Special section: Winning in your industry: new tools and strategies

A new competitive analysis tool: the relative profitability and growth matrix

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A brief history of the competitive analysis matrix: 1970 to the present

The theory, process and tools of competitive analysis are keystones of strategy. Michael Porter's 1980 book, Competitive Strategy, *and the Five Forces model it introduced provide a framework for the systematic study of the external environment as a method of developing a competitive strategy*[1]. *Subsequent researchers have refined Porter's model; in practice, however, this type of analysis can be inordinately complex and often does not summarize easily. Since executive time is always in short supply, finding effective ways of focusing analytical activities and communicating the information generated from those activities can help increase the overall return on management*[2].

One of the most versatile tools for summarizing and communicating strategic information is the 2 × 2 matrix, which graphs two variables and defines the four outputs derived from them. While some may complain that the 2 × 2 matrix oversimplifies issues, it has proven to be an extremely useful business tool. Properly used, it provides a visual focus on a core set of variables, thus modeling a complex situation ''as a set of dueling interests'[3]. *It can also offer insights into resource allocation alternatives (such as competing in segments with strong levels of profitability but lower levels of growth versus segments with very strong growth but lower levels of profitability, etc.) and help to initiate more detailed levels of analyses.*

One of the most popular 2 × 2 matrices was formulated by the late Bruce D. Henderson, the founder of the Boston Consulting Group (BCG). Henderson utilized the market growth rate and relative market share – calculated by dividing a business unit's or firm's market share by the market share of its largest competitors – to derive what came to be known as the BCG matrix. The four boxes of the matrix were named stars, cash cows, problem children (or question marks), and dogs.

Designed in the 1970s during an era of business integration, the BCG matrix clearly illustrated the relative performance of business units within a conglomerate. For executives seeking to optimize a conglomerate's mixture of cash-generating cows and cash-hungry stars and problem children while divesting (or turning around) dogs, the matrix, combined with analysis techniques like the experience curve, was a popular tool. However, as conglomerates fell out of favor in the 1980s so too, generally, did the BCG matrix. An apparent disadvantage of the matrix was that it assumed that market share was a reliable indicator of future profitability. Even though the BCG matrix was a useful way to think about the mix of business units within a firm, it was generally of limited use as a managerial tool when the business environment changed from size-focused to value-focused. Nevertheless, the basic structure of the BCG matrix has remained popular and is still included in virtually every MBA curriculum.

In our analysis and study of 2 × 2 matrices we substituted and tested different axis variables before choosing relative profitability and relative growth to create a new competitive analysis 2 × 2 matrix. In this article we first define relative profitability and relative growth and

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introduce the nomenclature of our matrix quadrants. Then we apply our relative profitability and growth matrix to the insurance industry and banking industry to demonstrate its usefulness and versatility as a competitive analysis screening and communications tool.

Relative profitability and relative growth are simply the differences between a firm's profitability and growth measures and the profitability and growth measures of its industry. Utilizing these variables to construct a 2 × 2 matrix we classified the resulting quadrants as franchise, harvest, unprofitable growth, and under-performer (see Exhibit 1)[4].

In practice, the relative profitability and growth matrix offers a graphic assessment of a company relative to its industry. But like all 2 × 2 matrices, it is a screening tool that should be used to facilitate further forms of analysis. It identifies four types:

1. *Franchise*. These firms are both more profitable and growing faster than their industry.
2. *Harvest*. Firms of this type are more profitable than their industry but are growing at a slower rate than it is.
3. *Unprofitable growth*. These are firms that are less profitable than their industry but are nevertheless growing faster than it is.
4. *Under-performer*. Such firms are both less profitable than their industry and are growing slower than it is.

Profitability and growth are widely acknowledged drivers of a firm's value, which is a term that can be defined as the price capital market participants place on a firm's equity – and also on its debt, depending on how the term is defined. A popular measure of profitability is the return on equity (ROE), which is simply the ratio of net income to average book equity[5]. ROE is both well known and a reasonable measure of performance[6], which can be easily analyzed via the popular DuPont Method[7]. We can utilize ROE to calculate relative profitability for purposes of constructing a Relative Profitability and Growth matrix by subtracting a firm's ROE from the ROE of its industry. For example, consider the property and casualty (P&C) insurance industry. In the year 2005, that industry earned $43 billion and its average book equity was $409 billion for a ROE of 10.5 percent[8]. In Exhibit 2 we calculate relative profitability for 22 randomly selected P&C insurance companies by subtracting the industry ROE of 10.5 percent from each firm's ROE in the year 2005[9].

A similar procedure is utilized for calculating relative growth. For example, the industry growth rate for P&C revenue or premium from 2004 to 2005 was 2.6 percent[10]. Exhibit 3 shows the relative growth calculations for the 22 P&C insurers profiled in our example.

Exhibit 1 The relative profitability and growth matrix

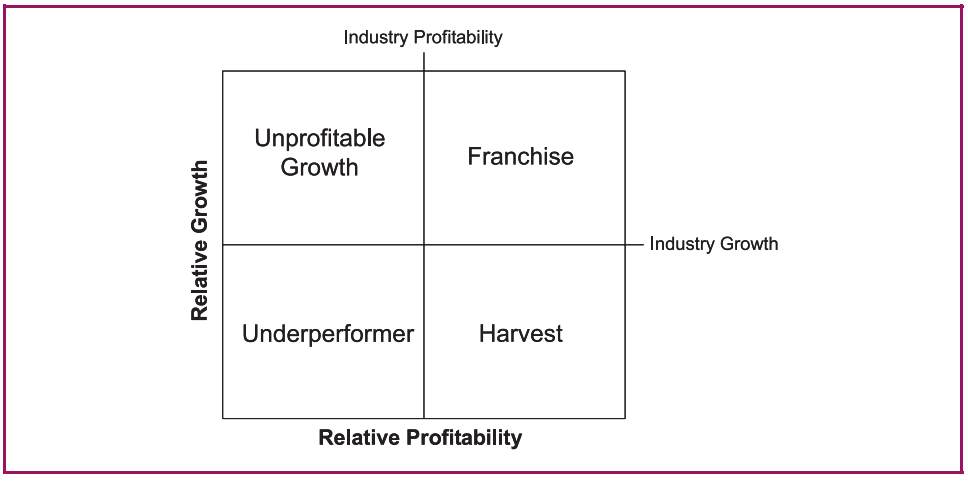


Exhibit 2 Relative P&C profitability calculations

Ticker symbol	ROE_{Firm} (%) (1)	$ROE_{Industry}$ (%) (2)	$ROE_{Relative}$ (%) (3)= (1) − (2)
ACE	9.5	10.5	−1.0
ALL	8.4	10.5	−2.1
AGII	12.2	10.5	1.7
AHL	−10.1	10.5	−20.6
CB	16.2	10.5	5.7
CINF	9.8	10.5	−0.7
ERIE	18.2	10.5	7.7
THG	−15.2	10.5	−25.7
HGIC	10.2	10.5	−0.3
HCC	13.0	10.5	2.5
IPCC	18.1	10.5	7.6
MKL	8.8	10.5	−1.7
MIG	10.4	10.5	−0.1
MIGP	6.9	10.5	−3.6
MLAN	14.3	10.5	3.8
OCAS	15.6	10.5	5.1
PMACA	−4.9	10.5	−15.4
PGR	24.8	10.5	14.3
RLI	16.3	10.5	5.8
SAFC	17.2	10.5	6.7
STA	7.5	10.5	−3.0
XL	−15.4	10.5	−25.9

Source: Net income and book equity figures for 2005 and 2004 for each firm are from www.wallstreetjournal.com; calculations are the authors'

Exhibit 3 Relative P&C growth calculations

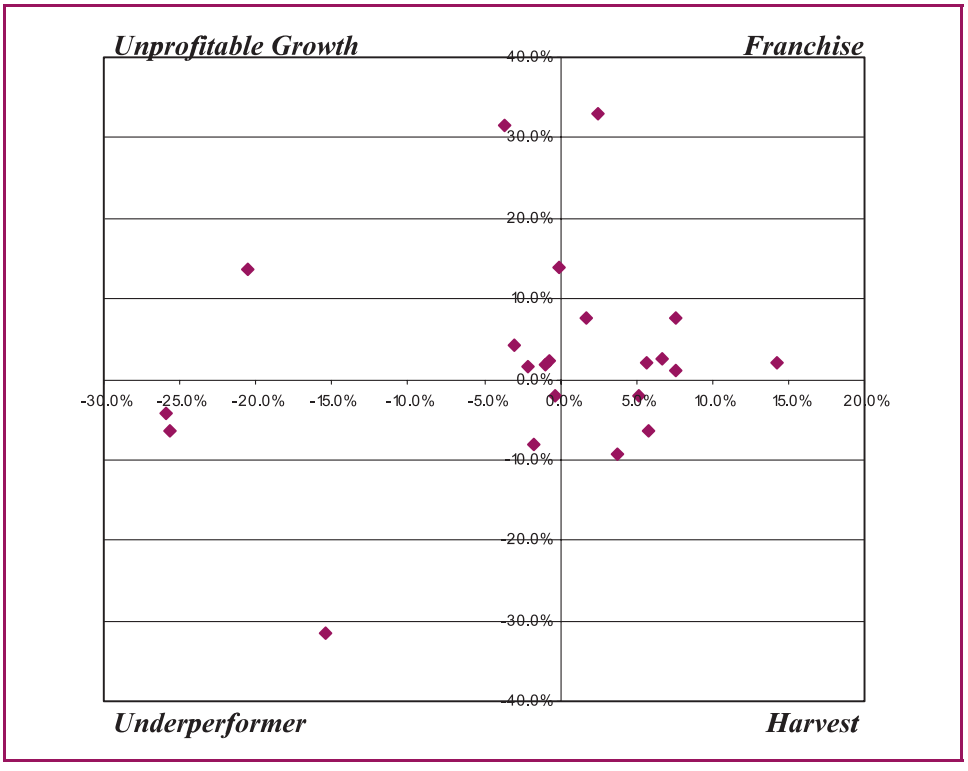
Ticker symbol	$Growth_{Firm}$ (%) (4)	$Growth_{Industry}$ (%) (5)	$Growth_{Relative}$ (%) (6)= (4) − (5)
ACE	4.5	2.6	1.9
ALL	4.0	2.6	1.5
AGII	10.3	2.6	7.7
AHL	16.3	2.6	13.7
CB	4.6	2.6	2.1
CINF	4.8	2.6	2.2
ERIE	3.7	2.6	1.1
THG	−4.0	2.6	−6.5
HGIC	0.5	2.6	−2.1
HCC	35.5	2.6	33.0
IPCC	10.2	2.6	7.7
MKL	−5.6	2.6	−8.2
MIG	16.5	2.6	−14.0
MIGP	34.0	2.6	31.5
MLAN	−6.7	2.6	−9.3
OCAS	0.5	2.6	−2.1
PMACA	−29.0	2.6	−31.6
PGR	4.5	2.6	2.0
RLI	−3.9	2.6	−6.5
SAFC	5.0	2.6	2.4
STA	6.8	2.6	4.3
XL	−1.6	2.6	−4.2

Source: Earned premium figures for 2005 and 2004 for each firm are from www.wallstreetjournal.com; calculations are the authors'

With the data contained in Exhibits 2 and 3 it is fairly simple to construct a relative profitability and growth matrix as illustrated in Exhibit 4.

The horizontal axis and vertical axis of the matrix represents profitability and growth relative to industry performance. Therefore, given the mature, efficient nature of the P&C insurance industry it comes as no surprise that the majority of firms in our sample cluster around each

Exhibit 4 P&C relative profitability and growth matrix



axis in the center of the matrix. For introductory purposes here we will focus our competitive analysis and commentary on select performance outliers, identified in Exhibit 5, which fit into the four categories of our matrix.

Competitive analysis

Our competitive analysis is intended to illustrate how a relative profitability and growth matrix could be utilized in practice at an executive level. To illustrate, consider our below analysis of the firms identified in Exhibit 5.

One of the strongest franchises in the P&C insurance industry is Progressive Insurance Company (Progressive). Progressive is the most profitable firm in our sample with a relative ROE of 14.3 percent = Progressive's ROE of 24.8 percent – the industry ROE of 10.5 percent[11]. Such a large level of relative profitability is consistent with Progressive's historical level of profitability, which is driven through competitive advantage. Progressive has a very potent advantage that it has thus far been able to sustain by focusing its offering and sales efforts on automobile drivers with ''safe'' driving records. These are customers and potential customers who, on average, generate fewer accidents and hence fewer expenses than many other insurance segments. Progressive is also organizationally designed to efficiently handle insurance claims and to economically manage its operating expenses. This combination of a focused market niche and low cost, efficient operations is a combination that Progressive's competitors generally cannot copy[12]. It has allowed Progressive to generate above industry average profitability over time.

Progressive also has an above average rate of growth compared to its industry. However, its relative growth of 2 percent (= Progressive growth of 4.5 percent − industry growth of 2.6 percent, allowing for rounding) is not as substantial as its relative profitability. To put this growth into context we examined Progressive's revenue (or premium) growth over time and display the results in Exhibit 6.

All firms will encounter slowing growth over time as size and market share increase. While Progressive is still growing faster than its industry, any significant growth reduction could

Exhibit 5 P&C outliers and performance cluster

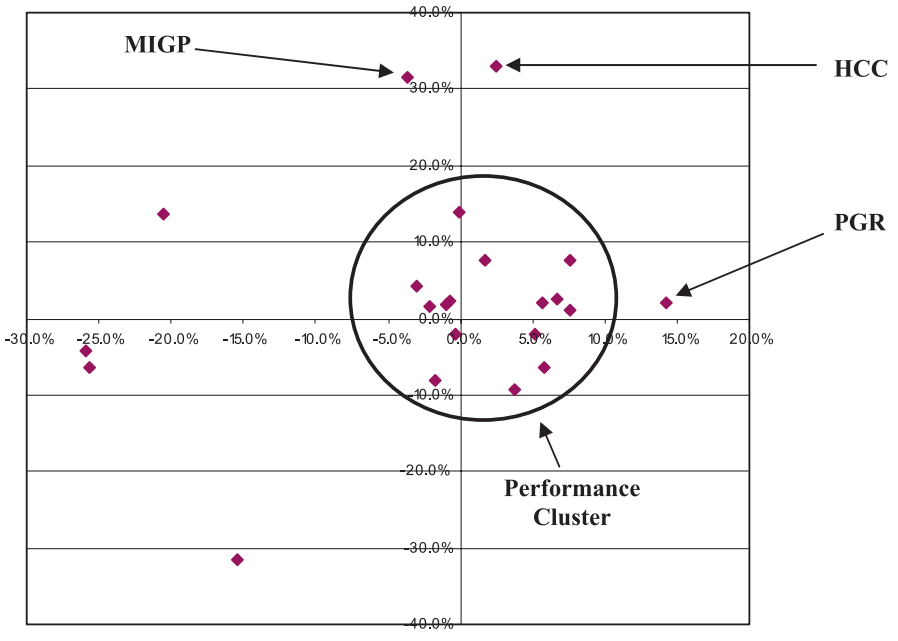
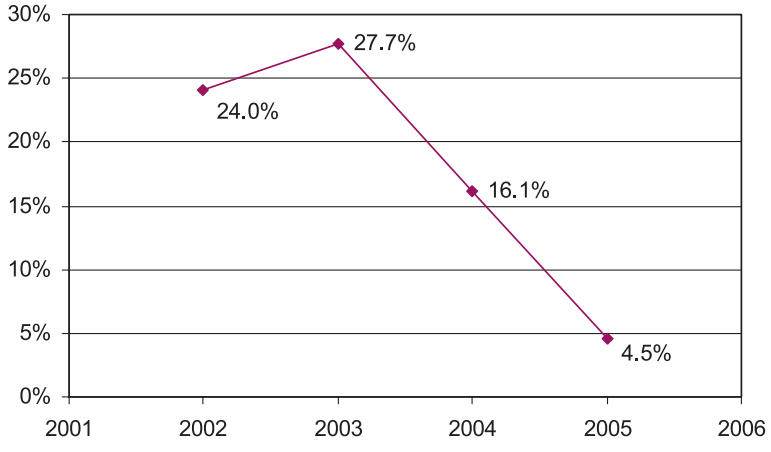


Exhibit 6 Progressive growth pattern



Source: Earned premium figures for each firm for 2002 to 2005 are from www.wallstreetjournal.com; calculations are the authors'

signal its transition into a harvest firm, or a firm that has superior relative levels of profitability but declining relative levels of growth. This position is not necessarily unfavorable if the firm is able to continue generating superior levels of profitability, but it does require a different managerial mindset. Such a mindset can be honed by employing such analytical methods as Five Forces analysis, SWOT analysis, and economic profit analysis.

Progressive's growth appears to be internally driven and this could be a factor in its profitability advantage compared to the next two examples, which seem to be growing

predominantly through acquisition. Their lower levels of relative profitability are likely caused by acquisition and integration costs.

For example, HCC Insurance Holdings (HCC), is also in the franchise quadrant of Exhibit 5, but its competitive position is much different from that of Progressive: HCC's relative profitability is 2.5 percent but its relative growth is remarkable – 33 percent above the property and casualty insurance industry[13]. Such powerful profitable growth in a mature, efficient industry is extraordinary. As a general rule, because both profitability and growth frequently fluctuate from year-to-year, we suggest managers conduct further analysis to determine if a firm's categorization in the matrix is a long-term trend or one-time event. We therefore analyzed HCC's profitability and growth over time as illustrated in Exhibit 7.

As the exhibit shows, HCC's performance in 2005 was no aberration. The firm's extraordinary levels of profitable growth are indicative of a powerful competitive advantage and the disciplined management of that advantage over time. In this regard, HCC's disclosed strategy is to service ''selected, narrowly defined, specialty lines of [insurance] business'' where it can leverage its underwriting – risk assessment and pricing – expertise[14]. In other words, HCC appears to be growing by acquisition in focused market segments to generate economies of scope, which are cost savings generated from producing products or services offerings across a firm that are generally not available to other firms. This strategy has enabled HCC to outpace the growth of its industry, but it has thus far not achieved the levels of profitability that Progressive Insurance has. Nevertheless, both firms qualify as franchises within the broad context of our matrix.

The third and final firm identified in Exhibit 3 that we profile is Mercer Insurance Group (Mercer), which is a firm falling in the unprofitable growth quadrant of our matrix. As shown in Exhibits 2 and 3, Mercer grew at an extraordinary 31.5 percent above its industry while its profitability was −3.6 percent below the industry. To determine if this performance was a trend or one-time occurrence, we analyzed Mercer's profitability and growth over time as illustrated in Exhibit 8.

As the exhibit illustrates, Mercer's performance shows a pattern of powerful relative growth but low relative profitability. A case could be made that this equates to economic loss if the firm's equity could have been more profitability allocated elsewhere. Therefore, the issue for this relatively unprofitable but growing firm to address is whether it will be able to turn the customers it has somewhat aggressively acquired into more profitable ones in the future. Toward this end, Mercer could choose to segment and micro-segment its future sales activities from a more profitability-oriented perspective and to prioritize its offerings to targeted segments. Once such segmentation is completed, more detailed forms of analysis could be undertaken, and a new competitive strategy formulated.

Thirteen banks: insights from their relative profitability and relative growth

The Progressive, HCC and Mercer examples demonstrated the utility of a relative profitability and growth matrix with respect to firm-specific competitive analysis. We can also apply the matrix to a more industry-focused competitive analysis. As an example, in the banking industry we randomly selected a group of large money center banks and calculated their relative profitability and relative growth as shown in Exhibit 9.

The corresponding relative profitability and growth matrix for the banks in this example are presented in Exhibit 10.

Exhibit 7 HCC profitability and growth

	2005	*2004*	*2003*	*2002*	*2001*
Net income	$195,860	$163,025	$143,561	$105,828	$30,197
Book equity	$1,693,696	$1,323,665	$1,046,920	$882,907	$763,453
ROE (%)	13.0	13.8	14.9	12.9	
Premium	$1,369,988	$1,010,692	$738,272	$505,521	$342,787
Growth rate (%)	35.5	36.9	46.0	47.5	

Source: www.wallstreetjournal.com; dollars in thousands

Exhibit 8 Mercer Insurance Group profitability and growth

	2005	*2004*	*2003*	*2002*	*2001*
Net income	$7,020	$3,264	$583	$2,242	$3,300
Book equity	$103,399	$100,408	$98,326	$37,017	$35,397
ROE (%)	6.9	3.3	0.9	6.2	
Premium	$74,760	$55,784	$47,864	$40,454	$30,728
Growth rate (%)	34.0	16.5	18.3	31.7	

Source: www.wallstreetjournal.com; dollars in thousands

Exhibit 9 Relative banking profitability and growth calculation

Company name	*Ticker symbol*	ROE_{Firm} (%) (1)	$ROE_{Industry}$ (%) (2)	$ROE_{Relative}$ (%) (3)= (1) − (2)	$Growth_{Firm}$ (%) (4)	$Growth_{Industry}$ (%) (5)	$Growth_{Relative}$ (%) (6) = (4) − (5)
JP Morgan Chase & Co.	JPM	11	16	−5.1	40	23.4	16.9
SunTrust Banks Inc.	SUN	12	16	−3.7	39	23.4	15.1
Bank of America Corp. (DE)	BOA	16	16	−0.4	33	23.4	9.2
Wachovia Corp.	WAC	14	16	−2.1	28	23.4	4.5
PNC Financial Services Group 1	PNC	17	16	0.6	26	23.4	2.3
KeyCorp	KEY	15	16	−0.6	20	23.4	−3.1
Wells Fargo & Co.	WF	20	16	3.6	20	23.4	−3.8
Toronto-Dominion Bank	TOR	23	16	7.2	20	23.4	−3.9
Bank of Montreal	BOM	18	16	1.5	19	23.4	−4.1
Bank of New York Co. Inc.	BNY	17	16	0.8	16	23.4	−7.1
Bank of Nova Scotia	BNS	21	16	5.2	13	23.4	−10.1
Citigroup Inc.	CITI	18	16	2.1	11	23.4	−12.3
Mellon Financial Corp.	MFC	20	16	3.9	11	23.4	−12.7

Source: www.yahoofinance.com for the years 2005 and 2004; all calculations are the authors'

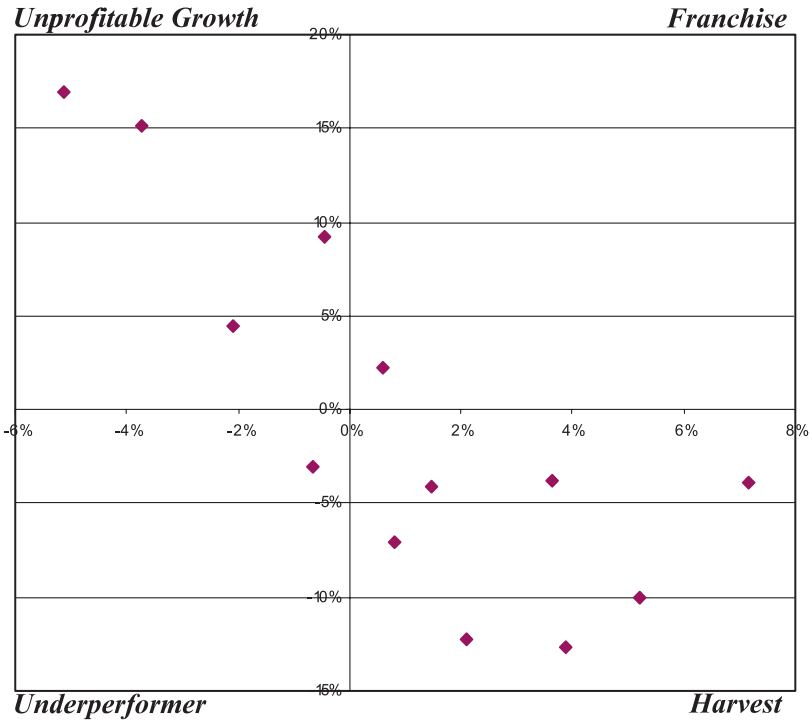
As the exhibit illustrates, it appears that the thirteen banks in our sample have chosen to compete based on two strategies: growth or profitability. The relative lack of any franchise (PNC Financial Group is marginally a franchise with a relative profitability of 0.6 percent) or under-performer firms (Key Corp is a marginal under-performer with a relative profitability of −0.6 percent) in the sample illustrates competition between growth-oriented banks on the one hand and profitability-oriented banks on the other. Such well-defined competition may simply be the result of a commodity industry where also-rans are acquired and competitive advantage is fleeting. Whatever the reasons for it, successfully formulating a strategy within such an environment requires greater levels of competitive and financial analyses than any matrix could provide. However, the relative profitability and growth matrix clearly identified the need for such analyses, and it could be used to help frame the analytical effort.

For example, the banks in the harvest quadrant in our example could decide to segment/micro-segment their customer bases and to craft growth strategies to each targeted segment/micro-segment. Conversely, the unprofitable growth banks could choose to assess their customers from a more profitability-oriented perspective and they could also consider benchmarking their operations to identify reengineering/cost savings opportunities. After both sets of banks have completed their analyses, a relative profitability and growth matrix could be utilized to put the findings into context for decision-making purposes.

Some additional uses for matrix

Though our two examples were drawn from the insurance and banking sectors of the financial services industry we believe that relative profitability and relative growth are basic concepts that can be applied to any industry. For instance, the relative profitability and

Exhibit 10 Banking relative profitability and growth matrix



growth matrix analysis presented in our banking example could be interpreted to reflect the consolidating nature of that industry. This type of result could also be seen in the mature sectors of manufacturing or pharmaceuticals where growth by acquisition/consolidation is often a popular strategy. Interestingly, the relative profitability and growth matrix could also be utilized from a portfolio perspective, which is the perspective the BCG matrix was created to address. This process is described in the box, ''Using the Relative Profitability and Growth matrix to consider a portfolio of businesses.''

Using the relative profitability and growth matrix to consider a portfolio of businesses

In a hypothetical example, consider two franchises, one of which generates powerful levels of profitability with more normal levels of growth, and the other that generates powerful growth with more normal levels of profitability. Each firm is interested in finding a merging partner. As the matrix reveals, each firm has a strength that could interest the other and the merging of those strengths could serve as the foundation of a business case for the deal. Further analysis is required, of course, before a final merger determination can be made, but the initial logic for the deal is conveniently displayed in a relative profitability and growth matrix.

After substantial due diligence and negotiation, these two firms decide to merge. At this point the firms' executives could consider utilizing a Relative Profitability and Growth matrix to help communicate the logic of the deal to customers, employees, and the capital markets.

Alternatively, a firm with a perpetual under-performer division could consider divesting it to another firm that is better designed to manage such a unit, or possibly even liquidating it, if its liquidation value exceeds its value as a going concern. This information could also be easily summarized and communicated with a Relative Profitability and Growth matrix. The value of this matrix therefore lies in its versatility as a screening tool for more detailed forms of analyses, as a tool to help communicate the findings of such analyses, and as an internal portfolio screening/assessment tool.

Notes

1. Michael E. Porter, (1998 [1980]), *Competitive Strategy* The Free Press, New York, NY.
2. Robert Simons and Antonio Davila (1998) ''How high is your return on management?'' *Harvard Business Review*, January-February, pp. 71-80.
3. Alex Lowy and Phil Hood (2004), *The Power of the 2 × 2 Matrix* (San Francisco, CA: Wiley). Larger matrices such as, for example, a 3 × 3 may provide more sharply defined categories but at the expense of greater complexity. We have chosen a 2 × 2 format specifically for its simplicity and with the understanding that more detailed analyses will be conducted to explore the observations generated from the 2 × 2.
4. A matrix presented by Lowy and Hood (2004, p. 83), cited in footnote 3, has a similar format, but differs from ours in the way profitability and growth are defined, in quadrant nomenclature, and how we make use of the results in a competitive context.
5. Return on assets (ROA) is another measure of profitability. The major difference between ROA and ROE is the effect of capital structure. As capital structure administration is a managerial function we utilized ROE as the profitability measure in this paper. A comparison of ROE and ROA data gave similar results although there were differences between firms with different capital structures. Our intent here is not to identify the measure of profitability, but rather to demonstrate how such measures could be utilized in a broader, strategic context.
6. There are issues and caveats with any performance measure, especially any measure that is based on financial accounting information. Nevertheless, ROE is a straightforward measure of performance that all managers are familiar with, and which is calculated from easily available information. Adjustments to ROE can always be made to make it more economic in nature as, for example, shown in William Fruhan (1979), *Financial Strategy* (Homewood, IL: Irwin). However, it should be both noted and stressed that our matrix is intended to serve primarily as an analytical starting point, not as an endpoint and ROE is acceptable for that purpose. Conversely, other measures such as ROA (see footnote 5 above) could be substituted for ROE as may be desired.
7. The DuPont method models ROE in a variety of ways, the most well known of which is: ROE = Margin × Turnover × Debt-to-Equity = (Earnings/Revenue) × (Revenue/Assets) × (Assets/Equity). This method of analysis can be used to assess if profitability is being driven through sales and operations or through changes in capital structure. This is an important distinction that can be addressed through more detailed forms of analysis subsequent to matrix screening.
8. Data source: Frank Coyne (2006), ''Property/casualty insurance industry financial results: year end 2005 analysis,'' ISO Chief Executive Circular, CE-AA-2006-005, April 28. Calculations are the authors'.
9. Property and casualty profitability can be grouped into insurance specific areas such as underwriting, reinsurance and investment performance. The authors encourage this type of analysis – see for example Joseph Calandro, Jr and Scott Lane (2002), ''Bringing value to the insurance industry: the insurance performance measure,'' *The Journal of Applied Corporate Finance*, Winter, pp. 94-99 – once screening tools such as a Relative Profitability and Growth matrix have been utilized to identify firms of interest.
10. Data source: Coyne (2005) cited in footnote 8. Earned premium in 2005 was $424,871 for the P&C insurance industry while in 2004 it was $414,261 (in millions of dollars). Earned premium was chosen for analytical convenience; the findings would be similar if written premium was utilized instead. For more information on these premium classifications see virtually any insurance textbook such as Emmett Vaughan and Therese Vaughan. 1996. Fundamentals of Risk and Insurance 7th Ed. (NY: Wiley). Calculations are the authors'.
11. Progressive data is from www.wallstreetjournal.com; industry data is from Coyne (2005) cited in footnote 8. Calculations are the authors'.
12. We used the word ''generally'' here because Progressive has a similar strategy to another long time Franchise in the insurance industry, GEICO. GEICO is not included in our example as it is a subsidiary of Berkshire Hathaway. For more information on GEICO see Joseph Calandro and Ranganna Dasari. 2006. GEICO, Graham and Dodd, and Investment Valuation. Current working paper.
13. See Exhibits 2 and 3 for the calculations.
14. Source: HCC 2005 Form 10K.