis helps firms know their own competitive position, and a careful assessment of both market and internal resources provides a baseline for what the focal firm can plan in face of various degree of intensity of market rivalry. Furthermore, accounting for competitive position is an approach to help evaluate and benchmark competitors' market power, financial strength, and some key drivers. These are essential steps for firms to plan for market actions. In the predictive model section, it is an attempt to make use of the market parameters being discussed in these two chapters and actual financial performance as initiate inputs to manipulate various scenarios outcomes based on forecast assumptions (rival behaviors) and constraint considerations. Sensitivity analysis assists strategic planners to refine outcome situations taking into forecast errors in some key drivers and inspires more ideas in working out cost, profit, and risk relationship. It aims to improve overall forecast outcome and confines risk exposure. The case of electric bike (Chap. 12, Case12.5) will demonstrate to the readers how the approach is conducted to facilitate forecast and evaluation.

In fact, the approach of strategic options being chosen is based on "gut feeling" without providing a method to link the strategic choice based on anticipated interactive response of the recipients. Game theory is widely employed in management disciplines to focus particularly the way to deal with strategic interactions in market competition with rivals. Game theory concept in competitive analysis in pricing strategy is the last topic in the topic of competitor analysis. It will be discussed in Chap. 8.

Takeaway Tips

- Learn how to search useful strategic information from accounting and market data.
- Learn how to evaluate competitors' competitive position.
- Learn how to build a competitor information repertoire, financially and nonfinancially.
- Learn how to formulate action plans.
- Learn how to evaluate possible outcomes and forecast implications of actions.

References

Brothers, K. D., & Roozen, F. A. (1999). Is it time to start thinking about Strategic Accounting? *Long Range Planning, 32*(3), 311–322.

Bromwich, M. (1990). The case for strategic management accounting: The role of accounting information for strategy. *Accounting, Organizations, and Society, 15*(1/2).

Simmonds, K. (1986). The accounting assessment of competitive position. *European Journal of Marketing, 20*, 16–32.

Annual reports of Ericsson, Huawei, Nokia_Siemens, Alcatel_Lucent, 2012–2014.

Competitive Analysis: Game Theory

8

Abstracts

A firm could not make proper pricing decisions without taking due regards to market's interactive responses. However, it is not easy to calculate competitor's dynamic responses to price changes. This dynamic process arises from the firm's relative market power and also from its rivals' response – what are the responses of rivals with respect to the pricing decision. Game theory provides a methodology of speculating rivals' reciprocal responses given the intended actions. This chapter discusses how game theory can be used to speculate rival's response to price change given some rational behavioral assumptions. It explicitly seeks an optimal decision making when each player carefully considers the likely actions and reactions of its rivals. It assumes that players are rational and self-interested and can always make decisions based on expectations of its rivals' different courses of actions. This chapter introduces basic concepts of game theory and focuses discussions on simultaneous move and noncooperative conditions. It explains how to identify strictly dominant strategy and *Nash* equilibrium (based on the choice of the rival) and employ this technique to seek the optimal price decision in various payoff scenarios. As price is largely determined by the relative market power of the firm and its rivals, this chapter also explicates how firms decide price and/or output level to optimize the market influence. Examples and a case on tendering are provided to demonstrate how this powerful analytical approach can be used.

Keywords

Game theory • Relative market power • Noncooperative condition • Price tendering • *Nash* equilibrium • Pricing decisions

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8.1 Introduction

In the business world, a firm could not make pricing decisions without taking due regards to market's interactive responses. However, it is a challenge to calculate the change in price to the change in a firm's profits because of customers' dynamic response to price change. It becomes even more challenging when competitors' responses are also taken into consideration. The dynamic process of customer sensitivity to price arises from the firm's market power and also from its rivals' response – what are the responses of rivals with respect to the pricing decision. Therefore, there requires one more step to investigate rivals' reciprocal responses given the intended actions. This is the crucial step of analysis which is often underrated if not ignored in the decision process. Incomplete analysis leads to inferior decisions, making outcomes less effective if not entirely futile. Game theory complements this shortfall. It is about how rivals react in a series of strategic interactions within the competitive environment. It explicitly focuses on seeking an optimal decision making when each player carefully considers the likely actions and reactions of its rivals. It also assumes that players are rational and self-interested and can always make decisions based on expectations of its rivals' different courses of actions.

8.2 The Basics of Game Theory

Game theory can take a variety of forms (e.g., static or dynamic) and involves many players in different market settings. Game theory can be analyzed under a cooperative mode where individual players can negotiate a binding contract which allows each player to plan and work out joint strategies. It can also be a noncooperative mode where negotiation and enforcement of binding contract are not feasible. To make the game theory concept more apprehensible and easy to apply, this chapter will focus on the most basic form: i.e., scenarios are based on assumptions of noncooperative condition, two-player (the firm and the rival), two-action case, simultaneous move (without the knowledge of the decision made by its rival), and non-repeated interaction (static game).

Noncooperative condition is better than cooperative condition in the real business world application. Cooperative condition emphasizes the payoffs each potential group colludes but does not explain the process of coalition. Noncooperative condition, on the other hand, emphasizes the ordering and timing of players' choice. It models the process players make decision out of its own interests.[1] Furthermore, it is difficult in a matured competitive market environment for market players to enforce legally binding collusive contracts which may be in violation of anticompetitive law or exhibit nonethical behaviors exploiting consumers/users' rights. Also, it may be of equal difficulty to enforce nonlegal (e.g., verbal) binding contracts because the counterpart may breach the oral agreement and the firm is exposed

[1] The argument was taken from Turocy and Stengel's working paper in Game Theory, 2001.

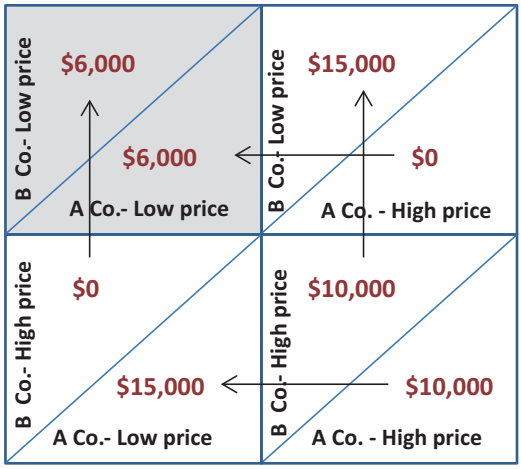


Fig. 8.1 Payoffs table

to potential commercial losses (trust problem). Therefore, game theory in a noncooperative mode is more appropriate in a majority of cases for competitors' analysis in the market context.

As a basic level of game theory, I will discuss the most essential concepts and applications in the competition context. The basic topic will be limited to the essential noncooperative condition, two-player (your firm and key rival), two-action case, simultaneous move (without the knowledge of the decision made by its rival), and non-repeated interaction (static game).

Simply speaking, game theory consists of three basic elements: players, actions or strategies, and payoffs. Players include the firm itself and the most immediate and direct rival to the firm. Other rivals become a secondary importance. A firm comes out of two strategies (e.g., low or high price) and so does the key competitor. It therefore has a 2×2 scenario that produces four outcomes that are called payoffs. Payoffs are the outcomes of each player based on the action each party chooses. "Payoffs" is the focus of analysis. In fact, there are many outcome focuses, e.g., sale turnover, profit level, cost structure (fixed or variable), quality choice, etc. These four outcomes are presented in a payoffs table. Let's illustrate how a payoffs table is read in an example below.

8.2.1 Example

Two firms, A Co. and B Co., have an identical product with payoffs against each decision (high price and low price) (see Fig. 8.1 – Payoffs table). Horizontal bars reflect the decisions of A Co., while vertical bars record the decisions of B Co. The payoffs table has four cells. Each cell represents a pair of pricing decisions (high price and low price) for A Co. and B Co. Starting from the upper left hand cell in a clockwise direction, if A Co. bids at a low price and B Co. offers a low price, each firm will receive a profit of $6000. If A Co. quotes a high price while B Co. makes

a low price, B Co. will take all profits of $15,000 while A Co. has none. Both will get $10,000 if A and B Cos. go for a high price. Finally, A Co. has a low price and B Co. has a high price. B Co. will have $0 profit while A Co. will have profits of $15,000.

Looking at the payoffs table, which strategy should each firm select in the likely outcomes?

Strictly Dominant Strategy Dominant strategy is the strategy a firm opts for. There are two types of dominant strategy. When the strategy is always chosen by a firm whatever strategy the rival is employed, this is a strictly dominant strategy. The second type is called Nash equilibrium. It applies in a situation when a firm is finding its optimal solution given the action of its rival. Neither firm would like to change its price given the price made by its rival. The types of strategic dominance can be identified by *an arrow technique.*

As shown in the cells of Fig. 8.1 above, arrows are drawn from low values to high values. Dominant strategy is found in the cell (shaded cell) when both arrows point at the same cell (i.e., low prices for A Co. and B Co. in the case). This is a strictly dominant strategy for both firms. Strict dominance in the sense whatever pricing strategy the rival elects, the firm has set its optimal price strategy at a low price.

Let's look at the process of rational selection in Fig. 8.1 again. If A Co. selects a low price strategy, it would be beneficial for B Co. to elect a low price strategy. If A Co. selects a high price strategy, B Co. should select a low price strategy (because B has a profit of $15,000). If B Co. chooses a low price, A Co. should use a low price strategy too (A has $6000). Similarly, if B Co. chooses a high price strategy, A Co. should remain in a low price strategy (it will get $15,000). Note that both firms would have been better than the existing low price strategy if they chose a high price strategy (collusive act). Each party will get $10,000. However, the "cooperative" condition does not exist. Strictly dominant strategy is the case which can provide more precise advice to the players how to play, and it is not a usual situation. Nash equilibrium is a more general case in game theory.

Nash Equilibrium John Nash, a legendary economist and Nobel Prize Laureate, asserted that an equilibrium exists at which players choose their best decisions given the opponent's decisions. He argues that a player's best recommendation cannot be enhanced without taking due regards to the best choice of the opponent because every party is making a rational choice and will only take the best recommendation.

Figure 8.1 demonstrated how to use pairs of arrows to identify a scenario with a strictly dominant strategy when two pairs of arrows are pointing in tandem. Now let's examine the difference of Nash equilibrium from the first case. Look at A and B Cos. again. It has been a slight change in the payoff cells (see Fig. 8.2 – Nash equilibrium). In this case, B Co. is assumed a mandatory vendor of the tender, but quantity of the order is subject to the price quote. If A Co. quotes a high price, it would be better for B Co. to take a low price because A Co. has no profits, but B Co.

Fig. 8.2 Nash equilibrium (One equilibirum point)

can take the entire contract with a profit of $15,000. On the other hand, B Co. will share the order with A if both parties quote a low price (profits for both are $6000). If B Co. sets a high price, B Co. will always get a smaller order with a profit of $7000, while A Co. bids the tender at a low price with a profit of $13,000. Finally, both A and B can make a profit of $10,000 if both bid at a high price. Using the similar arrow technique, Nash equilibrium can be identified which is in the cell B Co. opts for a high price and A Co. a low price (shaded cell).

No firm would like to change the price given the action of its rival. Choosing a low price strategy is always a dominant strategy for A Co. (see two arrows pointing at A Co.'s low price cells). However, low price strategy is not a dominant strategy for B Co. (see the diverse directions of the pair of B Co.'s arrows). If A chooses a high price strategy, it would be better for B Co. to choose a low price strategy. Conversely, if A chooses low price, it would be good for B to choose a high price strategy. With the strictly dominant strategy, it would be more predictable to determine rival's strategy. Without the dominant strategy, Nash equilibrium is the best choice of actions contingent on expectations of the rival's optimal strategy. Nash equilibrium is self-enforcing because the choice is based on experiences and knowledge about its rivals. Outcome other than Nash equilibrium may arise if there is a lack of information about the rival.

It may happen that two Nash equilibria exist in some situations. Let's change the rules of the tender bid. The buyer has a vender policy that should maintain at least two firms in supply contracts. Both A Co. and B Co. are the selected suppliers, but the quantity of order secured by them depends on the price quoted in the tender. Figure 8.3 shows the new payoff table with two Nash equilibria. As noted, the only change is the right hand upper cell where if B Co. sets a low price and A Co. picks a high price, B Co. will have a profit of $13,000 and A Co. can gain a profit of $7000 (the payoff similar to the left hand lower cell). By applying the arrow technique, two pairs of arrows are pointing at the opposite direction and there are two cells where two arrows are pointing at them (shaded cells). In this scenario, there are two Nash

Fig. 8.3 Nash equilibrium (Two equilibiria)

equilibria. It will be the best choice of A Co. to select a low price if B Co. takes a high price decision. However, it will be the best choice of A Co. to take a high price if B Co. opts for a low price. Similarly, it also applies to B Co. that it will be the best for B Co. to take a high price when A Co. opts for a low price. These two Nash equilibria indicate that each party takes the best choice, subject to its opponent's decision.

In fact, there may have a chance where Nash equilibrium does not exist. It shows in a payoff table that all arrows are in circular directions, meaning that there is no cell where two arrows are pointing at it. In such cases, each player cannot deterministically choose one of the strategies. They need to randomly select pure strategies

Focus

Prisoner's Dilemma

This is the belief that both parties will benefit the most from a cooperative mode. However, it is usual the case that the party not keeping the promise will benefit the most in the absence of contract binding between the parties or when there is an existence of asymmetric information. Honest party is most vulnerable because of his trust over the other. This phenomenon was depicted in a famous parable of game theory – prisoner's dilemma. Two parties are finding their dominant strategy in making decision, but there is no strategy better than both parties cooperate.

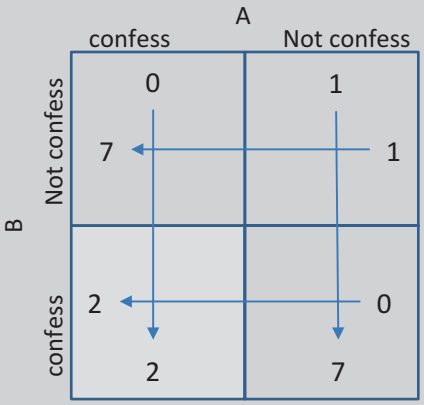
Suspects A and B were in custody and were interrogated by a police officer. The police officer said to suspect A: "if you were not cooperative, I still have evidence to put you to jail for a year. If you help us and put B to jail, you will be pardoned. If both of you confess, you will get a maximum of 2 year's

(continued)

imprisonment. If only one of you confess, the other will possibly serve 7 years' imprisonment." The police officer passed the same message to suspect B. Both suspects A and B confessed the crime after hearing this message from the police officer. Did A and B make the best choice?

Let me show you the answer in the payoff table.

Answer: YES, strictly dominant strategy



out of certain probabilities. It is called mixed strategies, which is outside the scope of discussion.

In short, this chapter focuses on a simple application of game theory in pure strategies where there is always a Nash equilibrium in a choice of decisions. Recall that in the prior chapter about the case electrical bike (read Chap.12, Case 12.6), let's see how the decision can be interpreted from the game theory.

8.3 Case Revisited: Electrical Bike

Remember that:

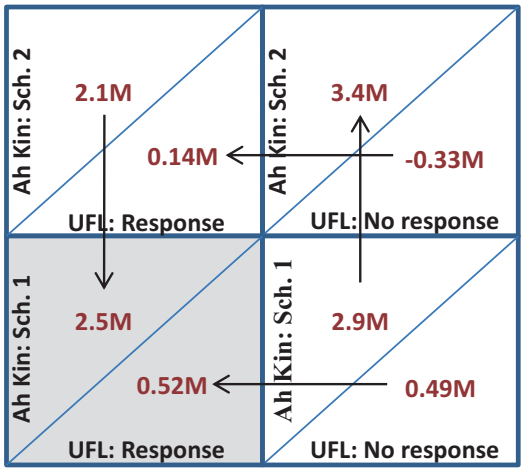
- Scheme 1: Ah Kin reduces the price to $150 (same as the price of UFL) and adds 3% extra incentive commission to sale agents. UFL either has no response or response by increasing the sale commission by 3% accordingly.
- Scheme 2: Ah Kin reduces the price to $140 and adds 3% extra incentive commission to sale agents. UFL either has no response or response by dropping the price to $140 and increase sale commission by 3%.

Let us summarize the impact of profits on the choices of Ah Kin and UFL on each option. Table 8.1 provides a summary of payoffs for each party which is ready to be transformed into a payoffs table in Fig. 8.4. Let's look at the payoffs table below which shows the profit of Ah Kin and UFL at different scenarios. To make it more suitable for interpretation from a simple form of game theory, let's add a condition that UFL knows the provocative intention of Ah Kin but does not know what

Table 8.1 Summary of payoffs in each option (Refer to Table 12.8, Chap. 12, Case 12.5)

Ah Kin	UFL	Ah Kin's profit	UFL's profit
Scheme 1	No response	2.9 M	0.49 M
Scheme 1	Response	2.5 M	0.52 M
Scheme 2	No response	3.4 M	−.33 M
Scheme 2	Response	2.1 M	0.14 M

Fig. 8.4 Payoffs table



the action is. UFL plans to react simultaneously on the price war. In the above payoffs table, two pairs of arrows were running from low values to high values. UFL's pairs of arrows were parallel, while Ah Kin's pairs of arrows were in a reverse direction. UFL has a Nash equilibrium at the response action whatever Ah Kin applies Scheme 1 or Scheme 2. UFL would be better off if Ah Kin chooses Scheme 1 because UFL has more profits by response than with no response (0.52 M vs 0.49 M). In this case, An Kin decided to take Scheme 2 (as mentioned in Chap. 7); response action is also an optimal option for UFL because 0.14 M in the response cell is more than −0.33 M in the no-response cell. From this perspective, response action is always the dominant strategy of UFL. This example demonstrates a strong logical sense for game theory to link the interactive response of the rival in any anticipated action.

Game theory expands our analytical power in understanding competitors' reaction with respect to pricing strategy, market expansion/exit policy, etc. In sum, the following rules of thumb should be kept abreast when employing the game theory in a decision making process:

(a) Estimate the payoffs of a firm given each of the course actions and of its rival.
(b) Examine whether the firm and its rival have dominant strategy.
(c) Without dominant strategy, a firm needs to make best estimates about the best course of actions as well as its rival by finding the Nash equilibrium if possible.

Game theory provides a dynamic approach in analyzing interactive responses to a firm's anticipated action. In a price decision making process, a firm needs to know market response about its own product and also its competitor. There is one important price determinant – market power. Market power determines how much the price can be set at a given sale output. In the context of game theory, it becomes the relative market power of the firm and its competitor in setting market price at an anticipated sale output. Relative market power undermines a firm's pricing decision due to the change in the relative price between the rivals. In the following section, I would discuss how the relative market power of the firm and its rival affect the pricing strategy and the payoffs (e.g., sale or profits). I like to explain this in the context of a revised Cost-Volume-Profit model (i.e., CVP model).

Focus

Advertising in Consumer Goods

Advertising in consumer goods is a typical behavior in game theory. Advertising can widen the gap between products acceptance (product differentiation). It influences consumers and steals sales from its rivals. Crest decreases in its toothpaste sales when Colgate advertises heavily on its products. Similarly, increase in Coca Cola's advertising has adverse effects on Pepsi Cola's sales. Therefore, Crest and Pepsi need to increase advertising to nullify the adverse advertising effects.

However, it is the not whole truth. According to some research studies, advertising effects also depend on the nature of businesses. Advertising in cigarette is cooperative in nature. Cigarette advertising increases overall sales of the market, but the market share of players remains the same. Conversely, soft drink advertising is competitive in nature. It steals the business of rivals without increasing the total sales. Coca Cola would like to see advertising being banned, while cigarette sellers would object to the forbiddance of advertising.

8.4 Market Power and Pricing Decision

Figure 8.5 presents the pricing decision and market power in a four-panel diagram. CVP model, as taught in the basic cost accounting course, analyzes the relationships among cost, volume, and profit for any single product company. As shown in Panel A of the diagram, model highlights the break-even point, sales volume profit and loss (the area between sales line SL and the total cost TC), as well as capacity level and price rate of a product. Total cost line has an intercept on the vertical line. The higher the intercept at the vertical line, the higher will be the fixed cost structure of a firm. Price is represented by the slope of the sales line. Profit area is where sales line is higher than the total cost line and loss area is where sales line is below the total cost line. Break-even sale point is where sales line (SL) crosses the total cost

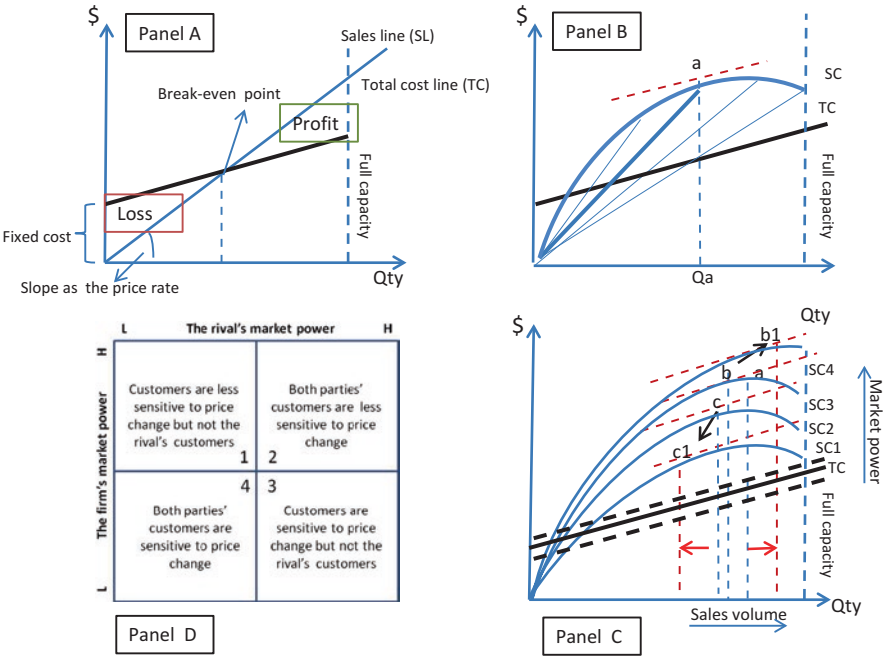


Fig. 8.5 Pricing model for firms as price makers

line (TC). When sales volume is less than full capacity, there are unabsorbed fixed costs. In contrast, sales volume beyond full capacity requires additional investment (increased fixed cost). Panel A represents a traditional CVP pricing model which assumes that the firm accepts the price predetermined by the market. This is because sales revenue is a straight line and the firm can sell any volume at this market price level. This is a typical feature of price taker in a perfect competitive market. As long as the firm can set its price, it becomes a price setter and possesses market power, which is more relevant in the real world. There should have numerous pairs of price and sales output in the model, and the firm needs to determine a price corresponding to a specific level of sales volume. In other words, this is the volume the firm can sell at that price. The sale line is no longer a straight line (as indicated in Panel A) but a sales curve presenting all possible prices with the corresponding sales volumes.[2] It is depicted in Panel B. The prices making up a sales curve (SC) are represented by their slopes (i.e., total sale $/sale volume). Price is not a constant but hinges on the sales level. The slope of the curve decreases as sales volume increases, meaning that price needs to decrease if more sales are warranted. This is unlike the price taker assumption in Panel A that only the volume-driven policy is pursued. Firms can optimize their profits by selecting a sale point which has the greatest

[2] This notion has been discussed by M.J. Mepham in his book titled *Accounting Models* published by Polytech Publishers Ltd. 1980.

distance between the sales curve and the total cost line (greatest difference between sales (SC) and total cost (TC)). This is the point **a** in SC, the point tangent on the sale curve drawing a dotted line parallel to the total cost line. It has its corresponding sale output at Qa.[3] Any sale points deviant from Qa are not an optimal profit. Optimal sale is the maximum profit that the firm can obtain under its market power.

Panel C indicates that market power sets the shape and the height of a sales line. Market power determines a firm's price and its profit level. Business practitioners know that market power of a firm is derived from branding, product differentiation, location, privileges, license protection, etc. A firm needs to assess its market power when making a price decision. As shown in Panel C, the larger the market power, the taller the sales curve will be (see from SCL1 to SCL4) and the larger sales volume a firm can sell at an optimal profit level nearer to the full capacity. From the interactive market action perspective, a firm however cannot look at its market power alone. It also needs to address competitor's market power. Market power needs to be examined from both the focal firm and the rival, and Panel D summarizes the impact of relative market power for both parties.

Market power of a firm is determined by customers' sensitivity to price change. High market power gives a firm the ability to increase price without too much concern on adverse customer responses. Price increase thereby leads to a higher profit. Low market power means that price increase results in a drop in sales volume. The firm needs to lower prices in order to increase sales and profits. In fact, a firm's market power is a relative concept. It is *moderated* by the market power of its direct competitor.

Panel D in a 2 × 2 box diagram provides high-low scenarios about the market power of a firm relative to its direct competitor. Let us examine the effect of each quadrant 1,2,3,4 of Panel D accordingly. In quadrant 1, the firm has a high market power but its direct competitor doesn't. The firm is less sensitive to price change but not its competitor. This gives the firm a chance to reap a higher profit by price increase. Alternatively, the firm can also lower the price to get more sales revenue. In fact, sales increase is attributed to two main sources. The first is from existing customers, and the second is from customers of its competitor because of change of the relative price (higher price).

In quadrant 2, both the firm and the competitor have high market power. It makes a price fence. Both firms can increase prices with less concern on adverse sale effects. Quadrants 3 and 4 are situations where the firm has low market power. In quadrant 3, the firm has a lower market power relative to its competitor, implying it is in a vulnerable situation. If the firm reduces its price in anticipation of more sales, its competitor will very likely respond with a lower price. The firm will then face lower sales and profit (change in relative price). In quadrant 4, both firms have a low

[3] This is equivalent to the microeconomic theory that profit is maximum when MR = MC. The slopes of SC represent marginal revenue of an additional sale unit. The slope of SC parallel to total cost line means to share an identical slope, as the constant slope of total cost line represents same MC along the total cost line. Both scopes of SC (=MP) and TC (=MC) are identical, which is the profit maximization level of a firm.

market power. Unlike quadrant 3, neither would like to make a move. Any change in price will induce a price war, harmful to both of them.

Panel D attempts to derive a market power typology reflecting a firm's price sensitivity relative to its market power. This is crucial in any price decisions because competitors can moderate the market power effects of a firm. How does the relative force operate in a market? Let's go back to Panel C of Fig. 8.5 to explain this intricate market force.

Panel C incorporates market power in the CVP model. It can be seen that market power creates different sales curves, as shown in SC_1, SC_2, SC_3, and SC_4. The higher the market power a firm has, the higher the sales curve will be from its horizontal axis, and the higher is the profit the firm can earn at the same level of sales. Firms possessing high market power tend to benefit from a higher price and sales output. Let us review four market power scenarios in Panel D again and interpret them in Panel C. As shown in quadrants 1 and 2 of Panel D, the firm has many choices. It can increase price if the optimal output has been reached (**b** in SC_3). The firm can also reduce price slightly (from **b** to **a**) to induce sales (for high-low case in quadrant 1) or maintain the price for a stable market (for high-high case in quadrant 2). Leveraging on the high market power, the firm can always strengthen its market position (from SC_3 to SC_4) by adding investment in branding or product innovation (TC moved up, as indicated in the broken line) in order to obtain a higher profit increase (**b to** $\mathbf{b_1}$). In quadrants 3 and 4, the firm should remain at **c** in SC_2 given that changing the pricing strategy may bring in undesirable consequences. However, the firm in quadrant 3 (low-high case) is more vulnerable owing to the fact that the competitor may use its market power to pull the firm's sales curve from SC_2 to SC_1. The firm may suffer a price fall (from **c** to $\mathbf{c_1}$) and sales drop. The only way (in both cases) for the firm to ensure survival is cost cutting (TC moved down, as reflected in the broken dotted line).

To sum up how a firm determines prices making reference to its relative market power, Table 8.2 outlines major decision points in price decisions.

As depicted above, it is important to understand the firm and its competitor's market power, as indicated in four high-low scenarios. Each case comes up with sensitivity of demand. This summary provides some important points for price decisions. Price motive is the main theme for pricing strategy. Market sensitivity undermines price choices. The need for optimal sales volume limits the options a firm can choose. In the high-low case, price increase will likely bring in extra profits given lower sensitivity of market demand to price change. Lower price may steal sales from a competitor with relatively weak power. Therefore, price motive can be for market growth and profit growth. In the high-high case, the firm can insulate itself from price war when the firm and its competitor have high market power. Sales volume can be maintained even with an increase in price and result in profit growth. This is particularly true when both firms have very strong market power or when they have reached optimal sales. Firms can always play safe and maintain a stable price when market uncertainty increases. In the low-high case, the firm takes a stable price decision humbly, praying that the competitor does not take an aggressive

Table 8.2 Price decisions

Market Power Firm vs Rival	Market Sensitivity	Pricing Strategy	Motives	Optimal output obtained
1. High-Low	Less sensitive	Increase price	Profit-max.	Yes
		Reduce price	Market share	No
2. High-High	Less sensitive	Increase price	Profit-max.	Yes
		Stable price	Market share	No
3. Low-High	very sensitive	Stable price	Survival (vulnerable)	n.a.
4. Low-Low	Sensitive	Stable price	survival	n.a.

pricing. Finally, the low-low case suggests that both the firm and the rival keep a stable price, fearing that the status quo is being disturbed.

These four scenarios provide points of references for price decisions, with particular emphasis on relative market power. Incorporating the game theory concept in the analysis rectifies the weaknesses of the CVP model in two respects. First, the market power of the firm and its competitor are evaluated jointly. Second, the anticipated response of the competitor is calculated. This pricing approach may enhance decision quality as competitor's responses are taken into account. In addition, game theory concept also helps us identify whether the pricing strategy is a dominant subject to the response of the opponents. In the case discussion that follows in Chap.12, Case 12.6, I will demonstrate to the reader how an interactive-based pricing strategy is employed in a tender bidding, using the game theory concept.

8.5 Conclusions

The game theory has been applied in many domains of the business discipline. The concept of players' interactive responses for estimation of expected outcomes has practical use in business. Game theory should be relevant to management accounting practices also, especially pricing decisions in which market response is a primary consideration. This chapter introduces the basic concepts of game theory and attempts to employ the concepts in the CVP model. In particular, it articulates the interplay between relative market power and price decisions. The incorporation of market power concept in the context of game theory increases validity and accuracy of the CVP model in price decisions in the real business world.

Takeaway Tips

- Game theory can be analyzed from a cooperative and noncooperative condition. Apparently, noncooperative condition is an applicable assumption for ordinary business analysis.
- Game theory guides decision making with due consideration of the respondent's interactive possible responses.
- Game theory can apply to competition between rivals, in which relative market power is the central theme of reference for decision making.
- Game theory is particularly relevant to tender biding in which calculation of the rivals' anticipated responses is vital for the game.

References

Mepham, M.J. (1980). *Accounting models.* Polytech Publishers Ltd: UK.
Turocy, TL., & Stengel, B. (2001). *Game theory*. CDAM Research Report LSE-CDAM-2-1-09.

Part IV

Managing Corporate Value

Strategic Value Analysis: Value Search

9

Abstracts

Strategic value analysis is a fashionable topic that explores firm's value from evaluating its proposition, value chains, value drivers, and finally strategic drivers. This chapter proposes a methodology to conduct strategic value analysis. The first phase is value identification and value formulation. Value identification comprises of strategic drivers and value drivers analysis with the aim to find out the triangular relationship among strategic drivers, value drivers, and competitive advantage – the selection of market position. Value formulation is a planning process of how a firm's competitive advantages can be materialized through clear target goals, strategic plans, and actions. This is the path of how ideas are turned into reality that creates business value.

Keywords

Strategic value analysis • Business drivers • Value drivers • Strategic plan • Competitive position

9.1 Introduction

In prior chapters, there were discussions on maximization of shareholders' value as a prime financial objective for the firms. This is the top management's conviction and commitment to deliver shareholders' value in the long term. How can a firm prosper and retain its competitiveness? How can it uphold its vigor and agility even in face of adverse business environments? How can a firm drive business growth and free cash flows? These are common questions in investors' forum and shareholders' meetings. It also becomes the top management's imperative to maintain the firms' long-term value, i.e., strategic value.

Firms need to assess their value from time to time for various reasons, e.g., fund raising from financial markets, merger, or simply health check. However, managers

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are always stuck when they come to assess firm value. Should the firm value be assessed by the current value, or should it be evaluated by future value? Should the firm's financial statements be used only, or should industry statistics be referenced as well? What are justifications if the firm value is higher than the total net asset values? Why are the other nonfinancial factors (e.g., market, operations, human) needed to be taken into account when computing full value of a firm?

Why is strategic approach of valuation more preferred to the short-cut financial statement valuation approach? There are so many questions in firm valuation that deserves a closer examination. Before delving into strategic value approach, let's point out the shortfall of the simplified short-cut approach.

9.2 Short-cut Financial Statement Approach

Many financial analysts consider financial statements as a good reference for valuing business. They argue that using current and previous company accounts as the base would be fair as actual financial performance is the proof of evidence for a firm's capability to generate revenue and the net assets (at market value) represent the saleable value of the firm assets. The valuation can be multiples of earnings (P/E ratios) after some adjustments of sales and expenses or the net asset value (market value), whichever is the larger value. However, this simple short-cut method has shortfalls in the following:

(a) Historical data are not necessary in extrapolation of future value. The base of valuation is adopting an unfounded subjective assumption. What composes the firm's value remains a mystery.
(b) It forgoes the chance to review the internal and external forces in market competitive position of a firm which are drivers for the firm value. It also loses the opportunity to assess the sustainability of these forces in the future.
(c) It fails to identify business drivers behind the financial statements.

This ambiguity and possible miscalculations come from oversimplification in the short-cut valuation method. Short-cut method is bound to increase valuation errors. Strategic value analysis approach can be an alternative for this naïve valuation approach.

9.3 Strategic Value Analysis

Strategic value analysis (SVA) is a valuation approach that assesses the long-term value of a firm. Distinct from the short-cut method, SVA probes into the industry value chain, business logics, operating capabilities, and value drivers that contribute to value formation. As such, it is employing a strategic market positioning approach to examine corporate vision and mission, corporate objectives, key strategies, and other business drivers and evaluate how these drivers would generate maximum

shareholder's value to shareholders. It also emphasizes on the strategic process, business logic, and actions. It is interesting to know the validation of these logical links in future corporate performance. Other than competitive market factors, SVA also explores internal resource capability and competence of the firms in driving corporate value.

Business drivers are the focus of examination in SVA, which contain the necessary and sufficient conditions of a firm to create value. Business drivers include strategic drivers (e.g., license, organizational resources, operation capability) and operational value drivers (e.g., sales and growth enablers). These drivers arise from business environments, evolve as companies grow, accumulate with learning curve, and invigorate with right strategies and practices. They are embedded in the balance sheets (tangible assets), brands, products, sale networks, customers, work team, organization, systems, corporate culture, technology, and innovative business concepts. It is difficult to assess these drivers separately. However, it is possible to assess how they bring value and what are the synergetic outcomes of these business drivers. In fact, SVA provides an approach to evaluate these value drivers in a holistic approach. For example, Lenovo and Dell are two global leading PC companies. However, both companies have different firm background, business concepts, market positioning, business configurations, customers, sale networks, supply chains, technological capabilities, organizational resources, management, and systems. Their distinctive value drivers direct Dell's global sale on the Internet leveraged by its strong supply chain management, while Lenovo's global reach was done by acquiring IBM PC and its global sale distribution channels and operation networks. SVA explores all these unique value drivers, identifies their strategic positioning, and explores how the business value is generated.

How can strategic value analysis be used in business valuation? In principle, it is a cash valuation basis by identifying the net cash stream of the business over a period of time and terminal value over an indefinite period of time. The total cash stream is then discounted to the present value. This is the discounted cash flow (DCF) technique that is commonly used in corporate financial management (has been discussed briefly in Chap. 3).

There are three main stages in conducting the strategic value analysis, i.e., identification, formulation, and valuation stages. I will outline the key processes in the diagram below (see Fig. 9.1).

As shown in Fig. 9.1, strategic value analysis is aimed to identify strategic drivers and value drivers of the firm. The identification process is important as the review process can conclude the latest situations of business environments, can check whether the firm's competitive position continues to be in place, can revisit the appropriateness of the corporate strategy, and can explore the impact of the relevant value drivers. All these steps help the firm to make self-reflection, analyze key market players, and examine the industry ecology. In this major process, the firm is evaluated from both external environment and internal operations. Identification stage is a key process to help the firm fine-tune the business direction and prepare for drafting operation plans. This is the prerequisite stage for the subsequent strategy formulation process.

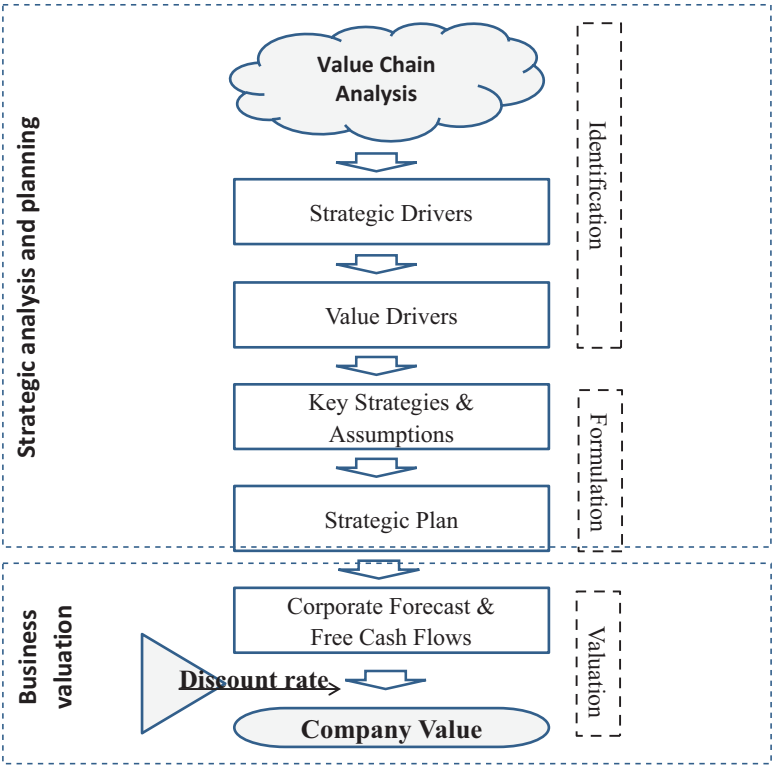

Fig. 9.1 Analytical framework for strategic value analysis

The second phase is strategy formulation. After identification of the road map for the corporate direction, strategy formulation is ensued. Strategy formulation stage is the process to envision the corporate mission, goals, and objectives, define business logics for the target market, identify strategic links to internal operations, provide assumptions to strategic plans, and assess value drivers for organizational success. The most critical part is development of overall key strategies and the workable strategic plans. The identification and formulation phases can be regarded the strategic analysis and planning, which will be fully addressed in this chapter.

The final phase is business valuation – evaluate the business forecast performance from the set of strategy and implementation plans. Remember that strategy drives corporate value. All strategic plans are required to be transformed into corporate financial plan (forecast) and free cash flows. Discounted cash flow technique will be employed to compute the firm's net present value. This part will be fully explored in the next chapter – Strategic Value Analysis II – Business Valuation.

In short, SVA helps management better understand their business. Furthermore, management should be aware of the growing value of a firm. It has to start with a good strategy.

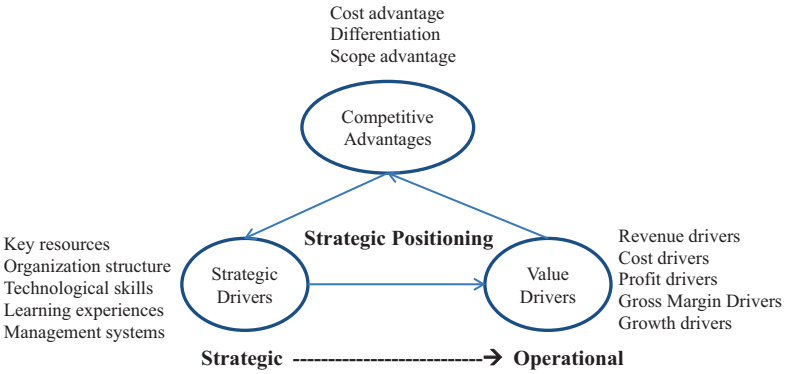

Fig. 9.2 Triangular relationship of business drivers

9.3.1 Identification Phase

9.3.1.1 Value Chain Analysis

Value chain analysis has been discussed in Chap. 3. A few major points of reference are mentioned. First, this is important to note that how firms select their business activities within the industry value chain. Firms can use backward (e.g., acquire suppliers) or forward (e.g., acquire customers) integration to enhance market power. Firms should select the competitive business activities from the industry value chain where they can gain maximum market power. Second, value chain analysis can be the approach of study, emphasizing added value on each business process and operations. This is Michael Porter's value chain analysis. Third, firms can also be analyzed from their value curve – value drivers in the firm's value curve that deliver unique offerings to customers. The unique offerings to customers are based on the firm's competitive advantages and customers' needs. IKEA's unique value curve provides a good example for a successful firm to offer unique offerings to customers (see Focus – IKEA below).[1]

9.3.1.2 Strategic and Value Drivers

This is equally important to know what competitive strengths a firm has and how these competitive forces generate value to the firm. From the strategic point of view, firms also need to find out where those strategic drivers are in forging competitive advantages and also how they guide value drivers operationally. Competitive advantages, strategic drivers, and value drivers are in a triangular relationship which is depicted in Fig. 9.2.

Let's look at Fig. 9.2. The diagram presents a triangular relationship of competitive advantages, strategic drivers, and value drivers. From the value chain analysis on horizontal and vertical integration, the firms should be able to establish an overall strategic direction (generic strategic as what Michael Porter defined) whether it should go for low-cost (cost advantage) strategy, differentiation strategy (product differentiation), or scope strategy (whether a niche market or broad-based market).

[1] Readers interested to learn more about strategic value concepts can refer to the following books: Michael Porter's Competitive Strategies (1980); Shank & Govindarajan's Strategic Cost Analysis (1989); and Kim and Mauborgne's Blue Ocean Strategy (2005).

Anchoring on this generic direction, the firms should then identify those strategic drivers.

In fact, strategic drivers are drivers that contribute to the firm's competitive strengths. In this respect, five key areas are identified:

(a) Key resources: Key assets include brand, patents, key customer relationship, human talents, specific input resources, special equipment, government relationship, etc.
(b) Organizational structure: Effective structure of an organization to facilitate coordination and integration of work processes.
(c) Technological skills: The level of technological skills that matches the firm's strategic positioning. Right technological skills are more important than high technological skills.
(d) Learning experiences: The history and accumulative experiences of founders and key members whose experiences can assist the organization to perform better and/or be more cost-efficient compared to other market players.
(e) Management systems: The effective management control system to support monitoring the long-term goal (e.g., forecast and business planning system, performance review system, TQM, balanced scorecard, etc.).

These are also key success factors that keep the firms in the competitive position. These are the competence areas and competitive advantages that management of the firm should be referred to in formulating execution strategies and plans in the strategy formulation phase. In fact, it should always be critical to ask how these drivers can continue the excellent performance at the operational level. This is what is going to discuss in the value drivers.

Value drivers are the specific key success factors to be monitored at the execution level. These are the drivers that generate profits from the firm's operation model. Value drivers can be divided into various types, namely, revenue drivers, cost drivers, profit driver, gross margin, and growth drivers. These drivers are embedded in the financial profit and loss statements. Let us look at Fig. 9.3 – value drivers.

(a) Revenue drivers: These are lines of revenue in the business model. They are product lines, key customers, business lines, market segments, and geographical segments. Revenue drivers can further be divided into sales driver and volume driver.
(b) Cost drivers: These are costs and expenses including cost of production (or cost of sales), operating expenses, and both fixed and variable cost.
(c) Gross margin drivers: This is the difference between price on one hand and cost of production or cost of sales on the other hand. Key factors attributed to good gross margin can be pricing strategy, sale volume, or cost structure. Gross margin drivers allow the management to focus on production cost (sales cost) issues.
(d) Profit drivers: Profit drivers are outcome of revenue and costs. However, profit drivers indicate the products, customers, business, market segment, geographical

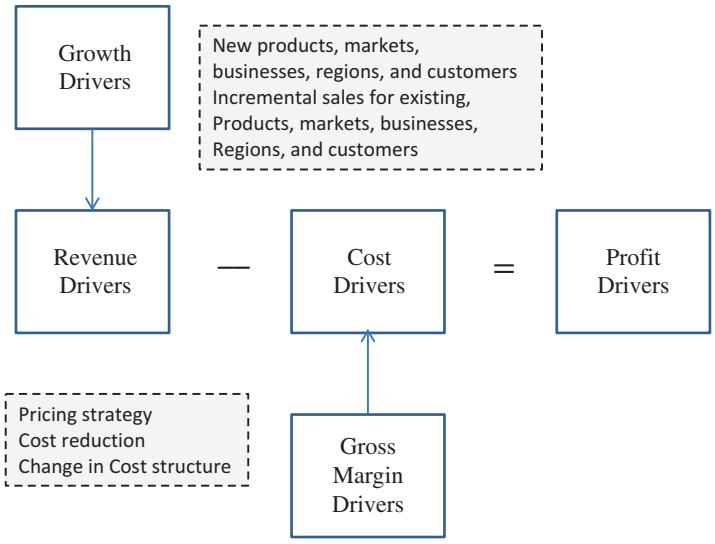

Fig. 9.3 Value drivers

regions, etc. that contribute to the firm's profits. This gives a clear indication on the areas where the firm remains competitive.

(e) Growth drivers: These drivers attend to two main dimensions contributing to growth – i.e., exploring new opportunities (e.g., new products, new markets, etc.) or strengthening existing sales (market penetration). These two key areas drive the firms for further growth. The firm should maintain a growth mix between existing sales and new sales. Existing sales will be constrained by their product cycles. New sales provide main thrusts for firms to sustain prosperity.

In fact, careful readers may note in Fig. 9.2 that there is an arrow from value drivers to the competitive advantage box, meaning that the performance of value drivers would indicate whether the firms could be able to survive in the strategic positioning given the competitive strength. Business situations may have changed in the firm's disfavor that existing resource deployments may be inadequate to meet the current competitive position. This will prompt an immediate review of strategic focus and market position.

Competitive position, strategic drivers, and value drivers are an integral part of the identification process. These three components interact together in which a change of one component will affect the effectiveness of the other two. There should always be a checkpoint to ensure the coherence of the three components. Strategic misfit between competitive position and business/product portfolio should be promptly rectified by immediate actions, e.g., investment holdout or divesture. These strategic misfits can be detected by judging the key performance indicators (KPIs) developed from operation value drivers (see Fig. 9.4). KPI is defined as the representational indicators that can explain the performance of specific areas of

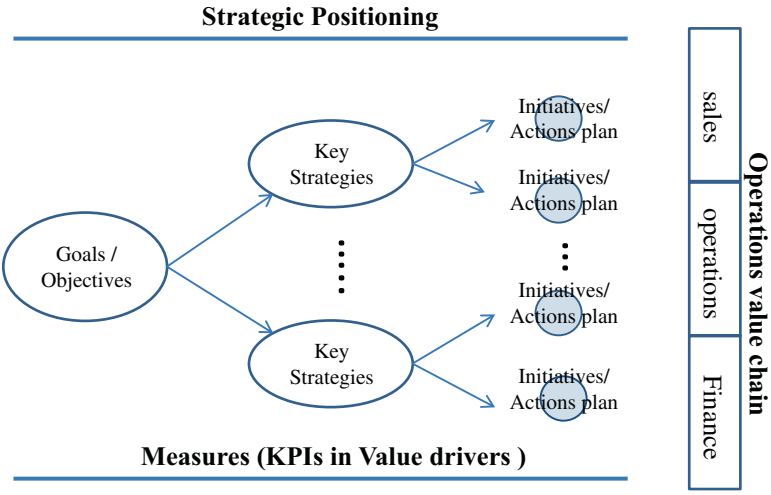

Fig. 9.4 Linking to strategic plan

concern (e.g., penetration rate in market capture, growth rate for a firm). KPIs are popular management concepts and tools for the firms to employ in order to monitor the performance of the business. Balanced scorecard is a typical example of systematic employment of KPIs based on key success drivers.

According to the analytical framework (please refer to Fig. 9.1), identification phase provides strategic inputs to the second phase – strategy formulation, a very essential and critical stage for the firms to determine its future. It will be discussed immediately.

Focus

How Alibaba Kicked e*Bay Out of China*

It was almost a legendary business case that Alibaba as a small e-commerce could expel eBay out of China in 2006, only with 3 years' time.

eBay was a pioneer in C2C e-commerce portal, focusing especially the online-auction portal business. By the turn of the twenty-first century, eBay came to China with the intention to acquire a lion share in the new business. In 2002, eBay had an opportunity to acquire 33% of share of a China local online portal EachNet, a pioneer but not well-performed online business. eBay boasted to conquer China online retail businesses. Meg Whitman, the CEO of eBay, spent more than USD 100 million over 4 years to strengthen business operations and increase brand awareness. eBay subsequently bought more controlling interest of EachNet. Cloning the US model, eBay spent heavily in Internet advertising, standardized webpages, and operation processes, shared and migrated customer database outside China, and improved revenues by increasing listing and transaction fees from sellers.

(continued)

Alibaba launched Taobao *C2C platform* in 2003, making head-on competition with eBay. Alibaba was weak financially. However, it spent monies in TV and communicated subscribers by mobile SMS (mobile and TV had much higher penetration rates than Internet users). It made C2C business free of listing fees and transaction costs, created user-friendly functions in webpage, and used its own payment system (Alipay) as the financial guarantor of last resort. In fact, eBay could never regain the market share the day it moved the database away from China. Online queuing slowed down substantially when all cross-border online inquiries and transactions had to go through national security network check. Alipay as a financial undertaker of online shoppers further threw a fatal blow to eBay. eBay surrendered and its 3-year battle with Taobao ended in disaster.

Jack Ma was proud of this legendary success and once in an interview commented: "eBay is a shark in an ocean, Alibaba is a crocodile in the Yangtze river. A shark could never swim in a river." eBay's paid a huge fee for its ignorance in the China market and paranoid in the competitive war.

9.3.2 Strategic Formulation Phase

This phase includes two processes – key strategies and strategic plan.

9.3.2.1 Key Strategies

Given the strategic positioning, firms need strategies to drive toward a desired set of strategic goals. Through the development of key strategies, the firm understands how and where it is leading to. The strategies also depict the future of the firms. Key strategies have the following characteristics:

(a) This is a *road map* for the firm to provide specific guidelines of how and when the management should drive the organization in meeting strategic goal.
(b) This is the *communication platform* during the development process where business logic, internal forces, and market landscape are fully discussed and explored.
(c) This is the base of the firm and divisions to justify *resource allocation*.
(d) This is the organization's *anchor point* to give employees focuses of joint efforts in the future.
(e) This is also the *yardstick* to measure whether corporate strategies and plans are wisely developed and implementation was properly carried out.

All key strategies are derived from the firm's goals which have gone through serious discussions and detailed analysis. These key strategies in the end will turn into initiatives, action plans, and firm commitment. All in all, key strategies will become a guideline and assumptions in drafting detailed strategic plans.

9.3.2.2 Strategic Plans

Strategic plans are the means to reach implementation from concept formation. All strategic plans are objectives embedded and goal oriented. As a rule of thumb, all strategic plans should be traceable to their specific goal/objectives.

As shown in Fig. 9.4, all action plans/initiatives as stated in the strategic plans have embedded specific goals/objectives of "what for." Similarly, all actions/initiatives have defined "how to" to throw the ideas into target propositions. Finally, "where to" addresses resource allocation in the value chain of operations (i.e., sales, operations, finance). In fact, all action plans and initiatives should be accompanied by target measures over the period to assess the extent of accomplishment. Below are examples of questions pertinent to "how to," "what for," and "where to" when drafting strategic plans.

"What for" Questions: Goals and Objectives

- If we want to increase the market share in the region by the target %, what should the change in product portfolio, sale outlets, and brand investment be determined?
- If we want to maintain market power, what production capabilities the firm should increase in the coming 4 years?
- If we want to secure the second fast track business in this region, what additional investments are required?
- If we want to retain at least 90% of customer loyalty (or 10% drop rate), what kinds of customer relationship management program the firms should develop?

"How to" Questions: Actions/Initiatives

- How can the firms increase the target growth rate during the coming 3 years?
- How can the supply chain increase working capital efficiency?
- How can the production cost be reduced leveraging on the "outsourcing" operations?
- How many nonprofit-making shops should be divested in order to make the overall ROI increase by 5% within 3 years?

"Where to" Questions: Resource Allocation

- Which divisions the firm should spend more capital investment in order to increase the business in this region?
- Which regions should be allocated more headcounts to prepare for the target growth in the coming 3 years?
- Which target businesses should be acquired in order to strengthen the synergy in the value chain?
- What R&D spending should be kept in order to be technologically ahead of the main competitors?

By now, readers should have a clear understanding of how a strategic plan is prepared. Bearing in mind that there requires a corporate financial plan to

incorporate all strategic ideas and actions into a financial forecast statement and test its financial viability. The financial part will be dealt with in the next chapter.

In the final part of this chapter, I have prepared a case about Coffee Business at Chap. 12, Case 12.7 to discuss how the analytical approach is employed.

Focus

IKEA Value Curve

IKEA as a multinational furniture firm is famous in design and ready-to-assemble home furniture, kitchenware, and appliances. It has a large portfolio of product varieties with the average price at about 25–50% of its rivals in similar products. Its products with good design and economic value have made IKEA a global DIY furniture leader. IKEA claims to return the value to customers.

IKEA selects a market position that fits its value drivers and employs right strategies to glue its customers. How can IKEA make it? Let's examine its value drivers from two lenses: revenue drivers and cost drivers.

From the revenue drivers, IKEA operates large retail shops in big cities. It provides a one-stop purchase for customer looking for home furniture and related home essential items. In the shop, there are mock-up rooms for modern home experiences. It is particularly appealing to small families of young couples. Showrooms always come with some simple and innovative design ideas, as well as affordable home furniture. These selling activities encourage purchases and repeating visits. In addition, new products and designs are introduced twice a year together with new home concepts. Huge product variety, low price, large sales volume, new design ideas, and customer loyalty are the key revenue drivers to ensure good margin.

To maintain a low-price strategy, IKEA has to revisit the value curve of the customer. What values should be added and what value should be reduced? First, it advocates the *DIY* concept. Most of the products are ready to assemble. Customers need to do the installation part by themselves. Goods are picked up at the warehouses with no free transport services. Most of the shop assistants are responsible for ordering and payments, cutting the sale advisory services. Second, it exercises total cost control management starting from its suppliers. The product designs have full considerations in the value-added processes including simplified production process, compact packing, simple installation processes with accurate spare parts supplies and procedures, and error reduction quality control. Through the close cooperation, control, coordination with suppliers, and economies of scale of operations, IKEA can make a substantial low-cost production. Third, IKEA has a good IT and MIS system to coordinate regional inventory to optimize inventory control with regional sales. Finally, IKEA makes minimum advertising. Instead, it provides free catalogues in the shops and information over its website. With the proper monitoring of cost drivers, IKEA can set the price that addresses the mass market of young population who have requirements in comfort lifestyle but cannot afford to pay more.

Source: some information was adapted from Klevas, J (2005)

9.4 Concluding Remarks

This chapter has outlined how a firm identifies strategic value drivers and what are the relationships of these drivers to the competitive position. A clear strategic position and good corporate strategy will increase competitive strengths in the market, thereby enhancing the firm's strategic value. In the next chapter, I will discuss how to prepare a corporate financial plan based on the strategic plans and conduct tests on financial viability and financial valuation.

Takeaway Tips

- Strategic value analysis is an evaluation about firms' value proposition, value chain, business logics, operating capabilities, and value drivers that contribute to value creation.
- Strategic value analysis aims to examine the impact of business drivers on competitive position of the firm in a marketplace.
- Strategic value analysis involves several processes including identification, formation, and valuation process. The thorough process increases the management attention to unique values and core competence.
- In a strategy formulation process, the strategic planners should ask "what for," "how to," and "where to."

References

Kim, W. C., & Mauborgne, R. (2005). *Blue ocean strategy*. Boston: HBS Press.

Klevås, J. (2005). *On opportunities of integrated packaging, logistics and product development-experiences from a case study at IKEA. Packaging Logistics*. Lund: Lund University.

Porter, M. (1980). *Competitive strategy*. New York: The Free Press.

Shank, K., & Govindarajan, V. (1989). *Strategic cost analysis*. Homewood: Richard D. Irwin.

Strategic Value Analysis: Business Valuation

10

Abstracts

This chapter is a second part of the prior chapter which provides step-by-step guidelines to assess business valuation of a firm by using discount cash flow technique through four main stages. The first process is to convert strategic plans into a financial forecast plan through establishment of strategic bases and key assumptions. The second stage articulates the steps to prepare free cash flows – the essential document for business valuation. As discount rate is a key consideration for business valuation, the third part discusses the criteria for selection of discount rate and the implication of discount rate to business valuation. The final stage introduces the concept of terminal value (perpetual value) of a business which is the business value beyond the forecast period. As a "going concern" basis of the business valuation, it is an integral part of the entire business valuation but is often underestimated in the valuation process. The chapter proposes an approach to tap this perceptual value into the business value computation. A case is presented throughout the chapter to illustrate step by step how business valuation is formulated. This chapter showcases to readers how business valuation is conducted in a systematic approach.

Keywords

Strategic value analysis • Corporate forecast • Financial valuation • Terminal value • Discount rate

10.1 Introduction

The importance of key strategies for the firm has been discussed in Chap. 9. Key strategies are required to turn into strategic assumptions to provide guidelines for corporate forecast. This is the financial blue print for the firm to implement subsequent initiatives and action plans as well as to conduct periodic reviews on the target

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financial milestones. Corporate forecast is also a base document for firms to value the business. In this chapter, I will guide the readers through these four main processes: (1) turn strategic plans into a corporate forecast plan, (2) prepare free cash flows as an essential document for business valuation, (3) select discount rate, and (4) compute business value using DCF method.

To facilitate a better apprehension of the whole processes, I will continue the ABC case (*Abbraccio Caffe*, refer to Chap.12, Case 12.7) and use it as an example to demonstrate how to conduct strategic value analysis.

10.2 Corporate Blue Print (Financial)

Strategic value analysis enables the company to identify competitive strengths, decide strategic position, and develop implementation strategies to meet its strategic intent and goals. These are the work plans of the firm to follow accordingly. Also, these are the strategic assumptions of the corporate plan. Figure 10.1 below shows the corporate plan (financial) flow.

In Fig. 10.1, the inception point comes from the key strategies based on the corporate goals as discussed in the prior chapter. These key strategies are then converted into a set of strategic assumptions. Strategic assumptions can be regarded as a blue print of the firm for the future business, which comprises of economic-social-political conditions, overall business climate, market situations, competitor market powers, customers' needs, and the operation's conditions over the forecast period. For ease of clarity, I divide the strategic assumptions into three areas: macro, sales, and operations domains.

(a) Macro domain: This part relates to the assumptions of macro environments during the forecast period, including economic situations, political stability, government policies, taxation, and social-cultural trends. Unless some major changes are underway, macro assumptions are commonly regarded as "business as usual" except assumptions on a few key economic parameters, e.g., GDP growth, inflation rate, interest rate, forex, taxation, etc.
(b) Sales domain: This part pertains to all market and sales assumptions of business, regions, products, local entities, and/or other sales attributes (e.g., ARPU for mobile operators) in sales amount, price, and sales volume. This is a core part of business assumptions as all key strategies are geared to guide sales and market share. These sales plans are made to support sales activities and sales target.
(c) Operations domain: This part refers to support activities to boost sales generation. For this reason, operations assumptions should go hand in hand with sales support activities and plans. For example, a new operations team may be required for a new market development plan. Financial funds are earmarked to build an e-portal for customers as the strategy to enhance customer relationship management (CRM).

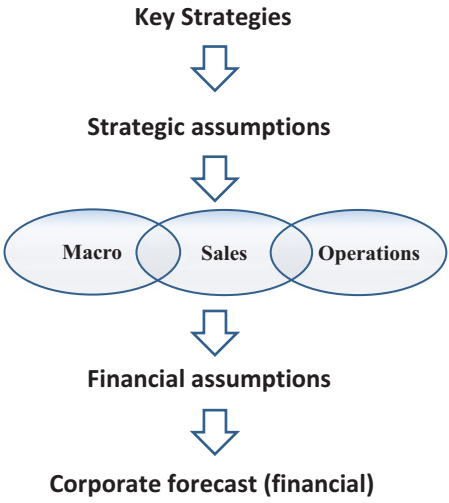

Fig. 10.1 Corporate plan (financial)

Firms cannot make strategic assumptions without recourse to business reality. Firms have the present operations setup including headcount establishments, payroll commitment, and other contractual agreements (e.g., tenancy, license payment). All operation establishments will be stable unless there is a major corporate restructuring program to trigger a new rule of game. Care must be taken to ensure consistency of current practices and reality of business environments. For example, price assumptions, market share, and market growth may not be too deviant from the present situations except the firm has anticipated some major changes in the target market. Furthermore, timing assumptions of the company's strategies, initiatives, and action plans must be synchronized to make sure coherence of the overall plans.

The role of financial assumptions is to translate the strategic assumptions into one measure – dollar value. Other financing assumptions (e.g., debt or equity raisings) to support all proposed initiatives are also considered.

10.3 Case Revisited: *Abbraccio Caffe* (ABC)

I would like to continue the case of *Abbraccio Caffe* (ABC) – to show how a corporate financial plan is prepared.

Table 10.1 provides the actual operating performance of all shops in Hong Kong. Based on the actual financial results of the Hong Kong operations, the following outlines some observations of the Hong Kong operations:

(a) The floor areas for the Hong Kong operations are about 1500 sq. feet, with an average employment of 10 persons.
(b) Sales are ranged from $11.2 to 11.9 million, with an average of sale at $11.6 million. The main products coffee, pizza, and cakes are about 87.5% of sales.

Table 10.1 Actual operating performance

Abbraccio Caffe							
Actual operations performance 2012							
HKD'000	Sh.A (CBD)	Sh.B (TD)	Sh.C (TD)	Sh.D (CBD)	Sh.E (CBD)	Total	Ave.
GFA in s.f.	1300	1500	1500	1550	1455	7305	1461
Headcount	9	11	11	10	10	51	10.2
Sales							
Beverage	7800.0	8500.0	7710.0	8260.0	8405.0	40,675.0	8135.0
Bakery	2400.0	1231.0	2131.0	2315.0	2010.0	10,087.0	2017.4
Merchandized gifts	1012.0	2150.0	2101.0	1030.0	945.0	7238.0	1447.6
Total sales	11,212.0	11,881.0	11,942.0	11,605.0	11,360.0	58,000.0	11,600.0
Gross margin	7848.4	8079.1	8120.6	8123.5	8179.2	40,350.7	8070.1
Operating expenses							
Rental	2200.0	2400.0	2415.0	2350.0	2200.0	11,565.0	2313.0
Staff costs	1540.0	1510.0	1470.0	1400.0	1440.0	7360.0	1472.0
Sale and marketing	560.6	594.1	597.1	580.3	568.0	2900.0	580.0
Corporate mgt.	400.0	400.0	400.0	400.0	400.0	2000.0	400.0
Others	460.0	480.0	513.0	533.0	580.0	2566.0	513.2
Depreciation and amortization	990.0	1100.0	1021.0	1231.0	1211.0	5553.0	1110.6
Operating profits							
EBIT	1697.8	1595.0	1704.5	1629.3	1780.2	8406.7	1681.3
Net interest	–	–	–	–	–	–	–
Taxation	271.6	255.2	272.7	260.7	284.8	1345.1	269.0
EAT	**1426.2**	**1339.8**	**1431.7**	**1368.6**	**1495.4**	**7061.7**	**1412.3**
Ratios							
Sale/floor areas (s.f.)	8625	7921	7961	7487	7808	7940	
Sale/staff (monthly)	103,815	90,008	90,470	96,708	94,667	94,771	
B&B%	91.0%	81.9%	82.4%	91.1%	91.7%	87.5%	
Gross margin%	70.0%	68.0%	68.0%	70.0%	72.0%	69.6%	
EBIT%	15.1%	13.4%	14.3%	14.0%	15.7%	14.5%	

Notes:
1. CBD – commercial district; TD – tourist district
2. All shops were operated on a full-year basis

(c) Gross margin % is about 70% and the profits after tax is about 14.5%. In average, each shop generates a net profit of $1.4 million per year.
(d) Each employee can generate a monthly sale of about $100,000.

The above financial conclusions can serve as financial bases and assumptions for ABC's financing plan. Remember ABC's nine key strategies as stated in Chap. 12, Case 12.7:

(a) Shop close to the competitor – Starbucks.
(b) Replicate the Italian lifestyle setting and tastes in all shops.
(c) Promote full product range similar to the headquarter if possible.
(d) Standardize material purchase of coffee mix from the headquarter.
(e) Quality standardization and assurance in all shops in the region.
(f) Common operating systems and organization structure for all shops.
(g) Good pay for well-trained and motivated staff.
(h) Performance evaluation system on individual shops and financial results tied to rewards.
(i) Full swing in the market expansion plan from 2016 to 2020.

The strategic assumptions of ABC should reflect the main directives of the above key strategies to guide detailed action plans.

10.3.1 Strategic Assumptions

Macro Domain
(a) People's Republic of China (PRC) and Hong Kong's political, social, and economic situations remain steady over the forecast period.
(b) GDP growth, inflation rate, interest rate, and taxation rate are expected to be the same (business as usual).

Sales Domain
(a) All shops have the similar settings in line with the Italian main theme.
(b) Both places in Hong Kong and PRC have the same common competitors – Starbucks.
(c) All shops are assumed to have 50% of normal sale in the 1st year of operation and the 2nd year is expected to be the normal target sale.
(d) For Hong Kong, five more shops will be opened in the next 2 years, and no. of shops will remain unchanged throughout the forecast plan.
(e) For PRC, it is targeted that five new shops per year will be set up in each region in Guangzhou and Shenzhen from 2016 to 2020.
(f) All shops will operate a full range of product service.

Operations Domain
(g) Average gross floor area (GFA) for each new shop in Hong Kong will be around 1500 sq. feet and PRC will be about 2500 sq. feet.

(h) All new Hong Kong shops will have staff establishments of 10 staff and new shops in PRC will have an establishment of 15 staff.
(i) ABC needs sales and promotion activities to boost the brand awareness of the coffee chain.
(j) Headquarter will send experts from Italy to train up local staff and ensure the quality of service to be in line with the standard at hometown.
(k) Each shop standardizes the decorative settings, furniture, and machinery of the headquarter.

10.3.2 Financial Assumptions

Actual performance of existing shops (see Table 10.1 above) can be a good starting point for making financial assumptions. In fact, other relevant financial assumptions as indicated in the strategic plan are also the inputs for the 5-year corporate financing plan 2016–2020.

(a) Annual target sale for each shop in Hong Kong should be $12 million, and target sale for shops in PRC is $9.6 million (80% of HK sales), taking into consideration the difference in coffee culture.
(b) Assuming all shops follow the same sale mix and gross margin as per actual performance of 2015 (i.e., 90% on coffee and pizza and 10% on merchandized gifts). Gross margin should be 70% of sale in average.
(c) Taking reference of the current rental lettings for retail outlet, the equivalent floor areas for retail outlet in Hong Kong will cost $2.3 million a year (i.e., 1500 sq. ft.) and in Mainland China HKD 1.5 million a year (i.e., 2500 sq. ft.).
(d) In terms of headcount cost, the current establishments for Hong Kong and PRC will expect to incur annual expenses of $1.6 million and 1.2 million, respectively.
(e) Each shop will spend sale and promotion expenses equivalent to 5% of sale.
(f) Each shop needs to absorb $0.4 million per year for the services provided by the headquarter in Italy.
(g) The capital expenditure for renovation, fittings and furniture, and equipment for each shop is $4 million, both applicable for Hong Kong and China operation.
(h) The net working capital required for each shop is about 8% of sales, remaining constant over the forecast period.
(i) Other sundry and contingent expenses are expected 4% of sale.
(j) The average depreciation rate for all assets is assumed at 25%, assuming each year will require an additional capital replenishment of $1 million.
(k) Tax rate for Hong Kong is 16% and PRC is 28%, assuming no change during the forecast period.
(l) No borrowing is expected during the forecast period.
(m) For simplicity, all prices and costs are assumed at a constant level.

10.3.3 Corporate Expansion Plan (in No. of Shop Opening)

Given the above assumptions, a sketch of the corporate financing plan has been drafted. Outlet shop is the growth driver for the corporate expansion; the total no. of shop establishments during the forecast period is given in Table 10.2. Corporate expansion plan provides ABC the road map for the market expansion in Hong Kong and China over the forecast period from 2016 to 2020. This key expansion plan directs all future operations plans of ABC up to 2020. From 2021 onward, the no. of coffee shop remains unchanged.

Pro Forma P&L To expedite computation of forecast performance for each shop in Hong Kong and China, it is convenient to prepare a Pro Forma P&L for each region. The information provided in the Pro Forma P&L can serve as a basis for computation of the shop performance during the forecast period. Table 10.3 shows the Pro Forma P&L of ABC for the Hong Kong and PRC regions.

As shown in Table 10.3, the sales for Hong Kong is $12 million and Mainland China $9.6 million; the gross margin for Hong Kong is $8.4 million and China $6.72; the total operating expenses (Opex) for Hong Kong is $6.38 million and China is $4.96 million. Earnings before Interest and Taxes (EBIT) for Hong Kong

Table 10.2 No. of coffee shop opening

	2016	2017	2018	2019	2020
Start of year					
Hong Kong	5	8	10	10	10
Mainland China	0	10	20	30	40
End of year					
Hong Kong	8	10	10	10	10
Mainland China	10	20	30	40	50

Table 10.3 Pro-forma P&L

HKD' million	HK	Mainland China
Beverage and bakery	10.80	8.64
Merchandized gifts	1.20	0.96
Total sales	**12.00**	**9.60**
Gross margin	**8.40**	**6.72**
Rental	2.30	1.50
Staff costs	1.60	1.20
Sale and marketing	0.60	0.48
Corporate management	0.40	0.40
Others	0.48	0.38
Depreciation and amortization	1.00	1.00
Total Opex	**6.38**	**4.96**
EBIT	**2.02**	**1.76**
Taxation	0.32	0.49
EAT	**1.70**	**1.27**

is $2.02 million and China $1.76 million. Assuming the income tax rate for Hong Kong is at 16% and China 28%, Earnings after Taxes (EAT) are $1.7 million and $1.27 million for Hong Kong and China, respectively. These financial numbers become the standard forecast template for calculation of the required performance of each shop. For example, Hong Kong up to the beginning of 2016 had an establishment of five shops and planned to open three more shops in 2016 (see Table 10.2). Assuming the financial results of new shops (first year of operation) would be 50% of the full-year performance, the overall no. of shops for the Hong Kong operation during 2016 would be equivalent to 6.5 shops ($5 + 3 \times 50\% = 6.5$), and the total sales forecast would be $78 million ($12 million × 6.5). The forecasts for other financial items were calculated on the same basis. Table 10.4 provides a summary of corporate plan from Year 2016 to 2021.

At this stage, the forecast financial impact of ABC corporate expansion plan based on the prescribed business and financial assumptions can be known to the management. This corporate (financial) plan can serve as a corporate blue print for the expansion pan. The ABC management can also evaluate the feasibility of the expansion project, including financial viability, business logics, timing assumptions, and other considerations. As an initial corporate plan, it is entirely up to the management to revisit all assumptions and the business environments to ensure the corporate plan is realistic given the anticipated market and operations constraints.

In short, the corporate plan looks promising. ABC undergoes a rapid business expansion during the forecast period from $ 126 million in Year 2016 to $ 600 million by Year 2021, a 470% increase over 6 years (and 79% growth on an annualized basis). In terms of net profit (EAT), it grows from $ 17.4 million in Year 2016 to $ 80.2 million in Year 2021, a 460% rise over 6 years (and 77% growth on an annualized basis). Relatively, Hong Kong has a slow growth business because of the shift of development focus and its market testing role. However, Hong Kong has a higher profitability per shop basis. China market has a major business assumption of its rising coffee culture. This assumption needs to be revisited as time goes by. The whole corporate plan reflects a rapid growth strategy of ABC.

Why is the financial performance of 2021 included? It shows to the management the view of full-year financial impact, bearing in mind expansion plan ends in 2020. The corporate forecast 2021 also demonstrates the full-year financial performance of ABC given that there will be constant assumptions in price and operating expenses with no further expansion. Perpetual financial performance has a significant numeric meaning in valuing ABC's business value as a going concern. This will be dealt with in the final section.

The preparation of corporate financial plan will inevitably involve the assumptions of accounting rules, e.g., depreciation, accrued basis. It stands in its own right as a corporate financial plan. However, these noncash items (such as depreciation, accrued expenses) are to be removed when the corporate plan is used ultimately for doing business valuation. Free cash flow concept is introduced to transform corporate plan into free cash flow statement, the document facilitating computation of business value. There are several steps for the free cash flow conversion. I will lead the readers through these steps in the next section.

Table 10.4 Corporate plan (financial)

	2016	2017	2018	2019	2020	2021
HKD million		*Hong Kong*				
No. of equiv. shops	6.5	9	10	10	10	10
Total sales	78.00	108.00	120.00	120.00	120.00	120.00
Gross margin	54.60	75.60	84.00	84.00	84.00	84.00
Opex before Depreciation	34.97	48.42	53.80	53.80	53.80	53.80
Depreciation	6.50	9.00	10.00	10.00	10.00	10.00
Total Opex	41.47	57.42	63.80	63.80	63.80	63.80
EBIT	13.13	18.18	20.20	20.20	20.20	20.20
Taxation	2.10	2.91	3.23	3.23	3.23	3.23
EAT	**11.03**	**15.27**	**16.97**	**16.97**	**16.97**	**16.97**
		Mainland China				
[a]No. of equiv. shops	5	15	25	35	45	50
Total sales	48.00	144.00	240.00	336.00	432.00	480.00
Gross margin	33.60	100.80	168.00	235.20	302.40	336.00
Opex before Depreciation	19.82	59.46	99.10	138.74	178.38	198.20
Depreciation	5.00	15.00	25.00	35.00	45.00	50.00
Total Opex	24.82	74.46	124.10	173.74	223.38	248.20
EBIT	8.78	26.34	43.90	61.46	79.02	87.80
Taxation	2.46	7.38	12.29	17.21	22.13	24.58
EAT	**6.32**	**18.96**	**31.61**	**44.25**	**56.89**	**63.22**
	Total in Hong Kong and Mainland China					
Total sales	126.00	252.00	360.00	456.00	552.00	600.00
Gross margin	88.20	176.40	252.00	319.20	386.40	420.00
Opex before depreciation	54.79	107.88	152.90	192.54	232.18	252.00
Depreciation	11.50	24.00	35.00	45.00	55.00	60.00
Total Opex	66.29	131.88	187.90	237.54	287.18	312.00
EBIT	21.91	44.52	64.10	81.66	99.22	108.00
Taxation	4.56	10.28	15.52	20.44	25.36	27.82
EAT	**17.35**	**34.24**	**48.58**	**61.22**	**73.86**	**80.18**

[a]Half shop was being counted for any shop operated in the first year of operation

10.4 Free Cash Flows

Remember that one basic difference between financial and accounting calculations is cash basis versus accrual basis. In the financial valuation, **cash basis** is applied in computation of the company value. Free cash flow concept has been discussed in prior chapters. It is a series of cash stream over the valuation period. To turn the financial results into cash flow documents, there are a few steps to follow:

(a) Convert the corporate operating plan into operating cash profits plan;
(b) Prepare incremental working capital;

(c) Prepare incremental fixed capital investment;
(d) Summarize in a cash flow statement.

10.4.1 Operating Cash Profit

This is the first step to convert the operating profit into cash profit by adjusting all noncash items so that the statement reflects the actual cash profit position of the company. Let us look at ABC case again. Going back to Table 10.4, the noncash items are identified (i.e., depreciation) and added back to become an operating cash profit. Table 10.5 provides an example of operating cash profit based on the ABC forecast.

As shown in Table 10.5, ABC accrues a total of about $406 million during a 6-year operation from Year 2016 to Year 2021 after adding back $170 million of depreciation amount. In theory, it is the available cash flow for ABC. However, two more cash flow items are part of the total cash flows over the forecast period, which are working capital and fixed capital investment.

10.4.2 Incremental Working Capital

Working capital includes inventory, accounting receivable, account payable and accrued expenses, etc. Companies need working capital to support sales. For example, stock is held for sale or credit sale is set to attract more regular sales. Rental deposit is made on leasing. This is legitimate to assume a % of sale amount as working capital. Remember that cash effect of working capital only appears when there is a net change in working capital. As a rule of thumb, an increase in net working capital means a higher inventory or receivable than account payables and accruals. A firm will need more cash to maintain stock or allows more deferred cash payment.

Table 10.5 Operating cash profit

HKD million	2016	2017	2018	2019	2020	2021	Total
		Hong Kong and Mainland China					
Number of shops							
Hong Kong	8	10	10	10	10	10	10
Mainland China	10	20	30	40	50	50	50
Total sales	126.00	252.00	360.00	456.00	552.00	600.00	1746.00
EAT	17.35	34.24	48.58	61.22	73.86	80.18	235.24
Add back:							
Depreciation	11.50	24.00	35.00	45.00	55.00	60.00	170.50
Operating cash profit	28.85	58.24	83.58	106.22	128.86	140.18	405.74

Table 10.6 Incremental working capital

INCREMENTAL WORKING CAPITAL						
HKD Million	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Total Sales	126.00	252.00	360.00	456.00	552.00	600.00
Working Capital						
Start of the year	2.40	10.08	20.16	28.80	36.48	44.16
End of the Year (8% of sale)	10.08	20.16	28.80	36.48	44.16	48.00
Incremental Change	7.68	10.08	8.64	7.68	7.68	3.84
Cash effect (- /+)	-7.68	-10.08	-8.64	-7.68	-7.68	-3.84

Note: (1) – decrease in cash; + increase in cash
(2) $2.4M at beginning of 2016 was given

Cash return will be slower (cash taken out). On the other hand, a decrease in working capital increases cash. Decreases in net working capital means more stock has been converted into cash and credit sales have become due for payment. Finally, there will be no cash effect when there is no change in working capital – the effect of cash increase will be squared by the effect of decreased cash.

Let us assume that the working capital is 8% of sale; working capital movement during the period from Year 2016 to 2021 is shown in Table 10.6 above.

Because of increase in sales every year, there will be an increase in working capital every year. For example, working capital increases from $2.4 million at the start of 2016 to $10.08 million (8% of 2016 sale) at the end of 2016. The incremental increase in working capital during the period is $7.7 million. The increase in working capital implies more cash payouts. It results in a decrease in cash by 7.7 million as well. The cash effect will be incorporated into free cash flow statement later on.

10.4.3 Incremental Fixed Capital Investment

Firms need additional fixed capital investment to underpin normal operation and growth. Depreciated assets need replacement of new assets as time goes by. Growing businesses require additional new fixed assets for expansion of operations. In both cases, fixed capital investment is increased. There are many approaches to add these two items in the free cash flow. For example, depreciated value can be added back in the same year to replace the depreciated fixed asset costs. Additional new fixed assets can be assumed to be a % of sale to claw back for fixed asset investment. For ABC, the depreciated value will be added back in the same year for replacement of assets. In addition, $4 million per new shop will be earmarked to support the expansion plan. This part of the cash outlays should also be incorporated into the free cash flow statement. The incremental fixed capital investment for ABC is shown in Table 10.7 below.

As shown in Table 10.7, ABC has the fixed assets investment each year from Year 2016 to Year 2021. The amount of replaceable fixed assets is equivalent to the

Table 10.7 Incremental fixed assets

HKD million	2016	2017	2018	2019	2020	2021
Hong Kong	8	10	10	10	10	10
Mainland China	10	20	30	40	50	50
Replaceable fixed assets	11.50	24.00	35.00	45.00	55.00	60.00
New fixed assets	52.00	48.00	40.00	40.00	40.00	0.00
Incremental fixed assets	63.50	72.00	75.00	85.00	95.00	60.00

deprecation amount during the year (see Table 10.5, depreciation item), and the total amount of new fixed asset is calculated based on $4 million for each new shop. For example, the total number of shops in Year 2016 is 18 but 5 shops in Year 2015; the net increase in new shops is 13, and therefore the new fixed asset investment during 2016 is $52 million (i.e., 13 × $4 million). By the same token, Year 2020 has a net increase in new shops of 10, and therefore the amount of additional new fixed assets is $40 million. I like to remind the reader that there will be no increase after Year 2020 as the expansion plan completes by this year. New fixed assets in 2021 will be zero. This implies that no major capital cash outlays (except replaceable fixed asset) will appear after Year 2020. ABC has come to a harvest period.

After preparation of the incremental fixed assets schedule, a free cash flow statement is ready for compilation. Free cash flow statement consists of three essential components, viz., operating cash profit, incremental working capital, and incremental fixed assets. In fact, the period between 2016 and 2020 is the expansion period. The year of 2021 is the first year after completion of the expansion plan. This is also the first year to reflect the full-year financial impact. After 2021, ABC has the same sale, profit, and free cash flow which is called a perpetual period. There will also be a static free cash flow (no change). Sales will be constant (stable at $140 million) and working capital is therefore no change. The implication is that ABC will receive a constant stream of cash flow ($80.18 million) every year starting from Year 2021. In fact, $80.18 million is the annuity value of ABC.

Presented below is the consolidated free cash flow statement in Table 10.8 – free cash flow estimate, which incorporates the captioned components.

From the free cash flow estimate above, it shows negative cash flows in the first 3 years until 2018, and positive cash flows emerge in 2019 and the years after. The harvest period will start from 2021 which will generate huge cash flow for ABC. Constant annual cash flow of $80.18 million will appear in 2022 and after, which is considered the annuity value of ABC if everything remains the same. It is the perpetual value from the valuation principle that will be dealt with in the final section.

By now, the process to convert corporate plan (financial) into free cash flow was completed. Free cash flows are used to conduct financial valuation (DCF approach). Before delving into financial valuation, let's discuss how to determine discount rate.

Table 10.8 Free cash flow estimates

FREE CASH FLOW ESTIMATES							
HKD Million	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Operating Cash Profit	28.85	58.23	83.57	106.21	128.86	140.18	140.18
Incremental WC	-7.68	-10.08	-8.64	-7.68	-7.68	-3.84	0.00
Incremental fixed assets	-63.50	-72.00	-75.00	-85.00	-95.00	-60.00	-60.00
Free cash flow estimate	-42.33	-23.85	-0.07	13.53	26.18	76.34	80.18
			Expansion period			Harvest period	perpetual value

10.5 Discount Rate

Using DCF technique for investment appraisal, it requires all future cash flows to be converted into present values as a single timing measure yardstick (i.e., present value approach). Recall the topic of present value concept in Chap. 3: $100 of today is not equivalent to $100 2 years from now. If the bank rate is 5% per annum, the value of $100 will be $105 by the end of year 1, and the value of $105 by the end of year 2 will be $110.25. These are the calculations:

Year 1: $\$100 \times (1 + 5\%) = \$105$
Year 2: $\$105 \times (1 + 5\%)\ (1 + 5\%) = \$110.25$ or $\$105 \times (1 + 5\%)^2 = \$110.25$

These numbers can be replaced by these notations:

Present value (PV) = $100
Future value (FV) = $105
Interest (r) = 5%
No. of years (n) = 2 years

The calculations can be replaced by two equations:

$FV = PV \times (1 + r\%)^n$,
$PV = FV/(1 + r\%)^n$

These two equations can be interchangeable by moving around the $[(1 + r\%)^n]$ factor. What are the implications of these two equations? First, present value and future value are linked by two components, r and n, which means that all future values can be converted into present values if the interest rate (r) and no. of years (n) are known. Second, as the interest rate and no. of years increase in number, the overall value of this factor increases. This creates opposite effects for the present value and future value. Future value will increase if the value of $(1 + r\%)^n$ increases. On the other hand, present value will decrease if the value of $(1 + r\%)^n$ increases because $(1 + r\%)^n$ is a reciprocal in the equation. In fact, $1/(1 + r\%)^n$ is a discount

factor for all future cash flows which can be converted into present values. Since future cash flows are the key components for all business projects, $(1 + r\%)^n$ is the essential concept for business valuation.

Let us go back to the above example. Instead of making deposit of $100 into a bank, I changed the example into a bank borrowing. I borrow $100 from the bank with an interest rate of 5% per annum for an investment opportunity. It is the cost of capital for the investment. I have to find an investment project that can at least generate a future cash flow of $110.25 by the end of year 2. This is the money I have to repay the bank by the end of year 2. If the project earns a total future value more than $110.25, I have a gain after paying all repayments (principal and interest). If the future return is less than $110.25, I will make a financial loss. Discount rate has the same meaning. I apply 5% (cost of capital) as the yardstick to discount the future cash flows of an investment to the present value. If the net present value is above zero, the investment project is viable. If the net present value is negative, the investment is losing monies.

In an investment opportunity funded by borrowings, the return of investment should at least be the cost of borrowing (i.e., the cost of capital). No matter if it is a rate of return or cost of capital, the investment requirement is the same – the baseline is the minimum rate of return to cover the cost of borrowing. It will be a breakeven of the investment project if the rate of return on investment is same as the cost of capital. Investors will earn extra return if the rate of return is greater than the cost of borrowing. Investors should reject any project in which the rate of return cannot cover the cost of capital. Discount rate is applied over a series of cash streams derived from any project to see whether the overall project will bring in additional value to investors. In any investment appraisal, only projects which generate additional values (net present value) after discounting the cost of borrowing will be considered. Discount rate is therefore an essential and important measurement tool in the financial valuation process.

I use this practical approach to deal with the choice of discount rates. Discount rate refers to both required rate of return and cost of capital. Both concepts are interchangeable. There are some simple ways to determine discount rate. One salient point for discount rate is its relationship with risk. A higher rate of return is required if the investment bears a high risk. Conversely, low-risk investment should go with expected low rate of return. For example, we anticipate a low interest rate if all monies are in the bank accounts and expect a very high rate of return for investing a very volatile stock. It also means a high discount rate is required for a risky investment, and a low discount rate can be allowed for a low-risk investment.

10.5.1 Approaches

There are many methods to determine discount rate (cost of capital). The following are common methods for financial valuation.

10.5.2 Heuristics Method

This is an intuitive approach for investors or corporate management based on market or industrial comparables, return on capital employed (ROCE), or investors' view on the risk of the project. This is a common method for investment evaluation (especially for corporate management). This is also the simplest way to set discount rate.

10.5.2.1 Dividend Valuation Method

The approach considers shareholders' required rate of return by reference to the future dividends stream they anticipate. It is the dividend yield (%) required by investors for the market value of the investment (e.g., stock). The method is used for computation of cost of equity Ke% (shareholders' portion). The method takes into an assumption that dividends grow at a constant rate perpetually. The formula for this model is:

- $\text{Ke}\% = \left(\frac{\text{Expected Dividend}}{\text{Price}} + \frac{\text{Change in Price}}{\text{Price}} \right) \times 100\%$

  In the simplest form, Ke% can be expressed as:

- $\text{Ke}\% = \left(\frac{d(1+g)}{P} + g \right) x100\%$ when there is constant growth rate assumption.

  When there is no growth in dividends, the equation will turn to be

- $\text{Ke}\% = \left(\frac{d}{P} \right) \times 100\%$

Notations
Ke% = *cost of equity*
d = current dividend
P = Market price
g = Expected dividend to grow at a constant rate perpetually

Example If a company has a current dividend per share at $0.8, a market price of $20, and an expected growth rate of 10%, its cost of equity would be

$$\text{Ke}\% = \left(\frac{0.8(1+0.1)}{20} + 0.1 \right) \times 100\%; \ \text{Ke}\% = 14.4\%$$

10.5.2.2 Capital Asset Pricing Model (CAPM)

This is another model to approximate cost of equity. The model has explicitly split the formula into two terms.

- Cost of equity = Risk-free rate + (Beta × market risk premium)

The first term refers to risk-free and the second term relates to risk premium.

Risk-Free Rate Term The risk-free rate portion relates to the most secured return that can be achieved. CAPM defines risk-free as there is no variance in expected return or the risk level is approaching zero. Government securities (e.g., treasury bills) and bank's saving interest rate are examples of this type of securities. Of course, it anticipates a low return for the risk-free investment.

Risk Premium Term This is the second term. It has beta and market risk premium.

Beta Beta is a tool to measure market risk. CAPM regards this part of market risk as nondiversifiable because of the market violability by macroeconomic factors (such as economic recession, political disturbance, etc.) that cannot be diversifiable. If the firm has the similar level of violability as the general market, the beta value is 1. The firm has the risk same as the general market. The higher the beta is, the higher the risk the firm bears, the higher will be the expected rate of return from the firm. If the company beta is 2, it means the firm's risk is double the general market risk. In fact, beta data can be acquired from financial information service agents (e.g., S&P).

Market Risk Premium This risk premium presents the excess return above the risk-free rate, the extra risk that the market needs to compensate investors for risks above risk-free investments. In fact, market risk premium is the general market risk. Beta is the multiplier of the market risk premium. When beta is 1, the firm just bears normal market risks. Investors bear higher than the general market risk when beta is above 1. The contrary result applies when beta is lower than 1.

Example What is the cost of equity of a company if its beta is 2, market risk premium is 4.5%, and treasury bill is 1%? The cost of equity would be:

$$\text{Cost of equity} = 1\% + (2 \times 4.5\%) = 10\%$$

10.5.2.3 Weighted Cost of Capital (WACC)

The methods as discussed above are referred to cost of equity. However, the source of company's funds is not necessarily provided entirely from shareholders. Quite contrarily, company would borrow monies from banks or external parties. Both sources of funds have different costs of capital. Therefore, there is a need to calculate the weighted average cost of capital (WACC) for the company since both debts and equity bear different costs of capital. The formula of WACC is expressed as below,

- $$\text{Cost of capital (WACC)} = \frac{\text{Debt}}{\text{Debt} + \text{Equity}} \times \text{Kd\%} + \frac{\text{Equity}}{\text{Debt} + \text{Equity}} \times \text{Ke\%}$$

Notations
Kd% = Cost of debt%;
Ke% = Cost of equity%

In fact, both the values of debt and equity are based on market value. The cost of debt referred here is related to after tax cost of debt. From the taxation point of view, the interest expenses of all qualified financial debts (e.g., bank borrowings) are subject to tax deductible interest expenses, meaning that a company can earn tax benefits from these borrowings. The cost of debts is accordingly cost of debt × (1 – income tax rate). Take for instance, a company cost of debt is in average 5% p.a. and the income tax rate is 16%, the after tax cost of debt will be 5% × (1–16%) = 3.7% p.a.

As a matter of fact, a firm can lower the cost of capital by applying a mixed source of external funds and internal funds. Equity funds usually bear a higher cost of equity than borrowed funds because of a lower interest rate from borrowers and tax deduction on interest expenses. However, cost of debt will increase financial risk, thereby increasing bankruptcy risk. Bankruptcy risk is the firm's financial leverage beyond its repayment capacity.

Example A firm has a total source of funds of $100 million, divided by 20% in debt portion and 80% in equity portion. The cost of equity is 13% and after tax cost of debt is 8%. What is the WACC of the company?

Cost of capital (WACC) = 20% × 8 + 80% × 13 = 12%

The choice of discount rates is a matter of judgment. There is no fast rule for selection. Each type of discount rate has its conceptual reasoning and limitations. One overriding principle of the discount rate is that *the rate should reflect the firm's risk level.*

Focus

WACC

More companies take WACC as a discount rate for business valuation. It has the advantages of simplicity and easy to understand. Theoretically, WACC incorporates many financial factors such as capital structure, financial leverage, tax benefits, risks, etc. Its generalization also causes leverage bias. For example, WACC does not address complicated debts with pledge and securities, convertibility of debt structure, etc. It may increase leverage bias, decrease discount rate, and ultimately increase business valuation. The overestimation bias needs to be addressed.

10.6 Business Valuation (Using DCF)

It is important to note that there is no a single view of value, which is driven by subjective assumptions and perceptions of environments. This is particularly true for strategic value analysis (SVA) that financial valuation is performed through the development process of company's strategic positioning and business strategies.

10.6.1 Discount Cash Flow (DCF)

Using DCF to assess business valuation given the corporate blue print, we need to have the following information: (a) the cash flows under the forecast period, (b) the perpetual value under the perpetual period, and (c) discount rate (cost of capital). Both the forecast cash flows and the perpetual value of the cash flow form the integral part of business valuation. Let's refer back to Table 10.8 and analyze how it is interpreted.

Table 10.9 shows the forecast cash flows from Year 2016 to 2021 and the perpetual value (80.18) starting from 2022. It means that an annuity of $80.18 million of cash flow will be received permanently given the consistent assumptions of the blue print. It is impractical to compute endless forecast under the perpetual period. The perpetual value is required to be converted into terminal value – i.e., the integral part of the total value.

Terminal Value When there is an assumption of constant growth rate, the terminal value is derived from this formula.

- Terminal value = Perpetual value × $(1 + g)/(r - g)$

where g = growth rate and r = discount rate. In a zero growth, the equation will become

- Terminal value = Perpetual value/r

The formula is similar to what has been discussed in the dividend valuation model above. Discount rate (r) is the cost of capital. Perpetual value emerges after the computation period. Terminal value is computed using the terminal value

Table 10.9 DCF computation

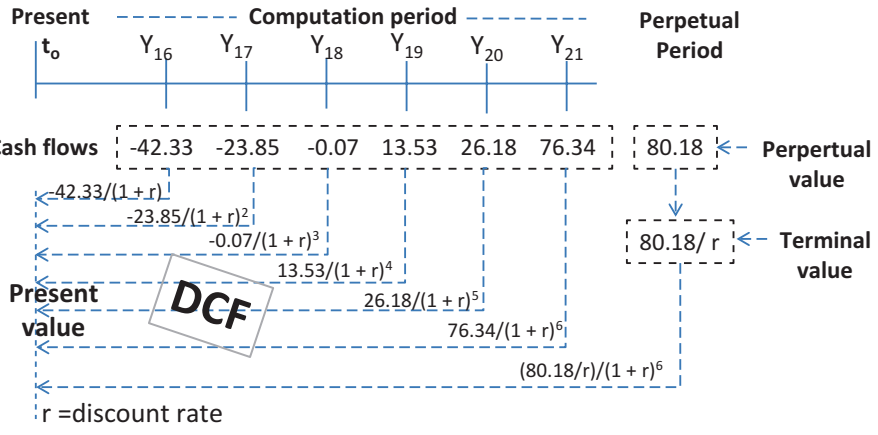

Table 10.10 Summarized cash flows from Year 2016 to 2022

HKD million	2016	2017	2018	2019	2020	2021	2022
Free cash flow estimate	−42.33	−23.85	−0.07	13.53	26.18	76.34	80.18

formula. As there is no-growth assumption, the perpetual value (80.18) is divided by discount rate to give the terminal value of 80.18/*r*. The cash flow of terminal value will be counted on the last period of the computation period, which is Year 2021. By now the entire value of the business is ready to be discounted to the present value.

10.6.2 Valuing by DCF

Let's revisit the ABC case again. The free cash flow estimates of ABC have been summarized in Table 10.10 – summarized cash flows Year 2016–2022.

Year 2016 to 2021 is the computation period, and Year 2022 and afterward is the perpetual period when a constant cash flow of $80.18 million will be generated in perpetuity. Under the perpetual period, the perpetual cash flow (80.18 M) will be converted into the terminal value (80.18/*r*), which means the terminal value also depends on the discount rate (*r*).

10.6.3 What Is Discount Rate?

What is discount rate? It depends. If ABC management wants to invite joint venture partners in this investment project, the external market may want to have a higher discount rate to reflect the risk of the new business venture. For example, prospective partners may argue the discount rate may be 20%. In another scenario, ABC management wants to value the business based on its internal WACC; the discount rate may be far lower (say 12%). I will use both discount rates for the valuation purpose.

The calculation of the business value of ABC is summarized in Table 10.11. As shown in the tabulation, column (a) represents the cash flows (see Table 10.11). Columns (b1) and (b2) represent the discount factor with discount rates at 20% and 12%, respectively. What is discount factor? This is the net present value of $1 of cash at a given discount rate over different periods of time. This is the application of present value equation that has been discussed in the prior section $PV = FV/(1 + r)^n$. For example, the discount factor of Year 2016 (1 year) in column b1 is calculated by $1/(1 + 20\%) = 0.833$ and Year 2017 (2 years) = $1/(1 + 20\%)^2 = 0.6944$. Columns c and d are the calculated present value at each period (i.e., a × b). The upper part of 2016–2021 represents the cash flows and net present values under the computation period. The lower part represents the terminal value and the present value of the terminal value discounted from 2021 (the last year of computation period).

Table 10.11 Business value of ABC

Year	Cash flows HK$M	DCF factor @20%	DCF factor @12%	PV @20% HK$M	PV @12% HK$M
	(a)	(b1)	(b2)	(c = a × b1)	(c = a × b2)
2016	−42.33	0.8333	0.8929	−35.28	−37.79
2017	−23.85	0.6944	0.7972	−16.56	−19.01
2018	−0.07	0.5787	0.7118	−0.04	−0.05
2019	13.53	0.4823	0.6355	6.52	8.60
2020	26.18	0.4019	0.5674	10.52	14.86
2021	76.34	0.3349	0.5066	25.57	38.68
1. Total PV for comp. period				−9.27	5.27
2021	400.90	0.3349		134.26	
2021	668.20		0.5066		338.53
2. Total PV for perpetual period				134.26	338.53
3. Total value of the company (1) + (2)				124.99	343.80

Note: For terminal value cash flow: $400.9 M was arrived by $80.18 M/20%
$668.2 M was arrived by $80.18/12%

In terms of the terminal value, two discount rates at 20% and 12% were applied to provide a terminal value under the perpetual period at 2021 as follows:

(a) For discount rate at 20% 80.18 M/20% = 400.9 M
(b) For discount rate at 12% 80.18 M/12% = 668.2 M

Accordingly, the terminal values were discounted to the present value t_{2021} at $134.26 M and $338.53 M, respectively. In fact, the business values of ABC for 20% and 12% are $125 M and 343.8 M, respectively, the values mainly contributed from the perpetual period (harvest period). Discount rate has a key influence on assessing the business value. Bearing in mind unequal control rights for outside partners, a more careful discount rate (meaning higher rate) will be applied for any prospective joint venture businesses. However, WACC is also a desirable discount rate for internal strategic value analysis. The objective of strategic value analysis has different meanings that determine how the discount rate is adopted.

Business value involves unavoidable subjective judgment. It is important to reduce the subjective value judgment as much as possible by using various validity methods and make comparison, e.g., peer group benchmarking, multiple valuation ratios, market/book rate, and P/E ratios. In addition, it has a challenge for firms to calculate the best value because different business models and strategies will deliver different values to corporations. For example, ABC using a licensing business model will give a very different business value, cash flow streams, and growth models.

The following summarizes a few steps for the process of business valuation.

- First, free cash flow streams have to be identified over the forecast period.
- Second, the perpetual value of the cash flow is determined for terminal value computation.

- Third, the purpose of valuation has also to be identified for discount rate selection.
- Fourth, terminal value of the business has great impact on the overall valuation. In many cases, it contributes a significant value for the company.
- Fifth, business value needs to be validated by different valuation methods to reduce valuation errors and biases.
- Sixth and finally, strategic value of a business depends very much on its business models, key strategies, enabled resources, and strategic position. They are not tangible in nature.

10.7 Concluding Remarks

Strategic value analysis is a management tool of the management to keep abreast of value creation capability of a firm. Value comes from a smarter market positioning strategies, more efficient use of resources, productive staff, plentiful market edges,

Focus

Growth

In the ABC case, zero growth assumption was applied. There are many approaches for the growth rate. For example, the perpetual period can be divided into two sub-periods. The first period is growth period and the second period is no-growth period. The growth period can be the average rate over the growth period. For instance, the last year of the computation period is \$100 M. The cash flows of the subsequent 3 years are as follows: \$100 M × $(1 + g)$, \$100 M × $(1 + g)^2$, and \$100 M × $(1 + g)^3$. After the first period, the no-growth assumption is made and the terminal value for this final period is \$100 M × $(1 + g)^3/r$. g is the growth rate and r is the discount rate. Let's compare these two methods. Assuming annual cash flow is the same at \$100 M, the growth rate (g) after 5 years is 5% and discount rate (r) is 10%; the results for both methods are set out below:

(a) No-growth period

$\$100\ M/(1 + 10\%) + \$100\ M/(1 + 10\%)^2 + \$100\ M/(1 + 10\%)^3 + \$100\ M/(1 + 10\%)^4 + \$100\ M/(1 + 10\%)^5 + \$100\ M/10\%/(1 + 10\%)^5 = \$1000\ M$

(b) Two-sub-period perpetual period

$\$100\ M/(1 + 10\%) + \$100\ M/(1 + 10\%)^2 + \$100\ M/(1 + 10\%)^3 + \$100\ M/(1 + 10\%)^4 + \$100\ M/(1 + 10\%)^5 + \$100\ M\ (1 + 5\%)/(1 + 10\%)^6 + \$100\ M\ (1 + 5\%)^2/(1 + 10\%)^7 + \$100\ M\ (1 + 5\%)^3/(1 + 10\%)^8 + \$100\ M\ (1 + 5\%)^3/10\%/(1 + 10\%)^8 = \$800.8\ M$

(continued)

From the above calculations, we note that two-period perpetual period assumption has a lower value compared to the no-growth assumption by about $200 in (a). It is because the no-growth assumption has been deferred by 3 years. Which method is better? It depends.

and the most important of all, the capability of management to orchestrate the whole businesses for a sustained growth.

SVA starts from business strategies. Regular SVA helps the management to critically review the strategic positions, evaluate the business performance and strategic plans, and create a forward-looking perspective on businesses and cash flows. However, there is no absolute rule in deciding the discount rate (cost of capital) – a critical factor for the business valuation. Therefore, there may require a consistent practice in applying the discount rate, in particular how it addresses strategic risk issues, such as specific risks, systemic risks, project risks, etc.

As a matter of fact, SVA is not restricted to the company level. It may be used in firms' different business units, divisions, or regional level. SVA encourages management to take a long-term view, to be action based, strategic oriented, and value focused. These are ingredients for a great firm to last eternally.

Takeaway Tips

- Corporate key strategies are imbedded in the financial blue print.
- Corporate cash flows are the basic inputs for strategic valuation using DCF method.
- Discount rate (cost of capital) has great impact on calculation of business value.
- In business valuation, value of the firm beyond the forecast period may be much greater than the value generated from the forecast period. However, this terminal value is often ignored.
- Business valuation can be used as a means for strategic value analysis and monitoring.

References

Hope, J., & Fraser, R. (2003, September). Beyond budgeting. Soundview Executive Book Summaries. 25(9).

Palepu, K. G., Mealy, E., & Peek, K. R. (2010). *Text and cases: Business analysis and valuation IRFS Edition* (2nd ed).

Ross, S. A., Westerfield, R. W., Jordan, B. D., Lim, J., & Tan, R. (2012). *Fundamentals of corporate finance*. New York: McgrawHill.

Ward, K., & Grundy, T. (1996). Strategic management of corporate value. *European Management Journal, 14*(3), 321–330.

Creating Value Through Strategic Alliances

11

Abstracts

Strategic alliance is a form of strategic growth. Strategic partners form alliances and anticipate gains through synergy creation in the strategic alliance. Though there are many success cases, there are equally plentiful of failure cases. Therefore, it is very important to find true strategic partners who are willing to contribute synergy value through wholehearted partnership. This chapter explores new ways to find a true partnership. Initially, it discusses key determinants which influence synergy value creation through strategic alliance, i.e., relation-specific assets, interfirm knowledge sharing, complementary resource endowments, and effective governance mechanism. Subsequently, it introduces the concept of expected payoff structure (private and common benefit ratios) as a means to identify partnership stability, i.e., competitive or cooperative partnership. In fact, private and common benefit ratio can be used as an index to predict stability of partnership. For partnership selection, it is important to have strategic fit for both partners. A new concept of strategic symmetry is introduced to explore how far prospective partnership in terms of strategic, organizational, and operational level is aligned (i.e., high and low strategic symmetry). To combine the stability of partnership (i.e., competitive and cooperative) and strategic symmetry (high and low symmetry) concepts in a 2×2 matrix, the chapter also evaluates the likely risk impact (both relational and business performance risk) on the ultimate value of strategic partnership. Risk mitigation measures are discussed to rectify the partnership problems. Cases are discussed throughout the chapter to facilitate application of new concepts and calculations.

Keywords

Strategic alliance • Strategic partnership • Synergy value • Payoff structure • Private to common benefits ratio • Strategic symmetry

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11.1 Introduction

Strategic alliance is a form of strategic growth. This is particularly popular during the past two decades when the business world becomes more complex and technological wheels run unleashed. Firms pursue strategic alliance because both parties can compliment with each other by cooperation and the joint efforts can create synergy value in terms of market power, technological edge, proliferation of knowledge, share of resource and capabilities, and mitigation of regulatory barriers. Strategic alliance can be in many forms. It can be a joint operation (no formation of a new company), contractual arrangements (e.g., licensing arrangements), new joint venture partnerships, and investment as a minor equity, to quote a few. For the joint operation and contractual arrangements, they are the strategic alliances without equity formation. For new joint venture partnerships, there requires injection of equity to the new company. For investing in an existing firm or merger, there requires a valuation of the existing firm and agreement on the sale price. It also requires valuation of synergy value and establishes mechanism to share the synergy value between participant firms. Strategic alliance in the form of joint venture is a common mode of cooperation in which firms can leverage their advantages and exchange of advantages for the business growth. This is also the form of the strategic alliance to which this chapter particularly pays attention.

Alliance partners anticipate a gain from the expected synergy value. However, many cases also show that the alliance failed to deliver expected synergy value to the allying parties due to many reasons such as valuation errors, conflicts in partnership, wrong expectations, and unfair distribution of benefits, market change, and other reasons. In extreme cases, the joint venture destroys company value rather than creates company value. Therefore, the selection and assessment of prospective strategic alliance and the form of partnership should be considered with great care.

The purpose of the chapter is to investigate how synergy value arises out of strategic alliance and how partners can gain from the alliance. Four main topics will be discussed in a greater detail: (1) how strategic alliance creates value, (2) expected payoff structure (private and common benefits), (3) strategic symmetry (interfirm fit), and, finally, (4) risk and payoff value.

11.2 Value Formation in Strategic Alliance

For any prospective strategic alliance, allying firms would like to assess the value creation of the prospective alliance because it is the foundation for the firms to join hands to achieve something for both corporations. Many scholars look to the sources of value from the alliance entity alone, such as dual branding effect, exchange of patents, and improved sale channels. Other scholars such as Dyer, Singh, and their colleagues[1] expand the source of value creation not only from the strategic alliance alone but also from the networks of the allying firms. This extended view is salient because firms are more interdependent nowadays as the fast-changing world and the

[1] In the papers published in AMJ (1998) and MDE (2008).

complex global businesses require firms to cooperate in delivering values to customers. This is also the view of this chapter adopted from Dyer and the other distinguished scholars. To provide a more comprehensive example about the analysis of strategic alliance, a case of Telnet Ltd. Has been provided in Chap. 12.

Strategic alliance creates relational competitive advantages over competitors through operative alliance, thereby making super profits in the market competition. The critical resources are embedded through the linkages of firms to the allying firms. These resources and capabilities gained from accumulative experiences of alliances are even more valuable, non-substitutable, and more difficult to imitate. These scholars claim that relational advantage of the alliance should come from the idiosyncratic exchange relationship that cannot be traded by the arms strength market exchange. This means that the competitive advantages emerge from the alliance which cannot be generated by either firm in isolation. Dyer et al.[2] identified four determinants where super profits can be achieved through this type of strategic alliance. They are relation-specific assets, knowledge sharing, complimentary resources/capabilities, and effective governance mechanism. Let's discuss how these four determinants in gauging synergy value.

11.2.1 Relation-Specific Assets

Allying firms must develop specialized assets that are unique and generate competitive advantage to the alliance. The asset specificity can be site specificity, physical asset specificity, and human asset specificity. Japanese companies in overseas expansion are customary to bring in suppliers as its strategic alliances by forming companies and operation sites within the vicinity so that suppliers can strengthen the supply chains in the site area (site specificity). It is also common for telecom system equipment providers to form strategic alliance with customers in new technology introduction (e.g., 3G, 4G mobile system some years ago) and bring in new equipment tailored for trial testing (physical asset specificity). Toyota used to send in procurement engineers to stay in their sites, who assisted its allying suppliers for technical support, communication, and information exchange. These people coordinate to smoothen production between two companies (human asset specificity). The allying partners would like to make more specific asset investment if more safeguards are secured, such as committed duration of alliance or more secured transactions.

11.2.2 Interfirm Knowledge Sharing

The value of alliance also contributes to the allying firms through the interfirm knowledge sharing. Foreign companies entering into a new market will always start

[2] The elaboration of these four determinants came from Dyer et al., and a more intensive elaboration can be found in their paper in AMJ (1998).

up a joint venture with local partners. The purpose is to solicit knowledge about the new market through direct experience of joint venture with local partners. This is also similar to innovative industries in which new ideas may not be involved by a single party but by a group of parties such as buyers, producers, and suppliers. IT software development is a type of interfirm knowledge development in which customer provides ideas to developers. Conversely, telecom equipment manufacturers always lead customers in service development through regular meetings, intranets, product workshops, and conferences. The ability to create a network of knowledge transfer mechanism in the alliance enables interfirm knowledge sharing. This knowledge transfer mechanism permits allying firms to transfer, recombine, and recreate a specialized knowledge to individual partners. The effectiveness of knowledge transfer system is also dependent on individual firms' absorptive capacity which is the ability of a firm to recognize the value of the information, assimilate, and apply it in its dedicated purposes. In addition, it also hinges on the incentive the knowledge transferring partner will benefit as well. For example, equity arrangement can be a good incentive for allying partners for the exchange of knowledge.

11.2.3 Complementary Resources Endowments

These are the distinctive resource endowments that create a higher value than the resource endowment that was produced by a firm alone. In some cases, complementary resource endowments can only generate value when working in conjunction with complementary resources of another firm. These resources cannot be indivisible in a secondary market. By combined resource endowments, these critical resources become more valuable, rare, and even more difficult to imitate. These alliances produce a stronger competitive strength compared to firms that operate in isolation. Lumix digital camera is an example of good complementary resource endowments between Leica and Panasonic. Panasonic has a strong brand and market share in the midrange consumer digital camera, whereas Leica is famous in optical technology and high-brand awareness in luxurious manual camera. Combing Panasonic camera body with a Leica lens provides a complimentary resource strength for the midrange digital camera with top-tier Leica lens. Leica lens enhances perceived value of Lumix in Panasonic camera, and Lumix product increases Leica's market experience in digital camera. In fact, the greater the synergy sensitive to the strategic resource, the more value the complementary resource can be gained in alliance with prospective partners. However, firms' ability to identify synergy value from their complementary resource endowments depends on their prior alliance experience, internal search, evaluation capability, and relative position in the social/economic networks. Allying firms' operation system, decision making process, and organizational culture also poses constraints on identification of synergy value.

11.2.4 Effective Governance Mechanism

This determinant plays a different role in the strategic alliance – safeguard of value creation. It prevents opportunistic behaviors from individual partners, which may lower the incentive of the allying partners to be cooperative in creating synergy value for the alliance. The design of governance mechanism should be able to minimize transaction costs and increase efficiency of the cooperation. Two types of governance structure are effective for this purpose: (a) third-party enforcement of agreements and (b) self-enforcing agreements. The first type of enforcement requires a third party to step in the cooperation when disputes arise, meaning that an extensive and exhaustive legal agreement spells out the details of rights and obligations as much as possible. It also requires intensive control system to be installed in the alliance to ensure no violation in the agreement. The second type of self-enforcing agreement is based on trust and embeddedness. The alliance has a means to manage the behaviors of the allying partners not by a third party in a legal contract but by self-enforcing safeguards both formally and informally. Formal self-enforcing safeguards arise from financial or investment hostages[3] in which each allying partner has vested interest in the equity, or the investment in the commonly owned specialized assets will generate indivisible interests that can be distributed among them. This hostage provides the allying partners with an incentive to cooperate than to pursue opportunistic behaviors to destroy the investment value. On the other hand, informal self-enforcing safeguards are derived from the personal trust relations, goodwill of the company, and reputation. Both partners have nurtured a high degree of mutual trust prior to employment of the informal self-enforcing safeguards. This informal safeguard is the most effective governance mechanism in strategic alliance because it has the lowest transaction costs compared to other types of mechanism including contracting cost, monitoring cost, contract enforcement cost, and contract renegotiation cost. It covers all matters in the alliance which can be resolved by good faith, trust, and compromise. Conversely, legal documents inevitably exist legal ambiguity which is difficult to resolve when disputes arise. Furthermore, informal safeguard is difficult to imitate because it needs time to develop and also it hinges on personal ties. Informal safeguards incur the lowest transaction costs among all other mechanism. It assures the greatest value creation compared to other means. Dyer[4] found that General Motors has five times transaction costs than Toyota in dealing with their suppliers. Toyota had a trusting culture with its close strategic suppliers and provided much information about sales forecast, new product information, in-site support, and training which made the suppliers its close affiliates. The close ties had made disputes and conflicts to be more readily fixed. Whereas, General Motors had a more rigid formal contract agreement system which made unexpected events or gray areas issues more difficult to be resolved amiably within the bounds of the contract agreement. Having safeguards

[3] The concept came from Klein (1980) and Williamson (1983).

[4] In Dyer's article (1997) in SMJ.

contingent on trust, it is however also vulnerable to a higher risk from possible abusive behaviors of the partner.

11.2.5 Interactions

In sum, the above four determinants have great impact on the effect to the extent synergy value of the strategic alliance can create, thereby also exerting impact on their relational competitive advantage. This relational strength glues the cohesiveness of the alliance. Its unique, non-substitutable, and difficult to imitate nature of alliance increases the relational competitive advantages, as well as the uniqueness of the competitive advantage in the market. Figure 11.1 explains the interactive effects of these determinants in creating value and competitive advantage in the marketplace.

As shown in the Fig. 11.1, complementary resources create alliance opportunity for the strategic partners to form some kind of alliance. The more complementarity of the resources, the higher attractiveness of the allying partners will be to make their best endeavors to make the alliance a success case. For example, Hong Kong MTR (a subway operator) and Shenzhen Railway formed a joint venture for the extension phase of Shenzhen city railway and the estate property development rights along the railway sites. Hong Kong MTR wanted development opportunity in China, and Shenzhen Railway wanted management of complex mass transit railway operation as well as to learn management from the HK MTR to operate a new business model of using high-profit property development to subsidize low-profit city railway service in China. In both areas, Hong Kong MTR was one of the pioneers and champions in the region. In fact, the more scarcity of the partnership, the more willingness of the allying partners to invest in the strategic alliance. Complementary resources provide a condition for cooperation. The more scarcity of partnership, the more willingness individual parties would invest specifically for the cooperative

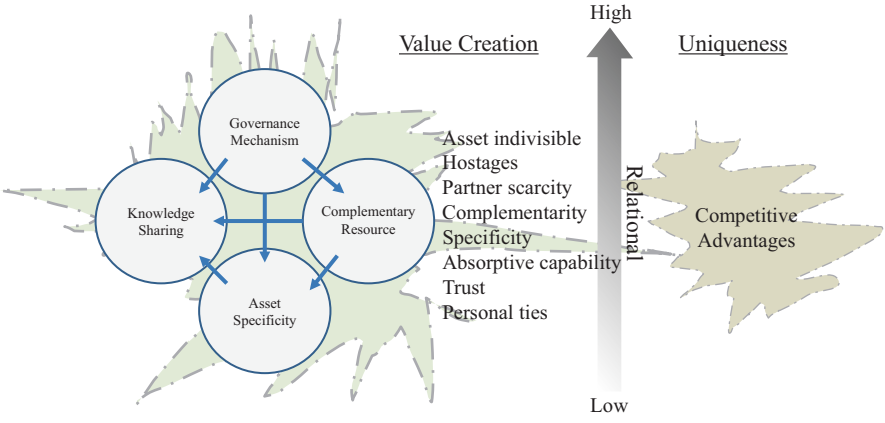

Fig. 11.1 Four determinants in value creation

alliances including special assets, technological cooperation, and equity investment. The more asset indivisibility the alliance is, the higher hostage allying partners are being entangled, the more goal cohesiveness of every party in the alliance to share the same goal – success. VISA is a successful case. It has multi-thousands of international partners in finance and banking businesses. VISA has its own operations, asset specificity, and network investment, which has been for a long time a champion in the credit card industry and makes good profits as well as brings in business for its affiliate partners.

Similarly, knowledge sharing is an incentive for the cooperative alliance to generate and exchange knowledge. The basic motive of strategic alliance may be the opportunity to share knowledge among allying partners that cannot be done individually. Symbian is a cooperative alliance for mobile phone developers (e.g., Ericsson, Nokia, Motorola) who wanted to agree a data format and a common application platform for mobile apps. It was one of the important vehicles to drive mobile data traffic prior to iPhone and Android system. For other strategic intents, knowledge sharing facilitates proliferation of knowledge to benefit not only the allaying partners but also affiliate companies of the partners. In fact, the abilities of participating partners to gain from knowledge sharing are dependent on their absorptive capability. The cooperative alliance can keep the continuous incentive for knowledge sharing through a design of an effective system and routine for knowledge exchange, e.g., placement and rotation of personnel from the participating parties, knowledge base via extranet establishment.

Effective governance mechanism is the key for the other three determinants. It influences the cost of monitoring and the willingness of the partners in engaging the synergy creation exercise. With more mutual trust and personal ties in the cooperation, each party will be more willing to establish informal self-enforcing safeguards and invest in specialized and indivisible assets that improve their relational strength. Joint efforts increase capabilities in their partners, add strength in their relational competitive advantage, and make the preemptive edge even more unique, rare, and difficult to imitate in the marketplace.

11.3 Payoff Structure (Private vs. Common Benefits)

Cooperative alliance creates synergy value that cannot be effectively produced by individual partners in isolation. The alliance accrues common benefits from activities within the scope of the alliance. However, particular parties also obtain benefits from the alliance but exclusively for themselves. Private benefits are the values (e.g., technical skills, market networks) derived from the alliance but exploited exclusively by and unilaterally to a particular partner for its own operations, subsidiaries, or networks of the group unrelated to the joint business of the alliance. Private benefits are the knowledge skills used in the markets outside the scope of alliance. It may also be the business networks (e.g., government network) derived from local joint venture (alliance), but the network benefits a particular partner's business outside the scope of the alliance. The proportion of private to common benefits for a

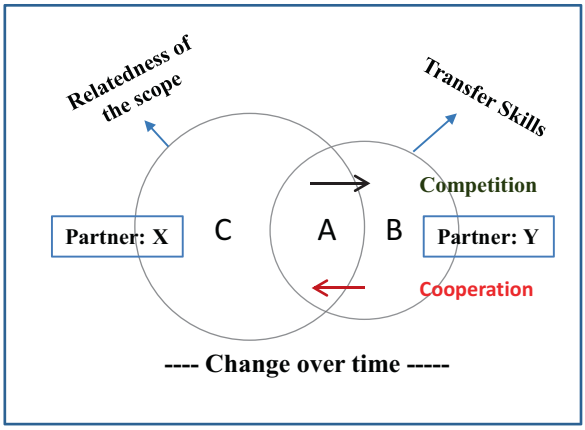

Fig. 11.2 Dynamic view on private benefits vs common benefits

particular firm affects the stability of strategic alliance because it creates asymmetric incentives for the allying parties to cooperate or compete in the alliance. This concept was initially raised by Gulati, Khanna, and Nohria[5] in analyzing the stability of strategic alliance. Their conceptual framework is depicted in Fig. 11.2, above by two circles.

As shown, there are two partners: X and Y. Area A represents the common benefits of partner X and Y. Area C (excluding area A) represents the private benefits of partner X; area B (excluding A) represents the private benefits of partner Y. When the small circle AB moves toward the circle CA, the area of A increases while the areas of B and C decrease. This represents a greater overlap of common benefits. The fraction of private to common benefits will be smaller. Lower asymmetric incentives discourage partner Y to engage in more aggressive behaviors at the expense of partner X. The similar effect also occurs in partner X, giving X less incentives to conduct aggressive behaviors. The alliance becomes more stable and cooperative. Conversely, circle AB shifts away from CA; area A diminishes while areas C and B enlarge. Common benefits diminish in size and private benefits on partner X and Y loom larger. Larger fraction of private to common benefits induces asymmetric incentives in both partners. The enlarged private benefits instigate more competitive behaviors between the allying partners. The strategic relationship becomes more fragile, and the alliance is more vulnerable. We know from the above illustration that the ratio of private to common benefits (PCB ratio[6]) can be operationalized to measure individual partner's payoff structure. The alliance will become unstable when the ratio is high because there is less incentive to maintain the alliance relationship. Each partner attempts to salvage the value in the alliance, and their relationship becomes competitive in nature. On the other hand, close ties in

[5] This pioneering view was adopted by many scholars (e.g. Gulati (1995); Gulati et al. (2000); Ireland et al. (2002); Luo (1997); Yan and Duan (2003)) in the strategic analysis and also employed by the author of this book.

[6] PBC ratio was adopted from the relative scope of private to common benefits from Khanna et al. (1998).

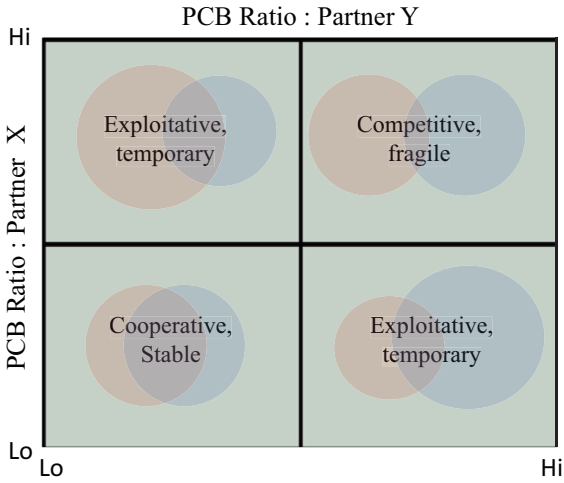

Fig. 11.3 A typology on the stability of alliance based on the payoff structure (in terms of PCB ratio)

alliance will maintain when the PCB ratio is low because there are less private market opportunities for individual partners to gain from the alliance except from its related markets and activities. Both partners also have no incentive to rock the boat. Each partner will become more cooperative and is willing to contribute more resource commitments to continue the success. As a matter of fact, the relationship is never stable over time. It is subject to rising market opportunities which are outside the scope of alliances. In addition, the PCB ratios for partners X and Y are not the same. Both parties with different absorptive abilities and market strength in the industry make a difference in the abilities to capture related market opportunities for their own private benefits. Partners who have higher absorptive abilities may use transfer skills for their own private benefits. Conceptually, the bigger the circle, the wider opportunities accrued to a partner compared to the other party. Therefore, partner X has a higher PCB ratio than partner Y.

Gulati et al.'s earlier research purported that expected payoffs from participant parties affect their incentives to continue the joint cooperation. Partners having more unique and valuable resources than the others increase bargaining power in distribution of common benefits. On the other hand, partners with more related resources, stronger learning capabilities, wider network of markets, larger alliance networks, and resource development capabilities possess more private benefits and are less dependable on the alliance. The abilities of individual partners to grasp both private and common benefits determine the dispositions of their behaviors, and the relative strength of PCB ratios between the partners affects the stability of the alliance. From this expected payoff structure between the partners (assuming two partners only), we can draw a typology on the stability of alliance in Fig. 11.3.

11.3.1 Types of Alliance Under PCB Ratios

To recap, PCB ratio is the ratio between private and common benefits. High PCB ratio means that a particular partner has the abilities to obtain more private benefits than common benefits, whereas low PCB ratio implies that a particular partner has a relatively smaller fraction of private benefits compared to common benefits. The PCB ratios of participant partners produce three major scenarios as depicted in Fig. 11.3:

(a) **Low-low scenario (cooperative, stable type)**: This type is characterized by cooperative behaviors of participant partners as both partners having low fractions of private benefits on the payoff structure decrease their incentives to depart from the interest of the alliance. Both partners are willing to keep a stable alliance relationship. This is of particular relevance to those alliances which require unique assets, specific know-hows (e.g., patents) for skills exchange and development, and complimentary resources. However, this type of alliance is constrained by partner scarcity.
(b) **High-high scenario (competitive, fragile type)**: This type is characterized by competitive behaviors of participant partners as private benefits are so predominant over the overall payoff structure. Both partners have less dependence on the strategic alliance that increases their asymmetric incentive to take advantages from the alliance. Both partners attempt to use the alliance's know-how (also including the partner) to achieve their own private benefits. These competitive behaviors inevitably further increase asymmetric incentives between partners and self-interest seeking behaviors that intensify interfirm rivalry and make the relationship of alliance difficult to sustain.
(c) **High-low scenario (exploitative, temporary type)**: This type is characterized by a unilateral competitive behavior of a particular partner who exploits the benefits of other partner. This aggressive behavior is due to the imbalance of bargaining power between the strategic partners arising from a particular partner's holding of some unique resources (i.e., critical, scarce resources). The biased payoff structure between two parties is also due to discrepancy in learning capabilities, market power, and business networks. It is temporary in nature because the alliance will terminate when the deprived partner has found a new replaceable partner with improved terms of benefit, or the exploiting partner has obtained the required know-how and skills from the alliance. It is common for a MNC at its initial foreign entry to look for a local partner or trader in the new market and replace the partnership by its own operation after securing the know-how, local networks, or scarce resources (experienced employees).

The prior paragraph has exemplified the importance of payoff structure for participant partners and their relative structure to determine the predispositions of partners and stability of the alliance. As a due diligence of strategic alliance (formation or ongoing review), it may be of interest and necessity to find out the expected payoff for the relevant parties and the private to common benefits ratio so as to

understand their dispositional behaviors toward the strategic alliance. Mathematically, they are defined as follows:

- **Private benefits**: Actual and expected benefits in monetary terms gained by a particular partner exclusively and derived from the strategic alliance but outside the scope of the contractual terms.
- **Common benefits**: Actual and expected benefits in monetary terms accrued collectively to the strategic alliance within the scope of the contractual terms. The share of common benefits between the participant partners is based on an agreed rate.
- **Payoff structure**: Private benefits + common benefits
- **Ratio of private to common benefits (PCB Ratio)**: Private benefits/shared common benefits

Focus

Can Guanxi Improve Expected Payoff?

Guanxi is an indigenous Chinese social capital that increases the influences of individuals in social networks and exploration of opportunities. This is a particularistic tie between an individual and his/her networked members in which a particular exchange of social transactions is made between members of the group. *Guanxi* is established from either the web of extended family relationships or clusters of exchange relationships in social reciprocity of exchange. Of these relationships, *guanxi* can be interpreted from a sentimental-emotional aspect (long-term commitment) or utilitarian aspect (short-term utility maximization). In business environments where the legal system is not well established, access to information is difficult, and administrative policies are not well regulated; *guanxi* can be resorted to in trade to protect the interests of fellow members and reduce relational risk. However, many JV cases (e.g., early PRC's economic developments) have shown that the party with greater *guanxi* (both breadth and strength in the web of relationships) could take advantage of the party with a weaker *guanxi*. Parties with greater *guanxi* tend to possess more private benefits than common benefits in the expected payoff which stimulates them to conduct more opportunistic behaviors with asymmetric incentives. *Guanxi* operating in these organizations increases rather than reduces relational risk. *Guanxi* tends to be instrumental and cannot ensure cooperation in the long term. Cooperation will work out when *Guanxi* is a long-term nature founded on sentimental and emotional bonds of relationship. However, only time can prove it.

An illustration of the above equations and applications was provided in the example of Kosmos Laboratory below.

11.3.2 Example: Kosmos Laboratory

Kosmos Laboratory, a private research center focusing on electric vehicle applications, has recently invented a revolutionary technology in electric vehicle (EV) battery that greatly accelerates battery charging and increases battery efficiency. Kosmos invites two candidate partners – A Co. and B Co. – for a new JV business proposal in installing battery charging facility using Kosmos technology in parking lots. This proposal was supported by government as a measure to reduce emission. The new investment requires a total value of $28 million which is expected to generate an annual profit of 10 million. The new technology has a sale value of $10 million. The terms offered by each firm are set forth below.

A Co.: A Co. will be responsible for all operations and take an equity share of 75%. Kosmos has to waive the patent fee from A Co. for the use of technology. The improved technology will increase A Co.'s sale of electrical vehicles with an incremental earnings of 20 million, expecting the technological advantage will last for 4 years.

B Co.: B Co. will be responsible for all operations except R&D and will take an equity share of 70%. Kosmos permits B Co. to use its new technology with a fixed patent fee of $3 million per annum to the new JV. The improved technology is expected to increase B Co.'s EV sale with an incremental earnings of 6 million. B Co. suggests to earmark 40% of the profit in the JV for R&D in enhancing EV charging technology. Kosmos will set up a shared center for the R&D which may make an annual savings of $1 million exclusively for the Kosmos Laboratory.

You are required to (a) identify private and common benefits for all parties and calculate payoff structure of Kosmos and the prospective partners, together with their PC ratio, using a discount rate of 10% and (b) identify the nature of partnership of each tender and propose the winner of partnership.

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Solutions

(a) To begin with, it is necessary to identify all benefits and separate private and common benefits with reference to the terms of the contract proposal. The values of private and common benefits may have one-time, temporary, or infinite nature that is also required to be distinguished. For valuation purpose, different timing assumptions of the payments are required to be discounted to the present value.

A Co.'s

1. Private benefits of Kosmos = Net cash receipt from the sale of technology = $10 million – $28 million × (1–75%) = $3 M:
   The second term of the equation represents the equity portion of Kosmos in the new JV. With the sale value of $10 million for the new technology, $3 million of the cash receipt will be gained.
2. Common benefits of Kosmos from the new JV = $10 million × 25% = $2.5 M (annual basis):
   Due to the timing difference of private and common benefits, the annual returns are required to be converted into the present value. Taking a perpetual assumption of annual profit on JV at a discount rate of 10%, the perpetual value of annual profit[7] (assuming a cash basis) is calculated as follows:
   Annual value/discount rate = $2.5 M/10% = $25 M
3. Payoff structure of Kosmos = private benefits (one time) + common benefits = $3 M + $25 M = $28 M
4. PCB ratio of Kosmos = $3 M/$25 M = 0.12
5. Private benefits of A Co. = Incremental earnings = $20 M (annual basis):
   Due to the aging of technology, there must be a time-out on the benefits accrued from the technology. As such, we may assume that the technology lasts for 4 years, and so the incremental earning can last for 4 years. However, there is no time limit on annual profits as the business is for provision of charging services within the parking lots. Therefore, we can assume the profit is on a perpetual basis. With the same discount rate, we have the calculations as follows:
   The value of 4-year incremental revenue = $20 M × 3.1698[8] (10% annuity for 4 years) = $63.4 M
6. Common benefits of A Co. = $10 M × 75% = $7.5 M (annual earnings)
   Common benefits of annual earnings (perpetual value) = $7.5 M/10% = $75 M
7. Payoff structure of A Co. = private benefits + common benefits = $63.4 M + 75 M = $138.4 M
8. PCB ratio of A Co. = $63.4 M/$75 M = 0.84

B Co.'s

1. Kosmos has two sources of private benefits

Net cash receipt from the sale of technology = $10 M – $28 M × (1–70%)
= $1.6 M. (See explanations in A Co. (i).)
Savings in R&D exclusively for Kosmos = $1 M/10% (perpetual value)
= $10 M
Private benefits of Kosmos = $1.6 M + $10 M = $11.6 M

[7] For further explanations on annuity and perpetual concepts, please refer to Chap. 10, Sect. 10.6.1.

[8] Annuity factor of 10% for 4 years = $(1/1.1 + 1/1.1^2 + 1/1.1^3 + 1/1.14) = 3.1698$

2. Common benefits of Kosmos from the new JV = ($10 M + $3 M) × (1 – 40%) × 30% = $ 2.34 M (per annum)

As stated in the proposal, 40% of the retained profits (including $10 M from EV charging fees and $3 M of patent fee from B Co.) is reinvested for R&D that allows 60% of profits for distribution. Assuming an infinitive nature of payment, the perpetual value of $2.34 M = $2.34 M/10% = $23.4 M

3. Payoff structure of Kosmos = private benefits + common benefits = $11.6 M + 23.4 M = $35 M
4. PCB ratio of Kosmos = $11.6 M/$23.4 M = 0.50
5. Private benefits of B Co. = annual incremental earnings = $6 M – $3 M = $3 M

As there will be an ongoing advancement on the technology, the comparative advantage in advanced battery technology is assumed to sustain that permits B Co. to make extra profits from sale of EV. Taking a perpetual assumption of annual profit on JV and using a discount rate of 10%, the perpetual value of annual profit is calculated as follows:

Private benefits of B Co. (perpetual value) = Annual value/discount rate = $3 M/10% = $30 M

6. Common benefits of B Co. = ($10 M + $3 M) × (1–40%) × 70% = $5.46 M (per annum).

Common benefits of annual earnings (perpetual value) = $5.46 M/10% = $54.6 M

7. Payoff structure of A Co. = private benefits + common benefits = $30 M + $54.6 M = $84.6 M
8. PCB ratio of B Co. = $30 M/$54.6 M = 0.55

The payoff structure of each option and the PCB ratios for each partner were highlighted (a) above. The following sums up key findings for each proposal:

1. Proposal from A Co.:

Payoff structure of Kosmos = private + common benefits = $3 M + $25 M = $28 M; PCB Ratio = 0.12

Payoff structure of A Co. = private + common benefits = $63.4 M + $75 M = $138.4 M; PCB ratio = 0.84

With no further investment in the new technology

2. Proposal from B Co.:

Payoff structure of Kosmos = private + common benefits = $11.6 M + $23.4 = $35 M; PCB Ratio = 0.5
Payoff structure of B Co. = private + common benefits = $30 M + $54.6 M = $84.6 M; PCB Ratio = 0.55
With a continuous investment in the new technology

(b) Comparing two proposals, proposal from B Co. has better arrangement than the proposal from A Co., particularly on the following findings:
   1. It provides a higher payoff incentive to Kosmos ($35 M vs. $28 M), though the initial cash receipt is low ($3 M vs. $1.6 M). The shortfall in initial cash is fully compensated by future private benefits (savings).
   2. Both partners have appropriate incentive structure in the payoff, reflected by their PCB ratios (0.5 vs. 0.55). The high common benefits for both partners increase the stability of the alliance ($23.4 M + $84.6 M = $108 M). Compared to A Co. proposal, A Co. has a relatively high proportion of private benefits 0.84 which tends to increase asymmetric incentive for A Co.
   3. Proposal from B Co. has considered the competitive uniqueness of the assets (technology) by R&D commitment over the cooperative periods. This R&D investment benefits B Co. in terms of sale of EV and Kosmos in proliferation of the EV technology.
   4. B Co.'s alliance arrangements reflect its behavioral intention to keep the alliance in a more cooperative and stable relationship.

11.4 Strategic Symmetry (Interfirm Fit)

Strategic alliance is a popular mode of expansion for firms, especially those firms which look for new markets, ventures in foreign countries, and technological progress but with a risk-averse orientation for expansion. Payoff is one of the major determinants to lure partners together for strategic alliance. The alliance is expected to generate synergistic effects on performance. There are many success cases for strategic alliance (e.g., VISA card, OCTOPUS (electronic wallets) in Hong Kong, Toyota's supply chain). However, failure cases are as many as success cases. For instance, many JVs in emerging markets ended in failure. Prior research has regarded interfirm fit as a major factor for the partnership performance. From this perspective, the matching of strategic partners on their internal characteristics provides

some priori conditions for the success of strategic venture. This is an examination of strategic symmetry between the partners, which is defined as partners possess complementary strategic missions, resource and managerial capabilities, and other attributes, to make them fit in the cooperative venture and evenly match their relative bargaining power in the venture.[9]

Interfirm fit in terms of strategic symmetry is a concept to measure how strategic fit the participant partners are in the venture. The scope of examination of strategic symmetry fit is widely covered, e.g., company size, strategic intent, technological level, markets, resource capabilities, market power, etc. Therefore, these interfirm characteristics need to be categorized in order to make a meaningful and effective evaluation. Three major dimensions are identified – strategic, organizational, and operational dimensions – which have the following characteristics:

Strategic dimension: It refers to strategic traits of partners that have a farfetched effect on the ultimate strategic alliance goal. For example, strategic goal and missions of the venture, relative absorptive capability of partners (including technological skills), complementarity of resources, product relatedness, market experiences, institutional networks, and relative market power. Participant partners who have strategic fit will provide a clearer alliance goal, less dispute in strategic direction, and focus on performance-attention activities, thereby making a better chance to create anticipated synergy value. Partners who have low strategic fit may waste resources and time in struggling for a common goal and resource allocation.

Organizational dimension: It refers to organizational characteristics of partners that have influence on organizational effectiveness and efficiency of the cooperative venture. They are organizational structure, corporate culture, leadership styles, company resources, history, and collaborative experience. Partners high in organizational fit smoothen decision making processes and enhance execution capability. Whereas, partners low in organizational fit increases red-tape, inefficiency, and organizational politics.

Operational dimension: It refers to the level of consensus of partners on daily activities and decision making of the cooperative venture. More specially, it relates to consensus of participant partners on management control and operational policies of the joint venture and also co-alignment of both bargaining power and the control structure in the venture. Partners high in consensus and co-alignment streamline daily operations and put the cooperative venture in proper governance control. Low operational fit on partners increases interfirm conflicts and opens chances for opportunistic behaviors from partners.

Strategic, organizational, and operational dimensions have different bearing on strategic symmetry. These dimensions have fundamental differences and preemptive importance from the business perspective. Obviously, strategic dimension has the highest weight among all dimensions because it embodies the most essential

[9] The definition was adopted from Harrigan (1986).

reasons of why the cooperation exists. Organizational dimension has the second highest weight due to its impact on implementation. Operational dimension has the least weight because arrangements are JV focused (than individual partners) and can be amiable for amendments. As a composite measure, the high-low scale of strategic symmetry can be operationalized as follows:

1. Any combinations of three dimensions but low in strategic fit are bound to be in the low band of the scale.
2. Any combinations of three dimensions and at least one high strategic fit and one high in organizational or operational dimensions are rated in a high band of the scale. With partners high in strategic fit and organizational fit, it is more easy to adjust later in low operational fit. Similarly, with partners in high strategic fit and high operational fit, a more independent JV can prevent intervention from their parent firms.
3. However, partners high in strategic fit but low in organizational and operational fit will be put in a low score as the latter two dimensions may cause operational conflicts between partners from time to time.

Detailed evaluations of the symmetrical fit between partners refer to the Appendix at the end of the chapter. In fact, strategic symmetry of partnership ingrains some inherent risks which undermine the achievement of the strategic goal and the value of the strategic alliance. The next section will discuss how this structural constraint will affect the effectiveness of the cooperative venture.

11.5 Risk and Payoff Value

Risk is an important component in assessment of strategic alliance. Risk is defined as variances in expected payoff (outcomes) in a strategic venture. Risk evaluation is important in business formation, acquisition, or simply investment project. As discussed in Chap. 10, inherent risk in the investment influences managers' decision to go ahead or call a halt; risk-adjusted discount rates affect the value of the investment project. In this specific context in strategic alliance, risk has the extended coverage over the allying partners. Prior evidence indicates that the failure rate of alliances is significantly higher than that of a single firm.[10] In cooperative ventures, allying partners seeking opportunistic behaviors than cooperative behaviors will make the other partner(s) in vulnerable situations. Therefore, partners in a strategic alliance not only take the regular business risk but also the relationship risk. Therefore, there is a dichotomy of risk in two types: relational risk and performance risk.[11]

[10] Evidence provided in Bleeke and Ernst (1995)

[11] I adopted the concepts of relational and performance risks in strategic alliances from Das and Teng (2001).

Relational risk: The risk relates to the probability and consequences of the partner firm not cooperative in the collaborative venture, resulting in opportunistic behaviors that exploit the benefits of the other partner. In the discussion of expected payoff structure of individual partners, we noted that more private benefits than common benefits create asymmetric incentives between the partners and increase the temptation of opportunistic behaviors. Opportunistic behaviors of partners include exploitation of the other partner's technical skills, deceits, and low commitment in the collaboration. On the other hand, high opportunistic behaviors also induce uncooperative responses from the other partner(s) and create dysfunctional effects on the strategic venture.

Performance risk: Excluding the relational risk from uncooperative behaviors, performance risk relates to the probability and consequences of the alliance objectives not able to be achieved. Performance risk is similar to business risks of a single firm in which performance can be affected by external business environments (such as market competition, new products, change in customer taste, new government regulations, business up and bust, natural calamities, etc.), or internal operations (such as strategic positioning, resources, productive capabilities, management issues, etc.). Performance risk is different from relational risk. Relational risk is normally not shared by partner firms because it is originated from the asymmetric incentives in partnership which leads to the competitive vs. cooperative behaviors. Conversely, performance risk is shared between the partners but accentuated from the degree of strategic symmetry.

Embedded risks in any kind of collaborative venture undermine the value of a business. In the context of strategic alliance, two more structural determinants are embedded in the risk dimension. First, the extent of strategic symmetry of partnership imposes a constraint on the compatibility of partner firms in the collaborative venture. Second, partner's expected payoff structure determines their cooperative or competitive behaviors in pursuit of interest in the alliance, thereby defining the magnitude of concentric efforts all partners would like to spend for the well-being of the collaboration. These two structural factors have close associations with expected performance risk and relational risk and the ultimate risk. The following Fig. 11.4 presents performance and relational risk against these 2 × 2 dimensional structural factors.

From the above 2 × 2 dimensional diagram, we can see that cooperative type of alliance with high strategic symmetry breeds a good environment for the alliance to foster further development. Both relational risk and performance risk are low and so is the overall risk level. On the other hand, competitive type of alliance with low strategic symmetry provides the highest overall risk environment for the alliance (high in relational and performance risks). In the competitive type of alliance but with a high degree of strategic symmetry, expected performance of the alliance can be achieved though with high skepticism on the stronger partner firm's behavioral intention. The overall risk is medium. In fact, competitive behavior of the partners can be contained through an effective governance and control structure to regulate the behaviors of the aggressive partners or by establishing a learning transfer

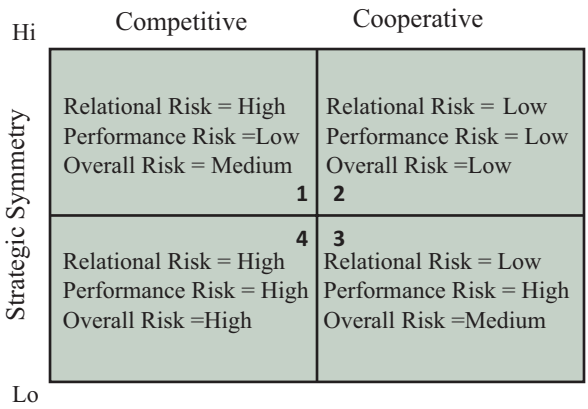

Fig. 11.4 Risk assessment on strategic symmetry and partner's behaviors

mechanism to increase absorptive capabilities for both partner firms. Finally, there is alliance type with low risk in partners' relationship but high performance uncertainty the overall risk is medium. Partners can reduce performance risk through trust, reciprocal exchange, and consensual agreements on critical matters. The overall risk is therefore medium.

11.5.1 Risk Mitigation Measure

Partners' relationship affects the operational effectiveness of strategic alliance and undermines the success of strategic objective. As discussed above (see Fig. 11.4), each type of relationship embeds different levels of risk. With the good intention of participant partners to achieve the strategic mission, the partners can build a more effective management control system to compensate for the structural inadequacy. Figure 11.5 below shows risk mitigation measures on partners' relationship. As seen in the cooperative type of alliance (Type 2 and Type 3), participant partners should invest more on relational capital including building personal close ties by key management staff and creating trusting culture in the collaborative venture. More informal self-enforcing safeguards are employed in the management control system of the venture and the governance board, including informal meetings, mutual trust, and reciprocity in inter-partner business transaction, seeking third-party arbitrage instead of lawsuit in dispute. Trusting behaviors between partners play an important role in the collaborative success, and trust-induced management control system reduces monitoring cost and speeds up decision making process. In addition, trusting relationship reduces the incentives for opportunistic behaviors because the cost of breaking up will be very high.

However, competitive type of venture (Type 1 and Type 4 in Fig. 11.5) should employ a different type of risk-mitigation measure through imposition of tight governance control (including management system). Control is defined as a process of regulating and monitoring the behaviors of participant players. For this specific context, control is subdivided into two modes – output control and behavioral control.

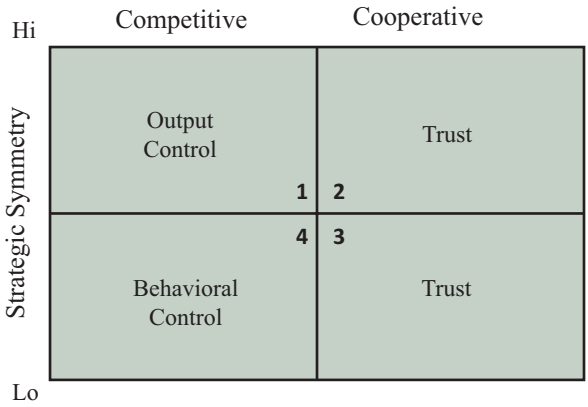

Fig. 11.5 Risk mitigation measures on partners' relationship

Output control is a management control system emphasizing the output results, e.g., financial performance and nonfinancial targets (e.g., R&D results). On the other hand, behavioral control monitors the process of activities (e.g., detailed guidelines and policies). Using frequent feedback processes and close monitoring, tight control of collaborative venture may discourage partners from undertaking opportunistic behaviors exploiting the benefits of the other partners. Therefore, tight control measure reduces relational risk.

In fact, output control is more appropriate for Type 1 mode of partnership. It is because Type 1 mode has higher strategic symmetry in terms of strategic, organizational, and operational fit. Both participant partners have good fit in resource complementarity, consensual goals, similar organizational norms, and agreeable on target objectives and distribution of benefits. It is easier for them to agree on achievement target. Output control is desirable means for monitoring the venture as it will minimize the negative effects of close control which may aggravate conflicts, misunderstanding, and disputes. Having said that, behavioral control is most desirable for Type 4 mode of partnership when trust or output control is no longer effective because of a lack of consensual agreement on strategic objectives, divergent corporate culture, organizational norms, weak resource complementarity, and deficient in other operational fit. Behavioral control is the only means (though maybe temporary) to reduce partners' asymmetric incentives in taking aggressive behaviors.

11.5.2 Risk-Adjusted Discount Rate

Various levels of risk in strategic alliance influence the strategic value of collaborative venture and the value of private benefits to each participant partners. As discussed above, the above 2 × 2 structural determinants (see Fig. 11.4) create various types of competitive-cooperative modes of partnership that need to be addressed in the investment appraisal process. As mentioned in Chap. 10 that discount rate is employed to discount all cash flows to the present value, discount rates for the valuation are also required to be modified to reflect the riskiness of the investment. To

Focus

Can Control Improve Cooperation?

Many research studies have found that control inhibits development of trust as a key determinant for cooperation. However, there is also research showing contrary evidence that control improves cooperation. Coletti, Sedatole, and Towry (2005) in a top accounting journal *Accounting Review* provide unconventional evidence from two experiment environments that test the effects of control on trust and cooperation in collaborative settings. The experiments found that the test with a control system condition (in this test audit check) settings had higher cooperation than those with no control system condition (no audit check). Also, the control system with more precise incentive structure and feedback indicated better cooperation and trust development. The experiments support these scholars' propositions that a strong control system with economic incentives induces collaborators' cooperation. In addition, more frequent feedback process builds trust about the perceived trustworthiness of the other partners and promotes development of mutual trust. Over time, the control-induced cooperation increases trust among collaborators and mitigates the negative effects on relational risk. Therefore, control-induced cooperation promotes trust between partners in collaborative works. Along this logic, a strong control management system at the early stage of the joint venture may promote cooperative behaviors and create condition for trust development.

Source: Coletti, Sedatole, Towry (2005). The Effect of Control Systems on Trust and Cooperation in Collaborative Environments. Accounting Review.

elucidate the concept of strategic value in any strategic alliance, let's revisit the example of Kosmos and evaluate the types of competitive-cooperative modes of partnership for the candidates A Co. and B Co. and the expected payoffs of Kosmos and its prospective partners.

11.5.3 Example: Kosmos Laboratory (Continue)

11.5.3.1 Competitive-Cooperative Mode of Partnership

Upon reviewing the terms of reference of the tenders from A Co. and B Co., the contractual arrangements of A Co. create more asymmetric incentives, and its opportunistic behaviors may cause vulnerability to Kosmos in its rights. On the other hand, B Co. has provided a more cooperative contractual terms which offer more balanced private to common benefits both on Kosmos and B Co. Even without further information on the degree of symmetrical fit of both firms, it is very clear that B Co. is always lower than A Co. in terms of the overall risk level (see Fig. 11.4). Therefore, there should have a risk-adjusted discount rate on A Co. and B Co. For example, A Co. has a higher discount rate and B Co. by 3% to reflect the increasing risk.

11.5.3.2 Adjusted Payoff Values for Kosmos, A Co. and B Co.

By repeating the computation rule, the revised payoff structures for A Co. and B Co. are as follows:

Evaluation on A Co. Tender (based on revised discount rate at 13%):

1. Revised payoff structure of Kosmos = private benefits (one time) + common benefits = \$3 M + \$2.5 M/0.13 = \$3 M + \$19.2 M = \$22.2 M
2. Revised Payoff structure of A Co. = private benefits + Common benefits = \$20 M × 2.9744[12] + \$7.5 M/0.13 = \$59.5 M + \$57.7 M = \$117.2 M

Evaluation on B Co. Tender (based on original discount rate at 10%):

1. Payoff structure of Kosmos = Private benefits + Common benefits = \$11.6 M + 23.4 M = \$35 M.
2. Payoff structure of B Co. = private + common benefits = \$30 M + \$54.6 M = \$84.6 M

By using a risk-adjusted discount rate, A Co. has offered less expected payoff value (net present value) to Kosmos from \$28 M to \$22.2 M. The risk-adjusted discount rate therefore takes into account the risk level of strategic alliance in terms of relational risk and performance risk.

11.6 Conclusion

Strategic alliance is a common and sensible approach for market expansion and enhancement of market power. Alliance creates synergy value that is greater than a firm to undertake growth by itself. However, firms require to investigate what they really intend to acquire and how to select partnership. An identification of the competitor-cooperative mode, evaluation of individual expected payoff structures, and implementation of the appropriate governance structure and control improve the chance of success in the collaborative venture.

Takeaway Tips

- Unique specific assets, resource complementarity, knowledge transfer, and effective governance are four main determinants for formation of synergy value.
- Expected payoff structure (mix of private and common benefits) affects the asymmetric incentives for the allying partners and determines their choice of opportunistic or cooperative behaviors.
- Evaluation of partners' strategic symmetry in terms of strategic, organizational, and operational fit provides cue for the chance of success of the collaborative venture.

[12] Annuity factor of 13% for 4 years = $(1/1.3 + 1/1.3^2 + 1/1.3^3 + 1/1.3^4) = 2.9744$

- Various relational risks and performance risks are embedded in the partner behavior mode – strategic symmetry structure. Different risk mitigation measures in the forms of trust and control are employed in each scenario.
- Risk-adjusted discount rate should be applied to various risk-embedded partnership to reflect a more realistic partners' expected payoffs.

Appendix: Composite Measure of Strategic Symmetry Index

1. Criteria for assessment of three dimensions

Strategic dimension	Strategic goal, missions of the venture, relative absorptive capability of partners (including technological skills), complementarity of resources, product relatedness, market experiences, institutional networks, relative market power
Organizational dimension	Organizational structure, corporate culture, leadership styles, company resources (e.g., human, financial), history, and collaborative experience
Operational dimension	Consensus of participant partners on management control and operational policies of the joint venture, alignment of bargaining power, governance control structure in the venture

Note: Examiners can use a heuristic view on each strategic dimension or employ a more quantitative approach by assigning a scale of salience (suggested 1–4) on each attribute of the dimension. The composite scale (the average scale of each dimension) can be divided into low (1–2) and high (3–4) levels

2. Composite measure is determined by the low-high dichotomy of each dimension. As a rule of thumb, (a) any combinations of the overall scores of each dimension with a low score of strategic dimension is considered a low composite score; (b) any combinations of the overall scores of each dimension with one high score in strategic dimension and at least one of the other dimensions is in the high score; (c) any combinations of the overall scores of each dimension with one high score in strategic dimension but the remaining dimensions are in low score is regarded a low composite score. The combinations of dimensions and their composite scores are tabulated in the following.

S.D.	Og.D	Op.D	Compositescore
H	H	H	**H**
H	H	L	**H**
H	L	H	**H**
H	L	L	**L**
L	H	H	**L**
L	H	L	**L**
L	L	H	**L**
L	L	L	**L**

References

Bleeke, J., & Ernst, D. (1995). Is your strategic alliance really a sale? *Harvard Business Review, 73*(1), 97–105.

Coletti, A. L., Sedatole, K. L., & Towry, K. L. (2005). The effect of control systems on trust and cooperation in collaborative environments. *The Accounting Review, 80*(2), 477–500.

Das, T. K., & Teng, B. S. (2001). Trust, control, and risk in strategic alliances: An integrated framework. *Organization Studies, 22*(2), 251–283.

Dyer, J. H. (1997). Effective inter-firm collaboration: How firms minimize transaction costs and maximize transaction value. *Strategic Management Journal, 18*, 535–556.

Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review, 23*, 660–679.

Dyer, J. H., Singh, H., & Kale, P. (2008). Splitting the pie: Rent distribution in alliances and networks. *Managerial and Decision Economics, 29*, 137–148.

Gulati, R. (1995). Social structure and alliance formation patterns: A longitudinal analysis. *Administrative Science Quarterly, 40*, 619–652.

Gulati, R., Nohria, N., & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal, 21*, 203–215.

Harrigan, K. R. (1986). *Strategic alliances and partner asymmetries*. New York: Graduate School of Business, Columbia University.

Ireland, R. D., Hitt, M. A., & Vaidyanath, D. V. (2002). Alliance management as a source of competitive advantage. *Journal of Management, 28*(3), 413–446.

Khanna, T. R., Gulati, R., & Nohria, N. (1998). The dynamics of learning alliances: Competition, cooperation, and relative scope. *Strategic Management Journal, 19*, 193–210.

Klein, B. (1980). Transaction cost determinants of "unfair" contractual arrangements. *American Economic Review, 70*(2), 56–62.

Luo, Y. D. (1997). Partner selection and venturing success: The case of joint ventures with firms in the People's Republic of China. *Organization Science, 8*(6), 648–662.

Williamson, O. E. (1983). Credible commitments: Using hostages to support exchange. *American Economic Review, 73*, 519–535.

Yan, A., & Duan, J. (2003). Interpartner fit and its performance implications: A four case study of U.S. – China joint ventures. *Asia Pacific Journal of Management, 20*, 541–564.

Cases and Solutions

12

Keywords
Strategic management accounting • Customer selection • Customer performance measures • Competitor analysis • Tender bid pricing • Corporate plan • Strategic partnership analysis

12.1 Case 12.1: ART Food Ltd.

Refer to Chap. 4.

Art Food Ltd. (Art Food hereinafter) is a company which has production, sales, and marketing operations in China and Hong Kong. Art Food has been in the food industry for more than 20 years with a good credential in making quality products for customers in middle-income groups. Art Food produces bakery foods (e.g., pizza, bun cakes, pastry), confectionery foods (e.g., chocolates, sour sweets), and processed foods and meats (e.g., sausage, hams). During recent years, Art Food expanded to the meat trading businesses including chilled and frozen meat (e.g., Angus beef, salmon, lamb rack).

Ten years ago, the company was acquired by a Swiss food conglomerate and started to expand production facility in China, while Hong Kong production gradually faded out. A new brand was introduced along with the original brand but more concentrated on the mass market. Today, Art Food maintains a small production plant and packing unit in Hong Kong.

Art Food makes its own branded and OEM products for Hong Kong customers. Its customer segments include supermarkets, department stores, restaurants, and hotels. Department stores, hotels, and restaurants used to be Art Food's focused customers with its prestigious brands and high credential in the upmarket. The strategy for the mass market in Hong Kong has shifted the market focus from the traditional wealthy classes (and the upmarket hotels and catering) to the current mass

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markets. Today, supermarket operators become the core customers of Art Food. OEM processed food products are its bread and butter.

12.1.1 Sales and Operations

Art Food divides customers into four sale channels, namely, institutional market (INS), catering (CAT), department store (DPS), and finally distributors (DTR). Each channel has its uniqueness and mode of operation:

Institutional market is referred to those customers with a large sale network or sale points (e.g., supermarket). This market segment is characterized by large sale volumes, multiple products, low prices, and longer credit terms (60–120 days). Competition is high and trade margin is low. Customers from supermarket are particularly fond of ordering OEM product (private label) with small modification from their branded products. These orders tend to require more work, lower margin, and would affect its own regular branded goods. These customers are not particularly loyal and require Art Food to hold stock on their behalf. Inasmuch as the above disadvantages, these customers are normally good in payment and make bulk and regular orders.

Catering market is a user market in which purchased foods are cooked by chefs for their ultimate customers. It can be classified into two groups. The first group is hotels, clubs, or ordinary restaurants, characterized by small but frequent orders. The second group is the fast-food chains customers usually in a large volume order but inexpensive products. For the first group, chefs are the decision makers for sale orders. Responsible sale persons require to pay regular visits and full attention to them to solicit information and provide added value to reduce their workload (e.g., trimming fat or bones for the meat). For fast-food chain, the purchase is centralized at the procurement office which finds competitive price of ultimate importance. Both groups of customers know what they want and therefore are very demanding on products and services. Profit margin for this channel is usually higher than the institutional market. However, business risk for catering and restaurants operators vary significantly that requires close monitoring.

Department stores order not only processed foods or pastry but also confectionery foods such as chocolates, cakes, or biscuits. Order value tends to be high but also depends on seasonality. Joint promotion may be required particularly in big festivals such Chinese New Year, Valentine days, or Christmas. The general trade terms for the market are 1 month good consignment and 60 days' trade credit. The historical records show an average of 2% returned and write-off stock. In the past, Art Food's own brand had a very high reception in the middle to up market.

Distributor channel (DTR) is referred to food traders who purchase foods product in large volume and distribute them to small retailers or wet markets. A majority of distributors are not financially strong which warrants close attention. This business sector has the highest-risk exposure compared to others. Trading margin is usually low because of high market competition (around 10%). Meat price fluctuates rigorously, and timing of purchase is of paramount importance.

Profitability information for 50 key customers that represent 90% of sale is shown below in Table 12.1. The remaining 10% is one-time customers sold on cash sale. Gross profit in the report (GP) represented the sale revenue net of cost of production from its own factory or cost of traded goods. Cost to serve (CTS) for each customer was apportioned based on direct costs or allocated by transaction activity or time spent on customers, including financial charges on working capital. In fact, not all operating costs are absorbed by individual customers. The following expenses are for catering businesses but charged to the corporate level only.

Table 12.1 Customer profitability for top 50 customers

Customer no.	Customer	Type	Sale	GP	CTS	CP	CP/CTS
1	PN	INS	10,620,582	2,761,351	1,952,392	808,959	0.41
2	WM	INS	5,522,046	1,711,834	1,144,067	567,767	0.50
3	JestCo	DPS	3,405,866	1,362,346	363,766	998,581	2.75
4	Round-the-clock	INS	2,185,660	699,411	448,281	251,130	0.56
5	LT Aircatering	CAT	1,948,600	253,318	194,465	58,853	0.30
6	CCC	INS	803,846	233,115	139,620	93,495	0.67
7	DCH	INS	1,568,204	501,825	200,587	301,239	1.50
8	Mims	CAT	1,722,058	327,191	201,108	126,084	0.63
9	Kingsway	INS	1,205,862	385,876	171,232	214,644	1.25
10	Good Value Trading	DTR	781,846	78,185	66,195	11,990	0.18
11	Restaurant O	CAT	502,184	185,808	61,116	124,692	2.04
12	Dragon	DTR	821,868	98,624	62,338	36,286	0.58
13	C-Sales	DTR	1221,856	146,623	70,152	76,470	1.09
14	Hotel_K	CAT	520,384	228,969	54,582	174,387	3.19
15	Parkview	CAT	278,058	86,198	50,337	35,861	0.71
16	Distributor_Macau	DTR	418,204	46,002	39,818	6184	0.16
17	Gate Gourmet	DTR	718,618	86,234	54,029	32,205	0.60
18	Unit	DPS	421,846	185,612	89,411	96,201	1.08
19	Yong Kee	DTR	618,468	61,847	51,859	9988	0.19
20	CPCS	INS	262,184	76,033	88,268	(12,235)	(0.14)
21	Siyu	DPS	502,046	230,941	98,414	132,527	1.35
22	LCX	DTR	20,582	2058	29,283	(27,225)	(0.93)
23	Jardine Restaurant	CAT	262,184	97,008	46,293	50,715	1.10
24	Applewood	CAT	502,184	115,502	67,419	48,084	0.71
25	Gogo	DPS	248,038	116,578	75,607	40,971	0.54
26	Café DeKor	CAT	418,762	108,878	57,664	51,214	0.89
27	Ace Trading	DTR	640,384	64,038	65,259	(1221)	(0.02)
28	Vitaland	DTR	502,184	70,306	52,771	17,535	0.33
29	Hotel_M	CAT	26,038	10,676	36,909	(26,234)	(0.71)
30	Murray Catering	CAT	41,824	16,730	37,454	(20,724)	(0.55)
31	Sailing Boat	CAT	21,842	8737	36,721	(27,984)	(0.76)
32	Club	CAT	30,038	12,916	36,687	(23,770)	(0.65)
33	Phone-In Restaurant	CAT	821,868	262,998	66,928	196,070	2.93
34	Sodexho	DTR	784,182	86,260	64,859	21,401	0.33
35	HK Fast Food	CAT	418,624	142,332	56,921	85,411	1.50
36	Mage Shop	CAT	38,038	17,117	38,627	(21,510)	(0.56)

(continued)

Table 12.1 (continued)

Customer no.	Customer	Type	Sale	GP	CTS	CP	CP/CTS
37	City	INS	781,962	211,130	130,204	80,926	0.62
38	Hong Kong Gourmet	CAT	218,768	83,132	46,186	36,946	0.80
39	PS_Macau	INS	821,846	197,243	141,262	55,981	0.40
40	Home	INS	280,384	78,508	93,695	(15,188)	(0.16)
41	Trading_Macau	DTR	621,842	62,184	44,543	17,641	0.40
42	Export	DTR	218,624	26,235	35,065	(8830)	(0.25)
43	Wellington Street	DTR	381,868	38,187	39,843	(1656)	(0.04)
44	Premier Trading	DTR	502,184	50,218	57,362	(7144)	(0.12)
45	Sun Trading	DTR	60,242	6024	30,925	(24,901)	(0.81)
46	Robo Q	CAT	240,698	84,244	44,966	39,278	0.87
47	Cash Restaurant	CAT	380,788	190,394	48,371	142,023	2.94
48	P.G. Managed Club	CAT	262,062	91,722	45,534	46,188	1.01
49	Grill House	CAT	618,262	241,122	55,353	185,769	3.36
50		DTR	445,002	40,549	54,304	(13,755)	(0.25)
		Total	46,661,590	12,280,371	7,239,052	5,041,320	0.650

Notes: INS = institution; DPS = department store; CAT = catering; DTR = distribution

Art Food set up a butchery department in Hong Kong to promote restaurant and catering sales. Apart from the branded and OEM processed meat and sausage products which are made in China, Art Food started to sell imported meat (e.g., beef, lamb, pork, and frozen salmon) with trimming specification given from restaurant chefs. The minimum annual operation costs for the butchery unit was $0.8 million, which included two butchers' payroll, rented equipment, and other sundry expenses. Art Food installed an extra chilled and frozen storage with a capex of $ 1.5 million and annual minimum operation expenses of $200,000. An average of $1 million of inventory was held to support the businesses.

Discussions

The above Art Food case requires to address two key concerns, (1) what is the current situation of customer profitability and (2) what should be the desired customer portfolio for Art Food to align the new strategic initiatives?

Suggested Solutions

Before we address the above questions, let us sum up the general business situation of Art Food:

1. Art Food is a food factory which has sale to different sale channels, including institution, catering, department store, and more recently distribution channel. Art Food used to produce branded products (more profitable). However, it moved to the OEM mass market during the recent decade (not so profitable).

Table 12.2 General profitability

HKD$		Sale%
Sale	46,661,590	100
GP	12,280,371	26.3
CTS	7,239,052	15.5
CP	5,041,320	10.8

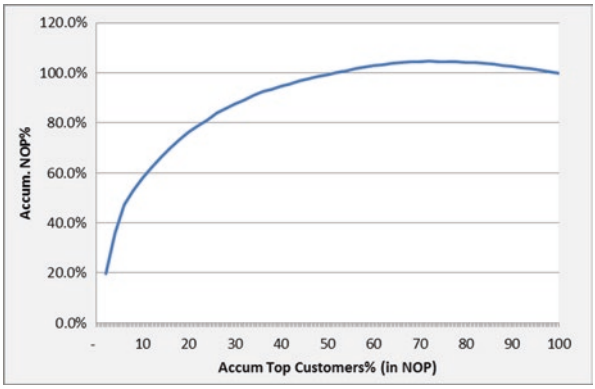


Fig. 12.1 Whale curve

2. In terms of the overall profitability, we can calculate the customer profitability % from Table 12.1 that the overall profit was around 11% (Table 12.2).

Of sale, of which the CTS was 15.5%. It cannot be concluded a good business given that other general and corporate overhead expenses have not been included.

Key Concern 1: Customer Profitability

Let's look into the customer profitability details. The whale curve helps outline distribution of customer profitability – a curve to assess way to customer concentration issue. We can draw a whale curve. Customers were ranked by profitability, and their accumulative profits were plotted. The plotted whale curve was shown in Fig. 12.1. As noted, Art Food had 25% of customers contributed around 80% of profitability (i.e., 12 key customers), and 55% of customers contributed 100% of profit (i.e. around 28 customers). The remaining 22 customers were either lose making or were zero profit at all.

Out of the 12 key customers above, 5 of the top customers were from institution channel, 5 from catering channel, and 2 from department store. None was from distribution network. At a closer look, the top three customers were contributing nearly 50% of profit. The figures reflected a high concentration of profits in a few key customers.

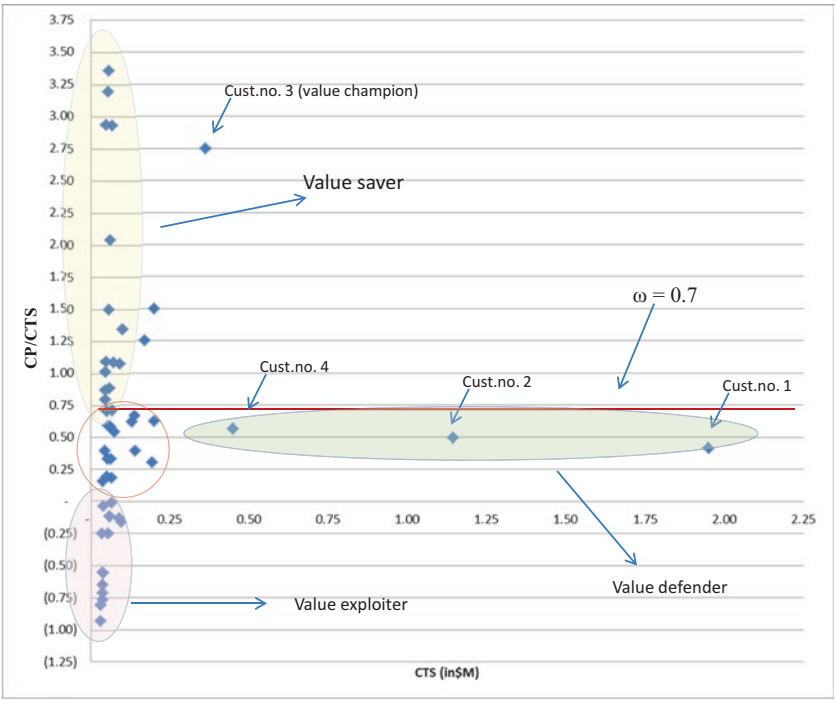


Fig. 12.2 Customer value map

How was the quality of customers? Table 12.1 provides data to calculate CTS and CP/CTS ratios for customers. CP/CTS ratios were in general low. Only 10% of the ratios was above 2, but 30% of the ratios was negative. The average CP/CTS ratio for the entire company was 0.65.

Customer cluster map can be drawn with CTS and CP/CTS data from each customer in Fig. 12.2. CP/CTS ratio was set as a vertical axis and CTS as a horizontal axis. The corresponding data of each customer was plotted to produce a scatter graph (using excel spreadsheet). A standard benchmark ω line was drawn parallel to the horizontal axis at 0.7 (approximate) of the vertical axis (calculated by total CP divided by total CTS), representing an average CP/CTS for Art Food.

As shown above, a slender data range was found along the vertical axis. This long data range crosses three zones – the value saver cluster above the standard benchmark ω, the marginal profit zone below the benchmark but above the loss zone, and the loss zone. Art Food had a large number of customers in the loss zone, though their CTS level was low. It also had a substantial size of customers with a fragile business performance (i.e., marginal profit). The large no. of value saver

customers indicates Art Food's good control of CTS, with low CTS but high CP/CTS. There was a single value champion for Art Food (the fourth top customer) which had low CTS and high CP/CTS ratio. The top three customers were value defender in which their CP/CTS ratios were marginally below the benchmark.

All in all, most of the customers were low to medium in CTS level except two key customers (cust. nos. 1 and 2) whose CTS level were afar from other customers (in fact, they contributed to 42% of the total CTS, and sale was 32% of total sale). Art Food had a few large customers who requested high service demand but not high margin to the company. The low average benchmark (every $1 of CTS can help earn $0.7 of CP) entails Art Food's difficulty in making profit; in particular there was inadequate value champion (except one) to make good profitability. Art Food anchored in a wrong strategic market position at a low margin OEM business. Art Food was weak in the market competitiveness and too much dependence on a handful of large customers.

Key Concern 2: Desired Customer Portfolio

In addressing the desired customer portfolio, a two-step approach was adopted. The first step was selection of target customer segment, and the second step was on identifying preferred customers from the target segment. Let's review the customer segment of Art Food. The summary of profitability on customer segment was provided at Table 12.3.

In Table 12.3, the highest sale % by segment was institutional customer (INS) at51%, followed by catering (CTS) at 19.9%, then distribution segment (DTR) at 19%, and the lowest sale from department store (DPS) at 9.8%. From the customer profitability dimension (CP), institutional customers contributed 47%, catering and department store contributed around 25%, and distribution segment made a marginal contribution of 3%, if the unallocated channel expenses of $0.8 million from operating cost charged to the catering segment. Similarly, $0.2 million of operating costs, $1 million of working capital, and $1.5 million investment of equipment were counted to the distribution segment; Art Food made a slight loss for catering segment

Table 12.3 Sale channel performance

Channel	Sale	GP	CTS	CP	CP/CTS
CAT	9,273,264	2,564,992	1,283,641	1,281,351	1.00
DPS	4,577,796	1,895,478	627,198	1,268,280	2.02
DTR	8,757,954	963,575	818,605	144,970	0.18
INS	24,052,576	6,856,327	4,509,608	2,346,719	0.52
Total	46,661,590	12,280,372	7,239,052	5,041,320	0.70
CAT	19.9%	20.9%	17.7%	25.4%	
DPS	9.8%	15.4%	8.7%	25.2%	
DTR	18.8%	7.8%	11.3%	2.9%	
INS	51.5%	55.8%	62.3%	46.5%	
Total	100.0%	100.0%	100.0%	100.0%	

but a huge loss for distribution segment. Conversely, department store had good profit and a CP/CTS ratio of 2, the highest among all (three times above the standard).

In the next step, a directional policy matrix (refer to Fig. 4.6, Chap. 4) was used to examine customer compatibility and business potentials. Distribution segment should be in the dog quadrant because there was low compatibility for the traders and Art Food incurred a high segment risk (commodity price fluctuation risk) but low margin. Furthermore, there was no direct link of trading business with the core business of the firm.

Catering segment should be in the turnaround quadrant. Art Food should focus on hotels and restaurants that could pay for high service and also buy Art Food's factory output and exit those fast-food restaurants with low-value food businesses. Only a few customers should retain but with reduced operational support. A large number of customers should let go. Institutional segment should remain the main customers in the maintenance quadrant. However, there was a need to strengthen the relationship and customer loyalty. Art Food should increase more businesses with underdeveloped convenience store or supermarkets businesses. Finally, Art Food should promote the business of department store more intensely. There was high compatibility in customer segment especially when Art Food wants to promote its branded products to induce profit margin. Department store could be a very good platform for revitalization of the brand. Art Food has four customers in this segment; three of them were underdeveloped (in terms of low sale). These department store customers should be in the development quadrant. Art Food could make use of the savings from operating expenses, working capital, and sale of disposed equipment from distribution and catering channels (more than $2 million) to invest in the branded products. To recap, two strategic objectives are set for the next few years:

(a) Induce profit by creating Art Food's own branded sales;
(b) absorb excess factory capacity.

The first objective could be achieved by promoting sale in department store. Currently, Art Food has four customers in this segment. Apart from exploring new customers, Art Food could strengthen the customer relationship and sale promotion on this segment especially on cust. nos. 3, 18, and 21 whose CP/CTS were above the average benchmark.

For the second objective, Art Food should develop further closer ties with supermarkets who have less business but good CP/CTS ratios (above average benchmark 0.7). For example, cust. nos. 7 and 9 are those customers who have potentials to expand businesses. For the catering segments, Art Food should only keep those customers who are high in CP/CTS (e.g., above one) but are willing to forgo expensive service level.

By focusing on two major OEM customer segments and investing its own brands, Art Food could leverage the scale of operations on volume business with thin margin in the mass market and branded business with good margin but in a niche market from middle to up market. Art Food might require to review the customer portfolio, paying more attention to a more focused business given its financial resource constraint.

12.1.2 Current Problems

Art Food faced excessive productive capacity in China when a large contract was lost in a tender process. It was forecasted that there would be about 20% spare capacity. The management wants to improve sales in the Hong Kong region, especially for its own branded products. They keep abreast of the fact that no additional funds from banks or the corporate office whatever decisions have been made. Art Food management wants to evaluate current customer profitability and find out the desired customer portfolio in the new strategic initiatives.

12.2 Case 12.2: BAX Containers Ltd.

Refer to Chap. 5.

BAX is a refrigerated container factory which produces both standard and energy-saving refrigerated containers for logistic firms in PRC. BAX used to sell standard refrigerated containers. BAX sourced standard components from suppliers and assembled these components with its own-developed refrigerated machine component to form refrigerated containers. Starting from 2015, BAX launches a new refrigerated container with the energy efficient technology. The new technology would have energy saving up to 20%. BAX views that no competitors have employed this superior technology and can be ahead of the competitors for 2–3 years.

The new launch is a market trial and a response to the competitive and mature standard container product market. In fact, BAX shares no more than 5% of the market sale in the region.

BAX uses sale agents to sell its products to its ultimate China customers. It has two major regional agents – Daxing and Everbright – which are 10% and 6% of BAX's total sale revenue, respectively. Both have a long history and good trading records with BAX.

Everbright trades standard product only. For 2014, BAX's sale to Everbright was $6 M (6.2 M in 2013) and gross margin of 22% (25% in 2013). In fact, Everbright's business performance followed closely the market trend. Price erosion is expected to intensify in the year ahead, which would further trigger market consolidation. Business difficulty will become more acute.

Daxing used to trade standard product. Since 2014, it became the exclusive agent for BAX to sell the new product and leave the standard product to Everbright. Daxing had BAX management's full support with high sale incentive in the new product. By the end of 2014, it has increased businesses with BAX from $6 M in 2013 to $8 M in 2011 and gross margin from 22 to 27.5% of sale in the same year. The price of the new product could increase by 15%.

Daxing and Everbright's profitability performances were provided below. MSDA expenses for Everbright were comparable to the company benchmark, while Daxing had a higher MSDA expenses because of special marketing promotion fees and incentives bonus. Also, Daxing wanted a special booth for exhibition of new product. The built-in new booth cost BAX an amount of $30,000 in 2014 which had a depreciation life of 3 years. A total amount of $100,000 was spent during the year for replacement of existing computing equipment for the sale team. This is the company policy to replace computing equipment every 4 years.

Also, Everbright and other customers have an average asset employment of $2 M over these years, while Daxing increased working capital from $3 M to $4 M in 2014. New products needed a longer manufacturing process. BAX also increased Daxing's payment terms although it had cash flow constraint problem.

Other information include (i) tax rate at 25%, (ii) cost of capital at 10%, and (c) current liabilities at 5% of current asset employed.[1]

BAX Ltd.				
Customer profitability for Daxing and Everbright				
For the year ending 2014 (In US million)				
	Daxing		Everbright	
Sale revenue	8.00	100.0%	6.00	100.0%
Cost of goods	5.80	72.5%	4.80	80.0%
Gross margin	2.20	27.5%	1.20	20.0%
Marketing	0.40	5.0%	0.18	3.0%
Selling	0.48	6.0%	0.18	3.0%
Delivery	0.24	3.0%	0.18	3.0%
Administration	0.16	2.0%	0.12	2.0%
MSDA expenses	1.28	16.0%	0.66	11.0%
Net operating profits	0.92	11.5%	0.54	9.0%

Suggested Solutions: refer to Sect. 5.2.1 of Chap. 5 (pp 84–86)

[1] I prefer to approximate the amount of current liabilities by using company-wide current liabilities as a % of total net asset employed, given that these customers do not have an exceptional high level of account payable of their own.

12.3 Case 12.3: Scenario: Dealership Contract

Refer to Chap. 5.

Daxing account as at year 2014 had a negative cash flow of −0.51 M. The management accepted it as an investment year. However, the sale director of Daxing account had to submit a free cash flow forecast report for the next 5 years which should be in line with the period of exclusive dealership rights for the new product. The sale director reported the cash flow forecast for the next 5 years as follows: year 2015, 1.1 M; year 2016, 1.2 M; year 2017, 1.3 M; year 2018, 1.4 M; and year 2019, 1.5 M. The management was curious to know how much value creation was generated from this customer account over the period. Daxing employed WACC as the base for the cost of capital at 10%.

In fact, Everbright also expressed interest in the dealership for the new product. It offered to take the performance bonus only at the end of the exclusive right (i.e., the end of year 5). As such, there will be a deferment in the cash flow outlays. The overall sale forecast for the new product over 5 years is assumed unchanged. With the deferred bonus scheme, Everbright has a different cash flow stream in the manner year 0 = 0 M, year 1 to year 4 have the free cash flows of 1.22 M, and the final year 5 cash flow is 1.11 M after deduction of the bonus payment.

Suggested Solutions: refer to Sect. 5.4.1 of Chap. 5 (pp 90–92).

12.4 Case 12.4: Superstores

Refer to Chap. 6.

K-Corp. was a supermarket chain store which had market presence over the country. It divided the markets into four segments, namely, general merchandise, foods, upmarket, and convenience, separated by different brands. Merchandise segment was the traditional supermarket which covered merchandized and daily products for the mass market. Upmarket concentrated on consumers who could afford more expensive, imported good quality items. This segment could usually obtain a higher margin. Foods were food specialty store which were located around railway stations, main bus terminals, or office districts for busy passerby who wanted to have a quick purchase on cooked foods or daily products. Convenience segment is the convenience store (such as 7–11) for small value and small quantity purchase. K-Corp. had identified eight rivals and wanted to do an interfirm analysis to evaluate its strategic position relative to its rivals in the face of increasing market competition. Table 5.1 in the following provides information on the year 2016 sale for K-Corp. and its eight rival firms. Unrelated market segment means business outside the scope of interest of study for K-Corp (Table 12.4).

K-Corp. believed that asset backing was a key resource capability factor for the businesses as scale of operations and financial strength were critical success factor for building strong brands for consumers, enjoying economy of scales, and bargaining attractive trade terms from suppliers. K-Corp. also solicited information on each rival's returns on sale (ROS) for business profitability benchmarking comparison. Such information was collected from their annual reports and trade information update. This additional information was summarized in Table 12.5 below.

Table 12.4 Actual sales (2016)

Actual sales 2016										
Market M	K-Corp	R1	R2	R3	R4	R5	R6	R7	R8	Total
(Panel 1)	Sale values (US$ million)									
General Merch.	1000.0	800.0	1800.0	400.0	0.0	2000.0	0.0	600.0	0.0	6600.0
Upmarket	800.0	900.0	0.0	300.0	0.0	0.0	1400.0	0.0	0.0	3400.0
Foods	100.0	400.0	0.0	40.0	0.0	900.0	0.0	0.0	700.0	2140.0
Convenience	400.0	200.0	0.0	0.0	500.0	150.0	0.0	100.0	700.0	2050.0
Unrelated	0.0	0.0	0.0	600.0	0.0	1000.0	1000.0	300.0	0.0	2900.0
Total	2300.0	2300.0	1800.0	1340.0	500.0	4050.0	2400.0	1000.0	1400.0	17,090.0

Table 12.5 Total assets, ROS, & market sale (2016)

	K-Corp	R1	R2	R3	R4	R5	R6	R7	R8
Total Assets	1000	800	900	500	300	2800	1700	600	900
ROS	20%	25%	15%	18%	15%	28%	25%	14%	12%
Market share	10.0%	10.0%	7.0%	5.0%	3.0%	16.0%	7.0%	5.0%	7.0%

Required

(a) Identify preliminary the type of competitors with respect to market overlap and multimarket contacts.
(b) Prepare MCI for each firm.
(c) Prepare MCI from rival's perspective (reverse lens).
(d) Prepare RSI for each firm.
(e) Prepare MPI.
(f) Prepare MCI vs RSI matrix and comment on the interfirm competition.
(g) Propose a high-level market strategic plan.

Suggested Solutions

(a) Identify type of rivals

A preliminary scanning of the sale distribution of each rival among the four market segments in Table 12.4 suggests that:

R1 – Close and direct competitor present in similar segments
R2 – Direct competitor with full market overlap in a single market
R3 – Direct competitor with market contact in two segments, market overlap by 55%
R4 – Weak competitor with full market overlap in a single market
R5 – Strong competitor with market contact in three segments, market overlap by 75%
R6 – Direct competitor with a single market contact, market overlap by 58%
R7 – Weak competitor with two market contacts, market overlap by 70%
R8 – Weak competitor with two market contact, with full market overlap

(b) Prepare MCI

Using Eq. (6.1) in Chap. 6, p 120, MCI for each rival can be computed. For example, the mathematics of MCI of R1 = 43.5% × 12.1% + 34.8% × 26.5% + 4.3 % × 18.7% + 17.4% × 9.8% = 0.17. In fact, there is a quick way to use EXCEL spreadsheet to prepare this working table as shown in Table 12.6 below.

Panel 1 was extracted from the sale information in Table 12.4. Panel 2 of the Table 12.6 provides the % of segment contribution to the total sale. It indicates the

Table 12.6 MCI (Based on actual sale 2016)

Market M	K-Corp	R1	R2	R3	R4	R5	R6	R7	R8	Total
(Panel 1)	Sale values (US$ million)									
General Merch.	1000.0	800.0	1800.0	400.0	0.0	2000.0	0.0	600.0	0.0	6600.0
Upmarket	800.0	900.0	0.0	300.0	0.0	0.0	1400.0	0.0	0.0	3400.0
Foods	100.0	400.0	0.0	40.0	0.0	900.0	0.0	0.0	700.0	2140.0
Convenience	400.0	200.0	0.0	0.0	500.0	150.0	0.0	100.0	700.0	2050.0
Unrelated	0.0	0.0	0.0	600.0	0.0	1000.0	1000.0	300.0	0.0	2900.0
Total	2300.0	2300.0	1800.0	1340.0	500.0	4050.0	2400.0	1000.0	1400.0	17090.0
(Panel 2)	% to Total sale									
General Merch.	43.5%	34.8%	100.0%	29.9%	0.0%	49.4%	0.0%	60.0%	0.0%	38.6%
Upmarket	34.8%	39.1%	0.0%	22.4%	0.0%	0.0%	58.3%	0.0%	0.0%	19.9%
Foods	4.3%	17.4%	0.0%	3.0%	0.0%	22.2%	0.0%	0.0%	50.0%	12.5%
Convenience	17.4%	8.7%	0.0%	0.0%	100.0%	3.7%	0.0%	10.0%	50.0%	12.0%
Unrelated	0.0%	0.0%	0.0%	44.8%	0.0%	24.7%	41.7%	30.0%	0.0%	17.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
(Panel 3)	Market shares among target group									
General Merch.	15.2%	12.1%	27.3%	6.1%	0.0%	30.3%	0.0%	9.1%	0.0%	100.0%
Upmarket	23.5%	26.5%	0.0%	8.8%	0.0%	0.0%	41.2%	0.0%	0.0%	100.0%
Foods	4.7%	18.7%	0.0%	1.9%	0.0%	42.1%	0.0%	0.0%	32.7%	100.0%
Convenience	19.5%	9.8%	0.0%	0.0%	24.4%	7.3%	0.0%	4.9%	34.1%	100.0%
Total[a]	16.2%	16.2%	12.7%	5.2%	3.5%	21.5%	9.9%	4.9%	9.9%	100.0%

Market M	K-Corp	R1	R2	R3	R4	R5	R6	R7	R8	Total
(Panel 4)	MCI by segments									
General Merch.		0.05	0.12	0.03	–	0.13	–	0.04	–	
Upmarket		0.09	–	0.03	–	–	0.14	–	–	
Foods		0.01	–	0.00	–	0.02	–	–	0.01	
Convenience		0.02	–	–	0.04	0.01	–	0.01	0.06	
MCI by Firm Level		0.17	0.12	0.06	0.04	0.16	0.14	0.05	0.07	

[a]Exluded unrelated segments

Table 12.7 MCI (reverse lens)

	R1	R2	R3	R4	R5	R6	R7	R8
General Merchan.	0.05	0.15	0.05	–	0.07	–	0.09	–
Upmarket	0.09	–	0.05	–	–	0.14	–	–
Foods	0.01	–	0.00	–	0.01	–	–	0.02
Convenience	0.02	–	–	0.20	0.01	–	0.02	0.10
K-Corp.	0.17	0.15	0.10	0.20	0.09	0.14	0.11	0.12
Original MCI	0.17	0.12	0.06	0.04	0.16	0.14	0.05	0.07
Difference	0.00	−0.03	−0.04	−0.15	0.07	0.00	−0.06	−0.05

significance of market segment for each firm. Panel 3 analyzes the market share of K-Corp. and it eights rivals among these eight firms. Business unrelated to the scope of interest (i.e., superstore business) was excluded from computation. The numbers in Panel 3 will be used later on as a proxy for market share. Panel 4 sums up MCI for K-Corp. and its rival firms. As shown, R1, R5, and R6 had close market commonality. R2 fell behind slightly. R3, R4, R7, and R8 were weak comparatively.

(c) Reverse lens for rivals

Recall discussion in Chap. 6 earlier, there exists competitive asymmetry among fellow rivals on the focal firm (K-Corp). Rivals and K-Corp may not possess the similar competition perception on each other. Before proceeding RSI, let's compute this reverse lens, i.e., rivals treat themselves as the focal firm and K-Corp as its only rival. Table 12.7 shows what rivals perceived K-Corp. R1 and R6 had the identical perspective with the focal firm. R2 perceived itself to have a higher market commonality than K-Corp (0.15 vs. 0.12). The negative difference in R3, R4, R7, and R8 indicated an increasing competitive threat. In contrast, R5 did not feel as much as threat than its counterpart – K-Corp.

(For demonstration purpose, R1's reverse lens was computed like this (e.g., Table 12.6, Panel 2: 34.8% × 15.2% + 39.1% × 23.5% + 17.4% × 4.7% + 8.7% × 1 9.5%) = 0.17)

(d) Prepare RSI

Table 12.8 demonstrates how to arrive at the RSI for each firm. As there is only total asset data for each firm (see Table 12.5). Total asset was employed as the key resource endowment. It requires to allocate total asset to each segment of the target firm. Without further information, it is reasonable to assume that assets were allocated to sale amount proportionately. As such, Panel 1 of Table 12.6 provides an allocation key of total assets based on sale percent of each segment (data from Table 12.6, Panel 2). Panel 2 shows how the allocation of segment total asset of each firm is based on Panel 1. For example, general merchandise of R1 had the allocated segment asset of $278.3 M ($800 M × 34.8%). Panel 3 converts the allocated

Table 12.8 RSI (Based on Total Assets 2016)

RSI (based on total assets in US$ million)										
	K-Corp	R1	R2	R3	R4	R5	R6	R7	R8	Total
Total Assets	1000	800	900	500	300	2800	1700	600	900	9500
(Panel 1)	% to total sale as a allocation key									
General Merch.	43.5%	34.8%	100.0%	29.9%	0.0%	49.4%	0.0%	60.0%	0.0%	
Upmarket	34.8%	39.1%	0.0%	22.4%	0.0%	0.0%	58.3%	0.0%	0.0%	
Foods	4.3%	17.4%	0.0%	3.0%	0.0%	22.2%	0.0%	0.0%	50.0%	
Convenience	17.4%	8.7%	0.0%	0.0%	100.0%	3.7%	0.0%	10.0%	50.0%	
Unrelated	0.0%	0.0%	0.0%	44.8%	0.0%	24.7%	41.7%	30.0%	0.0%	
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
(Panel 2)	Allocated total assets by segments									
General Merch.	434.8	278.3	900.0	149.3	–	1,382.7	–	360.0	–	3505.0
Upmarket	347.8	313.0	–	111.9	–	–	991.7	–	–	1764.5
Foods	43.5	139.1	–	14.9	–	622.2	–	–	450.0	1269.8
Convenience	173.9	69.6	–	–	300.0	103.7	–	60.0	450.0	1157.2
Unrelated	–	–	–	223.9	–	691.4	708.3	180.0	–	1803.6
Total	1000.0	800.0	900.0	500.0	300.0	2800.0	1700.0	600.0	900.0	9500.0
(Panel 3)	Allocated total assets by segments (in percent)									
General Merch.	43.5%	34.8%	100.0%	29.9%	0.0%	49.4%	0.0%	60.0%	0.0%	36.9%
Upmarket	34.8%	39.1%	0.0%	22.4%	0.0%	0.0%	58.3%	0.0%	0.0%	18.6%
Foods	4.3%	17.4%	0.0%	3.0%	0.0%	22.2%	0.0%	0.0%	50.0%	13.4%
Convenience	17.4%	8.7%	0.0%	0.0%	100.0%	3.7%	0.0%	10.0%	50.0%	12.2%
Unrelated	0.0%	0.0%	0.0%	44.8%	0.0%	24.7%	41.7%	30.0%	0.0%	19.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

(continued)

Table 12.8 (continued)

RSI (based on total assets in US$ million)										
	K-Corp	R1	R2	R3	R4	R5	R6	R7	R8	Total
Total Assets	1000	800	900	500	300	2800	1700	600	900	9500
(Panel 4)	Resource shares among target group									
General Merch.	12.4%	7.9%	25.7%	4.3%	0.0%	39.4%	0.0%	10.3%	0.0%	100.0%
Upmarket	19.7%	17.7%	0.0%	6.3%	0.0%	0.0%	56.2%	0.0%	0.0%	100.0%
Foods	3.4%	11.0%	0.0%	1.2%	0.0%	49.0%	0.0%	0.0%	35.4%	100.0%
Convenience	15.0%	6.0%	0.0%	0.0%	25.9%	9.0%	0.0%	5.2%	38.9%	100.0%
(Panel 5)	RSI by segments									
General Merch.		0.03	0.11	0.02	–	0.17	–	0.04	–	
Upmarket		0.06	–	0.02	–	–	0.20	–	–	
Foods		0.00	–	0.00	–	0.02	–	–	0.02	
Convenience		0.01	–	–	0.05	0.02	–	0.01	0.07	
Total		0.11	0.11	0.04	0.05	0.21	0.20	0.05	0.08	

All section headers such as % to Total sale as a allocation Key are suggested to place in the center of the line

Table 12.9 MPI, ROS, market sale

	K-Corp	R1	R2	R3	R4	R5	R6	R7	R8
MPI	0.020	0.025	0.011	0.009	0.005	0.045	0.018	0.007	0.008
ROS	20%	25%	15%	18%	15%	28%	25%	14%	12%
Market share	10.0%	10.0%	7.0%	5.0%	3.0%	16.0%	7.0%	5.0%	7.0%

segment assets into % of total asset (Panel 1 and 3 should be identical). Panel 4 presents % share of total asset by segment in aggregate. The data in Panel 4 was computed by reference of Panel 2. For example, R1's resource shared (in terms of total asset) was 7.9% (278.3/3505). Panel 4 also indicates the strength of resource capabilities of K-Corp. relative to its rivals per each segment. Panel 5 summed up segment and overall RSIs of each rival. For example, R1 had the RSI of 0.11 (43.5 % × 7.9% + 34.8% × 17.7% + 4.3% × 11% + 17.4% × 6%).

An analysis of the resource capabilities of K-Corp. and its rivals has the preliminary findings as follows: R1, R2, and R8 had close resource capability; R3 and R4 were a bit below, while R5 and R6 were strong in resource capability.

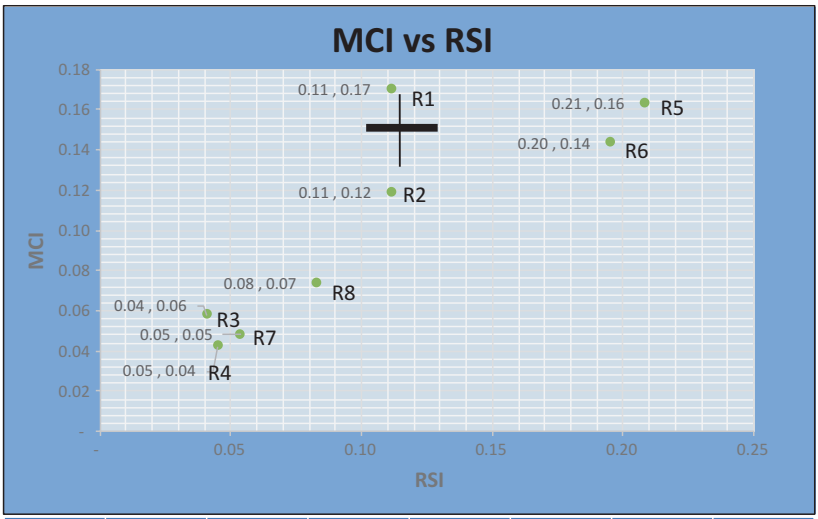
(e) Prepare MPI

MPI was computed based on Eq. (6.3) in Chap. 6, p 125 above. MPI, ROS, and market share for each rival were compared in the Table 12.9.

MPI was computed by multiplying ROS with market share. Using a firm-level MPI, the table shows that K-Corp was the third strongest firm among all nine firms in the market. R1, R5, and R6 were strong rivals, while R2, R3, R4, R7, and R8 were in the weak side. Looking at the breakdown, strong rivals were strong both in ROS and market share, while weak rivals were inferior in both indicators.

(f) MCI and RSI matrix

MCI data and RSI data were plotted in y- and x-axis accordingly to form a MCI vs RSI graph. The name of each rival (e.g., R1) with its coordinates was shown in the graph. As Chart 12.1 shows, data were scattered along the line from south west to north east, more dense data on south west. R1 rival was a close and direct competitor of K-Corp. It was therefore selected as a benchmark firm (set across next to it). R3, R4, R7, and R8 were weak rivals in terms of MCI and RSI, while R5 and R6 were strong competitors (i.e., high MCI and RSI) with some multimarket contact points though not full market overlap (e.g., R5:75% ((2000 + 900 + 150)/4050) as given in Table 12.4). R1 and R2 were close in MCI and RSI. R1 had a strong market power due to high ROS. One more point to note, R5 had a lower perception of MCI (0.09) on K-Corp. (0.16 as perceived by K-Corp.), but R4 shows a higher perception of MCI (0.2) on K-Corp. (as 0.04 perceived by K-Corp.).



	R3	R4	R7	R8	R1	R2	R5	R6
MPI	0.009	0.005	0.007	0.008	0.025	0.011	0.045	0.018

Chart 12.1 MCI, RSI, MPI

According to AMC perspective, it may increase chance to be attacked by R5, while it gives a good chance for K-Corp. to attack R4 because of its "optimistic" mutual forbearance.

(g) Proposed strategy

Given the above competitor analysis, a strategic action plan was proposed as follows:

1. As an overall direction, uphold the prevalent market positioning of the general merchandise and upmarket segments, and advance further market foods and convenience store segments.
2. Prepare for R5's possible attack, especially on the food segment.
3. Keep a status quo on market activities with R1, R2, R6, and R8 as there is no confidence of "sure win" on any initial attack.
4. Expand convenience store business by kicking R4 or R7 out of the market as a strategic step for expansion, taking the view that they cannot afford retaliation.
5. Expand food store business by sweeping R3 out of the market, speculating that it needs to defend the other segments.

12.5 Case 12.5: Ah Kin Electric Bike

Refer to Chap. 7.

Ah Kin and UFL were electrical bike manufacturers focused on the lower mid-range market in suburb cities and rural areas. These two manufacturers specialized in bicycle products operated by battery. During these days, it became more popular in China's small cities and suburb towns where public transport facility was inadequate to support the whole regions. With the coming of powerful lithium battery, electrical bike was less heavy, energy lasting, and more quickly rechargeable. Electrical bike was so easy to control, inexpensive, and relatively safe that it became a popular vehicle for folks in these regions. However, electrical bike was not a legitimate vehicle on main roads and busy streets. It was nevertheless acceptable by local police with "an eye closed" because of its necessity in daily use.

Ah Kin and UFL bicycle companies were direct competitors producing similar products in the Guangdong Province of PRC. Both firms had a strong market presence in these suburb areas and also had good connections with a few influential national retail chain stores. Bicycle production was a large but scattered industry in China. No particular strong market leaders could dominate the bicycle industry, particularly in suburban areas. UFL had been a key player in the region. A recent failure in product launch had drained out a lot of cash. A battery accident further damaged its reputation. Contrarily, Ah Kin had a better battery design (licensed by a third party supplier), more reliable products, and faster battery recharge. Ah Kin estimated that the market was stable at about one million of annual sale. Given the weak market position of its rival and its spare production capacity, Ah Kin believed time had come to terminate the competitor. Ah Kin asked its sale director and business controller, together with an external management consultant, to work out a solution to the Management Board. The controller managed to obtain UFL's financial performance from its recent public announcement in GEM (stock exchange market for small companies). The following outlined some selected key financial information for UFL and Ah Kin. The relative strength represented a 3-year average between UFL and its own firm (discussed in Accounting for Competitive Position Sect. 7.2.1 of Chap. 7) (Table 12.10).

Table 12.10 Summary of key financial numbers & relative strength

Year 2016 (USD)	UFL	Ah Kin (focal firm)	Relative strength
Sale value	15 M	19.2 M	0.8
Sale vol. (units)	100,000	120,000	0.8
Gross margin %	35%	40%	0.88
Opex %	27%	23%	1.3
Operating profit %	8%	17%	0.6
Plant & machinery	12 M	25 M	0.5
Cash flow from ops	1.5 M	6 M	3.5
Debt/equity ratio	0.6	–	–
Accum Depre./P&M	0.6	0.3	–

More information on the accounts of 2016 was collected by the controller.

UFL
For production cost, it had 50% of cost of sale on materials, parts, and accessories, and the remaining 50% of conversion costs included $2.4 million of fixed production cost. For Opex, UFL spent 5% of sales on advertising and 12% on sale delivery and commission fees; the rest was fixed expenses relating to R&D and administrative overheads. In addition, it had interest expenses of $ 200 K in which $1.5 million of the loan amount would be matured in a year. Its production capacity was 125 K units, 80% being utilized.

Ah Kin
For production cost, it had material costs at 45% of sale, and the remaining 55% conversion costs included $4.6 million of production fixed cost. Ah Kin had employed more automatic machine in production. For Opex, it had 4% of sales on advertising and 12% on sale delivery and commission fees; the rest was fixed expenses on R&D and overheads. Ah Kin had no debts and strong finance. It had a total production capacity of 200 K units, a utilization rate of 60%.

Assuming there was no change in inventory in both firms:

Required
You are asked to assist Ah Kin Bicycles Ltd. to write a market action plan to the Board taking into account two scenarios that (a) UFL would respond to the market action and (b) would not respond to the market action and evaluate feasibility and explore likely cost implications and risk to Ah Kin.

****

Suggested Solutions
I would like to follow the working steps as suggested in Chap .7, p 146.

1. Analyze financial positions of UFL and Ah Kin for the year 2016 (see Table 12.11):

Table 12.11 Summary of financial results

		Ah Kin bicycles Ltd.				UFL electrical bikes Ltd.		
USD million	Sale	Market share	Profit	Capacity utilization	Sale	Market share	Profit	Capacity utilization
2016(ACT)	19.2M	9.6%	3.26M	60%	15M	8%	1.2M	80%
Scheme I								
No response	20.7M	16.8%	2.9M	69%	13.5	9.0%	0.69	72%
With response	19.8M	13.2%	2.5M	66%	14.3	9.5%	0.52	76%
Scheme II								
No response	23.5M	16.8%	3.4M	84%	10.5M	7%	−0.33M	56%
With response	20.2M	14.4%	2.08M	72%	14.7M	10.5%	0.14M	84%

UFL

Sales = $15 M (100,000 units)
Sale price = $15 M/100,000 = $150
Operating profit = $1.2 M (8% of sale)
Cost and expenses = COS + Opex (*see* Table 12.10)
= $9.75+ $4.05 M = $13.8 M
Variable cost = ($7.35 M + $2.55 M) = $9.9 M
Fixed cost = ($2.4 M + $1.5 M) = $3.9 M
Unit VC = $9.9 M / 100,000 = $99
Unit contribution margin = $150 − $99 = $51 or 34% ($51/$150)
Cash flow from operations in 2016 = $1.5 M
Accum. depreciation/original cost of plant and mach. = 0.6
Loans to be matured with a year = $1.5 M
Interest expenses = $200,000

Ah Kin

Sale = $19.2 M (120,000 units)
Sale price = $19.2 M/120,000 = $160
Operating profit = $3.26 M (17% of sale)
Cost and expenses = COS + Opex
= $11.52 M+ $4.42 M = $15.94 M
Variable cost = ($6.92 M + $3.07 M) = $9.99 M
Fixed cost = ($4.6 M + $1.35 M) = $5.95 M
Unit VC = $9.99 M / 120,000 = $83.25
Unit contribution margin = $160 − $83.25 = $76.75 or 48% ($76.75/$160)
Cash flow from operations = $6 M
Accum. depreciation/original cost of plant and mach. = 0.3
Loans to be matured with a year = $0
Interest expenses = $0

2. Financial issues (*UFL relative to Ah Kin*)
   (a) Lower sale price ($150 vs $160), 6.7% lower in price
   (b) Low sale volume (100 K vs 120 K), 20% lower in volume (this implied UFL has lower market power than Ah Kin)
   (c) Low operating profit (($1.2 M vs $3.26 M)
   (d) Low manufacturing fixed cost ($2.4 M vs $4.6 M) implied labor-incentive operation
   (e) High variable cost per unit ($99 vs $83.25)
   (f) Relative obsolete machines imposed an operational issue (0.6 vs 0.3 in accumulative depreciation/plant and machinery)
   (g) Low cash flow from ops. ($1.5 M vs $6 M)
   (h) More funds required in the near future (both machine replacement and repayment of loan ($1.5 M)

(i) Poor relative strength
(j) Relative high utilization of capacity (80% vs 60%)

3. Price assumptions
   (a) Ah Kin enjoyed a higher price relative to UFL.
   (b) Ah Kin sold around 20% more in sale units relative to UFL.
   (c) Ah Kin could take sales from UFL with price at par.
   (d) Ah Kin could take even more sales from UFL and other rivals at a deep cut.
   (e) With more incentive commission fees to retail chained stores, low price effect on sale volume will magnify.
4. Constraint considerations

Market:	Market settled in a one million sale volume per year, low-entry barrier, open to competition
Sale agent:	Only a few in the region, friendly overall
Customers:	Low income group, price sensitive
Competitors:	No strong leaders, many competitors in low market shares
Suppliers:	Apparently, no supply problems emerged; a reliable and fast-charging lithium battery technology critical to business success
Law:	Illegal after all for electrical bike riders to use main roads

5. Evaluative Options

Two offensive actions (Scheme I and Scheme II) were designed both with action plans to deal with "no response" and with "market response" from UFL.

Scheme I: Price at par with UFL (at $150 from $160 and commission fees increase by 3% to the sale agent)

(a) *No market action from UFL*

Estimated effects on incremental sale units on Ah Kin: 15%
Estimated effects on reduction in sale unit on UFL: 10%

Ah Kin's new sale: $150 × (120,000 × 1.15) = $150 × 138,000
= $20.7 M (market share, 13.8%)
New profit: ($150 − $57.67* – ($150 × 19%)) × 138 K − $5.94 M
= $2.87 M (capacity utilization, 69%)
UFL's new sale: $150 × (100,000 × 0.9) = $150 × 90,000 = $13.5 M
(market share, 9%)
New profit: ($150 − $75.5* − ($150x17%)) × 90 K − $3.9 M
= $0.69 M (capacity utilization, 72%)

*(the variable portion of COS)

(b) *With market action from UFL (UFL increases commission fees to sale agents by 3%)*

Estimated effects on incremental sale units on Ah Kin: 10%
Estimated effects on reduction in sale unit on UFL: 5%

Ah Kin's new sale: $150 × (120,000 × 1.1) = $150 × 132,000 = $19.8 M
(market share,13.2%)
New profit: ($150 − $57.67 − ($150 × 19%)) × 132 K − $5.94 M
= $2.48 M (capacity utilization, 66%)
UFL's new sale: $150 × (100,000 × 0.95) = $150 × 95,000 = $14.25 M
(market share, 9.5%)
New profit: ($150 − $73.5 − ($150 × 20%)) × 95 K − $3.9 M
= $0.52 M (capacity utilization, 76%)

Scheme II: Deep price cut by 12. 5% (at $140 from $160 and commission fees increase by 3% to sale agents).

(a) *No market action from UFL*

Estimated effects on incremental sale units on Ah Kin: 40%
Estimated effects on reduction in sale unit on UFL: 30%

Ah Kin's new sale: $140 × (120,000 × 1.4) = $140 × 168,000
= $23.52 M (market share: 16.8%)
New profit: ($140 − $57.67 − ($140 × 19%)) × 168 K − $5.94 M
= $3.42 M (capacity utilization, 84%)
UFL's new sale: $150 × (100,000 × 0.7) = $150 × 70,000 = $10.5 M
(market share: 7%)
New profit: ($150 − $73.5- ($150 × 17%)) × 70 K − $3.9 M
=−$0.33 M (capacity utilization, 56%)

(b) *With market action from UFL (follow the deep price cut and increase commission fees by 3% to sale agents)*

Estimated effects on incremental sale units on Ah Kin, 20%
Estimated effects on incremental sale units on UFL, 5%

Ah Kin's new sale: $140 × (120,000 × 1.2) = $140 × 144,000 = $20.2 M
(Market share: 14.4%)
New profit: ($140 − $57.67 − ($140 × 19%)) × 144 K − $5.94 M
= $2.08 M (capacity utilization, 72%)
UFL's new sale: $140 × (100,000 × 1.05) = $140 × 105,000 = $14.7 M
(market share, 10.5%)
New profit: ($140 − $73.5 − ($140 × 20%)) × 105 K − $3.9 M
= $0.14 M (capacity utilization, 84%)

Table 12.12 Sensitivity analysis

	Ah Kin bicycles Ltd		UFL electrical bikes Ltd.	
	No response	*Response*	*No response*	*Response*
(US$ Million)	Scheme I		Scheme I	
Sensitivity to sale volume	*Change in Profit*	*Change in Profit*	*Change in Profit*	*Change in Profit*
If there is further change	(*+15%*)	(*+10%*)	(*−10%*)	(*−5%*)
−10%	2.10	1.72	0.18	0.05
−5%	2.48	2.10	0.43	0.29
Baseline	2.87	2.48	0.69	0.52
5%	3.25	2.87	1.00	0.84
10%	3.63	3.25	1.20	1.10
	Scheme II		Scheme II	
If there is further change	(*+40%*)	(*+20%*)	(*−30%*)	(*+5%*)
−10%	2.75	1.41	−0.84	−0.24
−5%	3.08	1.75	−0.59	−0.05
Baseline	3.42	2.08	−0.33	0.14
5%	3.75	2.42	−0.07	0.34
10%	4.09	2.75	0.18	0.53

Summary of Predictive Results

Detailed results have been at Tables 12.13 and 12.14. A summary of predictive is shown below.

6. Sensitivity analysis

To order to explore upside and downside calculation risk of each market action with respect to the change in sale volume and operating profit, a sensitivity analysis was performed. Table 12.12 summarizes deviation of changes from the baseline of the Scheme I and II up to 10% (both + and –). As noted in the Table 12.12, Scheme II has a higher volatility than Scheme I in the change of profit level. In addition, the shaded areas are those outcomes with a very slim chance to occur logically.

7. Evaluation of market options

After making all calculations, there are a few points for attention.

(a) Assuming that there is no change in the market situation, UFL could keep the present market share and profit level to meet the debt obligations when there is no market action from Ah Kin.
(b) With a new market action on Scheme I or II, UFL will have a serious profit retrenchment. With Scheme I (less aggressive pricing strategy), UFL will reduce profit by around 50%. With Scheme II (more aggressive strategy), UFL will reduce profit from 40% to 140% (loss). In the deep price cut of $140

Table 12.13 Financial results (2016) and predictions of Ah Kin and UFL based on nonresponse and response actions by UFL

Scheme I	Ah Kin bicyles Ltd.						UFL electrical bike Ltd.					
USD	A2016		No response		With response		A2016		No response		With response	
Rival group	n.a		n.a		n.a		Direct rival		Direct rival		Direct rival	
Market commonality	n.a		n.a		n.a		High		High		High	
Resource similarity	n.a		n.a		n.a		Weak		Weak		Weak	
Market power	Medium		Medium		Medium		Low		Low		Low	
Market share	9.6%		13.8%		13.2%		8%		9.0%		9.5%	
Market capacity	1,000,000		1,000,000		1,000,000		1,000,000		1,000,000		1,000,000	
Total capacity	200,000		200,000		200,000		125,000		125,000		125,000	
Current utilization	60.0%		69.0%		66.0%		80%		72%		76%	
Average sale price	160		150		150		150		150		150	
Sale value	19,200,000	100%	20,700,000	100%	19,800,000	100%	15,000,000	100%	13,500,000	100%	14,250,000	100%
Sale volume	120,000		138,000		132,000		100,000		90,000		95,000	
			(+15%)		(+10%)				(−10%)		(−5%)	
Cost of sale	11,520,000	60%	12,558,000	60.7%	12,212,000	61.7%	9,750,000	65%	9,015,000	66.8%	9,382,500	65.8%
Variable cost	*6,920,000*	*45%*	*7,958,000*	*38.4%*	*7,612,000*	*38.4%*	*7,350,000*	*49.0%*	*6,615,000*	*49.0%*	6,982,500	*49.0%*
Fixed cost	*4,600,000*	*15%*	*4,600,000*	*22.2%*	*4,600,000*	*23.2%*	*2,400,000*	*16.0%*	*2,400,000*	*17.8%*	2,400,000	*16.8%*
Gross margin%	7,680,000	40%	8,142,000	39.3%	7,588,000	38.3%	5,250,000	35%	4,485,000	33.2%	4,867,500	34.2%
Opex expenses	4,416,000	23%	5,277,000	25.5%	5,106,000	25.8%	4,050,000	27%	3,795,000	28.1%	4,350,000	30.5%
Variable cost	*3,072,000*	*16%*	*3,933,000*	*19.0%*	*3,762,000*	*19.0%*	*2,550,000*	*17%*	*2,295,000*	*17.0%*	*2,850,000*	*20.0%*
Fixed cost	*1,344,000*	*7%*	*1,344,000*	*6.5%*	*1,344,000*	*6.8%*	*1,500,000*	*10%*	*1,500,000*	*11.1%*	*1,500,000*	*10.5%*
Operating profit	3,264,000	17%	2,865,000	13.8%	2,482,000	12.5%	1,200,000	8%	690,000	5.1%	517,500	3.6%

Table 12.14 Financial results (2016) and predictions of Ah Kin and UFL based on nonresponse and response actions by UFL

Scheme II	Ah Kin bicycles Ltd.						UFL electrical bike Ltd.					
USD	A2016		No response (a)		With response (b)		A2016		No response (a)		With response (b)	
Rival group:	n.a		n.a		n.a		Direct rival		Direct rival		Direct rival	
Market commonality:	n.a		n.a		n.a		High		High		High	
Resource similarity	n.a		n.a		n.a		Weak		Weak		Weak	
Market power	Medium		Medium		Medium		Low		Low		Low	
Market share	9.6%		16.8%		14.4%		8%		7.0%		10.5%	
Market capacity	1,000,000		1,000,000		1,000,000		1,000,000		1,000,000		1,000,000	
Total capacity	200,000		200,000		200,000		125,000		125,000		125,000	
Current utilization	60.0%		84.0%		72.0%		80%		56%		84%	
Average sale price	160		140		140		150		150		140	
Sale value	19,200,000	100%	23,520,000	100%	20,160,000	100%	15,000,000	100%	10,500,000	100%	14,700,000	100%
Sale volume	120,000		168,000		144,000		100,000		70,000		105,000	
			(+40%)		(+20%)				(−30%)		(+5%)	
Cost of sale	11,520,000	60%	14,288,000	60.7%	12,904,000	64.0%	9,750,000	65%	7,545,000	71.9%	10,117,500	68.8%
Variable cost	*6,920,000*	*45%*	*9,688,000*	*41.2%*	*8,304,000*	*41.2%*	*7,350,000*	*49.0%*	*5,145,000*	*49.0%*	7,717,500	*52.5%*
Fixed cost	*4,600,000*	*15%*	*4,600,000*	*19.6%*	*4,600,000*	*22.8%*	*2,400,000*	*16.0%*	*2,400,000*	*22.9%*	2,400,000	*16.3%*
Gross margin%	7,680,000	40%	9,232,000	39.3%	7,256,000	36.0%	5,250,000	35%	2,955,000	28.1%	4,582.500	31.2%
Opex expenses	4,416,000	23%	5,812,800	24.7%	5,174,400	25.7%	4,050,000	27%	3,285,000	31.3%	4,440,000	30.2%
Variable cost	*3,072,000*	*16%*	*4,468,800*	*19.0%*	*3,830,400*	*19.0%*	*2,550,000*	*17.0%*	*1,785,000*	*17.0%*	2,940,000	*20.0%*
Fixed cost	*1,344,000*	*7%*	*1,344,000*	*5.7%*	*1,344,000*	*6.7%*	*1,500,000*	*10.0%*	*1,500,000*	*14.3%*	1,500,000	*10.2%*
Operating profit	3,264,000	17%	3,419,200	14.5%	2,081,600	10.3%	1,200,000	8%	(330,000)	−3.1%	142,500	1.0%

(Scheme II), UFL has no chance to survive, given the fact of additional interest expenses and loan repayment ($1.5 M) to be payable in 2017.

(c) Ah Kin can bet on both Scheme I and II. For the Scheme I, Ah Kin takes a careful strategy with a minimum cost on both scenarios (response and no response) by no more than $0.8 M but a gain in market share by 4%. However, UFL will not be seriously hit (around $0.5 M loss of profit). For the Scheme II, Ah Kin may gain both market share (+7%) and more profit ($3.4 M vs $3.3 M) (in the no response scenario) or reduction of $1.2 M of profit but can increase market share (+5%) (in the response scenario). However, there is a high chance for UFL to be exit from the market. It may help Ah Kin for further market expansion in future. Ah Kin can raise the price again after UFL's extinction.

(d) Sensitivity test on change of sale volume appears to support that the risk is affordable even in Scheme II. In the worse scenario, Ah Kin pays the cost to buy the market in future. The market expansion after UFL may be much larger.

(e) This market action will not cause great disturbance to the market. Even in response scenario of the Scheme II, the aggregate loss of market size for other rivals is less than 5%. Apparently, the risk of intensified market rivalry is low.

(f) In fact, Ah Kin has a low utilization of capacity currently (60%). With a high fixed production cost structure (40%), Ah Kin has a high unit contribution and can leverage more on operating profit for an expansion. Ah Kin can increase sale comfortable by 50% (additional 600 K units), meaning that the utilization will reach 90%. Ah Kin can easily absorb UFL's market size (1 million) with a moderate increase in plant and machine. From this business logic, Ah Kin's more aggressive market action (Scheme II) is not only a market opportunity but also a practical need to level off high fixed operating leverage.

8. Proposed recommendation

In recommendation, Scheme II (a deep price cut and higher incentive commission) than Scheme I has more business sense to proceed the market action. Though Scheme I is by nature a safe plan, it cannot strike UFL heavily. As a supplementary recommendation, Ah Kin may acquire UFL's market and its operations at a lower price when UFL is totally shattered. The loss of profit will pay off in future.

12.6 Case 12.6: Tender Bid

Refer to Chap. 8.

Jaime Cake was a nationwide bakery chain store in PRC, which had more than 1000 licensed shops in 50 first-tier cities around the country. Sales of one product, a fruit cake, alone were more than 30 million pieces a year. Jaime owned a small

production shop, producing a small quantity of frozen dough for cakes and pastries (the major part of a fruit cake). The bulk of supply came from production contractors who bid for a tender every year. Usually, those production contractors could manage a very thin profit from the contracts. This year, four suppliers were invited to bid, one of which was new. Three invitees had supplied Jaime Cake before and one of them refused to bid the tender again.

MongKee, located in Guangzhou in the south of China, was a famous contractor in China for insourcing production. It was its third year in business with Jaime Cake. Under its current capacity, MongKee could undertake production of 20 million pieces of dough. Best Foods was located in Wuhan, Central China. It was an associate company of Jaime Cake and could always win the tender even at a slightly higher price. Best Foods was a medium-sized factory with spare production capacity of eight million pieces to cater for Jaime Cake's contract. Chevalier, a new invitee and a neighbor of Best Foods, was a large factory with a capacity equivalent to 30 million pieces of dough. Chevalier had its own branded products. Due to a slow business in the recent year, Chevalier wanted to explore this insourcing business line to absorb the excess capacity. They knew the profit was far lower than the branded products.

The tender required the invitees to produce frozen dough for cake pastry. Major material prices (such as flour, margarine) were fixed, thanks to Jaime's strong negotiating power. The core part of the production processes was handmade. A single price (ex-factory price) was applied to all regions. Freight charges for each region were separately quoted.

Forecast demand quantity for each region is given in Table 12.15.

An estimate of freight charges for each region is provided in Table 12.16 – Regional freight charge estimates

MongKee summed up the information pertinent to the tender: the price for the existing contract was *RMB 60 per carton*. Variable cost was 70% (material costs were 60% and labor cost and other overheads were 40%) and fixed cost was 25% of the total contract value (RMB 4.8 million this year). Fifty percent of the fixed cost was fixed and the remaining subject to inflation. It was its first year of making profits after 2 consecutive years of loss. Best Foods' price was 6% higher than MongKee's and Jaime Cake's own production could never be as cost efficient as the contractors.

Table 12.15 Forecast demand quantity

In cartons (100 pieces per carton)	Region South	Region Central	Region North
Forecast sale volume	90,000	130,000	90,000

Table 12.16 Regional freight charge estimates

Average Freight charges per carton (in ¥ RMB)	From Region South	From Region Central
To Region South	0.5	3.9
To Region Central	3.0	0.7
To Region North	4.3	3.5

MongKee secured the Region South order this year. It wanted to get a larger share within its current capacity in order to make up the loss in the past years. MongKee anticipated a general price rise of 8% next year.

Question
How should MongKee price the tender?

****

Suggested Solutions

1. *Market Power*

Though the contract gave a low profit margin of 5% (i.e., 100%–70%–25%), MongKee was never weak in terms of market power. First, Jaime had very few choices on suppliers given the low margin nature of the bid, as evident from the withdrawal of one of the existing contractors. Jaime Cake was not as cost efficient as contractors. MongKee managed to survive in the third contract even though its price was lower than Best Foods. Second, MongKee had a regional advantage being the only producer in the south of China. The contract in the southern region was already in its pocket. Third, Chevalier was new in the insourcing business and needed a learning curve as MongKee did 3 years ago. Best Foods was not MongKee's competitor as the contract award was predesignated. Therefore, Chevalier was its only competitor.

However, Chevalier had market disadvantages in many aspects, learning curve in insourcing business and location of production, and it was new, particularly to this contract. MongKee enjoyed a high-low market power refer to Table 8.2 (Chap. 8, p 171) compared to Chevalier. MongKee could propose a higher price in the forthcoming contract or less aggressive pricing to capture market share. Aiming at an order expansion, MongKee should take a less risky route, i.e., less aggressive pricing decision.

2. *Regional Demands*

Forecast of regional demand and supply is given in Table 12.17 – Regional demand and supply. Insourcing is a side business for Chevalier (it had its own branded product), and it is legitimate to assume that it can only provide up to 50% of its capacity for this contract which means it has the same supply capacity as MongKee. Table 12.17 reflects a battle field in the Region North.

Table 12.17 Regional demand and supply

Per carton	Regional Forecast	Max. supply within the Region	Source of origin
Region South	90,000	200,000	Mong Kee
Region Central	130,000	230,000	Best foods (80,000)
			Chevalier (150,000[a])
Region North	90,000	None	N.a

[a]50% allocated to insourcing business 50% to its own brands

MongKee could comfortably secure the Region South contract of 90,000 cartons of frozen dough but required an extra effort to secure the northern order (MongKee, 200,000–90,000 cartons = 110,000 cartons). Insourcing production was new to Chevalier, and profit margin would not be as attractive as its own brand. So it was realistic to assume that Chevalier would only allocate 50% of the capacity for the new business, equal to 150,000 cartons. Total demand forecast for Region Central was 130,000 cartons. Best Foods was an implicitly mandatory contractor in the Region Central (80,000 cartons). This gave Chevalier a remaining balance of 50,000 cartons for the order. Chevalier had an excess capacity of 100,000 cartons – heads-on competition with MongKee. By then, it was crystal clear that a total available supply of 210,000 cartons of capacity from MongKee (110,000 cartons) and Chevalier (100,000 cartons) was chasing a demand for 90,000 cartons from Region North.

3. *Price Decisions*

MongKee might suggest the following assumptions for the low and high prices:

- *Low price*: To capture a larger market share in Region North, MongKee might follow the same price with an adjustment of inflation rate at 8% (i.e., RMB 60 × 108% = RMB 64.8).
- *High price*: To increase the price to make up profit margin, MongKee might consider to follow Best Foods' premium price (6% higher) after adjusting 8% inflation rate (i.e., RMB 60 × 108% × 106% = RMB 68.7).
- It is reasonable to assume that Chevalier would benchmark MongKee and Best Foods' current price as well, i.e., both would provide offer at ex-factory price.

The tender prices (incl. freight charges) for both companies are shown in Table 12.18 – Initial tender price for MongKee and Chevalier. MongKee should have the Region South order (90,000 cartons) and has a price higher by RMB 0.8 per carton, in the Region North order.

For RMB the low price, MongKee would get the entire Region South order and might undertake a small portion of contract for Region North because Chevalier is new and has not gained full confidence from Jaime (lower market power). However, MongKee might be able to have a larger share if the price was slightly lower than Chevalier, i.e., the price was down to RMB 64 per carton (decrease by RMB0.8). At this price, MongKee might secure 80% of Region North order. MongKee believed that Chevalier would not set the price lower than $64.8, given the speculation that the order would run at a loss because of learning curve in making an efficient production operation for this contract. In sum, MongKee and Chevalier might suggest *a low price strategy of RMB 64 and RMB64.8, respectively.*

For the high price scenario, both parties might suggest a price of RMB 68.7. Given this ex-factory contract rate, MongKee might have an all-inclusive price higher by RMB 0.8 per carton. To mitigate the freight difference, MongKee is willing to adjust the high price strategy to RMB 68 per carton which makes the high price strategy close to Chevalier. By the same token, MongKee would secure a

Table 12.18 Initial tender prices for MongKee and Chevalier

Per carton price (100pc)	Mong Kee's ex-factory price (C)	Chevalier's ex-factory price (C)	Mong Kee's Freight charges (F)	Chevalier's Freight Charges (F)	Mong Kee's C&F price	Chevalier's C&F price	Difference
			Low price (in RMB)				
Region South	64.8	64.8	0.5	3.9	65.3	68.7	−3.4
Region Central	64.8	64.8	3.0	0.7	67.8	65.5	2.3
Region North	64.8	64.8	4.3	3.5	69.1	68.3	0.8
			High price (in RMB)				
Region South	68.7	68.7	0.5	3.9	69.2	72.6	−3.4
Region Central	68.7	68.7	3.0	0.7	71.7	69.4	2.3
Region North	68.7	68.7	4.3	3.5	73	72.2	0.8

Table 12.19 Contract allocation

MongKee vs. Chevalier	MongKee	Chevalier
Low price vs low price	90K(S) + 72K(N) = 162K	50K(C) + 18K(N) = 68K
Low price vs high price	90K(S) + 90K(N) = 180K	50K(C) + 0(N) = 50K
High price vs low price	90K(S) + 0(N) = 90K	50K(C) + 90K(N) = 140K
High price vs high price	90K(S) + 72K(N) = 162K	50K(C) + 18K(N) = 68K

Notes: S = Region South; C = Region Central; N = Region North

higher portion of the Region North order compared to Chevalier as a new contractor (say 80:20) if both bid a high price. In sum, MongKee and Chevalier's *high price strategy is in the price range of RMB 68 and RMB 68.7, respectively.*

The following summarizes the possible contract quantity obtained from Jaime Bakery for MongKee and Chevalier both on the low price and high price strategies (in Table 12.19 – Contract allocation).

4. *Payoffs*

After estimating the price range and contract allocation (in quantity) from Table 12.19, the payoffs for each pricing scenario are summed up in Fig. 12.3 – Payoffs table for MongKee and Chevalier below.

The arrows are always pointing from low value to high value in each scenario. Using this arrow technique, the strictly dominant strategy for each pricing scenario can be identified. Figure 12.3 above shows dominant strategy in the low-low price case (the shaded box) since it is also the strictly dominant strategy. Both parties would choose the low price strategy in all situations. Let us go through the arrows. If Chevalier chooses a low price strategy, it would be right for MongKee to adopt a low price strategy. If Chevalier chooses a high price strategy, MongKee should stick

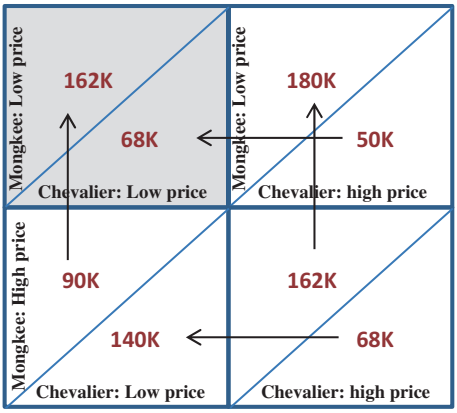


Fig. 12.3 Payoffs table for MongKee and Chevalier

to the low price strategy. In fact, the situation also applies to Chevalier. Chevalier would choose a low price strategy if MongKee opts for a low price. Equally, Chevalier would benefit from a low price if MongKee chooses a high price. Irrespective of the pricing decision of the other party, both would choose the low price strategy. It is typically a strictly dominant strategy.

5. *Profit Estimate*

The profit estimate for the low price strategy is computed with the profit equation in the CVP model.

Profits = (price – Variable costs) × volume – Fixed cost
Price = RMB 64
Variable cost = RMB60 × 70% × 108% = RMB 45.36
Fixed cost = RMB 4.8 million × 25% = RMB 1.2 million
Fixed cost for the next year (assuming 50% was subject to inflation rate adjustment):
RMB 0.6 million × 108% + RMB 0.6 million = RMB 1.248 M.
Profit estimates for the low price strategy=
RMB (64 – 45.36) × 162,000 – RMB 1.248 = RMB 1.77 million

With this low price strategy, MongKee may make a higher profit margin for the contract of the coming year with a profit margin of RMB 1.77 M/(RMB64 × 162 K) = 17%. It would be a harvest year.

12.7 Case 12.7: Abbraccio Caffè

Refer to Chap. 9.

Abbraccio Caffè (ABC) was an Italian coffee bar and restaurant chain which had operations in Atlanda, a small tourist city of Italy. ABC used to operate in good traffic locations such as tourist spots, popular shopping malls, and central prime districts. ABC provided comfortable venue decorated with a theme of Italian lifestyle, relaxed, and friendly atmosphere. ABC provided a variety of coffee full of Italian cultural sentiments – strong, carefree, and passionate. The specially brewed liquored coffee menu (e.g., caffè corretto, Patriota cocktail) was particularly loved by customers. ABC's crispy mini pizza, creamy homemade ice-cream cones, and special chocolate truffle gift sets were the hot items in the shelves.

Piero Aconi, the founder of ABC, has started his coffee career as early as his 20s. In more than 30 years of history in coffee making, he developed a very sophisticated, delicious, and unique blended coffee brewed in a specially designed coffee making machine. Customers were fond of the taste. He kept the recipe for himself and his three sons. The recipe was the shop's most important intangible asset.

He had a very stable crew who were loyal and joyful. Piero loved them and was friendly to his staff and customers. Piero knew the importance of a trustworthy crew in this service industry, whose helpfulness, cheerfulness, and friendliness attributed to customer loyalty and business prosperity. He liked simple operations. He delegated work and insisted shop managers to be responsible for profits. He installed an accounting software to keep track of daily sales, cash on hand, and weekly operating performance of each shop. This software was employed by his ten shops in the city. In fact, Piero traveled every week to meet his staff and customers.

Piero was proud of his coffee which, in his view, was far better than Starbucks. In fact, his coffee was highly recognized by the public, and a local press has named it a star restaurant in the 2005 regional survey.

After the financial tsunami in late 2000s, Piero looked for a business opportunity in China. Piero paid a few visits to Hong Kong and Shanghai in 2012 and conducted several field research studies. He firmly believed a good prospect in the China market because of high GDP growth and the rise of middle class. The most important message he got was that Chinese young generations were curious about Western lifestyle. He thought this was his last chance in his lifetime.

In 2014, ABC started operations in Hong Kong. Piero replicated the entire operation at home including shop decoration, coffee menu, and gift shops. He believed "the unique Italian taste and lifestyle" was its selling point. He was obsessed by the belief that "if Starbucks could do, I could do it better." He intentionally set up shops nearby Starbucks with price comparable to its rival.

In 2 years' time, ABC opened five shops in Hong Kong. Two shops offered full product ranges and three provided coffee only. All shops were breakeven within 6 months. He had a strategic plan to open five more shops in Hong Kong in the next 2 years. Similarly, he planned to open shops in China from 2016 with a speed of ten shops per year in Shenzhen, Guangzhou, and Shanghai.

In view of the huge capital funds and the lack of China market experiences, he planned to invite local business partners for this venture.

Questions
Examine ABC's strategic position, establish corporate goals, and suggest key strategies to achieve the goals. Suggest key directives for the detailed strategic plan.

****

Suggested Soultions

1. *Strategic Position Review*

Let's review ABC's strategic position by reference to Fig. 9.2 – business drivers (in Chap. 9). This diagram triangulates the relationships of ABC's competitive advantages, strategic drivers, and value drivers.

To begin with competitive advantages, ABC has caught a right time when China's coffee market was rising. Dangling in specialty coffee shop becomes a fad among young and professional generations. There is huge market opportunity for expansion in this region. In fact, the success of ABC's strategic positioning was affirmed by a quick breakeven within 6 months of operation in Hong Kong. Bearing in mind that Piero used Hong Kong to test the Asian market, the operating performance gave him a strong assurance. ABC firmly believed that competitive advantages came from its sophisticated taste, good quality, uniqueness in Italian lifestyle, warm and friendly atmosphere, and most important product differentiation.

As regards strategic drivers, ABC needs a good operation crew, good location for shops (part of branding and market positioning), assured quality products, and solid finance. These are key resources. Also, ABC has a simple organization structure and work process. This facilitates easy management. Technological skills are low, and ABC could employ the same coffee making and serving procedure as the headquarter in Italy.

With this simple operation, the performance of coffee shop could be evaluated independently. In fact, Piero and his key members can pass on the experience of working in Hong Kong to the new shops in China. He is confident that his key members of the crew in Hong Kong could cook a typical Italian coffee adaptive to the taste of China customers. Given his long experience in the field, Piero could replicate the similar management system, standard procedure, effective reward system, simple accounting controls, and quality assurance in monitoring overseas expansion.

In terms of value drivers, ABC wants a strong revenue driver including product variety, high ticket value, and new and repeated customers to boost revenue growth. The nature of businesses would inevitably require top-quality coffee beans and fitting and fixture (e.g., nicely decorated with imported Italian furniture). The expenses should match to business activities and the price. ABC has operated coffee shops in commercial and shopping district with expensive rentals. The price should be at least close to Starbucks' price. To cover the high-cost nature of the specialty coffee shop, ABC must establish a premium brand with premium price on coffee. Also, ABC has to keep good sale volume and premium price for its specialty coffee products (e.g., liquored coffee), merchandized gifts, and light foods (cheese cakes, pizza). After all,

ABC's growth drivers from two sources increase in shops within the locality and regional expansion in China. These two growth engines improve ABC's economy of operations.

To facilitate easy reference, Table 12.20 provides a summary of competitive advantages and strategic and value drivers of ABC's operations in Hong Kong and China.

2. *Corporate Goals*

ABC's corporate goals are clear:

(a) Establish strong brand name with solid financial results to lure investments from potential partners.
(b) Capture market share in the coffee operator business in China, e.g., Hong Kong, Shenzhen, Guangzhou, and Shanghai.

3. *Key Strategies*

Table 12.20 Summary of competitive advantages and strategic and value drivers

Competitive advantages Well-tested operation, sophisticated taste, good quality, uniqueness in Italian lifestyle, warm and friendly atmosphere, brand building			
Strategic drivers		**Value drivers**	
Key resources	Operation crew	*Revenue drivers*	Product variety
	Coffee recipe		Customer ticket value
	Brewery machine		Repeat and new customers
	Italian brand		
	Location		
	Strong finance		
Organization structure	Simple but manageable team	*Cost drivers*	Material purchases
			Rental
			Staff costs
Technological skills	Standardized brewery process	*Profit drivers*	Volume
			Premium product
			Product mix
Learning experiences	Founders' technical knowhow and business insights in this business	*Gross margin*	Premium price
			Cost of coffee
Management system	Standardized operating procedure	*Growth drivers*	Increase in shops
	Reward system for self-motivation		Expand regional markets
	Monitoring accounting system		
	Quality assurance		

Key strategies are developed to help ABC in meeting its corporate goals. These are the following:

(a) Shop close to the competitor – Starbucks.
(b) Replicate the Italian lifestyle setting and tastes in all shops.
(c) Promote full product range similar to the headquarter if possible.
(d) Standardize material purchase of coffee mix from the headquarter.
(e) Quality standardization and assurance in all shops in the region.
(f) Common operating systems and organization structure for all shops.
(g) Good pay for well-trained and motivated staff.
(h) Performance evaluation system on individual shops and financial results tied to rewards.
(i) Full swing in the market expansion plan from 2016 to 2020.

Product differentiation comes from specialty coffee, Italian lifestyle in decors, and market positioning close to Starbucks; these are strategies from point a to point c. To assure the quality of service, it has to follow the similar operation model of the Italian headquarter, training of the local crew from Piero, and good pay. These are point d to point g. These Hong Kong crew could also help training of new staff during China's early expansion. The success of the above key strategies would help ABC in its brand development, and a performance evaluation system on individual shops would improve accountability of shop managers and the respective staff to financial results (corporate goal a).

To capture the market share in the regional market, ABC should adhere to the implementation growth plan with good track record performance to pledge assurance to potential investors (corporate goal b).

In short, all nine key strategies provide a mandate for a growth strategy over the forecast period.

4. *Key Directives for Detailed Strategic Plans*

The following are the key directives for guiding detailed strategic plans:

(a) Set up a development team in Italy with the help of Hong Kong staff to execute HK growth plan (**how to**).
(b) To support the China plan, ABC is required to increase capital funds and experienced joint venture partners in this region (**what for**).
(c) ABC needs to allocate an investment budget of 2 million RMB dollars (say) per each coffee bar restaurant in China (**where to**).
(d) ABC plans to increase five shops each in Guangzhou and Shenzhen each year from 2016 to 2020 (**what for**).

12.8 Case 12.8: Telnet Ltd.

Refer to Chap. 11.

Telnet Ltd., registered in China, was a wholly owned subsidiary of Telnet Int'l – a US-based company for telecom equipment supplies. Telnet had been in the China market since 1980s. The recent 10 years were particularly successful in terms of market share and profit contribution. Most recent years, mobile network sale volume increased substantially by 15–20% every year. However, price erosion was as much as sale growth, making a low to no sale growth in dollar value. Telnet was particularly frustrated in face of the rising local competitors who were technologically savvy and commercial aggressive. China market was gradually eroded by hungry local competitors.

In fact, Telnet's service business performed better than network system business. Total service revenue was only 10–15% of the total sale revenue, but profit margin % was double compared to system sale. This business area had high potentials for further development.

John Martin, China president of Telnet, was committed to spur service businesses particularly to two major service businesses: large-volume low-end network installation businesses and managed service businesses. However, cost was a major issue. Telnet had exceptionally high-cost structure that could not be reduced immediately. Telnet could charge at a higher price in the past, but the narrowing competence gap made the high price uncompetitive.

John put the hope on low-end network installation and managed service businesses as both businesses would generate tremendous sale volume that satisfied the target goal from the headquarter. John reckoned that low-end rollout contract would generate an additional CNY 800 million per year. Order intake was steady accompanied with annual network system expansion. It was a large volume but with a low margin (average 12–15% for local players). As regards managed service business, it was even more attractive. Managed services was getting popular in industry as there was a general consensus among telecom operators that they should focus more on market than on technical details that should leave it to specialized service providers. John estimated that it could get another CNY 400 million of service fees annually with competitive conditions.

John could not solve the cost issue immediately. He looked for acquisition opportunities on local service company to meet Telnet's new business direction. John soon discovered that ICT, its local competitor, was seeking collaboration opportunities with international firms.

ICT had a strong presence in Shandong and recently entered into the adjacent province Jiangsu with success. ICT possessed a workforce of about 1000 staff, dedicating to the low- to medium-end network rollout services, field maintenance, and network consulting. They had a market share of 8–10% in low-end network rollout contract and were the first local company awarded a 3-year CNY 150 million managed contact in a Shandong telecom operator. This gave a good credential in the managed service industry. ICT had been in the industry for more than 10 years and

Table 12.21 5-year forecast for the new JV

MCNY	2015	2016	2017	2018	2019	5 Year
ICT	430	540	675	844	1050	3539
Telnet	150	195	255	330	430	1360
Total sales	580	735	930	1174	1480	4899
Net cash profit	69.6	88.2	111.6	140.9	177.6	587.9

Notes:
(a) Sales restricted to the Shandong and Jiangsu businesses
(b) Assuming annual growth for ICT at 25% and Telnet at 30%
(c) Net profit tax at 12%
(d) Assuming there is 4% growth after 5-year

was highly regarded for its management competence, quality of work, and cost control. ICT was a company 100% owned and operated by local management. One of the major shareholders was very influential in the industry. ICT had been awarded "the preferred partner" from major customers in 2007 and 2008. It had an annual sale turnover of CNY 380 million in 2014, double-digit growth for three consecutive years. ICT looked for new market opportunities and advanced skills to meet the new technological era. ICT looked to a bigger market, higher value-added services, and international recognition. The shareholders aimed at international markets beyond the China border.

Apparently, this was a perfect match that both firms complemented with one another. Both parties believed the synergetic effect of putting them together for a better business growth. They believed that sale turnover would double in three years. With minimum efforts of negotiation, Telnet signed an agreement to acquire 49% of ICT's shareholding (5-year forecast in Table 12.21). Additional relevant information in the JV agreement included the following:

- *Business scope:* (a) ICT should have the *exclusive rights* for the entire business of low-end network rollout and managed services for the regions of Shandong and Jiangsu. Telnet should hand over the existing business to ICT (about RMB 50 million in these two provinces) within 6 months from the signing of the joint venture agreement; (b) NET should assist ICT in transfer of new technology.
- *Shareholding:* (a) Telnet should acquire 49% of ICT shareholding, and another 49% was held by existing shareholders acting in concert. The remaining 2% was held by a shareholder accepted by both NET and ICT. Shares could be sold or disposed to a third party only with the full consent from all shareholders.
- *Management and the board of directors:* (a) The chairman of ICT was appointed by Telnet, and the CEO was appointed by ICT. Major shareholders could appoint up to three directors to the board. Minor shareholder could appoint one director. Each director in the board bears the same voting right. (b) Telnet was responsible for financial controls and new technology transfer. Chief financial officer and chief technology officer of ICT should be appointed by Telnet.
- *Pricing for the shareholding (49%)*: PE x 8 times (2-year average).

Audited financial results for 2013/2014 and total net asset were in Table 12.22.

Table 12.22 ICT audited financial statement and total net asset (after valuation)

ICT limited audited financial statement for the year ended 2004		
In MCNY	2004	2003
Sale revenues	345.0	293.0
Cost of sales	205.0	167.0
Sale tax & VATs	16.0	14.0
Gross margin	124.0	112.0
Other revenues	4.0	6.0
Management & general expenses	41.0	35.0
Profits before interest	87.0	83.0
Corporation tax	13.0	11.0
Net profits after tax	73.0	71.0
Total net assets (after valuation)	140.0	n.a.

Questions

1. Assess payoff structures of both parties.
2. Assess stability of the alliance.
3. Are they "perfect match" in this new JV?
4. Comment on the governance arrangements.
5. Is the price fair to Telnet (based on discount rate of 14% for low risk and 18% on high risk)?
6. Can the synergy value be retained?

Suggested Solutions

1. *Assess payoff structures of both parties*

Telnet: Telnet was a large international firm with strong market presence in China. It has a stronger financial resources, higher technological skills, and more powerful resource capabilities in the market. According to its market forecast, total sale potentials for Telnet was CNY 1200 million per annum (network installation, 800M + managed services, 400M). If a similar ICT's low-cost operation model was implemented successfully in other regions, Telnet could secure additional sales on low-end network installation and managed service businesses (except Shandong and Jiangsu province of CNY 150M transferred to new JV), accruing private benefits (sales potential) in 2015 equivalent to CNY 1050M (1200M–150M). In terms of common benefits in 2015, it had the sale of CNY 580M in total (see Appendix A).

ICT's Existing Shareholders: Its existing shareholders could receive on the sale of 51% shareholding (above the net asset value) as a private benefit (see item 5 below) and the common benefit of sale potential at CNY 580M.

Payoff Structure: The payoff of both parties is depicted in Fig. 12.4.

As noted in the diagram, Telnet had a bigger pie compared to that owned by ICT's existing shareholders. Telnet's private benefits would be CNY 1050M in 2015

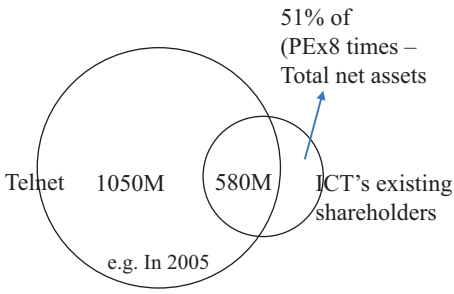


Fig. 12.4 Payoff structure of Telnet and ICT's old shareholders

(assuming successfully taking up the target contracts) and would enlarge as service market share increased while ICT's private benefits occurred in 2015 only from the sale of 51% ICT's shareholdings. The overlapping area between two pies was CNY 580M, being their shares of common benefits. Private benefits of Telnet would continue permanently, while private benefits of ICT's existing shareholders were a one-time transaction (see item 5 later). Telnet had asymmetric incentives to seek opportunistic behaviors because of imbalanced payoff structures between two parties.

2. *Assess stability of the alliance*

The bias in payoff structure suggests that it is an exploitative type of alliance relationship (see Sect. 11.3.1, Chap. 11). Telnet was in an upper hand with a chance to exercise exploitative behaviors. Telnet had the market outside the agreement far greater than the JV. Telnet had sound financial resources and got hold of new technological skills. What Telnet needed from ICT was a flexibility to reduce operating cost to meet the new business needs. However, Telnet could repeat this JV model in other provinces. This put ICT in an adverse situation with less bargaining power to safeguard against Telnet's possible opportunistic behaviors. ICT was more vulnerable in this alliance relationship though it apparently had a better local influence of the local shareholders' background.

3. *Are they "perfect match" in this new JV?*

There are three dimensions to evaluate the interfirm fit of a strategic alliance: strategic, organizational, and operational dimensions. The analysis was given below.

Strategic Dimension: Apparently, both companies complemented with each other in terms of their market focus. For example, ICT's strength was traditionally in a low-end network rollout projects, while Telnet was in high-end technological projects. The new JV can increase the range of product offerings. However, both companies were quite different in market experiences and market size. Telnet had a wider market coverage in a national scale, while ICT was strong in regional presence. It posed a doubt whether Telnet would sincerely share the new projects to ICT beyond the established provinces (i.e., Shandong and Jiangsu). In fact, one

important difference was the strategic intent of the partners. Telnet attempted to find a low-cost prescription from ICT, while ICT wanted to expand the business beyond the national boundary. This strategic difference would create a goal conflict in both major shareholders when working on more specific and concrete goals or targets later on for the new JV.

Organizational Dimension: Once again, both Telnet and ICT were very different in their organizational structure, corporate culture, leadership style, and working experiences. These differences, aggravated by cultural difference and the local leadership style, would require substantial adjustments in both partners which increase uncertainty in the strategic fit of both partners.

Operational Dimension: Based on major organizational differences in Telnet and ICT and the check-and-balance arrangements in position arrangements, there is very likely that daily operational activities could not be smoothly carried out. The two key personnel of ICT (i.e., CFO and CTO) were appointed by Telnet, not the CEO directly. It would be difficult for CEO to manage the key posts and may sabotage the operational efficiency of the old ICT work process.

In short, both partners were too hasty in concluding a cooperative deal without giving full attention to strategic, organizational, and operational variations in this alliance. This misalignment would create conflicts in both partners when these inherent strategic, organizational, and operational issues came to surface.

4. *Comment on the governance arrangements*

Both partners have an equal shareholding of 49%, leaving 2% to be held by a mutually trusted third party. However, this shareholding arrangement creates an equal vote on Telnet and ICT whose market, financial, operational resources, and capabilities are so imbalanced. The equal voting rights on both partners with intrinsic difference in resource and capabilities would increase partnership conflicts because Telnet would consider to have invested more resources (e.g., transfer of technology skills) than the local partner and should have more influence in decision making. This mindset has been reflected in the management arrangement where Telnet appointed the Chairman, CFO, and CTO, while ICT appointed the CEO solely. Telnet attempted to control ICT's strategic decisions from the Chairman appointed by it and post two key personnel in counterbalancing CEO's influence. This governance arrangement would create conflicts both in operations and strategic decisions. Fortunately, the third partner (2% and one vote) could act as a mediator between two major partners when conflicts arise. Also, the "full consent" requirement in exit arrangement has created a high threshold of separation, making all partners with every attempt to maintain a good working relationship as much as possible.

5. *Is the price fair?*

We should assume that the five forecast net cash profits presented in Table 12.21 are the profits that cannot be materialized by Telnet without the JV of ICT because

of the existing expensive cost structure. Therefore, the share of profits from the new JV can represent an added value to Telnet by the share acquisition. Similar to the NPV method as discussed in Chap. 10, the business value composes of two parts: the accumulative net present value from 2015 to 2019 and the terminal value after 2019 based on the perpetual valuation method with growth at 4%. Let's address (a) NPV of cash profit and then (b) terminal value.

1. *Using low-risk discount rate (r) at 14% and growth rate (g) at 4%p.a.*,

   (a) NPV of 5-year cash profit = $69.6/(1+14\%) + 88.2/(1+14\%)^2 + 111.6/(1 + 14\%)^3 + 140.9/(1 + 14\%)^4 + 177.6/(1 + 14\%)^5$ = CNY 380.18M

   (bi) Terminal value = Perpetual value × $(1 + g)/(r – g)$ = $177.6 \times (1 + 4\%)/(14\% – 4\%)$ = CNY 1847M
   (bii) NPV of Terminal value = $1847/(1+14\%)^5$ = CNY959.3M

   Value of the Business = (a) + (bii) = 380.18 + 959.3 = CNY 1339.5M

2. *Using high-risk discount rate (r) at 18% and growth rate (g) at 4%p.a.,*

   (b) NPV of 5-year cash profit = $69.6/(1 + 18\%) + 88.2/(1 + 18\%)^2 + 111.6/(1+18\%)^3 + 140.9/(1 + 18\%)^4 + 177.6/(1 + 18\%)^5$ = CNY 340.57M

   (bi) Terminal value = Perpetual value × $(1 + g)/(r – g)$ = $177.6 \times (1 + 4\%)/(18\%–4\%)$ = CNY 1319M
   (bii) NPV of Terminal value = $1319/(1 + 18\%)^5$ = CNY576.5M

   Value of the Business = (a) + (bii) = 340.57 + 576.5 = CNY 917M

In terms of the value of business, ICT could generate a value of CNY 1339.5M at a low-risk discount rate and CNY 917M at a high-risk discount rate. It is likely that the joint venture will be in a high-risk level given the arguments in the above Q1 to Q4. Looking at the ask price of P.E x 8 times, the total price for ICT (100%) is CNY72M × 8 = CNY576M. (Telnet's payment for 49% of shareholding is CNY282.2M.) The price is fair to Telnet compared to NPV calculations that the value of business is higher than the asking price.

6. *Can the synergy value be retained?*

It is worrisome that synergy value can be retained given the stability problem of the joint venture. Problems may arise from different agenda of the major partners, cultural conflicts, inherent problems in the governance structure, possible opportunistic behaviors of Telnet, etc. All these problems may result in cutting down the synergy value of the business, including negative value.

To rectify, the new JV should seek assistance from the third partner (the respectful partner) to develop more trusting and working relationships with the other two

partners, including alignment of strategic goal, objectives, and targets for the JV. CEO should implement more clear guidelines, policies, and reward system in operational level with board endorsement. Through risk mitigation measure in increasing behavioral control (see Sect. 11.5.1, Chap. 11), the CEO can prevent challenges from the CFO and CTO who are under his supervision but appointed by Telnet.