COST OF CAPITAL: A PRACTICAL MODEL
INCORPORATED WITH RISK ASSESSMENT FOR HOTEL INVESTMENTS
IN THE MIDDLE-PRICE AND ECONOMY SEGMENTS

by

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(ABSTRACT)

Hotel investments, which have far-reaching impact on hotel companies' long term financial health, will continue to be the primary mode for hotel companies' survival and growth. However, top management has been facing a changing industry and investment community to which they are required to adapt. Consequently, the old fashioned gut-feeling types of decision making are no longer appropriate for sound hotel investments. It is the primary objective of this study to develop a model for hotel investment risk assessment and appropriate cost of capital estimation in the middle-price and economy hotel segments for the investment's capital budgeting purposes.

The hotel investment risk assessment and cost of capital estimation model research was conducted using the focus group interview, the Delphi Technique, and the case study. As exploratory research, the focus group interview was conducted with the participation of hotel executives and general managers, hotel owners, and bank lenders from the Virginia area. Key investment risk factors
were identified from the opinions of this panel, which represented different perspectives and needs. The summary findings laid out the foundation of the Delphi Technique survey.

The Delphi survey was conducted among hotel general managers, hotel executives, and hotel owners within three hotel chains in Virginia, Maryland and Delaware. They consisted of a professional panel of 19 members. The first task accomplished by the panel was to further validate the key risk factor profile developed by the focus group interview. The second task was to rate the level of influence of the identified factors using a five point likert-type scale (5=very influential, 1=little influential). Three rounds of the survey allowed the panel members to achieve a consensus on the issues.

A total of 36 hotel key investment risk factors in the middle-priced and economy segments were agreed to be included in the investment risk assessment framework. In addition, a ranking of all factors was produced based on each factor's importance and influence level. All the factors received a higher than average (rank scale 3) ranking. The empirical finding provided a valuable framework for the subjective risk assessment in the cost of capital estimation model.

Building on the foundation of Gup-Norwood's divisional cost of capital estimation approach, the study developed a practical cost of capital estimation model for private hotel companies in the middle-priced and economy segments. The theoretical studies and empirical research through the focus group interview,
the Delphi Technique, and the case study provided the evidence and foundation for the model's development. The case study validated the model's practical features.

It is recommended by the researcher that the key risk factors identified by this study should be used as guidelines for hotel investment risk analysis in the middle-priced and economy segments. The overall cost of capital estimation model should become an investment evaluation alternative for top hotel management, investors and lenders. The model provides a valuable tool for investment capital budgeting. It is also recommended that future research be conducted on a broader basis. It should be extended to upscale, all suite and resort segments in a larger geographical basis. Although this research focused on domestic investment issues, it can and should be expanded to include international investment activities.
ACKNOWLEDGEMENTS

This thesis would not have been possible without the help and guidance of a number of people to whom I would like to express my appreciation.

First, I wish to thank Dr. Michael D. Olsen, my advisory committee chairman. It was he who introduced me to the Masters program in the Hotel, Restaurant and Institutional Management Department at Virginia Tech. This leading hospitality graduate program provided for me a professional leap in my career. Dr. Olsen’s professional guidance and personal encouragement led me through the entire program of study. It has been my honor to be a student of such a distinguished and well known scholar with such a great wealth of academic and professional knowledge, enthusiasm, and ambition.

Second, I would like to thank Dr. Francis Kwansa, a renowned finance professor at Virginia Polytechnic Institute and State University, and Mr. Randy Higinbotham, vice president of the Southeast region operation of Guests Inc., a long-time hotel industry veteran. They offered both their precious time and excellent knowledge throughout the research, and their advice and encouragement have made the completion of this thesis possible.

Thirdly, my appreciation is extended to Mr. Guy Farley, Jr., Mr. Jeff Smith, and Ms. Bonnie Suphin, who helped me obtain valuable data necessary for conducting the research. Also, I wish to express my gratitude to the members of
the focus group interview and the Delphi survey participants for their time, knowledge, and support.

Finally, I would like to dedicate this thesis to Joy Xin Young, for her love, understanding and great support through all my scholarly efforts.
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CHAPTER 1
INTRODUCTION

CHAPTER INTRODUCTION

Investment expansion has been unprecedentedly phenomenal in the hotel industry for the last two decades (Olsen, Tse and West, 1992). However, hotel companies and investors have been confronted with a more complex and dynamic investment environment than ever before. Making sound investment decisions has become a major concern and a great challenge to those professionals. It is the purpose of this research to define risk as it relates to the capital investment decision, and to identify determinant risk variables associated with an investment’s risk level.

Chapter 1 will provide the introduction, scope and justification of the study. First, the problem statement will be defined to present the reasoning behind this research. It will be followed by the analysis of the problem context, which emphasizes the increasing need for formal hotel investment risk assessment and appropriate cost of capital estimation. The motivation and justification for this research will also be outlined later in this chapter. The research contribution to both the current hotel financing practices and the body of knowledge for the
hotel industry will be highlighted as well. Hopefully, this research can shed some light on hotel investment risk evaluation and provide a better understanding of investment hurdle rate estimation for the hotel industry. The limitations associated with this study and further research needs will be addressed at the end of this chapter.

PROBLEM STATEMENT

Investment and Financing in the Hotel Industry

The hotel industry has always been considered a risky industry by its very nature (Arbel and Grier, 1978). The hotel business is not only vulnerable to shifts in consumer spending and travel patterns, but also requires intensive capital investment and high fixed cost. However, in the past two decades, especially during the economic boom period, developers, investors, and creditors have over-emphasized the upside of the business (high return on investment). The risky nature of the business seemed to be ignored during that time. As a result, the over-development and excessive investments in the hotel business during the 70's and 80's created overcapacity in the industry (Standard & Poor, 1991). This overcapacity problem was illuminated by the weakness of the overall economy in the late 80's and
early 90’s, along with the changes in the political and regulatory environment, such as the changes in the tax laws in 1986; the revision of the Minimum Wage Law, the emergence of the Americans with Disabilities Act, and the changes in the Immigration Reform and Control Act. These changes and uncertainties which emerged from the external environment further exacerbated the element of risk inherent in the hotel business.

The combined effects of the changes in the external environment and in the industry itself have created worrisome financial results and a difficult situation regarding hotel financing for the years to come. The overall impact of the broadly understood environment can no longer be ignored by hotel management and investors if they want to stay in business and be profitable.

The following sections will be devoted to the detailed illustration of the state of investment and financing of the hotel industry.

I. An Industry in Overcapacity

In the past several years, the hotel industry has been suffering from overbuilding, which is the relatively high level of new construction together with the weakness in the overall economy. According to the Host Report, a semiannual publication of the Arthur Anderson Real Estate Services
Group and Smith Travel Research (1992), it is disturbing that in the 1990’s the hotel industry experienced the lowest occupancy rates in more than 20 years. Losses in the hospitality industry were $5.5 billion for 1990 and $2.7 billion for 1991. This resulted in an average $2,081 net loss per room in 1990 and $1,007 in 1991. Although the losses were dramatically down in 1991 compared to 1990, the volatility and overbuilding problems of the hotel industry still exist.


The lodging industry is still absorbing a large number of new rooms that came on stream in the 1980’s. According to Laventhal & Horwath, a Philadelphia-based research firm, the number of hotel rooms in the United States grew by roughly 40% in the 1980s, reaching an estimated 2.84 million in 1989.

Preliminary estimates from the U.S. Department of Commerce show the dollar value of new lodging-industry construction during 1990 totaled $8.4 billion, up 10% from the year before. Since 1980, about $66 billion in construction has been added.

On an inflation-adjusted basis, 1985 was the peak year for new lodging construction during the past 25 years. However, measured this way, 1985’s level exceeded that of 1990 by only 3.2%. The average annual construction level during 1980-1990, adjusted for inflation, was 95% above the level of the 1970’s. After bottoming out in 1977, it rose for eight consecutive years. By 1985 the inflation-adjusted value of new construction was more than quadruple what it had been eight years earlier.
been caused by hotel construction activities undertaken for more than a decade. In fact, this problem is so widespread that the oversupply of hotel rooms will not come to an end in the near future. Table 1-1 forecasts the oversupply of hotel rooms in the next five years (Coopers & Lybrand Hospitality Directions, 1992). Each year from 1993 to 1995, more than one million hotel rooms will exceed the lodging demand in the United States. The oversupply problem causes a series of negative reactions in the industry every year, especially during tough economic times.

The overbuilding problem stems from more fundamental issues of investment practices in hotel industry, which will be discussed in the Problem Analysis section. Nevertheless, traditionally impulsive, fragmentary, and short-sighted investment approaches are no longer appropriate in today’s hotel industry (Olsen, Johnson and VanDyke, 1984). They should be replaced by comprehensive, systematic, and long-range investment risk assessment and strategic financial planning. The soundness of investment decisions will have a profound impact on the hotel’s future financial performance.

II. The Capital Driven Growth Industry

The hotel industry’s development and growth have been strongly driven by the capital investment market.
TABLE 1-1

U.S. GUESTROOM SUPPLY AND DEMAND FORECASTING  
( In Thousands )

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<th>Year</th>
<th>Supply</th>
<th>Demand</th>
<th>Oversupply</th>
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<tr>
<td>1991</td>
<td>3,060</td>
<td>1,869</td>
<td>1,191</td>
</tr>
<tr>
<td>1992*</td>
<td>3,088</td>
<td>1,918</td>
<td>1,170</td>
</tr>
<tr>
<td>1993*</td>
<td>3,098</td>
<td>1,974</td>
<td>1,124</td>
</tr>
<tr>
<td>1994*</td>
<td>3,100</td>
<td>2,040</td>
<td>1,060</td>
</tr>
<tr>
<td>1995*</td>
<td>3,097</td>
<td>2,091</td>
<td>1,006</td>
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* Statistics projected for fourth-quarter 1992, and for 93, 94, & 95

Source: Coopers & Lybrand Hospitality Directions (Winter, 1992).
Institutional investors have become one of the major forces in this industry (Olsen, Tse, & West, 1992). In the 1980's, both the major hotel chains and independent operating companies realized that, in order to achieve continued growth, they had to turn to the institutional investment communities for financing (Laventhol & Horwath, 1984). One good example is the practice of the lodging giant, Marriott Corporation. It raised approximately $1 billion between the late 70's and the early 80's by selling equity interests in its hotel properties to institutions such as Equitable Life Assurance Society, Massachusetts Mutual, and Prudential Life Insurance Company. Using this capital, Marriott was able to continue to achieve rapid expansion and successfully gained market share (Laventhol and Horwath, 1984). The easy availability of these types of capital funds influenced the overall growth in supply in the industry during the 1980's. Since the investment activities of institutional investors have been one of the determinant factors in the well-being of the industry, they will continue to have far-reaching impact for years to come and the trends in their investment practices and those events influencing them will be key issues affecting industry activities.

To further illustrate this trend, tracing back to the previous growth and expansion in the industry, the changes in the capital market practices (the availability and types
of funds) can be found to explain these movements. In contrast to the relatively stable conditions of the 1960’s or 1970’s, the hotel financing environment became sharply dynamic and complex in the 1980’s and 1990’s (Laventhol & Horwath, 1984; Olsen, Tse & West, 1992). From 1980 to 1986, hotel construction was stimulated by factors such as tax incentives available to hotel investors. The hotel investment tax law made hotel construction extremely favorable to many investors, not just because they believed these hotels could generate reasonable returns on investment but also because of the tax benefits of the investments. In addition to those incentives, the influx of national and international capital, the emergence of new financing vehicles, and the upward economic growth all contributed to the rapid development in the industry.

These events shaping a favorable capital market enabled the industry to grow at an unprecedented rate during that period. The peak year for new lodging construction during the past 25 years was 1985 (Standard & Poor, 1991). However, the Tax Reform Act of 1986 diminished the extent of many investment incentives. This change deprived investors of one of the major benefits (rapid depreciation) that many investors had as a result of their hotel holdings. Consequently, the change of the investment environment put their investments in a vulnerable situation in terms of
future return on investment capabilities. Many of those investments became unfavorable thereafter. In the meantime, the over-heated investment climate has changed, which originally contributed to the overcapacity problem, and now it is required that hotels be operated as successful businesses in a highly crowded and competitive industry. The downturn of the economy in the early 90's then forced many hotels into financial troubles.

In conclusion, the lucrative investment opportunities of the 1980's that have had such a far-reaching impact on the well-being of the industry are no longer as attractive. This is because the industry oversupply created by past hotel investment activities and the slow growth in the hotel demand created increased risk in hotel returns. To address this problem, investors in the future will have to consider more carefully about those variables that will influence the risk of hotel investments.

III. Changes of Laws and Legislation

The relatively stable legal environment of the 1960's and 1970's during which the hotel business grew rapidly, no longer exists. Today, the industry can be characterized as highly dynamic and complex in this important sector of the business environment (Olsen, Tse & West, 1992). Besides the constant changes in the economy, the changes in law and the
legislative environment have had tremendous impact upon the investment and financing practice in the hotel industry. Major new regulations in recent years are the Tax Reform Act of 1986, the increase of the minimum wage, the Immigration Reform and Control Act, and the Americans with Disability Act. These changes, at the federal level, have imposed strong pressure on hotel operations and squeezed the availability of capital funds for new hotel investment. In addition, the federal support to state and local governments has declined in the past decade due to the weakening national economy (Olsen, Tse, & West, 1992). This situation increased the tendency for state and local governments to impose unfavorable taxes, such as room taxes. In fact, some lodging taxes have already been viewed by both guests and operators as too high. Studies have shown that there was a positive relationship between the increase of lodging tax and the decrease of hotel occupancy rate (Aelwitz, 1993).

Again, the combined forces of these changes in the external environment have had a strong and far-reaching impact on hotel investment. They created risk and uncertainties for the future financial performance of hotel investments.

IV. Impact of Hotel Investments and Capital Influx

Hotel investment activities and capital influx to the
hotel industry in the last two decades have had a strong impact on the industry itself. First of all, as was discussed before, this rapid development led to room supply exceeding travelers’ lodging demands. As a result, the industry became highly competitive. Due to price discounting as firms try to maintain market share, the hotel industry’s profit margins have plunged. The ultimate result has been the decrease of investment value of many hotel assets and the increase of distressed hotel properties. Secondly, the heavy investment activities and creative financing approaches have forced many hotels to carry heavy debt. Many hotel management companies are now operating under heavy debt (Standard & Poor, 1991). In other words, many hotel investments are in a high state of financial risk. Thirdly, during difficult times, owners and investors are likely to get involved in and display stronger influence on hotel management. The consequences could create uncertainty for hotel operation and increase restructuring activities. The bottom line is that the hotel industry is getting more and more dynamic. Investors need to reconsider the evaluation process and emphasize the risk assessment of their investments.

In conclusion, the above analysis of the current state of investment and financing in the hotel industry demonstrates that the hotel investment environment is
becoming increasingly competitive, dynamic, and complex. Investors are inevitably feeling a far-reaching and broad impact of the external environment. Traditional "gutfeelings" types of investment practices are no longer appropriate in today's situation.

**Problem Analysis of the Hotel Investment Practices**

The preceding section discussed the current state of the hotel industry, particularly focusing on the aspects of investment and financing activities and their impact. The important question is what caused the problems in the hotel industry. It is essential to understand the reasons behind these problems. These reasons are put forth in the following propositions:

1. Inappropriate analysis of hotel investment risk is one of the major reasons for distressed investments. Many high risk projects do not get recognized as such; therefore, they are often approved by using inappropriate hurdle rates (cost of capital).

   Earlier studies documented the tendency that many corporations were likely to use a single cost of capital or hurdle rate to evaluate all investment projects, regardless of their unique circumstances and different risk levels
(Brigham, 1975; Kim, Crick & Kim, 1986; Schmidgall & Damitio, 1990), while other studies revealed that, during the high flying 60’s and 70’s, some companies and lending institutions ignored formal risk analysis of hotel investments entirely (Schall, Sundem & Geijsbeek, 1978; Olsen, 1982; Olsen, Johnson & VanDyke, 1984). It is common practice in the hotel industry that decision makers tend to use very informal and fragmentary judgement to replace formal and systematic risk analysis towards hospitality investment projects. As a result, they have a tendency to pursue high expected return with under-estimated high risk projects at the expense of relatively low risk steady return projects. Consequently, this type of practice pushes the company into a high risk profile and makes it extremely vulnerable to volatility in return on investment. The ultimate result will be reduction in the firm’s earnings potential and possible future business failure.

2. Hotel investments are ventures of both real estate and hotel operation (Laventhol & Horwath, 1984). In many cases of hotel investments, investors were likely to focus on their real estate aspect while overlooking their feasibility of future sound operation. This thinking led investors to neglecting the risky nature of their hotel investments.
Traditionally, hotel investments have been treated as more risky than regular real estate investments, such as office buildings or retail establishments because the regular types of real estate investment normally generated steady rental or leasing income. For this reason, during the 60's and early 70's, hotel investments, in many cases, had a 1.5% higher rate of required return on investment than regular types of real estate investments (Laventhol & Horwath, 1984). The difference reflected the risky nature of the hotel business. However, during the growth period of the 80's, investors were viewing hotels much like other forms of real estate, and de-emphasized the potential risky nature of the hotel business. For example, insurance companies were making 10-year bullet loans on many real estate projects, and the rate differential between an office building and a chain managed hotel was minimal. It might only have a 0.25% difference (Laventhol & Horwarth, 1984). There were two primary reasons for investors to consider hotel investments at a lower risk level. First, during a period of very high inflation, hotels have a history of increasing room rates directly with inflation, thereby maintaining profit margins. Regular real estate investments do not have this benefit because of the fixed nature of leases. Second, investors believed that large chain management could take some of the location risk out of hotel
investment. These two benefits of hotel investment offset some risky aspects of the hotel business (Laventhol & Horwarth, 1984). Unfortunately, these two benefits were held conditionally. During the economic downturn of the late 80’s and early 90’s, these two benefits no longer existed due to stiff competition and shrinking consumer spending. Many hotel investments, therefore, were in financial trouble.

Since a hotel often requires a substantial capital investment to begin with, it is often emphasized by investors as a special form of real estate development. It is true, in some circumstances, that hotel properties owe their increase in value not so much to being a well-run property but to operating in a rapidly increasing real estate market. However, the overemphasis on the real estate side of hotel investment and oversight of its future feasibility of sound operation allowed risky projects to be approved which shouldn’t have otherwise been accepted. In this type of situation, investors tended to overlook the risky side of the projects and did not have adequate risk assessment.

3. The complexity and diversity of hotel financing created problems in identifying appropriate risk criteria and risk impact levels.
During the late 70's and 80's, hotel financing became more and more complex and creative. There was a wide range of equity investors and debt holders in many investment situations. Prior to the tax law changes in 1986, large and small syndicators were offering private real estate limited partnerships in order to take advantage of the tax laws to raise equity capital. Investors and lenders often had different needs for and views on investment projects. Their expectations and risk-return requirements could also be different. For these reasons, risk assessment efforts should balance the needs and expectations of all parties, lenders and investors.

4. The inefficiency of the hotel investment market:

Investment and financial information on many privately held hotel companies was hardly available to the public. Heterogeneous expectations concerning asset returns and risk did exist in hotel financing.

The hotel investment market can be characterized as an inefficient market according to the efficient-market hypothesis. According to Fama (Fama, 1976), there are several criteria that measure the efficiency of capital. First, all investors have homogeneous expectations concerning asset returns and risk. Second, all assets are
marketable and perfectly divisible, and their supplies are fixed. Third, investors have all the information available to them. So asset prices in the market reflect unbiasedly all available information. Although there is no market that can perfectly match these measurements, the publicly traded stock market can be considered relatively efficient. On the contrary, the hotel investment market consists of large numbers of private companies and a wide range of diverse investors. Compared to the publicly traded stock market, this particular segment of the hotel investment market is relatively inefficient. It is more difficult for hotel investors to make sound investment decisions because the hotel investment market is more fragmented.

5. Due to the diverse nature of hotel investors, the characteristics of the hotel investment market, and the separation of hotel ownership and management, many investors do not have sufficient professional knowledge of the hotel business. This could lead to non-optimal hotel investment decisions.

6. Many lenders are ill-informed on hotel investment risk variables and have insufficient hotel business expertise to make sound hotel loans. In many cases, lenders do not have enough knowledge and experience to
identify hotel investment risk levels in order to determine an appropriate cost of capital for a project. As a result of this lack of knowledge, many high risk loans are approved without having reasonable hurdle rates to compensate their risks. Lenders are then tied up with high risk but low return investments in their portfolio.

These propositions suggest that traditional real estate investment criteria do not fit the nature of the hotel investment market. The current complex, volatile, and dynamic hotel industry demands more prudent investment criteria and more formal risk analysis procedures. Among them, the element of risk is becoming one of the most important variables in capital budgeting, and should be carefully considered by hospitality managers, hotel equity investors, and lending institutions who are contemplating any large capital investment decisions with long term impact upon the organization. Despite the importance to the success of the hotel investment, risk is probably one of the most difficult of the decision variables to define and measure.

**The Needs of the Industry**

As can be seen from the above analysis, there are
several reasons to be concerned about the future of hotel investment practices and the lodging environment in general. Overcapacity and market saturation, declining occupancy rate, stagnant hotel room rates, increasing competition and rising operating costs require that future expansion and investment in the hotel industry should be carefully evaluated (Olsen, Johnson & VanDyke, 1984). As has been previously stated, many investors and lenders either ignored investment risk assessment or conducted investment activities with an insufficient level of knowledge and techniques. Thus, investment evaluation processes need reform and improvement, particularly in the areas of risk assessment techniques and cost of capital estimation.

Therefore, it is the purpose of this research to define risk as it relates to the capital investment decision, and to identify determinant risk variables associated with an investment’s risk level. In summary, this thesis will provide:

* An empirically based rather than conceptually developed list of hotel investment risk factors.
* An empirically based risk variable model reflecting hotel investment concerns of each type of investor.
* A quantitative risk assessment and cost of capital estimation model for hotel investment evaluation.
Theoretical Deficiency

Although hotel investors, lenders, and managers urgently need more and better information and techniques to cope with the risky and dynamic hotel investment environment, there is not much information available. Historical studies on hotel investment risk assessment and investment project evaluation are very limited (Olsen, Tse & West 1992). Within the limited body of knowledge in this field, the majority of the writings are neither empirically validated nor can be practically applied by management. Most of the research on investment risk assessment has been focused on presenting various conceptual theories and mathematical techniques under various rigid assumptions (Kwansa & Fields, 1992; Olsen, Johnson & VanDyke, 1984. Arbel & Grier, 1978). Those theories and technique are very conceptual and theoretical in nature, and also very subjective. Undoubtedly, they provided essential conceptual understanding on investment risk and evaluation. However, the lack of empirical findings and practical models is a major weakness of previous work in this area. Hotel managers and investors can hardly apply those pure theoretical techniques to their decision making.

For example, in the field of investment risk quantification, conventional techniques provide useful
approaches related to the subjective prediction of possible investment outcomes and probabilities of their occurrence. The probability distributions of the investment outcomes have been commonly used as a risk measuring tool (Blume, 1971 and Arbel & Grier, 1978). These risk quantification techniques are used based on the premise that the investment’s future return probability has been given or determined by gut feeling (Olsen, Johnson & VanDyke, 1984). However, these techniques do not go far enough for successful practical application because they are too theoretical and uncontrollable. In reality, the determination of an investment’s future return probability is the most difficult and fundamental task in the whole risk assessment process. In fact, the probability distribution of all future investment returns is an uncertain and dependent variable to all the independent variables—ie, risk factors. In other words, the return distribution picture is shaped by many risk factors. These independent factors which are likely to affect the hospitality investments’ risk/return relationship have been mentioned and discussed in the literature (Arbel & Grier, 1978; Olsen, 1980; Laventhol & Horwath, 1984), but have never been empirically verified or fully analyzed, or, if so, this information has remained proprietary (Olsen, Johnson and VanDyke, 1984).
In conclusion, these theoretical techniques do not show hospitality managers where and how to look for investment risk which is unique to each individual project. They do not answer the question what the hidden forces are, which draw out the variation of the project’s return on investment. In fact, risk theories and quantification techniques cannot be practically and accurately applied by practitioners without a full understanding of the risk factors related to their unique investment cases.

**RESEARCH OBJECTIVES**

Despite its importance to the success of the capital investment decision process, risk is probably one of the most difficult of the decision variables to define and quantify (Olsen, Johnson, and VanDyke, 1984). It is even more challenging to determine a fair and appropriate required rate of return on the investment. However, risk assessment and cost of capital determination are vital to the success of the investment. Therefore, it is the purpose of this research to define risk as it relates to the capital investment decision, and to identify determinant risk variables associated with an investment’s risk level. Building on this platform, an investment project’s cost of capital determination model will be developed for hotel
investors, lenders, and managers.

The study will seek to accomplish the following research objectives:

a). Identify the hotel investment risk factors;

b). Measure the influence of these factors based on the empirical study of investors' perceptions;

c). Develop a practical quantitative model to estimate an investment project's risk;

d). Develop a cost of capital estimation model incorporating risk assessment. The estimated cost of capital of the new project is aimed at reflecting the existing risk and return relationship.

PROBLEM CONTEXT

The research environment for this study is the middle-priced and economy segments of the lodging industry in the states of Virginia, Maryland, and Delaware areas. Middle-priced and economy hotels represent the largest portion of hotel properties in the lodging industry. Therefore, even though there are geographical and segmentational limitations in this study, the research can still represent a relatively broad base of hotels.

Besides geographic and segmentation issues, the study will focus on the privately held hotel companies. Unlike
publicly traded hotel companies which have standard financial information available, private companies usually have less financial information available and less sophisticated financial analysis within the companies. Therefore, it is more difficult to analyze private companies in this aspect. For this reason, little research has been done on this sector. However, the hotel companies considered in this study are privately held.

JUSTIFICATION FOR RESEARCH

Very little has been written about risk assessment in the hotel industry, particularly for the private hotel companies in the middle-priced and economy segments. This is especially true for the field of risk factor analysis for hotel investment and appropriate cost of capital estimation (Olsen, Johnson & VanDyke, 1984). Some general factors related to hotel development have been written about (Laventhol & Horwath, 1984), and some general financial techniques have been studied (Olsen at el, 1986, Arbel & Grier, 1978), but none of them has been fully studied or tested empirically. In the meantime, risk analysis has become more and more critical for the success of investment projects in the hotel industry. It has become a must in today’s highly competitive and volatile hotel investment
environment. However, necessary risk assessment has not been executed systematically and completely in the hotel industry due to insufficient research findings and lack of awareness of this subject (Olsen, Johnson & VanDyke, 1984). Therefore, a sound and practical risk factor assessment model needs to be developed. This study attempts to respond to this need.

The study of risk factors will lead us to a better understanding on how they affect the investment's cost of capital determination. Only through this step, can the cost of capital be more systematically and objectively determined for capital budgeting purposes.

**CONTRIBUTION OF THE RESEARCH**

By addressing the purpose and background of this research makes it clear how its outcome will contribute to the body of knowledge on risk and risk assessment for capital investment in the budget and mid-class hotel segment. Furthermore, this study will contribute to the body of literature in the context of the hotel industry.

**A Definition of Risk**

*Risk* is defined by Nisberg (1988) as "the possibility
or probability of an unfavorable occurrence." However, in
the financial world, risk has its specific meaning. Olsen,
Johnson and VanDyke (1984) refer to risk as "measurable
uncertainty" and define it as "the variation in returns over
the life of an investment project." Thus, when there is
variance between the projected earnings from an investment
project and its actual earnings, risk exists. It does not
matter whether this variance is favorable or unfavorable.

According to Brigham and Gapenski (Brigham & Gapenski,
1990), risk can be analyzed two ways: (1) total risk, which
focuses on a single asset and which involves the dispersion
of outcomes around the expected return on that asset. In
this study, that asset is treated as a hotel property.
Total risk is then the summation of a hotel property’s
business risk and financial risk; (2) market risk
(systematic risk), which focuses on a portfolio of assets
and shows how risky an asset is if it is held in a
diversified portfolio. The risk stems from such external
events as war, inflation, economic recession, and high
interest rates, which have impact on all firms. In the
perfect market, only the market risk is the relevant risk to
investors because they can always diversify their portfolio
theoretically (Weston, 1973). Weston argues that the
appropriate risk concept to employ in the Capital Asset
Pricing Model context is market risk. For this reason, the
majority of the prior risk studies have been focused on market risk among diversified investors.

However, in a poor economic climate, and with the unique characteristics of the hotel industry, total risk can be relevant even to hotel companies or investors who hold more than one asset or one hotel. In many situations, although studies of market risk are very important for management, investors, and lenders, understanding total risk is critical as well. In some cases, total risk has more significant impact on investors and can be highly relevant to investment projects (Brigham & Gapenski, 1992). Comparing total risk to market risk makes it obvious that an investment's total risk contains some risk elements that its market risk does not. This is because total risk contains non-systematic risk which theoretically can be diluted through business diversification. However, this is not always the case in reality, due to the limitations of business diversification and the probability of business failure (Findlay, Gooding, & Weaver 1976). This argument has a significant meaning for many hotel investors in the fragmented lodging industry, in which the majority of the hotel firms are small-sized to mid-sized private companies. They just do not have enough properties to achieve a fully diversified portfolio (Arbelto & Grier 1978).

Non-systematic risk can also play a significant role in
investment risk in some particular circumstances, such as business failure and bankruptcy (Brigham & Gapenski, 1990). Therefore, risk as measured by conventional measures, which mainly focus on systematic risk, could be insufficient and less than the actual risk that small to mid-sized lodging firms are exposed to. This argument matches Brigham’s observation that practitioners (to some extent) tended to employ some overall total risk concepts in the cost of capital estimation (Brigham, 1975).

So unlike the conventional measures, it is one of the contributions of this research to focus on and explore small and mid-sized hotel investments’ total risk. This research attempts to offer some suggestions for practitioners to help them deal with this issue (Findlay, Gooding & Weaver 1976) for the purpose of investment risk assessment.

Qualitative and Quantitative Risk Assessment

This study will contribute to both qualitative and quantitative hotel investment risk measurement in the economy and middle-priced hotel segments.

Factor analysis has been a major research tool for qualitative risk assessment. The logic behind this approach is that an investment project's total risk can be created by
many key variables which have different levels of impact on its future returns (Lee & Finnerty, 1990). Although prior studies have discussed some of those risk factors related to hotel investments (Arbel & Grier 1978; Olsen, Johnson & VanDyke, 1984), none of them has been empirically validated. Furthermore, according to the available literature, there is no investment risk factor research conducted among privately held hotel companies in the middle-priced or economy segments. However, these types of information are essential for hotel investment decision makers. For this reason, it is another contribution of this study to explore this field and attempt to provide the industry a comprehensive risk factor profile.

It is quite often true that financial commitments involve the participation of more than one party. The parties participating in a hotel investment deal normally include hotel management, investors, and lenders. The common goal pulls them together for the project. However, each party has its unique demands and interests. Understanding each of their concerns and needs is crucial for the success of a project and its future operations (Brigham & Gapenski, 1990). However, there is little research being done in the hotel industry which would analyze these different parties' concerns and needs. Therefore, it is another attempt of this research to study
the risk perceptions among management, investors, and lenders. Comparison and suggestions can, therefore, be made to help the industry put deals together successfully.

Qualitative analysis is the foundation of overall investment risk assessment. The ultimate goal of risk assessment lies in its quantitative estimation, no matter whether this is explicitly or implicitly expressed by the decision makers during the evaluation. However, it is extremely difficult to accurately measure an investment’s risk level quantitatively due to the uncertain nature of many key risk factors.

Prior studies have suggested some valuable methods for this process. For example, one of the major approaches to quantitative risk analysis is to use the forecasted probability distribution of investment outcomes. However, this approach is difficult to use in practice, and it is hard to achieve a reasonable accuracy level while using it. Part of the reason for this difficulty is that this approach does not formally incorporate the qualitative analysis foundation into the quantitative process. Therefore, this paper will propose a new practical model to quantify investment risk. The advantage of the proposed model is that it is practical and easy to implement, while maintaining the beauty of the valuable qualitative risk factor analysis.
Cost of Capital Estimation

Measuring risk is only part of the task in this research. The purpose of investment risk study is to determine its required rate of return - cost of capital. Cost of capital is defined as the rate of return a firm must earn on its investment projects in order to maintain its market value and to continue attracting needed funds (Gittman, 1991). Therefore, a firm adds to its owners' wealth when it is able to accept and undertake projects which return a higher rate than their cost of capital. The cost of capital is a composite of the costs incurred from various capital sources used by the firm.

It is important for investment decision makers to correlate risk with an appropriate cost of capital; in other words, the appropriate return is required to compensate for that given level of risk. The Capital Asset Pricing Model (CAPM), one of the most commonly used risk quantification techniques, provides an alternative solution for the above issue. However, the CAPM has not been and indeed cannot be confirmed empirically - it may or may not represent the way investors actually behave (Brigham & Gapenski, 1990). Furthermore, CAPM is limited to publicly traded companies and only measures systematic risk rather than total risk. Therefore, this research will develop a new cost of capital
estimation model as an alternative solution for middle-sized and small-sized privately owned hotel companies. Moreover, unlike many conventional financial techniques, the new model will incorporate the hotel management’s in-depth industry experiences into the risk assessment and cost of capital estimation.

LIMITATIONS

As with most empirical research, there are a number of limitations associated with this study. These limitations will be discussed in further detail in chapter three: Methodology. In brief, these limitations are:

1. SEGMENT LIMITATION: The study is limited to the investment activities in the budget and mid-priced hotel segment.

2. REGIONAL LIMITATION: The study has been conducted in the Virginia, Maryland, Delaware area. Hotel investments in other geographical areas might have different risk variables for the hotel investment. Nevertheless, the study contributes to the body of knowledge in the field of capital budgeting.

3. COMPANY LIMITATION: The study will be conducted in a limited number of hotel chains. These chains have 10 to 20 properties in general. Therefore, they are small
sized to mid-sized hotel companies.

4. CONTEXT LIMITATION: The model developed in this study provides hotel management a way to assess the investment risk and estimate the cost of capital of a project. However, the estimated risk level is based upon the overall risk level of the project’s parent company. Furthermore, the project’s cost of capital derived from the new model is considered appropriate in the context of the overall company. It reflects the risk and return relationship of the overall company. Therefore, the determined cost of capital does not reflect the risk and return relationship of the hotel industry or the particular hotel segment. The industry’s risk and return relationship can be a future research subject.

SUMMARY

This chapter has presented the objective and general background of the study. It has shown that there is a strong need in the hotel industry for implementing risk analysis of capital investment. However, currently there is a void in the literature pertaining to hotel projects’ risk
assessment. Hotel investment risk factors have never been fully studied and empirically verified. Without fully understanding it, quantitative financial techniques for risk assessment cannot be implemented meaningfully in practice. In the light of the better understanding and quantifying risk, cost of capital estimation would be more objective and systematic for hospitality decision makers. Finally, the research will propose a practical and useful model for cost of capital determination based on the risk profile foundation.

The problem statement guiding this research was provided, accompanied by a short discussion of the problem context; the background and justification of the study, the contribution, and the limitations of the study have also been presented.
CHAPTER 2
LITERATURE REVIEW

CHAPTER INTRODUCTION

This chapter aims to examine the prior theoretical evidence and empirical research findings in the field of investment risk analysis and cost of capital determination. The body of literature pertaining to these areas will be the basis for this research. The chapter also explores whether the historical research and models can be applied to today’s changing hospitality environment, and what kind of modifications and improvement are necessary in order to fit today’s unique hotel investment practice.

The structure of this chapter will be first to present the evidence about the current dynamic hotel operating environment and the investment practices commonly used in this field. Following this, prior studies on risk, risk assessment, and cost of capital estimation will be discussed in order to arrive at a better understanding of this field which could help in future research.
RISK ANALYSIS AND COST OF CAPITAL ESTIMATION

IN HOTEL INDUSTRY

The hospitality industry, by its nature, is highly competitive and mature (Avner & Grier 1978; Laventhol & Horwath, 1984). Dimensions used to measure the hospitality industry environment, such as dynamism (the rate of change, variability, or volatility) and complexity (the number of environmental factors impacting the organization and their diversity), show a relatively high degree of each, as compared to many other industries (DeNoble & Olsen, 1986; Dev, 1988; Tse & Olsen, 1988; West & Olsen, 1988). However, situations of ignoring risk analysis and environmental scanning, and failure to adapt to changes are commonly found in today's lodging industry (Olsen, Johnson & Vandyke, 1984; Schmidgall, 1990), particularly among failed hotel companies (Olsen, Johnson & VanDyke, 1984; Tavlin & Moncarz, 1989; Kwansa & Parsa, 1991). The current high rate of business failure and hotel loan default strongly suggests that hotel management and investors cannot afford not to analyze and adapt to environmental changes.

For these reasons, it is necessary to first analyze the current hotel industry, the characteristics of the hotel business, and the investment practices based on the evidence of the literature review and prior findings.
The Hotel Industry and Hotel Business

Starting as transient lodgings for railroad travelers and focal points for downtown social activities, hotels have evolved into a sophisticated web of hotel chains, specialized management, and diversified types of properties with different locations and purposes. The hotel industry has divided itself into four primary functions: development, ownership, franchising, and management (Laventhol & Horwath, 1984). These four elements have changed dramatically in terms of their scope, complexity, and uncertainty. These changes occurred because of the rapid evolution of both the demand and supply of the lodging industry in the last two decades.

Regardless of the nature of the industry environment, the hotel industry is characterized by a high degree of risk, which results primarily from two factors: the cyclical nature of the demand and the high degree of capital intensiveness (Arbel & Grler, 1978). Investment financing for lodging projects can be more difficult than for other forms of properties or projects. In other words, risk variables or factors associated with hotel investment have a relatively high degree of uncertainty and play more significant roles in the investment decisions as explained in the following paragraphs.
First of all, lodging investments generally can be in various forms of business, all of which may be contained in one hotel establishment. These businesses may range from room accommodation, food and beverage services, to retailing and recreation facilities. Therefore, the value of the property investment depends upon the success of these businesses on a combined basis (Laventhol & Howarth, 1984). This dependence can increase the complexity of the investment’s development and operation.

Secondly, major components of demand for both hotel services --recreation and business-- are highly sensitive to economic conditions (Arbel & Grier, 1978). This sensitivity to economic conditions can be illustrated by the high correlation between the business cycle and the occupancy rates of hotels in major business centers (Fisk, 1963; Gum & Martin, 1977). Since all lodging investments mean long-term commitment, the risk contributed by economic conditions can be significant in the long haul.

Thirdly, the high fixed costs, high operating leverage, and volatile nature of the income stream can create a possible high risk situation for hotel investment (Laventhol & Horwath, 1984). According to Lev and Blume (Lev, 1974 & Blume, 1971), this risk can be classified as a supply related risk factor. As a result, investment earnings are quite sensitive to the fluctuations in hotel sales, and the
effect of such fluctuations can be further magnified by the high operating leverage (Arbel & Grier, 1978).

Fourthly, although most industrial corporations are moderately leveraged financially, hospitality corporations are notorious for their high debt financing. The impact of this type of capital structure places hospitality firms in a relatively high financial risk bracket.

Moreover, ownership and management often represent separate and discrete functions (Laventhol & Howarth, 1984), as the assets deployed in the industry often do not belong to those who are managing them. Instead, real-estate investment groups, insurance companies and pension funds, along with international business venturers have expended considerable amounts of capital to acquire industry assets and have employed specialized hospitality companies to manage them (Olsen, Tse & West, 1992). Owners and management companies can have different interests and concerns. This phenomenon has been substantially increasing the complexity and uncertainty of the hotel investment practices since many owners are not the knowledgeable managing entities of the industry (Ester, 1977).

Furthermore, hotel investment is considered a cash flow generating investment. In many situations, the major value of the investment relies on its future capability of cash flow generation, rather than on the appreciation of the real
estate value (Aker, 1992). In today's highly competitive business environment the cash flow generating capability of hotel investments creates a highly uncertain situation. In other words, current and future threats of entrants could make the investment a vulnerable business. Two major determining factors inherent in this industry cause the highly competitive environment. First, there is no barrier to entering the hospitality business. The industry has been a fertile field for those pursuing the American dream of owning their own business and exercising the entrepreneurial spirit (Olsen, Tse & West, 1992). Second, innovative ideas for hotels and restaurants have little protection from being immediately copied by competition and, thus, are subject to competitive forces that create an environmental dynamism and uncertainty unique to this industry (Olsen, Tse, & West, 1992).

In conclusion, the above-mentioned characteristics of the hotel business causes the potential high risk possibility for hotel related investments. These unique characteristics suggest that it is extremely important for hotel investors to understand the possible risk involvement and the potential dangerous situations they might find themselves in. It is inevitable for successful investors to establish a risk analysis system in the organization in order to cope with these challenges.
Overview of Current Investment in Hotel Industry

Industry analysts and hotel investors all agree that the hotel industry is currently in bad shape. This assessment refers mainly to the high rate of business failure and disappointing investment returns on many hotel investments. Unfortunately, this worrisome situation is not new to hotel companies and investors. Each time an economic recession occurs, this industry suffers greatly. Not too many industries have been as severely affected by the troubled economy as has the real estate industry, and the impact of the economy has nowhere been more heavily felt than in the hotel and motel sector (Gluck, Matthew, Estroff & Stephen, 1976). Problems confronting the hotel and motel industry have included declining occupancy rates, stagnant average room rate, increasing competition, oversupply, decreasing profitability, increasing operating cost, and the almost total unavailability of conventional mortgage and equity funds (Estroff & Gluck, 1976; Olsen, Johnson & VanDyke, 1984).

These problems have caused many debt default situations and forced an increasing number of hotel and motel owners into bankruptcy and disclosure. Studies (Tavlin & Moncarz, 1989; Kwansa & Parsa, 1991) and statistics (Dun’s Census of American Business) show that each year a significant number
of hospitality firms close their doors. These studies on the failure of hospitality firms revealed some of the most common reasons for business failure in this industry. Overexpansion (problems stemming from poor investment practice) and inability of adapting to future changes are the most common symptoms. However, these problems are just surrogates of deeper investment and management problems for many hotel companies. Many of these companies rushed into or expanded business without any future business or investment risk assessment. They did not know how to prepare for or simply ignored anticipating the rapidly changing characteristics of the surrounding environment. Therefore, they could not be ready to adapt to these changes. The major concern is that these mistakes have been repeated again and again by lodging companies. It is time for hotel managers and investors to seriously consider approaching risk assessment more formally and systematically when making investments and strategic plans.

Risk Assessment and Cost of Capital Estimation

Prior studies revealed that, in general, those responsible for making investment decisions in the hotel industry poorly exercised risk assessment techniques. Consequently, the investment’s required rate of return often
did not appropriately match the project's riskiness. As a result, investment evaluation did not achieve an optimal level. One of the issues concerning cost of capital lies in the tendency for parent corporations to use a single cost of capital or hurdle rate when evaluating all projects to be undertaken within the corporation, regardless of circumstances unique to the project itself. Earlier studies document this tendency (Brigham, 1975; Kim, Crick & Kim, 1986; Schmidgall & Damitio, 1990), while others reveal that some corporations ignore risk entirely in cost of capital estimation (Schall, Sundem & Geijsbeek, 1978; Olsen, 1982; Johnson, Olsen & VanDyke, 1984). The consequence of using a single hurdle rate for all different investment projects under the same firm is a bias towards accepting high risk/high forecasted return projects. Under the single hurdle rate practice, it is quite often true that this relatively high forecasted/expected return of investment is just an illusion, because the return will not be high enough to compensate for the investment's high level of risk. Ignoring risk entirely leads to assuming that estimated future cash flows will occur with little uncertainty—an assumption that is untenable. Such tendencies make the corporation extremely vulnerable to volatility in earnings because, overall, accepted investment projects do not have sufficient rates of return to compensate their risk levels.
The extra riskiness will eventually drag down the overall corporate return on investment. This common industry practice has contributed to the current financial crisis and overbuilding of the hotel industry.

It is clear that decision makers in the hotel industry urgently need to reexamine its past investment practices and implement more systematic and formal risk assessment in their investment evaluation practices. However, in order for them to achieve this objective, better understanding of risk, risk assessment and cost of capital is needed. The following section will be devoted to the study of prior findings on these subjects.

**RISK**

Risk is commonly refers to the unknown future of success (making profit) or failure (losing money) on an investment. In finance, it refers to the degree of fluctuation or uncertainty associated with a project’s cash flow or return on an investment. In this particular research, investment refers to purchasing an existing hotel property or building a brand new one. Therefore, risk is the degree of fluctuation on a hotel’s returns on investment. The following risk analysis consists of three different stages: risk context and identification,
qualitative risk study, and quantitative risk assessment.

**Risk Context and Identification**

Risk results from our inability to see into the future. Therefore, it creates uncertainty. However, this uncertainty can be complicated and vary in terms of its relevancy (Findlay, Gooring & Weaver, 1976).

First, the firms’ stakeholders, including its managers, workers, customers, suppliers, creditors, and the community in which it operates, can view the investment from different perspectives and therefore generate different types of risk opinions related to their own interests and concerns (Brigham & Gapenski, 1990). Understanding and addressing the common interests among all parties, therefore, become a great challenge for researchers and industry practitioners. It is one of the objectives of this paper to examine the needs and perspectives of different parties involved in the process of investment risk considerations.

Second, it is believed that there are three separate and distinct types of investment project risk: (1) Stand-alone risk, also viewed as total risk, which views the risk of a project in isolation, and hence without regard to portfolio effects; (2) within-firm risk, also called corporate risk, which views the risk of a project within the
context of the firm’s portfolio of projects; and (3) market risk, which views a project’s risk within the context of the firms stockholders’ diversification in the general stock market. The difference between the stand-alone risk and market risk is the theoretically diversifiable unsystematic risk. In general, a particular project might have highly uncertain returns and hence have high stand-alone risk, yet taking it on might not have much effect on either the firm’s corporate risk or that of its owners, once diversification is taken into account (Brigham & Gapenski, 1990). The relationship among different types of risk can be illustrated by figure 2-1 developed by Brigham and Gapenski (1990).

Figure 2-1 provides a framework for analyzing the riskiness of a project. In the following section, the figures will be discussed according to Brigham and Gapenski’s definition (1990), and furthermore, this framework will be applied to hotel industry investment risk analysis.

1. The terms in the figure are as followings:

\[ \sigma_p = \text{standard deviation of the profitability of the project in question, measured as the standard deviation of the project’s IRR; } \sigma_p \text{ is a measure of the project’s stand-alone or total risk.} \]

\[ \tau_{pf} = \text{correlation coefficient between the project’s} \]
profitability and that of the firm's other assets'.

The main concern here is "Are the project's returns likely to be independent of (or even negatively correlated with) returns on the firm's other assets?".

\( \rho_{pm} = \) correlation coefficient between the profitability of the project and returns on the general security market. If the correlation is positive, then the project will tend to produce high returns, provided that the economy and most stocks are also doing well.

\( \alpha_f = \) standard deviation of returns on the firm's assets before it takes on the project in question. This is the measure of "corporate risk" or "project's parent company's risk."

\( \alpha_m = \) standard deviation of the market's returns. It measures the overall market risk.

\( \beta_{pf} = \) The within-firm beta coefficient of the project, which is also the project's within-firm risk. It is derived conceptually by regressing the project's returns against returns on the firm excluding the project.

\[ \beta_{pf} = (\alpha_p/\alpha_f) \times rpf \]

This within-firm beta is a measure of the project's contribution to the firm's corporate risk.

\( \beta_{pm} = \) the beta coefficient of the project within the context of a broad portfolio of stocks.
Source: Adopted from Brigham & Gapenski (1990)

Figure 2-1
PROJECT RISK ANALYSIS
\[ \beta_{pm} = (\alpha_p/\alpha_m) \times rpm \]

This project’s market beta is a measure of the contribution of the project to the risk borne by the firm’s stockholders, who are assumed to hold well-diversified portfolios.

2. What needs to be focused on here for the investment project’s risk analysis purpose is the project’s total risk \( \alpha_p \), the project’s contribution to corporate risk \( bpf \), and the project’s contribution to market risk \( bpm \). These are the three risk measurements for the same investment project under three different contexts and perspectives. In general, because of the diversification effect, it has an effect: \( \alpha_p > bpf > bpm \) conceptually. Which one is appropriate to use for cost of capital determination then becomes an arguable issue (Findlay, Gooding & Weaver, 1976; Brigham & Gapenski, 1990).

Brigham and Gapenski (1990) argue that it is incorrect to believe that total risk and corporate risk are not important and that only the market risk is worth studying. Their position is based on the following reasons. First, undiversified stockholders, including the owners of small businesses, are more concerned about corporate risk than about market risk. Secondly, even the well diversified
investors consider factors other than market risk when setting required returns. One such factor is the risk of financial distress, which depends on a firm’s corporate risk. Empirical studies of the determinants of required rates of return generally find both market and corporate risk to be important (Brigham, 1975; Findlay, 1976; Avner & Grier, 1978). Thirdly, the firm’s stability is important to all the firm’s stakeholders, including owners, managers, and creditors etc.. Firms that are in serious danger of bankruptcy, or even of suffering low profits and reduced output, have difficulty attracting and retaining good managers and workers. Also, both suppliers and customers are reluctant to depend on weak firms, and such firms have difficulty borrowing money, except at high interest rates. These factors will tend to reduce risky firms’ profitability, and hence the prices of their stocks.

As a matter of fact, all the preceding arguments can be well applied to the hospitality industry. Besides these reasons, this industry has some more significant and unique factors supporting the corporate risk or even the stand-alone risk argument. First of all, the hospitality industry is a very fragmented industry. A majority of the companies within this industry are at the level of small to middle-sized due to the popularity of franchising or management contracting. Many owners of hotels and restaurants are
small business owners, and their firms are not well diversified. Secondly, business failure and financial distress problems are relatively significant in the hospitality industry, as compared to other industries or businesses (Tavlin & Moncarz, 1990; Kwansa & Parsa, 1991). According to the American Council of Life Insurance, in the past ten years, hotel property delinquency has been the highest among all commercial property types (American Council of Life Insurance, 1992). Therefore, an individual investment project’s financial distress risk, not just the market risk, is even more important to many investors and owners in the hotel industry. Furthermore, many hospitality firms are in the single product line business. The firm’s asset profile contains all assets which have a relatively high positive correlation coefficient to each other. This means that when one asset is profitable, it is likely that the other ones are profitable as well, or vise versa. Many risk factors which affect one asset are likely to have a similar effect on the other assets within the firm. The asset’s stand-alone risk contributes a positive effect on the firm’s overall risk. As a result, for many hospitality firms, each investment project’s stand-alone risk factors are more likely to translate positively to the firm’s overall risk profile.

In conclusion, it will be more practical and meaningful
to focus on within-firm risk and stand-alone risk analysis in this particular research. These two types of risk are most relevant to hotel managers, creditors, owners, employees, and suppliers. Previous empirical hospitality industry studies also showed that hotel management and lenders are concerned with many risk factors which are only relevant to an individual company or property (Estroff & Gluck, 1976; Whitehead, 1976; Sasser & Banks, 1976; Ester, 1977; Andrew, 1984).

**Qualitative Risk Study**

As was discussed in the preceding section, an investment project's stand-alone risk and its within-firm risk will be emphasized in this study. In order to measure and quantify the total risk, it is necessary to further explore what variables influence the riskiness of an investment. These variables are the sources of risk and shape risk assessment. Prior writing on the concept of risk explores the identification of general risk variables existing in the business environment, and also in the hotel industry in particular (Avner & Grier, 1978; Olsen, 1980; Olsen, Johnson & VanDyke, 1984; Brigham & Gapenski, 1990). This section attempts to examine the prior study findings on the common factors which have impact on the investment's
risk level.

In capital structure theory, risk is divided into financial risk and business risk (Martin, 1991). While financial risk is the risk to investors arising from the use of debt, business risk refers to the "variability in the firm's EBIT (earning before interests and taxes) that can arise from demand variability, sales price variability, input price variability, degree of operating leverage, and the price elasticity of demand for the firm's product." It is clear then, that for different investment projects, even under the same corporation's umbrella, levels of business risk will vary.

According to prior studies, investment-related risk factors can be classified into different categories. Andrew categorizes them into five major segments (Andrew, 1984). They are: economic/industry risk, area competition/development risk, company product line risk, management evaluation risk, and financial leverage/flexibility risk. He argues that these are the major risk sources that lenders should look for when they consider business loans. His detailed framework is presented as follows:

I. Economic/Industry Risk

( The future economic climate and growth. The strength of
the industry within the economy, and the role of legislation and regulation.)

A. Economic environment
   (1) GNP projection, and Consumer Spending Confidence
   (2) Demand factors

B. Industry overview
   (1) Character of goods or services sold (eg. luxurious or necessary);
   (2) Short and long-term outlook;
   (3) Business cyclicality, earnings volatility, diversity of earnings base;
   (4) Impact of legislation, regulation, and control.

II. Area competition/development risk
A. The relevant market segment competitors;
B. Future competitors and barriers to entry or ease of entry;
C. Local business development and relevant market base change.

III. Product line risk
(Company’s product, facilities, services, and future marketability outlook.)
A. Relative position in market, price leadership and market share;
B. Customer franchise: customer recognition, image, customer loyalty;
C. Product’s functional change.

IV. Management evaluation risk
A. Overall quality of management;
B. Performance as compared to peers;
C. Long term commitment and planning: both strategic and formal;
D. Control system: management, financial, and internal auditing;
E. Human resources: training and communication;
V. Financial leverage and flexibility
(Relative usage of debt, financing needs and alternatives).

Francis studied investment uncertainty sources and revealed a set of major elements that contribute to the overall project risk (Francis, 1991). These primary risk factors that create investment uncertainties are interest rate risk, purchasing power risk, bull-bear market risk, management risk, default risk, liquidity risk, callability risk, convertibility risk, political risk, and industry risk. A brief illustration of each factor follows:

Interest Rate Risk is defined as the potential
variability of return caused by changes in the market interest rates. Present value moves inversely with changes in the market rate of interest.

**Purchasing Power Risk** is the variability of return an investor suffers because of inflation. Price indices, such as Consumer Price Index, are common measurements. The only portion of an investment’s nominal rate of return that results in increased consumption opportunities for an investor is the real rate of return.

**Bull-Bear Market Risk** is the variability in market returns resulting from alternating bull and bear market forces.

**Management Risk** is the level of management competence, commitment to the investment affects its future return level.

**Default Risk** is the portion of an investment’s total risk that results from changes in the financial integrity of the investment. The variability of return that investors experience as a result of changes in the creditworthiness of a firm in which they invested is their default risk. This can be either business risk or financial risk.

**Discount Risk** is that portion of an asset’s total variability of return which results from price discounts given or sales commissions paid in order to sell the asset without delay. This situation is very common in distressed
hotel sales. In the current market, many hotel properties are for sale for a fraction of their original value.

**Industry Risk** is the portion of an investment’s total variability of return caused by events that affect the products and firms that make up an industry. For example, industry- related taxes and regulations, industry’s life cycle, industry structure issues, industry-wide labor, capital, and raw material availability etc.

Also, for bond and preferred stock investments, **callability risk** and **convertibility risk** contribute to the investment’s overall risk level. For international investment, **political risk** plays an important role.

The influential level of each risk factor differs from time to time and from industry to industry. Therefore, it is one of the objectives of this paper to rate the degree of influence of each validated risk factor through an empirical study of the hotel industry.

**quantitative Risk Assessment**

Risk identification and qualitative risk analysis are done for the purpose of its quantification. Only through quantification can investors derive an investment’s appropriate required return in order to compensate for its risk. However, the leap from qualitative risk analysis to
quantitative risk assessment is a great challenge to researchers. This paper will refer to this challenge as "Bridging Problem I." Theoretically, there are many financial risk measurement techniques developed to cope with bridging problem I. Each of these techniques has its own advantages and disadvantages. Understanding the techniques' limitations and application conditions is very important for the consistency and accuracy of the analysis.

One of the commonly mentioned risk quantification techniques in the literature is the probability distribution approach. It attempts to determine investment outcomes and probabilities of occurrence of these outcomes. Olsen, Johnson and VanDyke illustrate this technique in their 1984 work. They suggest that one way to measure risk quantitatively be to first estimate a probability distribution of all possible returns on a capital investment decision. Then, to further assess the risk of each alternative, the expected return and the standard deviation of each investment opportunity are calculated. With this information in hand, the coefficient of variation (C.V.) can be calculated using the formula:

\[ C.V. = \frac{\text{Standard Deviation}}{\text{Mean of All Expected Returns}}. \]

The coefficient of variation represents the units of risk per percentage of return.
The above-mentioned technique could be a good tool for risk assessment if the investors and management could accurately forecast all possible outcomes of each investment project and also the probability of each outcome. In reality, this is very difficult to do because this method does not directly link the qualitative risk analysis (i.e. factor analysis and other analyses) with the forecasting. It is likely to depend purely on gut feelings, without a systematic thinking process—the model.

Another issue is that many sophisticated financial techniques for risk quantification, for instance the CAPM (Capital Asset Pricing Model), are developed for large, publicly traded firms. Unfortunately, this is not the case for the majority of hospitality firms, which do not have a risk beta and stock performance information available. Gup and Norwood III (1982) present a practical alternative for risk quantification and cost of capital determination which was actually practiced by Fuqua Industries, Inc. Fuqua Industries, Inc. is a multi-market manufacturing, distribution, and service company in the areas of recreational products and services, farm and home products, transportation, petroleum, and other operations. It is listed on the New York Stock Exchange and the overall corporate cost of capital can be obtained through the CAPM approach. Although this company is not in the hospitality
business, the fundamental methodology can be applied to the hotel industry as well.

The central part of the Gup-Norwood risk analysis approach is to determine the investment project’s objective risk through objective financial data, and subjective risk through the top management team’s subjective judgment. The objective and subjective risk are quantified by developing a risk class category (from 1 to 5), using the corporation’s overall risk level as a yardstick (risk class 3). Please refer to the section "Gup & Norwood Model" in this chapter for the details.

Although the fundamental thinking of the Gup-Norwood model is very valuable for the risk quantification of hotel investments, there are many technical problems in applying this approach directly to hotel companies. Moreover, Gup and Norwood, did not, in fact, give out necessary instructions on their model’s application. Their published research paper does not spell out how to actually use their model. Despite its limitations, it is essential to have a full understanding of this model, since the proposed new model developed from this research is built upon the foundation of the Gup-Norwood model.

The usefulness of the Gup-Norwood model is based upon its practical features and the full utilization of management expertise. Risk analysis and cost of capital
analysis, to a great extent, are a matter of judgment (Weston & Brigham, 1978). The key is how to translate and direct these subjective judgments into a systematic and rational decision making model, so the result will then be more "objective." This issue will be fully discussed in the section "CAPITAL BUDGETING IN ORGANIZATIONAL SETTINGS" at the end of this chapter.

COST OF CAPITAL

In order to make prudent investment decisions, a central question needs to be answered by management: what rate of return does management feel comfortable with in taking on a particular project at a given risk level? The challenge will be to pick a return matching that risk. This paper refers to this as "Bridging Problem II". The challenge is how to bridge the investment’s riskiness with a matching required rate of return--cost of capital. The following will be dedicated to the explanation of this concept.

In practice, there are numerous reasons for a firm to estimate its investment’s cost of capital. The estimation is critically important because of the following three reasons (Brigham & Gapenski, 1990): (1) maximizing the value of a firm requires that the cost of all inputs, including
capital, be minimized, and to minimize the cost of capital we must be able to estimate it; (2) Capital budgeting decisions require an estimate of the cost of capital; (3) Many other types of decisions, including those related to leasing, bond refunding and working capital policy, require estimates of the cost of capital. This research will focus on the second aspect of these three reasons.

THE CONCEPT "COST OF CAPITAL"

The term "cost of capital" is widely used, but has no clear or agreed upon meaning, either by definition or application (Lewis, 1989). "Capital" refers to financial instruments of all kinds--principally debt and equity. "Cost" refers to yield, both the return to the owner and the cost to the issuer. The subject is defined in three categories to establish clarity and relevance: rate of return, cost of funds, and discount rate.

A company’s cost of capital is the rate that must be earned in order to satisfy the combined required rates of return of the firm’s investors. As such, the cost of capital is the minimum acceptable rate of return for capital investments. For capital budgeting purposes, the objective of cost-of-capital estimation is to determine the rate of return that must be achieved on the company’s investments so
as to earn the required rate of return for the firm’s investors (Keown & Scott, 1985). With the common assumption of risk and return, investors demand a higher cost of capital rate (hurdle rate of investment) when such an investment is associated with higher risk (uncertainty on return on investment).

**Determination Factors/Variables**

Theoretically, the cost of capital of a firm’s investment project is determined by its risk level and the investment market’s risk and return relationship. As was discussed earlier, the project’s risk level refers to the degree of fluctuation in the project’s future return (probable outcomes) over the life of an investment project (Olsen, Johnson & VanDyke, 1984). The higher the fluctuation the project has, the higher the cost of capital should be assigned to the project in order to compensate for the risk and maintain the desired level of the firm’s overall return. Therefore, riskiness of the investment is the major determinant factor of its required rate of return—the cost of capital. In practice, risk is something which cannot be seen directly. Therefore, qualitative risk variable analysis and quantitative risk assessment, which were discussed in the preceding section, become valuable
tools for cost of capital estimation.

Risk level of an investment depends on many variables. The impact of each of them contributes to the overall risk level. In general, those variable factors which ultimately affect the cost of capital can be categorized into four different areas (Keown & Scott, 1985). These four primary areas are: general economic/capital condition factors, market condition factors, the firm’s operating and financing decision factors, and financing level factors. As has been discussed in the preceding section, all these factors contribute to the overall risk level of the investment.

The general economic/capital condition factors here specifically refer to the demand for and the supply of capital within the economy, as well as the level of expected inflation. They are reflected in the risk-free rate of return.

The market condition factors are defined by Keown and Scott as the marketability of the firm’s securities. If the security is not readily marketable when the investor wants to sell, or even if a continuous demand for the security exists but the price varies significantly, an investor will require a relatively high rate of return.

Keown and Scott further emphasize the influence of the firm’s operating and financing decisions on the determination of cost of capital. This type of risk results
from decisions made within the company. It can be divided into two types, business risk and financial risk. The last factor is the level of financing required. The more capital is required, the more likely it is to incur a higher cost.

In conclusion, cost of capital estimation is a process that combines risk assessment and capital market return analysis. One way to achieve risk assessment is to study and quantify key risk variables or factors which have ultimate impact on the project’s riskiness.

**Techniques for Cost of Capital Estimation**

There are many financial techniques for cost of capital estimation that have been studied by academicians. The objective of cost of capital estimation is to bridge the investment’s risk level to its matching return. Obviously, it is very difficult to find out how much return is sufficient for an investment under its given level of risk. However, there are several approaches to estimate the cost of capital. The capital Asset Pricing Model (CAPM) is one of the most commonly used approaches. It provides a neat, logical way to match the return with the risk. However the CAPM is limited to publicly traded companies, and is based on some unrealistic assumptions. It cannot be empirically verified (Brigham & Gapenski, 1990).
The CAPM assumes that common stockholders are well diversified and they view only market risk as being relevant. Therefore, the risk premium that the investors demand is assumed to be based solely on the stock’s beta coefficient and the market risk premium (Km-Krf) as set forth in the Security Market Line equation:

\[ K_s = K_{rf} + (K_m - K_{rf}) \times \beta \]

\( K_s \) is the required rate of return or cost of the equity capital of the investment. \( K_{rf} \) is the risk-free rate of return. The best alternative to obtain the risk free rate is to use the rate of return of published 20-year long term treasury bonds as a substitute (Brigham & Gapenski, 1990). \( K_m \) is the security market return. The rate can be calculated using either an ex post (historical market returns) approach or an ex Ante (forward looking market returns) approach. The actual number is available from Merrill Lynch’s bi-monthly "Quantitative Analysis" or Ibbotson Association’s periodical published data. The tough part of this equation’s practical application is the asset’s beta, which is the measurement of the riskiness of the investment. For publicly traded companies, beta is readily available. However, it would be a problem for private companies and individual investment projects. The beta is not publicly available for these companies or projects.

One of the ways of solving this problem is to use "pure
play" method, invented by Fuller and Kerr (1981). This method is very useful for large-sized companies which are privately held or publicly traded firms' divisions. The key is identifying comparable publicly traded single product firms who compete with the same products as those the investment or private company offers. However, in reality, for most of the small to middle-sized private companies, it was virtually impossible to find any information like that available. So further adjustment is needed. Some researchers suggest using an adjusted average industry beta (Clemmens, 1989).

For many small to middle-sized companies, the "Gup-Norwood" (Gup & Norwood, 1982) method provides a useful and practical solution for risk-adjusted cost of capital estimation. In fact, this method can be applied to all firms. The new model proposed by this paper will borrow the basic thinking of this approach.

So far, it has been demonstrated through the literature review that risk analysis and its incorporation into investment evaluation are essential for a company’s investment decisions. However, this whole process is not something that can be done mechanically, but rather by real people in real organizations. Also, the process is more like an art than like a science. It requires substantial industrial experience and logical judgments. Therefore, the
ultimate purpose of this paper is to develop a theoretical and systematic model based upon the common essence of these experiences and judgments. This model then can be practically used as a guideline for management to handle individual investment cases.

**Gup-Norwood Model, Practical Thinking On Cost of Capital Estimation Techniques**

The Gup-Norwood model was developed for the purpose of divisional cost of capital estimation (Gup & Norwood III, 1982). Because of the diverse nature of a multi-divisional corporation’s operation, it is necessary for the corporation to develop a cost of capital for each business segment or division. According to Gup and Norwood’s 1982 paper, a division’s cost of capital is determined by the **corporate cost of capital, objective and subjective risk, and the risk index**. This thinking is perfectly matched with the preceding discussion on the determination of cost of capital, risk, and risk-return relationship of the market. The objective and subjective risk and risk index are used to adjust the corporate cost of capital to reflect the different degrees of risk in each division with the corporation.

As illustrated by Gup and Norwood (1982):
The logic behind this (the model) is that a division that is considered riskier than the corporation's average risk should have a higher than average cost of capital, whereas a less risky division should have a lower than average cost of capital.

The Gup-Norwood model will be fully discussed in the following section, utilizing a simplified example.

Outline and Basic Equation

The divisional objective and subjective risk and risk index multiplier are used to adjust the corporate cost of capital to reflect the different degrees of risk in each division. The adjustment is the major part of the Gup-Norwood Model. The definitions and equations are as follows:

Objective Risk Class --- Measured by the variance of net operating profits after taxes.

Subjective Risk Class -- Measured by a division's risk profile, which is a subjective method for determining the relative risk of a division.

Combined Risk Class --- The average of objective risk measure and the subjective risk measure.

So Combined Risk Class=(Objective Risk + Subjective Risk)/2

Risk Index Multiplier--- Each combined risk class will be assigned a risk index multiplier. The derivation of the index is based upon the experience of the
management, the industry’s norm and the comparison with other single-unit business competitors. So it is an art rather than science here.

Divisional Risk Index = Corporate’s Cost of Capital
Cost of Capital * Multiplier

Objective Risk

The first step of the adjustment is to determine the divisional objective risk. It is a process of evaluation of its profit variance, which involves comparison of net operating profits after taxes for the current year to a) the previous year, and b) the budget for the current year. A five-year average of the variances is used to avoid unusual periods. A 25% weight is given to the year-to-year variances and a 75% weight to the actual-to-budget. This procedure which reflects management’s experience and judgment, plays a strong role in the whole process. Therefore, the percentage suggested by Gup and Norwood can be changed, depending on the management’s view on this issue: 25% and 75% are just two recommended weights.

Table 2-1 shows a sample derivation of the objective risk class for a division that has risk class 2 at year-to-year variance and 1 at year-to-budget variance. The objective risk class will be a value in between 1 to 5.
Table 2-1 shows the first major problem of the Gup-Norwood model in terms of the model’s application guidelines. Gup and Norwood do not explain in their published paper how those percentage ranges were set. They do not present any theoretical or empirical findings on this aspect. It was unclear what criteria should be used when model users apply this model to their companies. Therefore, it is impossible to apply this model directly to the hotel industry.

Subjective Risk

The second step is to develop a divisional risk profile in order to determine its subjective risk. The risk profile contains risk factors that management considers important for evaluating each division. Each of the risk factors is ranked from 1, the lowest risk level, to 5, the highest level. Please refer to Table 2-2 for details. The risk elements in the table come from the top management’s experience and perception about the company’s industry and operational environment. Therefore, the profile is very different from company to company in the hotel industry. Gup & Norwood did not illustrate the detailed process of finding these key elements in their paper (Gup & Norwood, 1982).
### TABLE 2-1
GUP-NORWOOD’S OBJECTIVE RISK CLASS DETERMINATION

<table>
<thead>
<tr>
<th>Risk Class</th>
<th>Year-to-Year Comparison (25% weight)</th>
<th>Year-to-Budget Comparison Division (75% weight)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>-5% to +10%</td>
<td>-3% to +5%</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>-10% to +20%</td>
<td>-5% to +10%</td>
<td>.75*1=.75</td>
</tr>
<tr>
<td>3</td>
<td>-15% to +40%</td>
<td>-10% to +20%</td>
<td>.25*2=.50</td>
</tr>
<tr>
<td>4</td>
<td>-20% to +60%</td>
<td>-15% to +30%</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>-25% to +70%</td>
<td>-20% to +40%</td>
<td></td>
</tr>
</tbody>
</table>

Average Objective Risk Class: 1.25

**Note:** The project’s parent company falls into the score 3 at each risk class situation for both categories.

Source: Gup & Norwood (1982)
TABLE 2-2
GUP-NORWOOD’S SUBJECTIVE RISK FACTOR PROFILE
AND MANAGEMENT’S RANKING

<table>
<thead>
<tr>
<th>Risk Elements</th>
<th>Not Applicable</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Customer Base Dispersion</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Operational Flexibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Loss of Asset Value</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Cyclical Business</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Seasonal Business</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>6. Government Involvement</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>7. Changes in Tech.</td>
<td></td>
<td>1</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>8. Market Position</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Management</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Brand Distinction</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>11. Unionization</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>12. Environmental Impact</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Availability of Resources</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>14. Backlogs</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>X</td>
<td>4</td>
<td>4</td>
<td>9</td>
</tr>
</tbody>
</table>

Average Subjective Risk Class = \( \frac{\text{No. of Applicable Risk Factors}}{13} \)
= \( \frac{35}{13} \)
= 2.69

Note: The parent company falls into situation 3 in all risk elements.

The combined risk class then is: \( (1.25+2.69)/2 = 1.97 \)

Source: Gup & Norwood (1982)
The risk index multiplier is the final element that is needed in order to determine a division's cost of capital. The risk index multiplier is an attempt by management to compare the cost of capital of other firms (its competitors) to that of its own. For example, for division A in industry B, management compared other similar firms in industry B with division A and assessed each of those firm's total risk levels and their cost of capital based on management's knowledge of the industry and experiences, with an assumption that all these firms have capital structures similar to division A. Then the management derived a table with risk levels matching the cost of capital in the B industry. Here, the management set its corporation at the medium risk level. So, a combined risk class 3 would have a cost of capital 12%. See table 2-3 for the details. For the above division A with a combined risk class of .97, its weighted average cost capital will be 11.6%.

It is very obvious that the derivation of the risk class index multiplier is a very difficult task for management. Unfortunately, Gup and Norwood's paper does not spell out in detail how they derived table 2-4, especially how to set the cost of capital with each risk class from 1
TABLE 2-3

GUP-NORWOOD'S RISK-RETURN RELATIONSHIP TABLE
AND INDEX MULTIPLIER

<table>
<thead>
<tr>
<th>Division's Risk Class</th>
<th>Combined Risk Index Multiplier</th>
<th>Divisional Cost of Capital (3) = (2) * 12%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1</td>
<td>.90</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.97</td>
</tr>
<tr>
<td>Medium</td>
<td>3</td>
<td>1.05</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>1.10</td>
</tr>
<tr>
<td>High</td>
<td>5</td>
<td>1.20</td>
</tr>
</tbody>
</table>

Note: The parent company's cost of capital is 12% in this example.

Source: Gup & Norwood (1982)
to 5. This causes the second major deficiency of their model in terms of its practical application. It seems that, according to their paper, there is no clear standard for matching cost of capital with each risk class. They are based purely upon the management's knowledge and experience of the industry—the gut feelings.

Besides all the discussed problems with the Gup-Norwood model, there are other major limitations with this model. First of all, the model was developed for publicly traded corporations rather than for private companies. Secondly, it was used specifically in the manufacturing industry. Thirdly, the model is only for the use of divisional cost of capital determination. It cannot be used to determine stand-alone investment projects in general. Thus, new modifications and improvements are needed if this approach is to be utilized for hotel investment evaluation. Despite its deficiencies, the Gup-Norwood model provides a valuable foundation for the development of the new cost of capital estimation model.

CAPITAL BUDGETING IN ORGANIZATIONAL SETTINGS

So far, this paper has focused mainly on the technical part of the risk analysis and cost of capital estimation for investment evaluation. These economic and financial
analyses are part of the overall complex capital budgeting process. Capital budgeting is a multifaceted corporate activity that includes searching for and identifying new and profitable investment opportunities; investigating, engineering, and analyzing the production; marketing considerations of competing investment proposals, and performing economic and financial analyses to identify the most profitable or least costly way of taking advantage of an investment opportunity (Cheng & Finnerty, 1990). So, this process involves decisions that have long-term strategic implications. Management cannot practically implement any capital budgeting model successfully without adequately considering how it interfaces with the firm’s strategic objectives, its information system, formal and informal organization process, and the evaluation and reward structure employed (Pinches, 1982). To meet these needs, the risk analysis and cost of capital estimation model developed through this research will be done in the context of an actual organizational setting, rather than through unrealistic theoretical assumptions.

The previous academic research supports this notion. In a somewhat different context, many of studies have been directed at the relation between various measures of risk used in practice versus risk as defined in the capital budgeting literature (Barron & Joy, 1978; Fishburn & Libby,
1977). Laughhunn, Payne & Crum., in 1980, examined the risk preferences of 224 managers and concluded with the summary for risk assessment model construction:

The empirical evidence reported in this paper would indicate that a major reason for lack of interest may be that the available models do not capture the essence of risk as defined by decision makers. When this occurs, it is not likely to matter how elegant or analytically tractable the model is. Analytical tractability ought to assume a secondary role in the development of normative models. A preferred approach would be to construct models based on a realistic assumption about risk preference and then to search for ways of obtaining solutions, even if solutions involve approximations. An approximate solution to a model that is based on a realistic risk preference assumption is more likely to be implemented than an exact solution to an analytically tractable model that is considered too contrived by the ultimate user.

This observation further supports the methodology which will be discussed in Chapter 3.

Furthermore, it is important to understand that decisions are analyzed according to the decision-maker’s point of view. Managers at different levels will view capital investment risks from different perspectives. For example, top management generally are more concerned with uncertainties related to long-range strategic expansion and investment. Their views are broader in general. In comparison, managers at the operating level generally are more concerned with short-term effects of risks and tend to be more specific. This phenomenon is the result of
different goals and direct responsibility to different levels of decision makers, although the ultimate goal or decision criterion, for all of them, is to maximize the owners's wealth. For this reason, it is crucial to understand all facets of risk assessment regarding an investment in order to integrate them systematically and to achieve the best investment result (Brigham & Gapenski, 1990). It is the intention of this research to test the model throughout the decision making structure in the organization, from the corporate level to the divisional level.
CHAPTER 3

METHODOLOGY

CHAPTER INTRODUCTION

This chapter is based on the conceptual framework developed in the previous chapters. With the foundation of the existing body of knowledge, Chapter 3 presents the research operational procedures, the design (protocol), and the theoretical evidence behind the entire research methodology. The overall research design consists of the Focus Group Interview, the Delphi Technique, the new model development, and a case study. This chapter not only discusses the detailed implementation of each research method, such as the expert panel selection, research instrument development, model construction, data collection and analysis process, but also focuses on the systematic interaction of all major research methods in order to achieve validated research results.

RESEARCH QUESTIONS

The primary purpose of this study is, through a series of empirical steps, to investigate the key factors that have an impact on the total risk level of a hotel investment.
These factors are likely to affect the investment project’s uncertainty regarding its future returns. With the understanding and knowledge of these risk factors, a practical cost of capital estimation model will be proposed for hotel investment opportunities. It is the ultimate goal of this research to determine the appropriate cost of capital on hotel-related investment for capital budgeting purposes.

Many conventional risk-return estimation techniques, such as the Gup-Norwood approach (Gup & Norwood, 1982), use the CAPM (Capital Asset Pricing Model) as the rate determination foundation. Private companies cannot implement these techniques because the CAPM requires a stock market Beta. The proposed new model provides an alternative for privately owned hotel companies.

The derivation of the project’s cost of capital from this model would be considered a fair or appropriate rate of return in the context of comparison with all other investment assets within the company’s portfolio. This is another important feature of the model. In many cases in the hotel industry, the portfolio could belong to the project’s parent corporation or management company, with this project being a new hotel property. The logic behind the model is that a project, which is considered riskier than the parent corporation’s or the portfolio’s average
risk, should have a higher than average cost of capital than its parent corporation.

Following its development, the model will be tested through a case study approach. For this purpose, the technical details of the model’s implementation will be addressed. Since this model is to be made practical so as to meet the industry’s needs, the model will also address the possibility that users might find some discrepancies between their own situation and the one presented in the paper. For this reason, some technical details of the model’s operating procedures can vary from situation to situation. Adjustments are necessary from time to time. However, the overall design and methodology of the model provide valuable tools for hotel industry practitioners and academicians as well.

On this basis, questions to be addressed by the research effort are:

1. **What are the key factors that will have an impact upon the hotel investments’ total risk (uncertainty of future return on investment)?**

   Research Focus: The Investment Risk Factor Profile
   Research Design: Focus Group Interview, and Delphi Technique

2. **In terms of its degree of impact (level of influence) on the project’s total risk, how influential is each risk factor?**

   Research Focus: Comparison study on the level of
influence of each risk factor based upon the perception of hotel owners, operators and bankers.

Research Design: Delphi Technique

3. **With the development of the risk factor profile, how should hotel investors or management estimate an individual project’s risk as compared to other projects in the portfolio?**

Research Focus: Estimation of the Investment Project’s Risk
Research Design: The use of Industry/Measurement Adjusted New Model

4. **How should investors or management estimate a project’s appropriate cost of capital in the context of its relative risk level to the overall investment portfolio?**

Research Focus: The Project’s Cost of Capital Determination
Research Design: The use of a Industry/Measurement Adjusted New Model

5. **How does the new cost of capital estimation model work in the real hotel investment situation?**

Research Focus: Testing of the model in the actual setting (Prior capital budgeting approaches will be compared with the new approach used in the model).
Research Design: Case Study

**FRAMEWORK OF THE RESEARCH DESIGN**

A research design is the logic that links the collected data (and the conclusions to be drawn) to the initial questions of a study (Yin, 1989). As suggested by the
discussion in the preceding chapter, this research will focus on the risk analysis and the cost of capital estimation model construction. A case study, in conjunction with focus group exploratory research and the further development of focus group results using the Delphi Technique, is considered a relatively ideal in-depth empirical study for social science, regarding "what," "how," and "why" questions (Yin, 1989). The overall design of the research consists of four stages. Each stage serves the purpose of answering the research questions stated in the preceding section.

Stage one is designed to identify investment risk factors. It will be an exploratory study that uses the focus group method to obtain the preliminary identification of key risk factors. This process will present a risk factor profile that will be constructed for later testing and further development through a Delphi Technique. In addition, the background information about the hotel company’s cost of capital estimation practice will also be gathered. This information is later valuable for the model’s development and application of the model.

Stage two is the risk factor validation and ranking stage. This process uses a Delphi Technique to validate the preliminary risk factor profile, and furthermore, to generate the degree of influence for each risk factor in the
profile. The whole process actually contains three rounds of operations. The first round will be a validation of the key risk profile developed from the focus group interview. The selected panelists will be asked to give their opinions on the given risk factor list. Then they can add to, replace or modify the elements of the factor list based upon their own experience. This will generate a sound and validated key risk factor profile. Round two will consist of asking the panelists to make comparison rankings among the validated risk factors. The ranking scale will be from 1 to 5, with 1 being the most influential risk factor to 5—the least influential one. The results will reveal each factor’s degree of influence. Round three will be the final reexamination phase. The results obtained from round one and round two will be re-examined and a general agreement will be reached. Throughout the whole process, the panelists will be contacted through faxes, which will increase the efficiency of communication.

The results from stage one and two should generate a validated profile of hotel risk factors. This profile will reveal what the significant risk factors are, and what kind of comparison ranking each of them has. This information will help build the general foundation for the later development of the cost of capital estimation model.

Stage three will be the development of a cost of
capital estimation model. This stage accomplishes two major tasks by solving the two "Bridging" problems (see page 58 & 61). Please refer to the following Figure 3-1.

As illustrated by Figure 3-1, in order to achieve the goal of this research (cost of capital estimation), based on the information obtained from the risk factor profile and the hotel’s financial statements, two problems have to be solved. They are Bridging Problem I and Bridging Problem II which were discussed in Chapter 2 in the "Risk Measurement and Quantification" and "Cost of Capital" sections. For Bridging Problem I, the derivation of the investment’s risk factor profile only provides a general idea of where to look for risk. It is purely qualitative knowledge, which means that the knowledge itself does not offer a quantitative measurement for the risk assessment. Therefore, quantifying the total investment’s risk amount becomes a challenge. In other words, it is a question of how to bridge the risk factor profile to its quantitative amount--a "how much" question. This question will be answered in the "New Model Development" section of this chapter.

Bridging Problem II explains how the investment project’s cost of capital should be determined with the pre-assumption of knowing its total risk amount. In other words, how much return is appropriate for the project, given the information pertaining to total risk level? The
Risk Factor → Bridging I → Determination of Project's Risk Amount → Bridging II → Capital of the Project

Need to develop an approach which includes a set of criteria of measurements: coefficient of variation, degree of combined leverage effect, and the risk factor profile to quantify the risk amount.

Need to develop a systematic approach to estimate a project's cost of capital based on its determined risk level from answer of Bridging Problem I.

Figure 3-1

ILLUSTRATION OF THE "BRIDGING PROBLEM" IN RISK ASSESSMENT AND COST OF CAPITAL ESTIMATION.
challenge for this issue is to bridge the hotel investment’s risk to a fair rate of return within the context of the company and the industry. This problem will also be addressed in the New Model Development section.

In order to answer these two critical questions, the Gup-Norwood cost of capital determination approach will be utilized. Although the original Gup-Norwood approach (Gup & Norwood, 1982) was developed only for publicly traded manufacturing companies, it still provides some helpful insights and an important framework for the new model development in this study. However, some major measurements in the Gup-Norwood approach will be replaced, and some will be modified for use in the model’s implementation in the hotel industry. Some of them will have to be deleted due to the practical difficulty and their lack of validity for the unique situation of the hotel industry. In addition, the proposed new model will incorporate some new measurements based on the theoretical evidence about risk and capital budgeting in the hotel industry. These new add-in measurements are considered more appropriate for the hotel investments’ risk assessment (Arbel & Grier, 1978; Olsen, Johnson & VanDyke, 1984; Brigham & Gapenski, 1990; Olsen, Tse & West, 1992). The Gup-Norwood risk factor profile of the manufacturing industry will be replaced by the hotel industry’s investment risk factor profile. Furthermore,
adjustment will be made to fit the proposed new model into the private hotel company’s situation.

In conclusion, the first Bridging problem will be solved by the method of "combined risk class" determination. The second Bridging problem will be handled by using the "corporate and industry adjusted risk index" method. These two methods will be discussed in detail in the Model Construction section.

With the development of the proposed new model, a case study approach will be conducted in order to apply the model to an actual hotel investments situation. This will be the final stage of the research design, **stage four**. The top executives of the company in the case study will use the model to determine the cost of capital of their existing investment projects.

In summary, the following table shows the entire research design step by step.
<table>
<thead>
<tr>
<th>RESEARCH DESIGN</th>
<th>ACTION PLAN</th>
<th>RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Focus Group Interview--</td>
<td>Preliminary Risk Factor List</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Background information about the cost of capital estimation practice in the industry.</td>
<td></td>
</tr>
<tr>
<td>2. Delphi Technique--</td>
<td>Revised/Validated risk factor profile</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Ranking results of each risk factor according to its influence on total risk.</td>
<td></td>
</tr>
<tr>
<td>3. Model Construction--</td>
<td>Developing an industry and corporation adjusted model to quantify project risk.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Estimating the cost of capital based upon the project's risk level.</td>
<td></td>
</tr>
<tr>
<td>4. Case Study Stage --</td>
<td>Applying the model to the case company for testing and further development.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3-2

THE OVERALL RESEARCH DESIGN
DESIGN FOCUS GROUP INTERVIEW AS AN EXPLORATORY RESEARCH

The focus group interview is an exploratory research tool. It is an ideal research strategy for areas that do not have much research evidence to depend on. As has been stated in the previous chapters, comprehensive hotel investment risk factors analysis is an area with little research (Olsen, Johnson, & VanDyke, 1984). Therefore, exploratory research is recommended under such a situation. The focus group technique is a commonly used and ideal exploratory research method. It is defined by Zikmund (Zikmund, 1988) as:

An unstructured, free-flowing interview with a small group of people. It has a flexible format that encourages discussion. The group consists of an interviewer or moderator and eight to twelve participants who discuss a single topic.

Strengths and Weaknesses

There are many specific advantages of focus group interviews, which are the reasons for using this technique in this study. The study will attempt to extend and utilize these advantages. According to Zikmund (1988), these advantages are:

* SYNERGISM: The combined effort of the group will produce a wider range of information, insights, and
ideas than will be the accumulation of separately secured responses of a number of individuals.

* SNOWBALLING: A bandwagon effect often operates in a group interview situation. A comment by one individual often triggers a chain of responses from the other participants.

* SIMULATION: Usually, after a brief introductory period, the respondents want to express their ideas and expose their feelings as the general level of excitement about the topic increases.

* SECURITY: In the well-structured group, the individual can feel comfortable to participate.

* SPONTANEITY: Since an individual is required to answer any given question, the person’s responses can be more spontaneous and less conventional than the rest of the group.

The primary advantage of the focus group interview is that it is relatively brief, easy to execute, quick to analyze, and inexpensive, which make it very practical.

Some specific shortcomings of the focus group interview should also be pointed out and minimized. Without a sensitive and effective moderator, a single, self-appointed
participant may dominate the session. Therefore, the success of this technique relies a lot on the control exercised by the moderator. A well-selected moderator (please see "Selection of Moderator" section for details) will minimize this potential shortfall. This research is going to select a well-known and highly-experienced moderator. Furthermore, the focus group approach also contains the general disadvantages of exploratory research. This tool is qualitative, and interpretation of the findings is typically judgmental (Zikmund, 1988). Also, the findings may similarly be ambiguous, and the small sample size of participants may not be representative. Coping with this particular issue depends mainly on the qualification of the panel (please see the Selection of Panelists for details).

The focus group interview will help the researcher learn the vocabulary and discover what the panelists tend to think about risk issues. In addition, it can provide valuable clues and fundamental information about special problems that might occur in the subsegment Delphi study phase. It enables the researcher to get in tune with practical hotel investment situations. These insights can then be used to develop more efficient follow-up Delphi Technique surveys.
Outlines of Conducting a Focus Group Interview

The process of conducting a focus group study consists of three phases: conceptualizing the study, conducting the interview, and analyzing/reporting the results (Kreuger, 1988). Within each of these phases, there are several steps and actions (see Figure 3-3).

The first stage of the study is to establish the purpose of the study. This has been done in the preceding chapters and in the early section of this chapter. It is very important to keep this purpose in mind throughout the whole process.

The following section will be devoted to a detailed discussion of the design and conduct of the focus group activities.

Operational Design of the Focus Group Interview

This section will discuss the second phase of the focus group interview (please refer to the preceding section and figure 3-3). It intends to focus on the following issues: the selection of participants, the development of operational questions, the skill necessary for moderating, and the effective running of the meeting. The operational procedure is consistent with Kreuger' recommendations
CONCEPTUALIZING THE STUDY

1) Defining the purpose of study
2) Planning all resources of the study
   (Time, Money & Labor)

OPERATIONAL DESIGN & CONDUCTING THE STUDY

1) Participants selection
2) Operational questions development
3) Moderating skills development
4) Conducting the meeting & creating the context & background

ANALYZING AND REPORTING THE RESULTS

Source: Adapted from Kreuger (1988)

Figure 3-3

PROCEDURES OF CONDUCTING A FOCUS GROUP STUDY
Selection of the Participants: People invited to the focus group are experts in the hotel and lending industry in the Virginia area. This focus group is characterized as heterogeneous and sufficiently varied to provide valid and valuable information for this research. All of the participants are quite knowledgeable in dealing with the evaluation of hotel-related investment projects. However, they are from different companies and industries: the hotel industry, the banking or lending industry and other related businesses. This diversity of participants provides the needed variation in expertise and knowledge. The panel members were chosen by the research committee members.

The process of getting them to attend the focus group interview consists of the following steps. First, the participants of the focus group were identified through previous professional contacts and relationships. The ideal number of participants in the group should be from seven to twelve (Kreuger, 1988). Group members were first contacted by the research committee members through industry trade meetings and other events. The research project was introduced to them together with the intended plan of the focus group interview. A tentative list of participants was then produced through the first contact. Second, about three weeks in advance, a personalized invitation letter was
sent to each of the prospective attendees (see Appendix 3-1). The purpose of the invitation letter was to provide sufficient but brief information in writing about the purpose of the study, the sponsors of the study, and the usage of the participants' input. Also, in order to establish a clear communication channel with the participants, a Definition of Terminology was enclosed in the letter (see Appendix 3-2). This terminology sheet was again given out to the participants at the beginning of the interview to create a focused environment. Due to time constraints, the letter was faxed to participants. Third, a follow-up confirmation phone call was placed four days before the interview to confirm the attendance. Other operational preparations were as follows.

Selection of Moderator: A hospitality strategic and financial management consultant and professor, known both domestically and internationally, was selected as the moderator. He has a great wealth of professional knowledge and industry experience in hospitality finance and investment research and consultation. His distinguished achievements have made him one of the leading scholars in hospitality industry and this research area as well. It was very fortunate to have him as moderator in order to minimize one of the potential shortcomings of the focus group
interview.

Selection of Location: Convenience to the interview participants was the primary consideration of the location selection. Roanoke is the largest city in South-west Virginia and was the most convenient location for all the attendees. Therefore, it was selected as the interview location. In order to save time for the busy participants, the meeting was held as a luncheon at a private meeting room in a fine restaurant.

Selection of Equipment: Tape recording was required for the interview. The use of omni-directional remote microphones or pressure sensitive microphones to pick up even low voices from the participants, enabled the researcher to hear all comments later on. Recording needed to be mentioned to the participants during the ground rules statement.

Selection of Interview Questions: The quality of the interview questionnaire is extremely important to the success of the whole interview. Validity, clarification, and open-endedness were the major elements considered. They are reflected in the following three topics: contents of the questions, arrangement and flow of the questions, and pilot
testing of the questions.

I. Contents of the Questions:

RESEARCH QUESTION I:
What are the key factors that have an impact on the total risk level of the hotel investments?

Operational Questions:

1. Please think back to the past; when your company had hotel related investment opportunities, how did you evaluate or estimate their risk in general?

   Purpose of the question: to lay out the context for the participants, and obtain information about the overall investment practice of each organization. It also examines the different practices for different interest groups (investors, bankers, managers).

2. Now stick with the risk issue. What areas did you look at in order to estimate the hotel project's risk? Please list thoroughly all the factors which would have influence on the project's risk level.

   Purpose of the question: to obtain out the risk factor lists from all parties.

3. Based upon your past investment risk evaluation experiences and lessons, what changes or improvement
would you like to make for your future investment risk evaluation?

Purpose of the question: to provide some ideal risk evaluation information for the later model development, and to further build up the risk factor list.

**RESEARCH QUESTION II:**

What are the current practices in hotel investment project *cost of capital* estimation?

**Operational Questions:**

1. What factors did you consider and where did you look for when you tried to determine the required rate of return of hotel investments?

   Purpose of the question: to obtain qualitative information about cost of capital estimation practices in the industry and to provide a background for model development.

2. Based on the current market situation, what is the hurdle rate range (from the most uncertain projects to pretty much predictable projects) for hotel investments?

   Purpose of the question: to find out the reasonable cost of capital rate range for hotel investments. This is helpful for the development of the proposed new
model.

II. Arrangement of the Questions

These five operational questions are very important, as they enable the interview participants to get on the right track and focus on the issues. The flow of the questions was from general to specific. Based on the objective of the research, the flow of the questions is shown in figure 3-4. Step three of Risk Variable Identification was the main objective of the whole interview.

**Conducting the Group Interview Meeting:** the following list presents an operational manual for conducting the meeting.

1. Purposeful small talk and precession strategy (5-10 min.)
   * Greeting everyone.
   * Social talk before formally sitting down.
   * Placing name tents (5"* 8" size) on the table.
   * Seating strategy: Kreuger suggested that there were three types of participants in focus group interviews—dominant, rambler, and shy. He suggested arranging the shy people right across the table, facing the moderator to increase eye contact. Dominant people were seated beside the moderator to decrease eye contact.

2. Beginning the lunch.
Overview of the hotel investment evaluation practice

Risk analysis practices

Risk factors identification

Cost of Capital estimation

Figure 3-4
ARRANGEMENT OF THE FLOW OF QUESTIONS
IN THE FOCUS GROUP INTERVIEWS
3. Starting the focus group discussion promptly after the dessert.
   * The moderator's welcome the participants.
   * The outline presenting.
   * Discussing the ground rules: recording, use of the interview contents, and possible incentives.
   * The first question

   **Note:** Please refer to Appendix 3-3 for a sample of the beginning speech by the moderator.

4. Two essential techniques used during the interview
   * 5-second pause
   * Probe technique

5. Concluding the interview
   * Thanking the participants
   * Brief summary of the interview
   * Describing the purpose of the study briefly again and then asking the final open-ended question: "Do you think we've missed anything in the discussion?"

   After the actual interview meeting, the researchers should check the tapes right away. If there are some problems on the tapes, they need to recall the meeting contents immediately. Furthermore, a thank you letter should be mailed to each participant within 24 hours.

**Analysis of the Interview Results**
Robert Yin defined the data analysis in his 1984 work (Yin, 1984):

Data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence, to address the initial propositions of a study (p.99).

The focus group analysis should be performed in a practical, systematic, and verifiable way. A key principle is to always keep the purpose of the study in mind and to use the depth or intensity of analysis appropriate to the problem (Kreuger, 1988).

An analysis continuum presented by Kreuger (1988) will be used as the framework throughout the analysis process. This continuum ranges from presentation of raw data to interpretation of data:

```
The Analysis Continuum
```

Raw data <----> Descriptive Statements <----> Interpretation

The original data are the exact statements of participants as they responded to the moderator’s operational questions during the discussion. These data were then sorted into categories according to the research focus. Then, these categorized original statements were summarized and became descriptive statements for the final interpretation and conclusion. The selection of the
original data was influenced by the purpose of the study. The risk-factor study intended to describe the range and diversity of all impact possibilities and factors. Therefore, the summarization was inclusive.

In order to make the analysis and interpretation more accurate and avoid any possible misleading conclusions, the following issues needed to be addressed.

a). **Considering the words.** Both the actual words used by the participants and the meanings of those words needed to be clear and consistent; a Definition of Terms was handed out to panelists in advance of the group discussion. Also, the researcher conducted a frequency count of commonly used words, clustering similar concepts together, or arranging the responses in categories.

b). **Considering the context.** By finding the triggering stimulus and then interpreting the comment in light of that investment environment, the context was examined.

c). **Consider the internal consistency.** Due to the interaction with the others, change or reversal of participant positions can occur from time to time. It was important to trace the flow of the conversation, to determine clues that might be relevant to the study.

d). **Considering the specificity of responses.** Specific and experience based responses were given more weight than vague and impersonal ones.
e). Finding the big ideas. Trends and ideas that cut across the entire discussion are sometimes easily missed by analysts because they are often so close to the details. So it was helpful to take a few steps back from the discussion by allowing an extra day for the big ideas to percolate.

Validity of Focus Group Interviews

Focus group research is valid if it is used carefully for a problem that is suitable for this type of inquiry (Krueger, 1988). Focus group interviews are very much like other social science measurement procedures, in which validity depends not only on the procedures used but also on the context. Therefore, the validity of this risk factor analysis focus group depends mainly on the following areas: group formation, questions presented, moderator skills, and conducting the procedure.

Typically, focus groups have high face validity (do the results look valid?), which is largely due to the believability of participants’ comments. Fred Reynolds and Deborah Johnson’s comparison study (1978) shows that focus group results proved to have greater predictive validity than the results of large-scale mail-out surveys. This finding gives focus groups a plus in terms of research validity.
Using the results of the focus group interview, further research for a validated risk factor profile and ranking was conducted through the Delphi Technique.

**DELPHI TECHNIQUE AS THE FURTHER RESEARCH DEVELOPMENT STRATEGY**

The Delphi Technique is a research strategy for organizing group communication, without direct discussion, in order to refine group opinion and reach a consensus (Fendt, 1978; Linstone & Turoff, 1975; Tersine & Riggs, 1976). The description given by Sackman (1975) provides a good picture that helps to understand this technique:

Delphi is an attempt to elicit expert opinion in a systematic manner for useful results. It usually involves iterative questionnaires administered to individual experts in a manner protecting the anonymity of their responses.

Feedback of results accompanies each iteration of the questionnaire, which continues until convergence of opinion, or a point of diminishing returns, is reached. The end product is a consensus of experts, including their commentary on each of the questionnaire items, usually organized as a written report by the Delphi investigator.

In general, there are three key components of the Delphi method: the creation of a panel of experts, the use
of a series of questionnaires for consultation purposes, and provision for feedback of findings to respondents (Masser & Foley, 1987).

**Advantages and Disadvantages**

The Delphi Technique has many research advantages and is considered a preferred research method in social sciences. One great advantage is that it achieves a consensus similar to that of a committee meeting without the disadvantages inherent in direct group contact (Glow, 1979). This fact is extremely valuable for top level management business research because it is very difficult to get a large group of upper level management together. This technique also allows researchers to avoid potential problems occurring during direct group discussions. Such problems can include influencing a group decision by dominant individuals (Jaeger & Busch, 1984), group pressure for conformity, irrelevant and biased communication, and the unwillingness of some people to abandon positions to which they have publicly committed themselves (McCaw, Browne & Rees, 1976). The Delphi Technique is considered a great research tool in conjunction with direct group discussion, such as the focus group interview.

Another significant advantage is that it forms a
consensus of opinion by requiring justification for any significant deviation from the group average (Tersine & Riggs, 1976) without the pressure of many external factors, such as a dominant group member, time, and the discussion environment.

Also, the Delphi method offers more flexibility to participating panelists in terms of time and administrative expenses (Masser & Foley, 1987). This gives the researcher a much better chance to have ideal people participate in the research. An additional advantage is that this method eliminates participation constraints which occur as the size of a meeting increases (Miller, 1988). In conclusion, the Delphi Technique is a great method for forecasting, trends identification, and factor analysis.

However, researchers should also be aware of some disadvantages while they design and use the technique. First, a successful outcome depends heavily on panel selection (Taylor & Judd, 1989). Therefore, the qualifications of panelists need to be examined carefully. The panelists selected for this study were professionals from the hotel industry, lending industry, and other businesses related to hotel ownership. However, due to the time constraint, the panelists were largely limited to the people related to the case company’s hotels. This can become a limitation of the study. Secondly, the time
constraints between rounds also have to be kept in mind, because the interest of the participants may decline if there is a long delay between rounds (Tersine & Riggs, 1976). For this reason, the fax machine is a good tool for efficiency improvement. Thirdly, as in many other types of research, the ability of the researcher or of the monitoring team, who must correctly present the developing consensus and dissenting views to the respondent group, plays an important role in the success of the survey (Linstone & Turoff, 1975; Richey, 1985). Thus, good coordination and communication become important ingredients for success.

**General Procedures**

Figure 3-4A illustrates the general procedures of the Delphi Technique execution step by step from Tersine and Riggs (1976).

The first task is to define the area of study, to identify a likely sequence of events, and to research the information which has been developed pertaining to the area of study. This task has been accomplished by the preceding chapter and early sections of this chapter.

Following this step will be the panel selection, questionnaire construction and information analysis. They will be discussed in detail in the next section: the Delphi
Problem definition

Determine expertise required

Select panelist

Prepare questionnaire

Send out questionnaire

Analyze questionnaire replies

Yes

Has a consensus been reached?

No

Provide requested information and tabulate responses

Prepare the next questionnaire

Compile final responses and disseminate results (final report)

Source: Tersine & Riggs (1976)

Figure 3-4A

OPERATING STEPS FOR CONDUCTING THE DELPHI TECHNIQUE
Protocol.

The Delphi Technique Protocol

As the preceding discussion and figure 3-4A suggest, the design of the Delphi study consists of three major steps:

I. Selection of Panelists

Five criteria are recommended by Tersine and Riggs (1976) for the selection process:

1. They should have knowledge of the research area and be able to apply that knowledge.

2. They must have a good performance record in their particular area.

3. They must be willing to give time and effort to participate thoroughly.

4. They must possess a high degree of objectivity and rationality.

5. They must have the time available to participate until the conclusion of the program.

This study followed these five standards as the general guidelines for selecting panelists. However, seeking well qualified panelists takes tremendous time and effort due to the difficulty with acquiring necessary information. Therefore, because of the time limitation, the panelists for this study were limited to the professionals related to the case company’s hotel management and investments. For this
reason, this study attempted to seek the perceptions and opinions of hotel business professionals in the middle-price and upscale economy hotel segments.

Representatives from the hotel management area were selected from two sources: selected members of hotel property general managers and top officials of four hotel management companies. They all have experience in the related research areas. Representatives from the hotel investors (owners) were owners of the hotels in the case company.

Besides the selection standard issue, sample size is another issue to be considered. There are no specific guidelines for determining the optimum number of panel members (Kim, 1992). Tersine and Riggs (1976) suggested that if the group is homogeneous, between ten to fifteen respondents should be sufficient to generate effective results. However, if the panel members are basically heterogenous (with broad representation), a larger number is necessary to achieve reasonable quality (Taylor & Judd, 1989). Considering that this study is relatively homogeneous, focusing on the middle-price and upscale economy hotel investments in the Virginia area, around twenty participants was considered to be the ideal number.

Letters of invitation and information sheets were faxed to the participants together with the round I questionnaire.
The letter highlighted several points to the participants. First, the findings of the research would be useful for future hotel and lending investment practices. Second, it emphasized the anonymous nature of the research which is sponsored by an academic research institute. Third, the letter was designed to be very personalized. It included a personal information sheet. Due to time constraints, the information, together with the questionnaire, was faxed to all participants. A week after the first mailing, the panel members were reminded about the interview meeting with a follow-up phone call. Any nominated member who did not return the questionnaire after the deadline was called and a new set of questionnaires was faxed to him/her.

II. Questionnaire Construction and Data Collection Process

Questionnaires were the instruments of communication between the panel and the researcher. The questionnaires in round I of this study consisted of open-ended and close ended questions because it was conducted based on the result of the focus group study of stage one. There were a total of three rounds of questionnaires in the process. As a result of the focus group study, a preliminary risk factor profile survey instrument was developed as the round I questionnaire. This questionnaire was then faxed to hotel managers and owners. The purpose of this round was to ask them to validate these risk factors based upon their own
experiences. The participants deleted any risk factors which they disagreed with, and replaced them with or added their own factors. They were free to list any factors they considered important.

In round II, participants were asked to rank the validated profile (obtained from round I) on a scale of 1 to 5 based on the risk factors’ degree of impact on the total risk of a hotel investment. Round III was used to re-examine the key risk factors and their level of influence. It allowed the participants the last chance to reconsider the whole process and the final result in order to reach agreement. It was the last time that panelists could have changed their decision about any particular issue.

In each round, a comprehensive package including a brief cover letter, instruction sheet, and questionnaire was faxed. Participants were encouraged to fax their questionnaires back to the researcher within 24 to 48 hours.

III. Data Analysis

The results of round I provided a new and validated hotel investment risk variable profile. This profile was used to design the questionnaire for round II. Following round I, round II provided the ranking of factors. All factor’s scores were then summed up and averaged out. The result of all the average scores presented an order from the most important impact factor (the largest #) to the least
important impact factor (the smallest #). The order provided vital information about the influential level of each factor's.

The final round, round III, gave panelists one more chance to revise their previous ideas.

Using this result, the construction of the cost of capital estimation model was begun. The framework of the prospective model is based on Gup-Norwood's divisional cost of capital estimation approach (Gup & Norwood, 1982).

**DEVELOPMENT OF THE COST OF CAPITAL ESTIMATION MODEL**

The cost of capital estimation model serves as an investment evaluation tool for hotel investments. The term "hotel investment project" or "hotel investment" in this study refers to large capital expenditures for the purchasing or developing of a hotel property. The operational environment of the model focuses on the middle-price segment and economy segment of the hotel market.

**Theoretical Foundation of the Proposed New Model**

The basis of the hotel investment cost of capital estimation model developed in this study stems from the divisional cost of capital estimation model created by Gup
and Norwood (please refer to chapter two for a detailed discussion of their model). The objective of the Gup-Norwood model is to determine an appropriate required return—cost of capital for a division in a multi-divisional corporation taking into account the appropriate risk level of the division. The assumption behind the Gup & Norwood model is that the riskier the investment of the division is, the higher the cost of capital it should incur. Since the assumption is valid in the investment world, the proposed new model will apply the same logic. However, the proposed new model will be developed for the purpose of hotel investment project analysis. Therefore, instead of focus on a parent company/division level of analysis, the new proposed model will focus on hotel management company/individual hotel property investment analysis. In fact, the hotel chain used by the proposed new model can be considered similarly to the parent corporation in the Gup & Norwood's model. The prospective hotel property investment is considered as the divisional investment. In light of the Gup-Norwood model, the proposed new model will also borrow their general risk assessment approach which uses both objective and subjective elements to identify the level of investment risk.

Despite some similarities, the proposed new model differs from the Gup-Norwood model in many areas and
therefore provides some new perspectives for risk assessment and cost of capital determination. As discussed in chapter two, part of the limitations of the Gup-Norwood model is in its limited operational environment. The model was specifically developed for publicly traded companies in the manufacturing industry for purposes of estimating divisional cost of capital. So, its validity for hotel risk investment analysis is in question. Furthermore, the Gup & Norwood model failed to provide essential instructions and explanations in some parts of the model. For these reasons, a new research and methodology are needed for the hotel investment risk assessment and cost of capital estimation model.

Comparing the proposed new model's operational environment with the environment defined in the Gup-Norwood model, there will be three major differences. First of all, the Gup-Norwood model is geared to publicly traded companies (listed in the stock market). The proposed new model will fit both privately owned and publicly traded companies. Secondly, the original Gup-Norwood model was only designed for the manufacturing industry. The proposed new model will be implemented for the use of the hotel industry. Thirdly, the Gup-Norwood model is aimed at solving the divisional cost of capital estimation problem. The proposed new model will have some different implementations. It is intended to
be useful for a hotel investment's cost of capital determination. It will also serve as a surrogate for divisional cost of capital estimation. These differences lead to several major changes in the way risk measurement and the cost of capital estimation are determined. Besides the discussed limitations of the Gup and Norwood model, it is very unfortunate that Gup and Norwood did not provide sufficient operational instructions and theoretical evidence on several measurement criteria (please refer to chapter two for the details). For this reason, several major changes will be necessary and are discussed below.

1. Determination of multi-unit hotel management company's risk and return

   The first change of the new model is the way it determines the overall hotel chain management company's cost of capital. Since the proposed new model is to deal with privately owned hotel companies, the Gup & Norwood approach for determining a parent corporation's cost of capital and risk level is no longer appropriate. The main reason is that in the hotel industry, particular in the middle-price and economy segments, many hotels are managed by management companies under complex ownerships agreements. In many cases, the management companies themselves are not the principal owners. Many of these hotel management companies
do not have an observable cost of capital or property assets. However, they do have in the individual properties they manage. So the proposed new model will use the value additivity principle (VAP) to develop the cost of capital and risk level for these types of firms (Haley and Schall, 1979). The VAP approach assumes the market value of a multi-unit firm is equal to the sum of the market values of its individual properties. Also, the sum of the asset weighted average of the assets of each unit’s risk (β) is approximately equal to the overall parent company’s risk level (Fuller and Kerr, 1981). Obviously, there are limitations and approximations involved in this statement. First of all, the value additivity principle initially assumed homogeneous expectations and no personal tax bias on the part of investors. These assumptions can be relaxed in certain cases (Fuller and Kerr, 1981). Secondly, the approximation is conditioned by the absence of synergism (Fuller and Kerr, 1981). This assumptions can be applied to many small-sized to middle-sized hotel management companies.

2. Risk Measurement

The second change of the proposed new model is the way that it quantifies risk for each individual hotel. Gup and Norwood’s risk study suggested that a division’s risk can be evaluated from a combined analysis of objective risk
(criteria set from factual data) and subjective risk (prediction based on management’s experience and judgement). So, the total risk of a division was the summation of objective risk and subjective risk. In addition to this, Gup and Norwood’s model used Risk Class as the unit of measurement to quantify the level of the divisional risk.

Defined by Gup and Norwood, Risk Class has five levels, 1, 2, 3, 4, and 5. Risk class 1 represented the least amount of risk; class 2 represented a moderate to low risk level, class 3 represented a risk amount the same as the division’s parent company’s overall risk level,” class 4 showed a relatively high risk level, while class 5 indicated the highest risk level.

The term Risk Class had a special feature in the Gup-Norwood model. It was a comparative measurement in the context of the division’s parent company. This means that any investment’s risk class could be determined only after comparison which has been made with its parent company’s overall risk situation. For example, if a division’s total risk class is 2, that means this division’s risk level is relatively lower than its parent corporation’s overall risk level. If it is 3, that means this particular division’s riskiness is the same as its parent company’s. Furthermore, the Gup-Norwood model created a Range Scale for each risk class under each measurement criterion. However, their
model failed to provide theoretical evidences and instructions on how the ranges were determined.

The proposed new model will use this "comparison" principle and objective/subjective risk identification framework as its risk assessment foundation. However, the proposed new model completely differs from the Gup-Norwood model in the way that objective and subjective risk are measured. Furthermore, the proposed new model will provide a new perspective and approach of the definition of the relationships between risk and cost of capital in the context of a hotel chain rather than just being limited within one multi-divisional parent corporation.

The new measurements and adjustments for objective and subjective risk are supported by prior hotel investment risk studies. Those prior findings serve as the theoretical evidence for the model’s development (please refer to the literature review in chapter two). For the proposed new model’s objective risk assessment, new measurement criteria supported by literature cited in chapter two are: 1) the project’s coefficient of variation on its historical gross return on the hotel’s total assets (ROA), and 2) its degree of combined leverage effect.

The coefficient of variation on ROA measures the fluctuation of a hotel’s gross return (gross operating profit) on its total assets. The Literature review shows
that conventional approaches in risk assessment measure net return on investment rather than gross return on hotel’s total assets (Olsen, Johnson & VanDyke, 1984; Brigham & Gapenski, 1990; Cheng & Finnerty, 1990). However, according to the current industry situation, many hotel properties are deeply in debt. Due to the large amount of debt service payment, it is common that many hotels carry negative net returns. Therefore, for the purpose of calculation and model implementation in the industry, the net return on investment (ROI) will be replaced by gross return (gross operating profit) on assets (GOA) in the proposed new model.

Since a hotel investment’s total risk is the combination of business risk of the operation (Arbel & Grier, 1978; Cheng & Finnerty, 1990), and financial risk of using debt (Olsen, Johnson & VanDyke, 1984; Cheng & Finnerty, 1990), the degree of operating leverage and the degree of financial leverage become some other risk assessment criteria. The proposed new model combines the degree of financial leverage and the degree of operating leverage into one category as the degree of combined leverage (Cheng & Finnerty, 1990).

The objective risk which emphasizes factual information, is only half of the total risk measurement. The other half was the **subjective risk** which was measured by top management’s subjective judgments according to their
previous experiences. As discussed in chapter two, factor analysis (the identification of key risk factors) was a major risk analysis tool (Gup & Norwood, 1982). Hotel company top management is asked to use a risk factor profile as a guiding tool to assess the risk level of a hotel investment. By doing so, management’s industry experience can contribute to the risk assessment process. The hotel investment risk profile will be developed through the focus group interview and the Delphi Technique survey conducted in this research.

3. The Cost of Capital Estimation

The third change is in the way that the cost of capital is estimated based upon the risk level of the hotel investment. Risk is the primary factor during an investment project’s cost of capital. A riskier hotel investment should have a higher rate of return (cost of capital). In the Gup-Norwood model, a division’s risk level is determined in comparison with its parent company’s. Therefore, the divisional cost of capital is an adjustment of its parent company’s cost of capital.

The proposed new model will apply this same principle as to determine a hotel investment’s cost of capital. However, because the Gup & Norwood model failed to provide objective criteria and sufficient guidelines for the
adjustment, the proposed new model will develop new adjustment criteria based upon the hotel chain’s cost of capital and findings from prior cost of capital estimation studies.

The fundamental adjustment is presented in a hotel company’s risk-return relationship table. This table is developed based upon the same 20 percentile principle used for the development of risk class tables. Each individual hotel’s cost of capital within the chain (box 7 in Figure 3-6) and the chain’s cost of capital (box 7 in Figure 3-6) together determine the current risk and return situation of the hotel chain management company. A primary cost of capital can then be determined by using this table. This primary rate will be recommended to hotel companies and investors.

The further subjective adjustments on the primary cost of capital are based upon several other factors recommended by the model. One of these factors relates to the nature of the capital market system. The capital market is a major factor in setting return rate expectations. Therefore, the mortgage rate for hotels and motels as established by the debt market can be used to make such and adjustment (Rushmore, 1980). In addition, the historical cost of capital trend of the hotel chain and owners’ preference can also be used as an adjustment tool (Schmidgall, 1990).
Furthermore, direct competitors’ cost of capital information is always a good source to consider (Fuller & Kerr, 1981; Gup & Norwood, 1982). The last factor which should be kept in mind is the current state of the hotel industry and investor’s confidence in the hotel business.

The combined considerations from all these aspects can provide useful adjustments evidences for the final estimate of cost of capital. It is clear that these final adjustments made on the basis of the primary cost of capital are very subjective. The model only provides broad recommendations instead of detailed formula for these subjective adjustments because they are very company-specific and require substantial industry experience.

**Overall Presentation of the Proposed new model**

The goal of the proposed new model is to determine the cost of capital for a hotel investment so that it can compensate the investors for the risk taken. Therefore, the cost of capital of a hotel investment should be determined by its risk level. The higher the risk the hotel investment is, the higher the required rate of return (cost of capital) it should have or vise versa. So the proposed new model will deal with risk first and then find out an appropriate return. As discussed in chapter two and the preceding
section in this chapter, in order to achieve this goal, the model needs to accomplish two major tasks: Bridging problem I and Bridging problem II, illustrated as the following:

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Bridging I</th>
<th>Determination of Project's Risk Amount</th>
<th>Bridging II</th>
<th>Cost of the Project</th>
</tr>
</thead>
</table>

The Bridging problems are designed to answer the following research questions: for Bridging problem I, how can the model determine the amount of a project's risk? For Bridging Problem II, how can the model reasonably estimate the required rate of return (cost of capital) of a hotel investment given its risk level?

Figure 3-5 presents a framework for solving Bridging problem I. Figure 3-6, built on the risk assessment information provided in figure 3-5, presents an outline for solving Bridging Problem II. Together these two figures illustrate the overall presentation of the new cost of capital estimation.

**Detailed Presentation of the Proposed New Model**

This section is devoted to a detailed discussion of the proposed new model. The discussion will consist of two parts. The first part will focus on figure 3-5. The second
part of the discussion will focus on Figure 3-6. This part of the model provides the solution for Bridging problem II.

To further illustrate the model, a hypothetical hotel chain called Service Inc. will be used. The chain, with six properties already in its portfolio, currently is planning to expand and purchase a property called Guest Hotel. The top management of Service Inc. wants to measure the risk level of the Guest Hotel and then to determine an appropriate cost of capital for capital budgeting purposes.

I. SOLVING BRIDGING PROBLEM I

Figure 3-5 presents a framework for solving Bridging Problem I. The key focus of this part of the model is to determine the quantitative level of the investment's risk. Level I of the figure illustrated in box 1 is one of the main objectives of this research, that is, to determine a project's risk. Box 1 is the combined risk class which is determined at level II, box 2. Level III has two boxes, 3 and 4, illustrating the relative weight of each risk class which is then combined to determine the risk class in box 1. The model assumes 50% weight for the objective risk class and 50% for the subjective risk class in this research.

Level IV has three boxes, box 5, 6, 7. Box 5 is the Coefficient of Variation on the hotel investment's ROA
HOTEL INVESTMENT RISK ASSESSMENT FRAMEWORK

LEVEL

I.

II.

III.

IV.

V.

1. Investment's Risk Level (A comparative measurement)

2. Combined Risk Class
   (Objective Risk Class + Subjective Risk Class)

3. Objective Risk Class
   (50% weighted)

4. Subjective Risk Class
   (50% weighted)

5. Hotel investment's coefficient of variation on R.O.A.

6. Hotel investment's combined leverage (50% weighted)

7. Risk Factor Profile
   Magt's Evaluation
   Impact of Risk Factors

8. Hotel coefficient of variation on gross return on assets

9. Risk class table of coefficient of variation of the chain

10. Degree of combined leverage of each chain's property

11. Risk class table of degree of combined leverage of the chain

BRIDGING PROBLEM 1—Figure 3-5
HOTEL INVESTMENT COST OF CAPITAL ESTIMATION MODEL

LEVEL

I. Hotel investment's Cost of Capital

II. Top management's subjective adjustment on the cost of capital (Level II)

III. Investment's primary cost of capital (Level III)

IV. Investment's total combined risk class (Details in Fig. 3-5)

V. Current hotel chain's risk-return relationship table (Level V)

Bridging Problem II- Figure 3-6
(gross return on assets). Box 6 is the Combined Leverage of a hotel investment. The model assumes each has a 50% weight in the determination of objective risk class. Under the subjective risk class category, box 7 is management’s assessment on the future impact of the risk factors.

The last level, V, includes boxes 8, 9, 10, 11. Boxes 8 and 9 are the hotels’ coefficient of variation on ROA and the risk class table of C.V. on ROA of the hotel chain. Box 10 and 11 are the degree of combined leverage of each hotel within the chain and the risk class table of combined leverage of the hotel chain. The risk class tables serve as tools for risk class determination.

In the following sections, the application steps in this model will be explained in detail.

Determine Objective Risk Class (Box 3)

The objective risk is part of the total risk of a hotel investment’s risk. Defined by the model, the objective risk is 50% of the total risk. Another 50% is subjective risk. The objective risk class will be determined as the average of the risk class of the project’s coefficient of variation (C.V.) on ROA, and the risk class of the project’s degree of combined leverage. This can be shown as the following equation:
This relationship is reflected by box 3, 5 and 6 at levels III and IV of figure 3-5. The determination of the risk class of the coefficient of variation and the risk class of the degree of combined leverage will be explained as following:

I. Determination of Risk Class of Project’s Coefficient of variation on Return on Asset

The risk class of a hotel investment’s coefficient of variation on ROA measures the units of risk per dollar of gross return on total assets. Unlike the conventional calculation of C.V. which uses forecasting return on investment figures (Olsen, Johnson & VanDyke; Lee & Finnerty, 1990), the proposed new model will use a hotel property’s past operating performance as calculation data. The logic behind this practice is the focus of the objective aspect of the information.

The risk class of a prospective hotel investment’s C.V. on ROA is determined by using its coefficient of variation on the past three years’ ROA and the overall hotel chain’s
C.V. of ROA risk class table (illustrated in levels 4 and 5 of figure 3-5 and below).

\[
\text{Risk Class of C.V. on ROA (Box 5)}
\]

Prospective >----------------< Risk Class table of the chain's C.V. on ROA (Box 9)
Hotel's C.V. on ROA (Box 8)

To accomplish the task in box 8, the hotel investment (Guest Hotel)’s past three years gross return on its total assets will be used to calculate its coefficient of variation (past five years data will be better if it is available). In order to determine the risk class of C.V. on ROA of a hotel investment, its gross returns on assets of past three years need to be calculated first. The gross return is defined as gross operating profit of the hotel. Secondly, the standard deviation of the respective gross return on assets in those three years can be calculated. The last step is to use the standard deviation to determine the coefficient of variation. Please refer to the following three equations:

\[
\text{Gross Return On Assets (ROA)} = \frac{\text{Gross Operating Profit}}{\text{Hotel's Total Assets}}
\]
\[
Standard \text{ Deviation} = \sqrt{\frac{1}{n} \sum_{i=1}^{N} (ROA_{pt} - \text{AVE. ROA}_p)^2}
\]

Note:
- \(ROA_{pt}\) = Return on investment of the property on year \(t\)
- \(\text{AVE. ROA}_p\) = The average of all returns on investment of the project, it is also called the mean.

Coefficient of Variation (C.V.)
\[= \frac{\text{Standard Deviation}}{\text{Average ROA}}\]
\[= \text{Units of Risk Per Percentage of Gross Return on Assets}\]

Source: Olsen, VanDyke and Johnson, 1984

If the proposed new model is applied to a brand new hotel investment which does not have any historical operational data, model users can skip this process. Under this circumstance, the hotel investment's degree of combined leverage risk class will be solely used to determine its objective risk.

The next step is to develop the risk class table of the chain's coefficient of variation on ROA, the task of box 9. The risk class table is an important tool borrowed from Gup & Norwood (Gup & Norwood, 1982). It is used to determine the risk class of a risk measurement criteria of a prospective investment, such as C.V. on ROA or combined leverage. It serves as a tool for converting a calculated measurement within a certain range of the prospective
investment into a risk class (see table 3-1 for an example).

Table 3-1 quantifies a prospective hotel investment project’s C.V. on ROA. Since the prospective hotel investment, the Guest Hotel, is valued in comparison with the hotel chain, Service Inc., the ranges of C.V. on ROA in table 3-1 for each risk class (from 1 to 5) are determined by the overall situation of the Service Inc.’s hotel portfolio (six hotels). The range formulation is the following.

a) Calculate the coefficient of variation (C.V.) on ROA for each of the six properties in Service Inc.

b) Take the difference between the highest value of C.V. and the lowest value. Divide this difference by 5 to create a 20 percentile range scale. This scale will be named class scale in the model.

c) Calculate the weighted average of C.V. on ROA of each hotel within Service Inc. The result will be Service Inc’s coefficient of variation on ROA. This figure should be placed as the median value in the risk class 3 range. Based on this principle, the range of risk class 3 can be determined by Service Inc.’s C.V. on ROA and the class scale (see table 3-1).

d) Based on the range of risk class 3, the range of risk class 2 and 4 can be determined as one class scale lower and one class scale higher (see table 3-1).
e). Based on the range of risk class 2, the range of risk class 1 can be determined by one class scale lower. Using the same rule, range of risk class 5 is one class scale higher than range of risk class 4. The high end of this range will be replaced by infinitely high (see table 3-1).

If the calculation of the hypothetical Guest Hotel’s C.V. on ROA falls into the range of risk class 3, then this prospective hotel investment’s risk class of C.V. on ROA is 3. To this point, the task of box 5 of figure 3-5 is accomplished.

II. Determination of the Risk Class on Degree of Combined Leverage Effect

Degree of combined leverage (DCL) is a combined measurement of a hotel investment’s degree of financial leverage (DFL) and degree of operating leverage (DOL). Financial leverage and operating leverage are major parameters for risk measurement because they reflect the degree of fluctuation on operating income or net earnings due to the changes in sales or operating income (Lee & Finnerty, 1990, Brigham & Gapenski, 1992, Olsen, Tse & West, 1992). As discussed in chapter two, fluctuation of investment earnings is the dependent variable of many
### TABLE 3-1
FORMULATION OF THE RISK CLASS TABLE OF
COEFFICIENT OF VARIATION ON GROSS RETURN ON ASSETS

<table>
<thead>
<tr>
<th>Risk Class</th>
<th>Range Scale on C.V. on ROA</th>
<th>Guest Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>one class scale(^1) lower than the range of risk class 2 with the lower end infinitely low</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>one class scale lower than the range of risk class 3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>the range of one class scale with its median value representing the weighted average of all hotels’ C.V. on ROA</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>one class scale higher than the range of risk class 3</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>one class scale higher than the range of risk class 4 with the higher end infinitely high</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Class scale is defined as the 20 percentile of the difference between the lowest C.V. on ROA and highest C.V. on ROA.
external or internal risk factors.

A hotel's risk class on the degree of combined leverage effect is determined by the hotel's degree of combined leverage and the acquiring hotel chain's risk class table on DCL. Please refer to the bottom two levels of figure 3-5, boxes 6, 10 and 11 and the illustration below.

Prospective Hotel investment's Risk Class on Degree of Combined Leverage (Box 6)

\[ \text{Hotel Investment's} \quad \text{Degree of Combined Leverage} \quad \text{Class Table on Degree of Combined Leverage} \quad \text{(Box 10)} \]

To accomplish box 10, which is to calculate the degree of combined leverage effect (DCL) of the prospective hotel investment, the following equations will be used:

1). Degree of Combined Leverage Effect (DCL)
   \[ = \text{Degree of Financial Leverage} \times \text{Degree of Operating Leverage} \]
   \[ = DFL \times DOL \]

2). Degree of Financial Leverage:
   \[ \frac{\text{\% change in EPS}}{\text{\% change in EBIT}} = \frac{\text{EBIT}}{|\text{EBIT} - \text{Ib}|} = \frac{R - T}{|R - T - \text{Ib}|} \]

3). Degree of Operating Leverage:
   \[ \frac{\text{\% change in EBIT}}{\text{\% change in sales volume}} \]
\[ \text{DCL} = \frac{R - V}{R - T} \]

So combining equation 2) and 3) into 1), the DCL can be determined by the following equation:

4). **Degree of Combined Leverage** = \[ \frac{R - V}{|R - T - I|} \]

- \( EPS \) = earning per share
- \( EBIT \) = earning before interests and taxes
- \( i \) = interest rate on debt
- \( B \) = Total debt financing
- \( R \) = Revenue or Sales
- \( V \) = Variable Operating Costs
- \( F \) = Fixed Operating Costs
- \( T \) = \( V + F \) = Total Operating Cost
- \( I \) = \( I_b \) = Interest Payment on Debt
- \( |R - T - I| \) represents an absolute value

-----------------------------

Source: Adapted from Cheng and Finnerty (1990).

Financial data for this calculation is available from the hotel’s annual income statement. For a brand new hotel property without historical operation data, a pro forma can be used.

The next step is to formulate the hotel chain’s (Service Inc.) **risk class table** on degree of combined leverage (box 11). The principle for doing this is the same as the derivation of the risk class table on the C.V. of ROA (refer to table 3-1). The procedures are as follows:

a) Calculate DCL for each hotel in the chain, Service Inc.

b) Take the difference between the highest value of DCL and the lowest value. Divide this difference by 5 to create a
20 percentile range scale. This scale is called the class scale in the sense of combined leverage.

c) Calculate investment weighted average of each property's C.L.E. The result should be the overall hotel chain’s combined leverage effect. The figure should be placed in the table as the median figure of the middle 20 percentile.

d) Use the median score from c) and the 20 percentile scale from b). to build the risk class scale from 1 to 5 (see table 3-2).

Table 3-2 shows the format of the risk class table of degree of combined leverage. The demonstration example of Guest Hotel’s degree of combined leverage is closest to number 4 in the risk class table. Thus its risk class of degree of combined leverage is 4.

Up to this point, the Guest’s Hotel project has a risk class 3 at the C.V. on ROA and a risk class 4 on the Degree of Combined Leverage. With this information, the overall objective risk class of the Guest Hotel can be determined.

TABLE 3-2

FORMULATION OF THE RISK CLASS TABLE
ON THE DEGREE OF COMBINED LEVERAGE EFFECT

<table>
<thead>
<tr>
<th>Risk Class</th>
<th>Range Scale on Degree of Combined Leverage</th>
<th>Guest Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>one class scale lower than the range of risk class 2 with the lower end infinitely low</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>one class scale lower than the range of risk class 3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>the range of one class scale with its median value representing the weighted average of all hotels' degree of combined leverage</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>one class scale higher than the range of risk class 3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>one class scale higher than the range of risk class 4 with the higher end infinitely high</td>
<td></td>
</tr>
</tbody>
</table>

\[2\] Class scale is defined as the 20 percentile of the difference between the lowest C.V. on ROA and highest C.V. on ROA.
III. Derivation of the Project’s Objective Risk Class

It is fairly simple to determine the objective risk class of a hotel once its risk class of C.V. on ROA and risk class of degree of combined leverage are known. The average of the two numbers will be the hotel’s objective risk class. This objective risk class represents the determination of the quantitative objective risk of the hotel. For Guest Hotel, its objective risk class is 3.5 \((3+4)/2\).

Knowing the objective risk of the hotel, the next step is to determine its subjective risk through the derivation of its subjective risk class.

Determining Subjective Risk Class (Box 4)

The hotel industry’s risk factor profile which will be developed through the focus group interview and the Delphi Technique will be used as the tool to determine a hotel’s subjective risk class. These factors have impact and influence on the investment’s future return on assets. They create uncertainties and fluctuations on an investment hotel’s future return.

The hotel chain’s top management will be the people to rank these factors using a risk class scale of from 1 to 5 according to their possible degree of impact and influence.
on the prospective investment. Risk class score 5 means that the factor will have the strongest degree of influence in comparison to the overall hotel chain. In other words, this factor will have the highest possibility of causing fluctuation on investment return among all properties of the hotel chain. Score 1 means the factor will have little influence on the investment. Score 3 shows that the factor will have average impact on the prospective hotel as to the overall hotel chain. For example, if risk factor A will have the same amount of impact to the Guests Hotel project as to the overall hotel chain, then this risk factor will have a score of 3. Defined by the model, the whole hotel chain’s risk level is always at 3. Obviously, in order to make the ranking more reliable and accurate, the top management needs to have a good understanding and knowledge of the entire hotel chain. This ranking process reflects that management’s judgment plays a critical role in the investment projects’ risk analysis (Gup & Norwood, 1982; Pinches, 1982).

Through the ranking process, each risk factor will have a score from 1 to 5. By summing up all the scores and dividing the sum by the total number of the factors, a subjective risk class can be determined. For instance, after taking the average of all the risk factors, Guest Hotel has a subjective risk class of 3.5.
After obtaining the subjective risk class of the hotel, the total risk class of the hotel can easily be determined.

Determine Total Risk Class (Box 2)

The hotel’s total risk is measured by the combined risk class which is the average of the summation of the objective risk class and subjective risk class. The equation is:

\[
\text{Combined Risk Class} = \frac{\text{Objective Risk Class} + \text{Subjective Risk Class}}{2}
\]

At this stage, Bridging Problem I is solved. The hotel’s total risk is determined through finding its combined risk class. The next step will be dealing with Bridging Problem II which is finding an appropriate cost of capital to match this combined risk class.

For Guest Hotel, its combined total risk class is \((3.5 + 3.5)/2\). So it is 3.5.

II. SOLVING BRIDGING PROBLEM II

Solving Bridging Problem I in the preceding section enables the model to solve Bridging Problem II. Bridging Problem II represents the challenge of how to determine a
hotel's cost of capital with the knowledge of its total risk, shown in figure 3-6.

Figure 3-6 has a total of five levels. The first level (box 1) is the objective of the model—the final cost of capital of a prospective hotel investment. The second level (box 2) represents the subjective adjustment top management of a hotel company made to further modify the primary cost of capital. The third level (box 3) is the primary cost of capital which is determined by the new proposed cost of capital estimation model. The terminology "primary cost of capital" is used to distinguish the final cost of capital which has been adjusted by the top management's industry experience. The proposed new model will only determine the primary cost of capital and leave the adjustment task to the top management. However, the model will provide some general guidelines for the adjustments. The fourth level (box 4, and 5) has two elements: hotel investment's risk amount (total combined risk class) which has been determined in box 2 of Figure 3-5, and the current hotel chain's risk-return relationship table. Together they determine the primary cost of capital of a hotel investment. The fifth level (box 6 and 7) also has two components. They are the cost of capital of the overall hotel chain (box 6) and the cost of capital of each individual hotel within the chain (box 7).
One of the important components in this model is the chain's risk-return relationship table (box 5). It is the tool for finding the primary cost of capital of a prospective hotel investment. The table represents the relationship between risk and required return of the hotel management company.

The following sections will be devoted to the discussion of how to determine the overall hotel chain's cost of capital and its risk-return relationship table in order to find the primary cost of capital.

Determine the Primary Cost of Capital  
(Box 3 in fig. 3-6)

Shown in figure 3-6, there are two major components of determining the primary cost of capital. The first one is to determine the risk level of the prospective hotel investment (box 4). This task has been accomplished through figure 3-5, and discussed in the preceding section "Solving the Bridging Problem I". The second one is to develop the hotel chain's risk-return relationship table. There are two steps in this development (box 6 and 7).

Box 6 is the hotel chain's cost of capital which can be represented by the weighted average of each of its hotel's cost of capital. For example, the hypothetical hotel chain
Service Inc. has six hotels with the following cost of capital: 8.5%, 9.2%, 10%, 10.5%, 11%, and 12.7% (information from box 7). The percentages of their hotel assets to the total assets of the chain are: 23%, 15%, 20%, 20%, 10%, and 12% (the sum is 100%). So the cost of capital of the chain is: 8.5%*23% + 9.2%*15% + 10%*20% + 10.5%*20% + 11%*10% + 12.7%*12% = 10.06%.

The principle of formulating this table is the same as formulating the risk class table.

a). The difference between the highest cost of capital and the lowest capital is 4.2%. The 20 percentile of this range is .84%, which is the scale of setting the range scale on cost of capital, determined similarly as the class scale.

b). Since the chain’s cost of capital 10.06% is the medium value of the range scale of risk class 3. The range scale of risk class 3 will be from 9.64% (10.06%- .42%) to 10.48% (10.06%+.42%).

c). Once the range scale of risk class 3 is determined, the rest of the range scales for other risk class 1, 2, 4, and 5 can be determined by using one scale (.84%) difference in between (see table 3-3). Since the total risk class of the Guest Hotel is 3.5, its primary cost of capital is 10.48% according to table 3-3.
<table>
<thead>
<tr>
<th>Combined Risk Class</th>
<th>Range Scale on Cost of Capital</th>
<th>Guest Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Down – 8.79%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>8.80% – 9.63%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9.64% – 10.47%</td>
<td>3.5</td>
</tr>
<tr>
<td>4</td>
<td>10.48% – 11.31%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>11.32% – up</td>
<td></td>
</tr>
</tbody>
</table>
The next step is to adjust the primary cost of capital using the above-mentioned criteria based upon the experience of the top management of Service Inc.

Adjustments can be made using the following information sources: the chain's historical trend on cost of capital, the competitors' cost of capital, current interest rate, the hotel/motel mortgage rate of return, and the overall condition of the hotel market. Hypothetically, if the adjustment made by the top management is to increase 1% on the primary rate, then the final cost of capital for Guest Hotel is 11.48%.

CASE STUDY AS THE MODEL TESTING STRATEGY

Using the newly developed model, the case study will be the final step of the research, and this stage is very critical with the practical focus on empirically testing the model.

The case study method is but one of the several ways of doing social science research. According to Robert Yin's case study research guidelines (Yin, 1989), research strategy selections are based upon three conditions: 1) the type of research question; 2) the control an investigator has over the actual behavioral events; and 3) the focus on contemporary as opposed to historical phenomena. Considering
all these factors, the case study method was the selected research strategy for this study.

By Yin’s definition, a case study is an empirical inquiry that:

* investigates a contemporary phenomenon within its real-life context; when
* the boundaries between phenomenon and context are not clearly evident; and in which
* multiple sources of evidence are used.

In general, case studies are the preferred strategy when "how" or "why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context (Yin, 1989). Incorporating the risk analysis model into the capital budgeting process will be the real life context in this case study.

Case Study Protocol

This section will cover the following:

1. Overview of the case study project (project objectives, auspices and case study issues).
2. Field procedures (credentials and access to the case study "sites," general sources of information, and procedural reminders);
3. Case study questions (the specific questions that the case study investigator must keep in mind in collecting data, "table shells" for specific arrays of data, and the potential sources of information for answering each question);


**Overview of the Case Study**

The objective of the case study is to further modify, develop and test the cost of capital estimation model under practical circumstances. In other words, its purpose is to test a model useful for hotel managers and investors. In order to achieve this ultimate goal, a hotel management company will be chosen as the case study unit. This company manages hotels in the middle-price and economy segments in Delaware, Maryland, and Virginia. The newly developed cost of capital estimation model will be used by the company’s top management to determine the cost of capital for one of their prospective investment projects.
Field Procedures

All six hotels currently managed by the case company are either in the middle-price segment or the economy segment with about 100 rooms per property. They include such brand names as Best Western and Comfort Inn. Each property is owned by different limited partnerships. The owners vary and most of them do not involve themselves in the hotel’s daily management. The hotel management company takes care of all the daily operations and aides in making investment decisions.

The leaders of the management company will use the newly developed model to evaluate the estimated cost of capital of its prospective investment project.

To conduct a case study, tremendous support is needed from the case company’s top management. Data needed from the case company include:

2. Each property’s cost of capital or required rate of return on investment.
3. Each property’s debt and equity ratio.
5. The debt and equity ratio for the prospective
hotel investment.

Besides the above financial data, the researcher needs to set up a comprehensive interview with the company’s top management to collect qualitative information about the company, particularly in the areas of investment evaluation and financing.

CHAPTER SUMMARY

The objective of the research is to develop a practical model for hotel chain companies, especially in the mid-price or economy sectors, to estimate their hotel investment projects’ cost of capital. The central issue in this chapter was focused on how to apply the theoretical work on investment risk and return relationship into a practical risk assessment and cost of estimation model.

The research process utilizes experts in the hotel management field, hotel owners and investors, and financial lending institution professionals who handle hotel investment loans, to identify key factors that have significant impact upon the hotel investments’ future returns. This arrangement attempts to identify and analyze the key risk factors selected by experts through a focus group interview and the Delphi Technique employing three rounds of survey efforts.
The knowledge of the key risk factors on hotel investment lays out the foundation for the development of the cost of capital estimation model. In light of the body of knowledge on investment risk and return studies, especially the Gup-Norwood divisional cost of capital model, the qualitative risk assessment methodology is able to be developed into a quantitative estimation model for the cost of capital determination purpose. The transition from risk to risk class and finally to the cost of capital accomplished using several theoretical leaps throughout the study.

The risk assessment approach combines the objective risk identification and subjective risk analysis. The objective risk is the combined measurement on the investment’s coefficient of variation on gross return on assets, and its degree of combined leverage. The subjective risk analysis is based upon top management’s subjective forecasting on the risk factor profile. All the measurements throughout the whole process are based upon a comparison with the overall hotel chain’s characteristics. A risk class therefore can be assigned as the result of each comparison measurement.

The cost of capital estimation methodology is to use the available hotel chain’s overall cost of capital as a comparison base to adjust the prospective hotel investment’s
cost of capital taking into account its risk level.

The final case study can be used to demonstrate the practical feature of the model, and when further tested and fine-tuned the model can serve as a useful model for hotel investment projects’ evaluation and cost of capital determination.
CHAPTER 4
DATA ANALYSIS AND DISCUSSION

INTRODUCTION

This chapter consists of three major components. First it will present an analysis of the focus group interview, then, it will focus on the Delphi Technique. Finally, the chapter will concentrate on the financial data analysis using the newly developed model.

THE FOCUS GROUP INTERVIEW

The focus group interview explored the subject of hotel investment risk factors in the middle-price and economy segments. It was conducted according to the guidelines developed in Chapter 3.

The primary purpose of the focus group was to investigate the key factors that have an impact on the total risk level. These factors were supposed to affect the investment project’s risk level, and thus, the changes in these factors could lead to the fluctuations in the project’s future returns.
Participation of Panel Members

Seven experts knowledgeable about hotel investment activities were invited to participate in the focus group interview. All of the participants worked in the Virginia area. Three of the seven were from the banking industry. All of the bankers had direct or indirect experience in making hotel loan investment and real estate investment decisions. Of the four other members, one was the owner and president of a regional hotel chain in North Carolina and Virginia, one was a chief financial officer of a hotel chain, another one was a vice president of a hotel chain, and the last one was a general manager of a well known hotel in Southwest Virginia.

Six of the seven above mentioned members participated in the focus group interview. One banker was absent due to business commitment. All the participants, on the average, had at least fifteen years experience in the hotel industry. They were all actively involved in hotel and real estate development or management in the past. Please refer to Appendix 4-1 for the panel members’ company information.

Analysis of the Focus Group Interview Data

The one-and-half hour focus group interview was held in
Roanoke, Virginia on March 17, 1993. The meeting started with an opening discussion and social talk, and then the moderator presented the first question. Through the analysis of the tape recording summary (see Appendix 4-2), two sets of hotel investment risk factors were identified.

I. Eighteen key risk factors were presented by hotel managers and owners.

* Area’s hotel competition.

* Age of the property.

* Degree of potential threat of new entrants.

* Property location.

* Type of service offered and type of facilities (functional usage).

* Brand name/flag (brand loyalty).

* Market supply and demand.

* Degree of operating leverage.

* Affiliation of franchisor or chain (size).

* Pricing of products (room rate, menu price, etc.).

* Area’s economic and business growth potential.

* Quality of the management.

* Changes of hotel guests’ buying behavior.

* Governmental regulations and interference.

* Level of equity investment (percentage of equity involvement).

* Changing value of hotel brand name.
* Strength of marketing efforts.
* Diversification of business sources.

II. Twelve key risk factors were presented by bank lenders.

* Term length of the loan (prefer short term loans).
* Industry condition and outlook.
* Market condition /demand & supply.
* Business competition.
* Relationship with the company, history of doing business.
* Interest rate trend.
* Equity and deposit guarantee.
* Debt service ratio and cash flow prediction.
* Degree of fluctuation of cash flow.
* Degree of specialization and flexibility on hotel property’s functional usage.
* Degree of diversification on the hotel’s business sources.
* Governmental regulations.
* Lending competition within the banking industry itself.

Follow-Up of the Interview

There were two major steps in the follow-up process. First, some terms used by the participants during the interview needed to be defined and interpreted. Therefore,
the researcher made several phone calls to the participants to clarify the interpretation of some terms. Secondly, after the analysis of the tape recording, a summary report was sent to each participant to verify the interpretation and transcription of the interview. The participants' feedback showed that the report was accurate.

Finally, thank-you letters were mailed within 24 hours (see Appendix 4-3) to acknowledge the panel members' support.

Discussion and Recommendation

I. The Interview Meeting

Relative to the original research plan established in Chapter 3 for the focus group interview, it was a successful meeting. The participants were fairly knowledgeable on issues relating to hotel operations and investment evaluation. In general, each member contributed a fair amount to the interview. However, it was recommended that, in future studies the number of panel members be increased, particularly the number of those key decision makers at the corporate level to provide a more robust sampling of factors.
II. Questions Raised By Moderator

The original plan of the interview focused on hotel investment practices from the perspective of the hotel industry and banking industry. The first focus of the intended objective was to identify the key factors that have impact on the total risk level of a hotel investment. The second intended objective was to collect general information on the cost of capital practices in the industry. Based on these two intended objectives, it was clear that the moderator raised highly relevant questions and guided the participants’ thinking in the right directions.

III. Identified Risk Factors

After comparing the key risk factors presented by hotel professionals to the ones enumerated by banking experts, many common concerns emerged. However, the lenders were more concerned about the issue of financing and broad economic issues. Hotel operators were likely to have narrow but in-depth focus on operation and marketing issues. To summarize both parties’ contribution, the following table provides the list of key risk factors:
<table>
<thead>
<tr>
<th>No.</th>
<th>HOTEL INVESTMENT RISK FACTORS (Focus Group Interview Summary)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PROPERTY FACTORS:</td>
</tr>
<tr>
<td>1.</td>
<td>Property location</td>
</tr>
<tr>
<td>2.</td>
<td>Age of property</td>
</tr>
<tr>
<td>3.</td>
<td>Pricing of products offered by hotel (ie. room rate &amp; restaurant menu price)</td>
</tr>
<tr>
<td>4.</td>
<td>Affiliation with chain or franchisor</td>
</tr>
<tr>
<td>5.</td>
<td>Changing value of property's brand name</td>
</tr>
<tr>
<td>6.</td>
<td>Quality &amp; expertise in operations</td>
</tr>
<tr>
<td>7.</td>
<td>Strength of marketing efforts</td>
</tr>
<tr>
<td>8.</td>
<td>Types of design, layout and facilities available (Hotel’s functional usage)</td>
</tr>
<tr>
<td></td>
<td>DEMAND FACTORS:</td>
</tr>
<tr>
<td>9.</td>
<td>National economic growth</td>
</tr>
<tr>
<td>10.</td>
<td>Area’s economic and business growth</td>
</tr>
<tr>
<td>11.</td>
<td>Changes in hotel guests’ buying behavior</td>
</tr>
<tr>
<td>12.</td>
<td>Customer base dispersion (degree of business sources distribution)</td>
</tr>
<tr>
<td></td>
<td>SUPPLY/COMPETITION FACTORS:</td>
</tr>
<tr>
<td>13.</td>
<td>Competition in the area</td>
</tr>
<tr>
<td>14.</td>
<td>Threat of new entrants in the future (potential new hotel competitors)</td>
</tr>
<tr>
<td>15.</td>
<td>Property’s competitive edge in secondary market (market position)</td>
</tr>
<tr>
<td></td>
<td>OTHER RISK FACTORS:</td>
</tr>
<tr>
<td>---</td>
<td>---------------------</td>
</tr>
<tr>
<td>16.</td>
<td>Federal, state, and local governmental laws, regulation and involvement</td>
</tr>
<tr>
<td>17.</td>
<td>Level of equity investment required for financing</td>
</tr>
<tr>
<td>18.</td>
<td>Degree of hotel operating leverage</td>
</tr>
<tr>
<td>19.</td>
<td>Outlook of overall hotel industry</td>
</tr>
<tr>
<td>20.</td>
<td>Outlook of area-only supply and demand analysis</td>
</tr>
</tbody>
</table>
The Delphi Technique research was the next step after the focus group interview. The focus group interview provided a foundation for the Delphi Technique by identifying a set of preliminary investment risk factors.

The objective of the Delphi research was to validate the risk factors obtained from the focus group interview and to rate the risk factors based on their level of influence in investment risk.

**Participation of Panel Members**

A panel of 20 experts—eleven hotel property general managers, three hotel chain vice presidents of operations, three hotel company presidents and three hotel chain owners were nominated to serve as the panel for this Delphi survey. The twenty panel experts had varied backgrounds. However, they all had strong expertise and background in the hotel business. Their length of hotel management experience ranged from five to twenty five years. The average was ten years. About 40% of them had business or hotel management degrees. Their businesses are all located in Virginia. However, some of their companies’ hotels are located outside of Virginia. Other main locations were Maryland, Delaware, and North Carolina. The invitation letters along with the
first round questionnaire were faxed to all participants. Then, a follow-up telephone call was placed to each panel member.

**In round I**, a total of nineteen questionnaires were returned, making the response rate 95%. It was an ideal response rate for the Delphi Technique research. The one hotel owner who did not participate in the survey offered no explanation. The total duration of round I was seven days.

**In round II**, a total of nineteen questionnaires were sent out to panel members and the response rate was 100%. They were the same group of members who participated in the round I survey. The duration of round II was six days, and the survey was also faxed.

**Round three** was conducted through fax and telephone to confirm the final research results. The duration was four days. The entire Delphi survey process took about three weeks.

**Construction of Round I Questionnaire**

The objective of the first round Delphi survey was to validate the hotel investment risk factors identified in the focus group interview. Delphi panel members were asked to validate and rank those factors based on their experience. During the process, they could add more risk factors which they considered very important to investment risk
assessment. For the convenience of the survey, these twenty factors were categorized into four segments: property factors, demand factors, supply or competition factors, and others factors (see Table 4-1 in the previous section). Please refer to Appendix 4-4 for the round I questionnaire, invitation letter, and definition of terminology. There were a total of twenty two potential risk factors in the questionnaire in stead of twenty developed from the focus group. The two extra factors were "unionization" and "seasonality of the hotel business." They were added based on the prior research findings (Gup & Norwood, 1982).

**Analysis of Data From Round I**

The round I fax survey confirmed that the key risk factors generated from the focus group interview were critical to hotel investment risk assessment (see table 4-2 for the findings). Participants were asked to check those factors they saw as important. The maximum number of check marks that a factor could receive was nineteen since there were nineteen participants. Table 4-2 shows that all the factors received more than half of the total possible check marks.

In addition to the twenty two risk factors identified in the round I questionnaire, the panel members added ten more risk factors (see New Factors on table 4-2). The new
factors were regarded by members as strongly related to the operation and sales of the middle-price and economy motels. There was a strong possibility that these factors could affect the future earnings of those hotel properties.

Based on the results of the round I summary, a first stage consensus of opinion on the investment risk factors was achieved. The majority of the panel agreed that these factors were important. At the same time, the members had the opportunity through round II and round III, to include any changes or arguments.

Construction of Round II Questionnaire

The objective of round II was to rate the degree of influence of all risk factors generated from round I. The total number of the key risk factors for round II was thirty rather than thirty-two shown in Table 4-2. This was due to a suggestion from the research committee to divide up some of the round I risk factors. Some factors in the round I survey questionnaire actually consisted of two factors. For example, in table 4-2, factor 4, "affiliation with chain or franchisor", consisted of affiliation with chain and affiliation with franchisor. In fact, these were two different factors and should be separated. Another three divided factors were factors 8, 13, and 18. The rating scale was set from 1, signifying very little influence to 5,
signifying a high degree of influence. All these factors

**TABLE 4-2**

**KEY RISK FACTORS**

**GENERATED FROM THE SUMMARY OF ROUND I DELPHI SURVEY**

<table>
<thead>
<tr>
<th>No.</th>
<th>HOTEL INVESTMENT RISK FACTORS (Round I Delphi Survey Result)</th>
<th>No. of Check (√) Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>PROPERTY FACTORS:</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Property location</td>
<td>19</td>
</tr>
<tr>
<td>2.</td>
<td>Age of property</td>
<td>17</td>
</tr>
<tr>
<td>3.</td>
<td>Pricing of products offered by hotel (i.e. room rate &amp; restaurant menu price)</td>
<td>15</td>
</tr>
<tr>
<td>4.</td>
<td>Affiliation with chain or franchisor</td>
<td>17</td>
</tr>
<tr>
<td>5.</td>
<td>Changing value of property’s brand name</td>
<td>15</td>
</tr>
<tr>
<td>6.</td>
<td>Quality &amp; expertise in operations</td>
<td>16</td>
</tr>
<tr>
<td>7.</td>
<td>Strength of marketing efforts</td>
<td>17</td>
</tr>
<tr>
<td>8.</td>
<td>Types of design, layout and facilities available (Hotel’s functional usage)</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td><strong>DEMAND FACTORS:</strong></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>National economic growth</td>
<td>16</td>
</tr>
<tr>
<td>10.</td>
<td>Area’s economic and business growth</td>
<td>17</td>
</tr>
<tr>
<td>11.</td>
<td>Changes of hotel guests’ buying behavior</td>
<td>18</td>
</tr>
<tr>
<td>12.</td>
<td>Customer base dispersion (degree of business sources distribution)</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td><strong>SUPPLY/COMPETITION FACTORS:</strong></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Competition of the area</td>
<td>19</td>
</tr>
<tr>
<td>14.</td>
<td>Threat of new entrants (potential new hotel competitors)</td>
<td>17</td>
</tr>
<tr>
<td>15.</td>
<td>Property’s competitive edge in secondary market (market position)</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td><strong>OTHER RISK FACTORS:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Federal, state, and local governmental laws, regulations and involvement</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>17</td>
<td>Unionization</td>
<td>15</td>
</tr>
<tr>
<td>18</td>
<td>Level of equity investment required for financing</td>
<td>17</td>
</tr>
<tr>
<td>19</td>
<td>Degree of hotel operating leverage</td>
<td>16</td>
</tr>
<tr>
<td>20</td>
<td>Outlook of overall hotel industry</td>
<td>16</td>
</tr>
<tr>
<td>21</td>
<td>Outlook of area-only supply and demand analysis</td>
<td>19</td>
</tr>
<tr>
<td>22</td>
<td>Degree of seasonality of the business</td>
<td>18</td>
</tr>
</tbody>
</table>

**New Factors:**  
(Additional Factors Added by Members)

<table>
<thead>
<tr>
<th></th>
<th>Track record of the hotel</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>Management run property vs. owner run property</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Geographical clustering effect with other sister properties</td>
<td>2</td>
</tr>
<tr>
<td>26</td>
<td>Changes in zoning laws</td>
<td>5</td>
</tr>
<tr>
<td>27</td>
<td>Changes in roads (ie, bypasses, highway entrances)</td>
<td>4</td>
</tr>
<tr>
<td>28</td>
<td>Changes in area signage laws</td>
<td>3</td>
</tr>
<tr>
<td>29</td>
<td>Visibility from highway or roads</td>
<td>3</td>
</tr>
<tr>
<td>30</td>
<td>Neighborhood/surrounding demographics</td>
<td>1</td>
</tr>
<tr>
<td>31</td>
<td>Interest rate</td>
<td>4</td>
</tr>
<tr>
<td>32</td>
<td>Level of collateral required on loans</td>
<td>4</td>
</tr>
</tbody>
</table>
were supposed to be important according to the consensus reached in round I. The questionnaire was sent our by fax, accompanied by cover letter. Please refer to Appendix 4-5 for the round II questionnaire

**Analysis of Data From Round II**

The round II survey revealed the order of importance of the key investment risk factors for middle-price and budget hotel/motel segments. Appendix 4-6 presents a detailed analysis of the rating process.

After the summation of nineteen scores from nineteen questionnaires, these totals were ranked from the highest to the lowest (see the second table in appendix 4-6). The highest cumulative score represented the most important factor. The final ranking of the factor profile is presented in Table 4-3.

It was interesting that all of the thirty six risk factors received an above average rating which was higher than 3.0. This meant that panel members believed that all the factors were important and had an above average influence. Moreover, rating scores were all very close to each other. With the highest average score of 4.68 compared to the lowest score of 3.26, the difference was only 1.32. This meant that these thirty six factors all had very similar degrees of influence on the risk level of a
TABLE 4-3
RATING RESULT OF KEY INVESTMENT RISK FACTORS
(With 1 as the highest factor, 36 as the lowest factor)

Rating From Rank 1 to Rank 36

1. Property location
2. Changes in roads (ie. bypasses, highway entrances)
3. Expertise in operations
4. Interest rate
5. Strength of marketing efforts
6. Area’s economic and business growth potential
7. Direct competition in the area
   (competitors in the same lodging segment)
8. Level of equity investment required for financing
9. Level of collateral required on loans
10. Visibility from highway or roads
11. Customer base dispersion
    (degree of business sources diversification)
12. Degree of hotel operating leverage
    (level of fixed cost among total cost)
13. Affiliation with a hotel chain
14. Property’s competitive edge in secondary market
    (market position)
15. Changes in zoning laws
16. Changes in area signage laws
17. Neighborhood/surrounding demographics
18. Changing value of the property’s brand name
19. Outlook of area-only (regional) hotel business
20. Track record of the hotel
21. Degree of future potential threat of new entrants (potential new hotel competitors)
22. Age of property
23. Degree of seasonality of the business
24. Changes of hotel guests’ buying behavior
25. Affiliation with a franchisor
26. Unionization
27. Track record of the management
28. Outlook of the overall hotel industry
29. Design and layout of the property
30. Facilities offered (Hotel’s functional usage)
31. Federal, state and local governmental law, regulation and involvements
32. Pricing of products offered by hotel (i.e. room rate & restaurant menu price)
33. National economic growth
34. Indirect competition in the area (hotels in different lodging segments)
35. Geographical clustering effect with other sister properties
36. Management company run property vs. owner run propertyy

hotel investment project. This consensus further
demonstrated the validity of the focus group interview and the round I Delphi survey.

**Confirmation and Summary of Round III**

Round III of the Delphi survey was to confirm the consensus achieved from the round I and round II surveys. The result (Table 4-5) was faxed to each panelist. No negative feedback was received. This result showed that consensus had been achieved. This concluded the round III survey.

The entire Delphi survey successfully validated the research findings of the focus group interview. In fact, it enhanced the understanding of and knowledge about hotel investment risk variables in the middle-price and budget segment. In addition, it enabled participants to achieve a consensus among themselves on the subject.

**Discussion and Summary**

The entire process of the Delphi Technique took about three weeks. Unlike most surveys which use mail to approach the participants, the Delphi Technique research in this study used fax as the primary means of approach, along with follow-up telephone calls. The results proved that it was an effective and efficient way to conduct a survey.
The survey achieved the original two objectives set in the research plan: The first objective was to validate the risk factors generated from the focus group interview findings; the second objective was to rank all the risk factors in terms of their degree of influence on the risk level of a hotel investment project. The validation process also contributed some extra risk factors which were considered highly relevant to a hotel property’s future profitability in the middle-price and economy segments. The ranking demonstrated that all the factors were important and relevant to the evaluation of risk in hotel investment projects. The hotel investment risk factor research findings are the major research contribution of this study.

The limitation of the Delphi survey, particularly in this research, was the limited selection of the panel members. Panel members were selected from among three hotel management companies.

**CASE STUDY**

Both the focus group interview and the Delphi Technique survey were part of the supportive research for the development of the investment cost of capital estimation model. The construction of this model had been discussed in Chapter 3. However, the model needed to be tested and validated empirically. The empirical process provided
valuable implementation instruction for the model's practical application. A case study was conducted to fulfill this objective.

**Introduction of the Case Company**

The case company was a hospitality management company headquartered in Northern Virginia. The company, *Service Inc.* (a disguised name), manages six middle-price and economy hotel properties under a franchising agreement with Choice International. These six properties are located in Virginia, Maryland, and Delaware. For the purpose of the research, they were named as properties A to F.

At the time of the research, Service Inc. was contemplating the purchase of a three-year old, 140-room property, *the Guest Hotel*, in the Northern Virginia area. The management needed to evaluate the riskiness of this property for the purpose of cost of capital estimation and valuation. The cost of capital estimation model developed in Chapter 3 was used by Service Inc. as an alternative tool to help achieve the objectives.

**Model Implementation**

As discussed in Chapter 3, in order to determine the cost of capital (the required rate of return) for the Guest
Hotel, it was necessary to find out the risk level of this hotel first, because its hurdle rate was a function of the risk. The new model quantified the investment’s total risk through the approach of objective risk and subjective risk determination. The model allowed the comparison of Guest Hotel’s risk level to the overall risk level of Service Inc. The comparison result enabled the management to estimate a reasonable cost of capital for Guest Hotel using the guidelines provided by the model.

Risk Assessment for Guest Hotel

According to the new model, Guest Hotel’s total risk was equally determined by its subjective risk and objective risk. Defined by the model, the risk level of the project was quantified by the risk class (from 1 to 5). Therefore, the process of finding the objective risk class and the subjective risk class became the main concern.

I. OBJECTIVE RISK CLASS

The objective risk class was determined by weighing the two categories of risk (each weighing 50%). One was the risk class of coefficient of variation of gross return on total assets over the past three years (1990-1992). Another was the risk class of C.L.E. (degree of combined leverage
effect) of the hotel property in 1992. The following discussion focused on these two areas.

Because many hotels in the industry carry negative net incomes, the model here uses gross return, which is the G.O.P. (gross operating profit), to replace the net income.

1. **Determine Risk Class of Coefficient of Variation of Gross Return on Total Assets**

   The coefficient of variation of gross return on assets is a measurement of risk per percentage of gross return. Procedures for calculating Guest Hotel’s risk class based on C.V. of gross return on total assets are presented as follows:

   a. **Determining the gross return of all properties over the past three years (1990 to 1992).**

      The model used gross operating profit (G.O.P.) as a criterion to measure a property’s total return on assets’, since it was the most commonly used gross return figure in the hotel industry. Table 4-4 shows the gross return (G.O.P.) of all Service Inc. properties and Guest Hotel. These figures were taken from their income statement summary (see Appendix as 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, and 4-13).

   b. **Calculating the past three years’ gross return on total**
assets of all properties (1990 - 1992).

Each property’s total assets were calculated based on a three-year average (see Table 4-5). For the purpose of later calculation, the last row of table 4-5 shows the weight of this asset as a percentage of all Service Inc.’s assets. The equation was:

\[
\text{% of weight} = \frac{\text{Property's Total Assets}}{\text{Total Asset of Service Inc.}}
\]

Table 4-6 presents each property’s G.O.P. on total assets as calculated using the following equation:

\[
\frac{\text{Gross Return on Total Assets}}{\text{Gross Operating Profit}} = \frac{\text{Property's Total Assets}}{\text{Property's Total Assets}}
\]

The purpose of Table 4-6 was to help in determining the coefficient of variation of gross return on total assets.

c. Calculating the standard deviation and coefficient of variation of property’s three-year gross return on assets (C.V. of GOA).

The equations used for the determination of coefficient of variation of GOA (gross return on total assets) are shown as follows (refer to Chapter 3 objective risk determination section for the detailed discussion).
Standard Deviation = \sqrt{\frac{1}{N} \sum_{i=1}^{N} (GOA_{pt} - \text{Ave. GOA}_p)^2}

\text{Coefficient} \quad \text{Standard Deviation}

\text{Variation (C.V.)} = \frac{\text{Average GOA over the past three years}}{\text{Risk Per Percentage of Gross Return}}

Note: 
- \( t \) = year
- \( n \) = total of years
- \( p \) = the project
- \( \text{GOA}_{pt} \) = G.O.P. on total assets of the project in year \( t \).
- \( \text{Ave. GOA}_p \) = \( t \) years’ average G.O.P. on assets

Table 4-7 shows the results of each property’s standard deviation and coefficient of variation calculated by using the above equations.

\text{Service Inc.’s C.V. of GOA} (coefficient of variation of G.O.P. on assets) can then be determined by using the \text{asset weighted average of each property’s C.V. of GOA}. The last row of Table 4-5 provides the asset’s weighted percentage information. Using this information, along with the last row of Table 4-7, Service Inc.’s C.V. on GOA can be determined.

Service Inc. \( C.V. \) on GOA = \( \sum_{i=A}^{F} C.V._i \times (A_i/As) \)

\[
= 8.18\% \times 21.3\% + 14.8\% \times 27.3\% + 11.4\% \times 16.1\% + 18.7\% \times 16.7\% + 5.93\% \times 5.7\% + 9.09\% \times 9.09\%
\]

\[
= 12.25\%
\]
Note:
C.V.i = Coefficient of Variation of hotel i
i = Hotel i (from A to F)
Ai = Total assets of hotel i
As = Total assets of Service Inc.
Ai/As = Assets weighted percentage of hotel i

d. Service Inc.'s risk class table of C.V. of GOA (Gross Return on Assets).

The highest coefficient of variation within the Service Inc. was 18.7% and the lowest was 5.93% (see table 4-7). To estimate the risk class table, this range was divided into percentile categories of 20%. So, the range difference was 12.8% (18.7%-5.93% = 12.8%). The 20 percentile of this range difference was 2.55% (2.55% * 20% * 5 = 12.8%). So, the interval scale was 2.55%. The chain's overall C.V. of GOA had already been calculated as 12.25% from above point C. Moreover, defined by the model, the 12.25% should be the median figure in the middle 20 percentile, since it reflected the chain's average (see Figure 4-1 for the detailed scaling). The risk class table can then be developed through the above information (see Table 4-8). The risk class of the Guest Hotel fell into risk class of 5 because it had a C.V. of GOA 109%, as shown in table 4-7.

2. Determine Risk Class of Combined Leverage Effect

A hotel's degree of combined leverage effect is the combined measurement of the property's degree of financial leverage and operating leverage. As discussed in Chapter 3,
Figure 4-1

SCALES FOR THE RISK CLASS TABLE

1 The median value of this interval is the overall Service Inc.'s figure.
Table 4-4
Service Inc. Hotels Gross Return on Assets
And Guest Hotels Gross Return from 1990 to 1992

<table>
<thead>
<tr>
<th>Year</th>
<th>Hotel A ($)</th>
<th>Hotel B ($)</th>
<th>Hotel C ($)</th>
<th>Hotel D ($)</th>
<th>Hotel E ($)</th>
<th>Hotel F ($)</th>
<th>Guest Hotel ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>638,417</td>
<td>585,566*</td>
<td>493,009</td>
<td>503,222</td>
<td>263,255</td>
<td>382,004*</td>
<td>130,000*</td>
</tr>
<tr>
<td>91</td>
<td>700,289</td>
<td>700,208</td>
<td>491,229</td>
<td>546,020</td>
<td>254,709</td>
<td>343,709</td>
<td>215,251</td>
</tr>
<tr>
<td>92</td>
<td>695,702</td>
<td>751,126</td>
<td>577,731</td>
<td>546,035</td>
<td>232,529</td>
<td>398,407</td>
<td>301,595</td>
</tr>
<tr>
<td>Ave.</td>
<td>678,136</td>
<td>678,967</td>
<td>520,656</td>
<td>531,759</td>
<td>250,164</td>
<td>374,707</td>
<td>216,282</td>
</tr>
</tbody>
</table>

* Note: Hotel B opened in Feb. 1990. Hotel F opened in Sept. 1990. Guest Hotel opened in Feb. 1990. So the second year’s data at the same period of time were used to complete the missing operation record for the first year.

Table 4-5
Service Inc. Hotels’ and Guest Hotel’s Total Assets
1990 - 1992

<table>
<thead>
<tr>
<th>Year</th>
<th>Hotel A</th>
<th>Hotel B</th>
<th>Hotel C</th>
<th>Hotel D</th>
<th>Hotel E</th>
<th>Hotel F</th>
<th>Guest H</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>4,126,437</td>
<td>5,308,771</td>
<td>3,097,656</td>
<td>3,225,919</td>
<td>1,074,226</td>
<td>2,375,995</td>
<td>7,712,918</td>
</tr>
<tr>
<td>91</td>
<td>3,969,033</td>
<td>5,089,463</td>
<td>3,011,842</td>
<td>3,111,288</td>
<td>1,017,508</td>
<td>2,519,575</td>
<td>7,420,479</td>
</tr>
<tr>
<td>92</td>
<td>3,741,182</td>
<td>4,787,420</td>
<td>2,847,012</td>
<td>2,977,636</td>
<td>1,065,569</td>
<td>2,368,410</td>
<td>7,200,000</td>
</tr>
<tr>
<td>Ave.</td>
<td>3,945,551</td>
<td>5,061,885</td>
<td>2,985,553</td>
<td>3,104,948</td>
<td>1,052,434</td>
<td>2,421,327</td>
<td>7,444,465</td>
</tr>
<tr>
<td>% Weig</td>
<td>21.3%</td>
<td>27.3%</td>
<td>16.1%</td>
<td>16.7%</td>
<td>5.7%</td>
<td>13.0%</td>
<td></td>
</tr>
</tbody>
</table>

Note: Total assets of Service Inc. is $ 18,571,648.
All figures are from the end of each fiscal year. The last row of the table presents the percentage weight of each of Service Inc.’s property assets.
## Table 4-6

SERVICE INC. HOTELS' AND GUEST HOTEL'S GROSS RETURN ON TOTAL ASSETS OVER THE PAST THREE YEARS (1990-1992)

<table>
<thead>
<tr>
<th></th>
<th>Hotel A</th>
<th>Hotel B</th>
<th>Hotel C</th>
<th>Hotel D</th>
<th>Hotel E</th>
<th>Hotel F</th>
<th>Guest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>15.5%</td>
<td>11.0%</td>
<td>15.9%</td>
<td>15.6%</td>
<td>24.5%</td>
<td>16.1%</td>
<td>1.7%</td>
</tr>
<tr>
<td>1991</td>
<td>17.6%</td>
<td>13.8%</td>
<td>16.3%</td>
<td>17.6%</td>
<td>25.0%</td>
<td>13.6%</td>
<td>2.9%</td>
</tr>
<tr>
<td>1992</td>
<td>18.6%</td>
<td>15.7%</td>
<td>20.3%</td>
<td>18.3%</td>
<td>21.8%</td>
<td>16.8%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Aver.</td>
<td>17.2%</td>
<td>13.5%</td>
<td>17.5%</td>
<td>17.1%</td>
<td>23.0%</td>
<td>15.5%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

## Table 4-7

SERVICE INC. HOTELS' AND GUEST HOTEL'S COEFFICIENT OF VARIATION OVER PAST THREE YEARS' G.O.A. (1990-1992)

<table>
<thead>
<tr>
<th></th>
<th>Hotel A</th>
<th>Hotel B</th>
<th>Hotel C</th>
<th>Hotel D</th>
<th>Hotel E</th>
<th>Hotel F</th>
<th>Guest</th>
</tr>
</thead>
<tbody>
<tr>
<td>STD.</td>
<td>1.41%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>3.20%</td>
<td>1.41%</td>
<td>1.41%</td>
<td>3.20%</td>
</tr>
<tr>
<td>Ave</td>
<td>17.2%</td>
<td>13.5%</td>
<td>17.5%</td>
<td>17.1%</td>
<td>23.8%</td>
<td>15.5%</td>
<td>2.9%</td>
</tr>
<tr>
<td>GOA</td>
<td>C.V.</td>
<td>ROA</td>
<td>C.V.</td>
<td>ROA</td>
<td>C.V.</td>
<td>ROA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.18%</td>
<td>14.8%</td>
<td>11.4%</td>
<td>18.7%</td>
<td>5.93%</td>
<td>9.09%</td>
<td>109.1%</td>
</tr>
</tbody>
</table>

Note: STD = Standard Deviation  
C.V. of G.O.A = Coefficient of Variation of G.O.P. on Assets  
= STD./ Ave. G.O.A.
**TABLE 4-8**

SERVICE INC. RISK CLASS TABLE
FOR COEFFICIENT OF VARIATION OF GROSS RETURN ON TOTAL ASSETS

<table>
<thead>
<tr>
<th>Risk Class</th>
<th>Range of C.V. on GOA</th>
<th>Guest Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Down - 8.42%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>8.43% - 10.97%</td>
<td></td>
</tr>
<tr>
<td>3 (Service Inc.)</td>
<td>10.98% - 13.52%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>13.53% - 16.07%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>16.08% - up</td>
<td>5</td>
</tr>
</tbody>
</table>
the combined leverage effect can be calculated using the following equation:

\[
\text{C.L.E.} = \frac{R - V}{|R - V - F - I|}
\]

where
R = Total Sales,
V = Variable Operating Cost,
F = Fixed Operating Cost before interest and taxes,
I = Interest Payment,
and \(|R-V-F-I|\) represents an absolute value.

Rooms and food operating expenses were used to represent the variable cost figure. Total operating expenses excluding rooms and food, plus depreciation, property taxes, and insurance expenses were used to represent the fixed cost figure.

Table 4-9 presents all the needed figures for the calculation of C.L.E. of each property. These figures were taken from Appendix 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, and 4-13. The last row of the table shows the calculation results of each property's combined leverage effect.

From Table 4-9, the range difference between the highest C.L.E. score and the lowest score can be determined. It is 124.21 (129.35 - 5.21 = 124.21). The 20 percentile of this range is 24.8. Furthermore, in order to develop this table, Service Inc.'s overall C.L.E needed to be determined. It was the asset weighted average of all Service Inc.'s properties' C.L.E.. The percentage weight of each property
### TABLE 4-9

**SERVICE INC. HOTELS’ AND GUEST HOTEL’S INCOME STATEMENT KEY FIGURES AND COMBINED LEVERAGE EFFECT Fiscal Year of 1992**

<table>
<thead>
<tr>
<th></th>
<th>Hotel A</th>
<th>Hotel B</th>
<th>Hotel C</th>
<th>Hotel D</th>
<th>Hotel E</th>
<th>Hotel F</th>
<th>Guest Hot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>1,395,949</td>
<td>1,463,871</td>
<td>1,201,781</td>
<td>1,253,722</td>
<td>577,827</td>
<td>953,589</td>
<td>1,319,160</td>
</tr>
<tr>
<td>V. Cost</td>
<td>260,337</td>
<td>246,561</td>
<td>235,768</td>
<td>246,207</td>
<td>137,307</td>
<td>216,647</td>
<td>515,076</td>
</tr>
<tr>
<td>Fixed C.</td>
<td>714,834</td>
<td>800,874</td>
<td>597,445</td>
<td>702,290</td>
<td>320,146</td>
<td>518,435</td>
<td>620,873</td>
</tr>
<tr>
<td>Total C.</td>
<td>975,171</td>
<td>1,047,435</td>
<td>833,213</td>
<td>948,497</td>
<td>457,453</td>
<td>735,082</td>
<td>1,135,949</td>
</tr>
<tr>
<td>Apayment</td>
<td>366,585</td>
<td>650,164</td>
<td>295,157</td>
<td>332,265</td>
<td>126,027</td>
<td>224,177</td>
<td><strong>339,531</strong></td>
</tr>
<tr>
<td>C.L.F.</td>
<td>20.95</td>
<td>5.21</td>
<td>13.16</td>
<td>37.26</td>
<td>77.93</td>
<td>129.35</td>
<td>5.14</td>
</tr>
</tbody>
</table>

*Note:* The comprehensive interest payment of Guest Hotel in 1991 was $808,978 (appendix 4-13). In 1992, the lending bank repossessed the property from the original owner due to loan default. In early 1993, Service Inc. was able to negotiate with the holding bank to reduce the debt service payment to about $339,531, starting from 1993. Since the combined leverage analysis focuses on the future risky situation of the property, $339,531 would then be used as a stabilized debt service figure for 1992.
is shown in the last row of Table 4-7. So the calculation was:

\[
\text{Service Inc. } \sum_{i=A}^{F} \text{C.L.E.}_i \times (A_i/A_s)
\]

\[
= 20.95 \times 21.3\% + 5.21 \times 27.3\% + 13.16 \times 16.1\% + 37.26 \times 16.7\% + 77.93 \times 5.7\% + 129.35 \times 13.0\%
\]

\[
= 4.46 + 1.42 + 2.12 + 6.22 + 4.44 + 16.82
\]

\[
= 35.48
\]

Note: \(i\) = Hotel property i (from A to F)  
C.L.E.\(_i\) = Combined leverage effect of hotel i  
A\(_i\) = Total assets of hotel i  
A\(_s\) = Total assets of Service Inc.

Defined by the model, Service Inc.'s C.L.E., of 35.48 should be the median value of the middle 20 percentile. The 20 percentile range scale could be calculated as indicated below:

20 Percentile Risk Class  
Range Scale = (Highest C.L.E. - Lowest C.L.E.)/ 5 = 24.8

The combined leverage effect (C.L.E.) should always be a positive value. It was clear, in this particular situation, that 24.8 could not be used as the risk class interval scale because the median value had to be 35.48, which was Service's Inc. overall average. For this reason, the original approach of risk class scale setting had to be
modified. The modification was simple. Since the lowest value of combined leverage effect in the table was 0, the median value was 35.48, and there were 5 half scales (5x) between 0 and 35.48 (see the following illustration). One scale consists of two "X"s. So one half scale (one x) was 7.10.

<table>
<thead>
<tr>
<th>Risk Class</th>
<th>Risk Class</th>
<th>Risk Class</th>
<th>Risk Class</th>
<th>Risk Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>#--- 1--- #--- 2--- #--- 3--- #--- 4--- #--- 5--- #</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x           x           x           x           x           35.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Through the above analysis, the risk class scale was 14.20 (35.48/5 * 2 = 14.2), allowing Service Inc.'s Risk Class Table of Combined Leverage Effect to be formulated (see Table 4-10).

Since Guest Hotel's C.L.E. was 5.14 (see Table 4-9), so it fell into risk class 1. So, the risk class of C.L.E. of the Guest Hotel was 1. The low combined leverage risk class was due to the substantial reduction of debt services.
<table>
<thead>
<tr>
<th>Risk Class</th>
<th>C.L.E. Range</th>
<th>Guest Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 - 14.20</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>14.21 - 28.40</td>
<td></td>
</tr>
<tr>
<td>3 (Service Inc.)</td>
<td>28.41 - 42.60</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>42.61 - 56.80</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>56.81 - up</td>
<td></td>
</tr>
</tbody>
</table>
3. **Objective Risk Class**

The objective risk class of Guest Hotel was the average of combined risk class of its coefficient of variation on ROA and the C.L.E. So, the objective risk class of Guest Hotel was 3 \((5+1)/2\). The next step toward the risk assessment was to determine Guest Hotel’s subjective risk class.

**II. SUBJECTIVE RISK CLASS**

The subjective risk class was determined by Service Inc.’s top management. Using the subjective risk evaluation steps developed through the focus group and Delphi research, the hotel chain’s management evaluated the future risk level of Guest Hotel based on their subjective judgment. Under each of the thirty-six risk factors (see appendix 14), they compared Guest Hotel to Service Inc’s overall situation. Then they assigned a risk class number for that particular risk factor. For example, under the risk factor of "threat of future entrants", the management believed that there could be a similar type of new hotel built next to the Guest Hotel within the next three years. The management gave 5 to the Guest Hotel under this risk factor. The management went through all thirty-six factors using the same approach.

For the Guest Hotel, the total score of its thirty-six
factors was ninety three. Ninety three divided by 36 was 2.6. This was the subjective risk class of the Guest Hotel. This 2.6 result shows (as the top management in Service Inc. believes), that the Guest Hotel had less risk than the average situation of Service Inc..

III. TOTAL RISK CLASS OF THE GUEST HOTEL

The total risk class of the Guest Hotel was an average of its objective risk class and the subjective risk class.

Total Risk= \( \frac{\text{Objective risk class} + \text{Subjective risk class}}{2} \) = 2.8

The total risk class was 2.8. After the determination of Guest Hotel's risk level, which was slightly lower than the average risk level of the Service Inc., the management could start to estimate its required rate of return on this prospective investment according to a set of guidelines provided by the new model.

Cost of Capital Estimation

In order to determine the cost of capital of Guest Hotel, Service's Inc. management needed to develop the last requirement of the model, which was the industry/company adjusted risk-return table. As was discussed in Chapter 3,
This table reflected the risk-return relationship of the current industry norm and the company's historical returns. It was very company and industry specific. Therefore, the first step was to evaluate the current investment returns of Service Inc. (see Table 4-11).
TABLE 4-11
FINANCING INFORMATION
SERVICE INC. HOTELS²

<table>
<thead>
<tr>
<th>(%)</th>
<th>HOTEL A</th>
<th>HOTEL B</th>
<th>HOTEL C</th>
<th>HOTEL D</th>
<th>HOTEL E</th>
<th>HOTEL F</th>
<th>Guest Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>% DEBT FINANCING</td>
<td>100%</td>
<td>90%</td>
<td>90%</td>
<td>95%</td>
<td>85%</td>
<td>90%</td>
<td>85%</td>
</tr>
<tr>
<td>REQUIRED RATE OF RETURN ON DEBT</td>
<td>8.75%</td>
<td>11.5%</td>
<td>7.5%</td>
<td>8.0%</td>
<td>8.5%</td>
<td>8.0%</td>
<td>9.5%</td>
</tr>
<tr>
<td>REQUIRED RATE OF RETURN ON EQUITY</td>
<td>10.5%</td>
<td>12.0%</td>
<td>12%</td>
<td>10%</td>
<td>10%</td>
<td>11%</td>
<td>12%</td>
</tr>
<tr>
<td>PROPERTY COST OF CAPITAL</td>
<td>8.75</td>
<td>11.55</td>
<td>7.95</td>
<td>8.1</td>
<td>8.73</td>
<td>8.3</td>
<td>9.88*</td>
</tr>
</tbody>
</table>

* Note: 9.88% was the original estimation of the required rate of return on the investment of Guest Hotel project. The management will use the model to estimate a new result to compare with this rate.

² All the figures were provided directly by Service Inc.
Table 4-11 shows Service Inc. properties' cost of capital for their hotels ranged from 7.95 to 11.55. The overall range difference was 3.6. The 20 percentile of this range was .72. The Service Inc.'s overall cost of capital could be calculated using the investment weighted average (see Table 4-5, last row). So the overall cost of capital was:

Service Inc.
Cost of Capital = 8.75% * 21.3% + 11.55% * 27.3% + 7.95% *
16.15% + 8.1% * 16.7% + 8.73% * 5.7% +
8.3% * 13%
= 9.23%

As a basic assumption of the new model, the overall cost of capital of Service Inc. should be associated with the risk class 3, since this overall cost of capital represents the overall hotel chain's average risk level. The next step is to determine the cost of capital associated with risk class as 1, 2 and 4, 5. The result is presented in Table 4-12, Service Inc. Risk-Return Relationship table. This table uses the 20 percentile of the entire range of all hotels' cost of capital as the range scale of risk class, and the overall cost of capital 9.23% as the median figure. The table reflects only the risk and return relationship of Service Inc. It has not been adjusted by the situation of the current hotel industry and economic climate.
<table>
<thead>
<tr>
<th>Risk Class</th>
<th>Range of Cost of Capital</th>
<th>Guest Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.13% - down</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>8.86% - 8.14%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8.87% - 9.59%</td>
<td>With 2.8 Risk Class</td>
</tr>
<tr>
<td>4</td>
<td>9.60% - 10.32%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>10.33% - up</td>
<td></td>
</tr>
</tbody>
</table>
Table 4-12 shows that Guest Hotel, according to the historical returns of the Service Inc., should have a required rate of return by lenders (hurdle rate) around 8.5%. However, this rate can be further adjusted by the current overall economy and the state of the hotel industry. As discussed in the preceding chapters (2 and 3), the hotel business is a risky business in nature in terms of its vulnerability to the economy. Currently, because of the downturn of the economy and the high saturation of the market, many investors and financial institutions have stopped making hotel investments. In addition, the past failure situation of Guest Hotel means that investors perceive this property increasingly uncertain. Therefore, the top management can make some adjustments to the determined cost of capital of Guest Hotel based on their experience, if they feel necessary. Nevertheless, 8.5% should be the approximate cost of capital for Guest Hotel. It should become the guideline for hotel financing and capital budgeting.
Discussion and Recommendation

The new cost of capital estimation model was tested and implemented by the management of Service Inc. The result was a cost of capital 1.38% lower than the original estimation (9.88%) obtained from the investment bank and Service's Inc. management. The results show that there was an overestimation of cost of capital compared to the risk level of the investment. Several recommendations were made to Service Inc. according to the results of the model's implementation.

1. Because the financing of the purchase of Guest Hotel was financed mainly through issuance of public bonds, the required return rate for the bond should be set at around 9%, based upon the risk level of the project.

2. Since management planned to have 15% equity financing, the equity's required rate of return should be around 10%. Therefore, the original equity required rate of return of 12% was too high. It did not reflect the relatively low risk level of the property.

3. The estimated cost of capital was recommended as the discount rate for Guest Hotel's present value determination, a major task of the capital budgeting process. In fact, the risk assessment through this process should be applied to the future property cash flow generation forecasting.
4. The model should be used as a valuable alternative for the cost of capital estimation. Since many subjective elements were involved in the calculation process, management needed to conduct additional studies to validate the result.

Through this real hotel company case testing, the risk assessment and cost of capital estimation model could be proved to be valuable and practical. The researcher does not recommend that hotel companies use this model as a sole tool for investment project evaluation. However, it is definitely a valuable alternative.

CHAPTER SUMMARY

The focus group interview was the first step in the empirical research conducted to explore the unknown field of hotel investment risk assessment in the segments of middle-price or economy hotels/motels. It was conducted among hotel professionals and hotel investors and lenders with the intention of getting all their opinions and perceptions on hotel investment risk analysis and evaluation. Eighteen important risk factors were presented by hotel people, and twelve critical factors mentioned by the respondents from the banking industry. The conclusion and summary of these valuable results built the foundation for further research on the subject of hotel investment risk analysis.
The Delphi Technique was the next stage in the research program. It consisted of the usual three rounds and attempted to reach a consensus among all participants on the subject of risk factors and their rating. It was conducted among nineteen hotel industry general managers, vice presidents, and presidents of hotel chains, and hotel owners. The broader base of participation and the strength of the Delphi research process provided a constructive and valuable result.

The case study was used to test the cost of the capital estimation model. In Chapter 3, the paper proposed the new model based on research from prior studies. It was used in Service Inc.’s purchase of Guest Hotel. The result shows that the model has practical application.
CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

INTRODUCTION

This chapter presents a summary of the empirical research and its findings. It compares the findings with those of prior studies in related areas, outlines research conclusions, and states some specific limitations of this research. Finally, recommendations are made for the use of the hotel investment risk variable profile and the cost of capital estimation model. Also, some future research topics in this field are discussed.

SUMMARY OF THE STUDY

In spite of the ever increasing importance of risk assessment for hotel investments and appropriate cost of capital estimation for capital budgeting purposes, little empirical research has been done in this field. It is difficult for both hotel practitioners and academic researchers to find valuable information and practical tools for dealing with it. As discussed in the literature review in Chapter 3, a limited number of prior studies offered little sufficient knowledge and few empirically validated models for the analysis of investment risk and cost of
capital estimation in the hotel industry, particularly for private companies in the middle-price or economy hotel segments.

The purpose of this study was to develop a risk assessment and cost of capital estimation model by identifying key risk factors associated with hotel investments for private hotel companies. These key risk factors were sought through focus group exploratory research and the Delphi survey technique. The cost of capital estimation model was developed on the basis of the risk assessment framework/factor research, and a case study.

To identify hotel investment key risk factors in the middle-price and economy segments, this study sought support and assistance from hotel professionals, hotel owners, and lending officials in an attempt to create a comprehensive study including different perspectives. In addition, the research focused on the total risk analysis of hotel properties in order to fulfill one of the objectives of this study, which is to serve private hotel investment activities in the hotel industry. Despite the effect of diversification of portfolio investments, there are practical reasons for small and middle-sized hotel companies and investors to focus on total risk rather than just on market risk in this mature hotel industry. The study revealed that hotel management companies and owners were concerned with each property’s overall risk when evaluating
property purchases or development.

**SUMMARY OF FINDINGS**

The focus group interview revealed some interesting and valuable findings. First, it generated an 18-factor list from the hotel operators’ and owners’ point of view (see Table 5-1) and a 12-factor list from the bankers’ viewpoint (see Table 5-2). The summary of these two lists provided a foundation for the Delphi survey. In addition, these two lists offered interesting perceptions from different parties involved in the investment process. The additional finding from the focus group was that hotel owners showed concern for hotel investment’s total risk, not just from market risk. Moreover, it was common that hotel owners and management did not use any formal and systematic tool to assess a hotel investment’s risk level and to estimate the required rate of return. Relying purely on personal experience was a common practice. They expressed the concern that there was no useful and practical risk assessment and cost of capital estimation approach or model readily available to them. This concern once again proved the practical value of this research.
TABLE 5-1
RISK FACTORS IDENTIFIED BY HOTEL MANAGERS AND OWNERS IN THE FOCUS GROUP INTERVIEW

<table>
<thead>
<tr>
<th>Focus Group – Hotel Operator’S &amp; Owner’S Viewpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
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<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>14</td>
</tr>
<tr>
<td>15</td>
</tr>
<tr>
<td>16</td>
</tr>
<tr>
<td>17</td>
</tr>
<tr>
<td>18</td>
</tr>
</tbody>
</table>
### Table 5-2

**Key Risk Factors Presented by Bankers in the Focus Group Interview**

<table>
<thead>
<tr>
<th>Focus Group—Bankers' Viewpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Term length of the loan (time span)</td>
</tr>
<tr>
<td>2. Industry condition and outlook</td>
</tr>
<tr>
<td>3. Market condition/demand &amp; supply</td>
</tr>
<tr>
<td>4. Competition within the industry</td>
</tr>
<tr>
<td>5. Relationship with the company, history of doing business</td>
</tr>
<tr>
<td>6. Interest rate trends</td>
</tr>
<tr>
<td>7. Equity and deposit guarantees</td>
</tr>
<tr>
<td>8. Debt service ratio and cash flow prediction</td>
</tr>
<tr>
<td>9. Degree of fluctuation of cash flow</td>
</tr>
<tr>
<td>10. Degree of specialization in business market and flexibility of functional usage</td>
</tr>
<tr>
<td>11. Degree of diversification of business sources.</td>
</tr>
<tr>
<td>12. Governmental regulations</td>
</tr>
<tr>
<td>13. Lending competition within the banking industry itself</td>
</tr>
</tbody>
</table>
The three-round Delphi technique provided an in-depth study on hotel investment risk factors related to the middle-price and economy hotel segments. Round I results validated and enriched the risk factor list generated from the focus group study (see Table 4-2 in Chapter 4). It generated the total of thirty two risk factors from nineteen hotel professionals and owners. Round II of the study reached a consensus on a comprehensive risk profile with a total of thirty six risk factors. In addition, it studied each risk factor’s level of influence (see Table 4-5 in Chapter 4). Table 5-3 presented the final result of this comprehensive study among hotel professionals and owners. All of these factors received higher than average (3) ranking (see table 4-4 in chapter 4).

The Proposed New Model was constructed through theoretical and empirical development. The model was detailed in Chapter 3 Figure 3-5 and Figure 3-6. The subjective risk evaluation profile is in Appendix 4-12.
TABLE 5-3
FINAL HOTEL INVESTMENT RISK FACTOR
PROFILE/FRAMEWORK AND THE RISK FACTOR RANKINGS

(Rank # 1 has the highest influence, # 36 has the least.)

<table>
<thead>
<tr>
<th>RANK</th>
<th>FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Property location</td>
</tr>
<tr>
<td>2.</td>
<td>Changes in roads (ie. bypasses, highway entrance)</td>
</tr>
<tr>
<td>3.</td>
<td>Expertise in operations</td>
</tr>
<tr>
<td>4.</td>
<td>Interest rate</td>
</tr>
<tr>
<td>5.</td>
<td>Strength of marketing efforts</td>
</tr>
<tr>
<td>6.</td>
<td>Area’s economic and business growth potential</td>
</tr>
<tr>
<td>7.</td>
<td>Direct competition in the area</td>
</tr>
<tr>
<td></td>
<td>(competitors in the same lodging segment)</td>
</tr>
<tr>
<td>8.</td>
<td>Level of equity investment required for financing</td>
</tr>
<tr>
<td>9.</td>
<td>Level of collateral required on loans</td>
</tr>
<tr>
<td>10.</td>
<td>Visibility from highway or roads</td>
</tr>
</tbody>
</table>

(To be continued)
<table>
<thead>
<tr>
<th>RANK</th>
<th>FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>Customer base dispersion (degree of business sources diversification)</td>
</tr>
<tr>
<td>12.</td>
<td>Degree of hotel operating leverage (level of fixed cost among total cost)</td>
</tr>
<tr>
<td>13.</td>
<td>Affiliation with a hotel chain</td>
</tr>
<tr>
<td>14.</td>
<td>Property’s competitive edge in secondary market (market position)</td>
</tr>
<tr>
<td>15.</td>
<td>Changes in zoning laws</td>
</tr>
<tr>
<td>16.</td>
<td>Changes in area signage laws</td>
</tr>
<tr>
<td>17.</td>
<td>Neighborhood/surrounding demographics</td>
</tr>
<tr>
<td>18.</td>
<td>Changing value of the property’s brand name</td>
</tr>
<tr>
<td>19.</td>
<td>Outlook of area-only (regional) hotel business</td>
</tr>
<tr>
<td>20.</td>
<td>Track record of the hotel</td>
</tr>
</tbody>
</table>

(To be continued)
<table>
<thead>
<tr>
<th>RANK</th>
<th>FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.</td>
<td>Threat of new entrants (potential new hotel competitors)</td>
</tr>
<tr>
<td>22.</td>
<td>Age of property</td>
</tr>
<tr>
<td>23.</td>
<td>Degree of seasonality of the business</td>
</tr>
<tr>
<td>24.</td>
<td>Changes of guests' buying behavior</td>
</tr>
<tr>
<td>25.</td>
<td>Affiliation with a franchisor</td>
</tr>
<tr>
<td>26.</td>
<td>Unionization</td>
</tr>
<tr>
<td>27.</td>
<td>Track record of the management</td>
</tr>
<tr>
<td>28.</td>
<td>Outlook of the overall hotel industry</td>
</tr>
<tr>
<td>29.</td>
<td>Design and layout of the property</td>
</tr>
<tr>
<td>30.</td>
<td>Facilities offered (Hotel’s functional usage)</td>
</tr>
<tr>
<td>31.</td>
<td>Federal, state and local governmental laws, regulations and involvements</td>
</tr>
<tr>
<td>32.</td>
<td>Pricing of products offered by hotel (ie. room rate &amp; restaurant menu price)</td>
</tr>
<tr>
<td>33.</td>
<td>National economic growth trends</td>
</tr>
<tr>
<td>34.</td>
<td>Indirect competition in the area (hotels in different lodging segments)</td>
</tr>
<tr>
<td>35.</td>
<td>Geographical clustering effect with other sister properties</td>
</tr>
<tr>
<td>36.</td>
<td>Management company run property vs. owner run property</td>
</tr>
</tbody>
</table>

(End)
CONCLUSIONS

The following conclusions are drawn from the findings of the study.

First, a group of hotel professionals and hotel owners identified key investment risk factors in the middle-price and economy hotel segments.

Second, the thirty six risk factors can be classified into several categories: the property related factors, market demand factors, market supply or competition factors, and other factors related to areas such as governmental laws and regulations, unionization and so forth.

Third, the research on risk assessment focused on the middle-price and economy segments in the hotel industry. For this reason, the risk factors carried the characteristics strongly related to these segments. For example, changes in roads and transportation routes are extremely critical to the hotel business in these segments because many of these properties are highway properties. Therefore, the study results indicate some very interesting highly-rated factors which were ignored or overlooked by prior academic studies.

Fourth, the nature of this research is fully practical in the sense that the identified risk factors are important for real people in the real investment and operational environment. Therefore, the risk factor profile is highly
related to daily hotel operations. This feature makes the research very valuable to hotel industry practitioners.

**Fifth**, the focus group study confirmed other research findings that in certain business environments, investors and management are concerned with the investment’s total risk as well as with the market risk.

**Sixth**, parties involved in any investment project do have different focus and degrees of concern about investment risk factors. In the case of this research, lenders paid more attention to the financing aspects and had less to hospitality awareness. In contrast, hotel professionals paid more attention to the operational aspects. Owners paid great attention to the situation of the worst investment scenario, such as the issue of collateral.

**Seventh**, as a major contribution of this research, some key risk factors, which did not receive enough attention from prior studies, were generated (see Table 5-4). More importantly, when reviewing the factor rating results in Table 4-5 in Chapter 4, they show that some of these new factors received high ratings among survey participants. The research shows that these factors are extremely important and should not be ignored.

**Eighth**, the new cost of capital estimation model is an empirically verified model for hotel companies and investors. For the successful implementation of the model, users need to have accurate financial data about the
company. Furthermore, users need to be very familiar with their companies and the prospective properties. It is recommended that these tasks be performed by the top management of the companies.

Ninth, in general, the testing results of the new cost of capital estimation model showed that it was an effective and practical model. Both the theoretical evidence and empirical testing demonstrated that the model did offer some valuable measurement criteria for property investment risk analysis. The major components of the model, which are the coefficient of variation study, the operating and financial leverage study, and the analysis using the developed risk factor framework, offer invaluable and key information for risk assessment. However, two areas in the model contain certain degrees of deficiency. First, the construction of measurement scales lacks sufficient support in research findings. Therefore, the risk class scale establishment does not have consistent standard procedures. The 20 percentile break-down approach does not always work (see Chapter 4 case study). Second, the model’s cost of capital estimation still contains uncertainties and a certain amount of subjective guessing. This drawback is partially due to the nature of cost of capital estimation. Prior studies argued that the cost of capital estimation was strongly influenced by subjective thinking of decision makers (Pinches, 1982).
Table 5-4

NEW KEY INVESTMENT RISK FACTORS CONTRIBUTED BY THE RESEARCH

* Changes in roads (i.e. bypasses, highway entrances)
* Strength of marketing efforts
* Level of equity investment required for financing
* Level of collateral required on loans
* Visibility from highway or roads
* Degree of hotel operating leverage
  (level of fixed cost among total cost)
* Changes in zoning laws
* Changes in area signage laws
* Neighborhood/surrounding demographics
* Changes of hotel guests’ buying behavior
* Geographical clustering effect
  with other sister properties
* Management company run property vs. owner run property
RECOMMENDATIONS

The following recommendations were made for utilization of the results of this study and the new cost of capital estimation model:

1. Key factors developed through this study should be used as guideposts for hotel investment project evaluations by top hotel management, investors, and lenders as well. Although each of these parties has different needs and foci, all key factors need to be considered.

2. The rating results of the key investment risk factors should be used as the basis for assigning priority status during the decision making process. It is also recommended that the priority be applied to the subjective analysis of investment projects.

3. Commercial bank lenders need to pay more attention to the operational aspects of hotel investment as well as to financial numbers. It is recommended that lenders and non-operation owners need more knowledge and awareness of hotel operations. It is also suggested that the risk factor profile should be used as a standard guideline for lenders to evaluate risky hotel projects.

4. This study was concerned with hotel investments
and development evaluations. The findings were intended to serve as a tool to help management and owners assess risk and required rate of return. This information can be critical for the main course of the evaluation - the capital budgeting process. It is suggested that risk assessment and cost of capital estimation should be completed before the capital budgeting process. It should become a standard practice, preceding the discounting of cash flow.

5. In order to successfully use the new cost of capital estimation model, intensive studies on the prospective project are called for. The feasibility study, which is the standard prerequisite for investment project financing, is helpful in gaining information on the prospective project. However, to avoid the potential pitfalls of many feasibility studies, management needs to do their own homework and use their own judgment.

The findings and recommendations from this research suggest some future study topics related to this particular area:

1. Although the investment risk factor studies in this research were conducted among hotel professionals, owners, and commercial bank lenders, the research sample base was constrained
in terms of the number of hotel companies and number of participants. It is recommended that it be expanded to a larger sample of large financial institutions and hotel developers.

2. A replicate research should be conducted to find out how frequent the key hotel investment risk factors are changing. It is believed that some of those factors are typically related to the current downturn in the hotel industry. Some highly rated factors could only be valid for a period of time.

3. One of the major limitations of this study is that the research has limited focus. It concentrated on the small-sized to middle-sized hotel companies' investment practices in the middle-price and economy segments. Future studies should go beyond these limits. Further more, due to the trend of globalization in the hospitality industry, it is highly recommended that studies should be done on the international perspective.
BIBLIOGRAPHY


Bower, Richard and Jenks, Jeff (1975)." Divisional Screen Rates", Financial Management (Autumn, 1975), PP.42-49


Rushmore, Stephen (1980), The Valuation of Hotels And Motels, American Institute of Real Estate Appraisers of the National Association of Realtors.


Schmidgall, S. Raymond (1990), Managerial Accounting, the Educational Institute of the American Hotel & Motel Association, second edition.


APPENDIX 3-1

PERSONALIZED INVITATION LETTER FOR FOCUS GROUP INTERVIEW

Dear Mr. (Ms.) ********,

On behalf of Dr. Michael Olsen and all the research members at Virginia Tech's Hotel Management Department, I would like to extend you our appreciation for your willingness to serve on the panel of the focus group meeting.

Dr. Michael Olsen, Professor Francis Kwansa, Mr. Randy Higinbotham and I are conducting a focus group meeting on the topic of Hotel Investment Risk Factor Analysis and Cost of Capital Estimation. This project is also related to my Master's thesis research. The objective of the study is to identify key risk factors in hotel investment and estimate the appropriate required rate of return to compensate the risk. It is a critical issue of concern commonly expressed by hotel owners, top management and lenders.

You are sincerely invited to be one of the eight panelists involved in this research because you are considered an expert in this field. Since the panel consists of top professionals from the hotel and banking industry, this is a great opportunity for the development of better understanding and evaluation of future hotel investment and financing.

This focus group interview meeting is strictly a research project, and it is sponsored by the research committee of the Hotel Management Department at Virginia Tech. It is conveniently scheduled on March 3rd (Wednesday) at the Roanoker Restaurant at Roanoke. It will be a luncheon meeting starting at 11:30am. Following a half hour lunch at the Roanoker, the focus group meeting will last about one and a half hours.

I will call you in three business days to confirm the schedule and answer any questions you may have. Also, I have enclosed the background information with this letter. Please bring it with you to the meeting.

Again, thank you very much for you participation. See you at the Roanoker on March 3rd!
FOCUS GROUP STUDY BACKGROUND

The primary purpose of this study is, through an empirical study, to investigate the key factors that have impact on hotel investment’s total risk level. These factors are influential to an investment project’s risk, and the changes of these factors could cause the fluctuation of its future return. Furthermore, with the understanding at this critical area, a practical cost of capital estimation model will be proposed for hotel management and investors.

RESEARCH FOCUS

Key factors that have impact on hotel investments’ total risk level

Related Questions

1. Please think back to the past, when your company had hotel related investment opportunities, how did you evaluate or estimate their risk in general?

2. Now stay with the risk issue, what areas did you look for in order to estimate the hotel project’s risk? Please thoroughly list all the influential factors on investments’ risk level.

3. Based upon your past investment risk evaluation experiences and lessons, what changes or improvement would you like to make for your future investment risk evaluation?

RESEARCH FOCUS

The current practice of hotel investment project cost of capital estimation

Related Questions

1. What factors did you consider and where did you look when you tried to determine the required rate of return of hotel investments?

2. Based on the current market situation, what is the hurdle rate range (from the most uncertain projects to pretty much predictable projects) for hotel investments?
**APPENDIX 3-2**

**DEFINITION OF TERMINOLOGY FOR FOCUS GROUP INTERVIEW**
(The following terms will be used during the meeting)

**HOTEL INVESTMENT:** Refers to large capital expenditure, such as acquisition of an existing hotel property or developing/building a new property in this research.

**RISK:** Commonly refers to the probability of success (making profit) or failure (losing money) on an investment. In finance, we refer to risk as the **degree of fluctuation associated with return on investment.**

**RISK FACTOR:** Also called risk variables, this refers to factors that will have impact or influence on an investment project’s risk level. The risk level of an investment depends on the combined efforts of these factors.

**TOTAL RISK:** Also called stand alone risk, it views the risk of an investment project in isolation, and hence without regard to portfolio effects.

**BUSINESS RISK:** Also called operating risk, refers to the degree of fluctuation of operating income/cash flow imposed by the business environment and economic cycle.

**FINANCIAL RISK** Refers to the risk of not being able to meet the fixed cash flow requirement of debt financing, which could lead to bankruptcy.

**COST OF CAPITAL** The cost of fund to a firm. It can be calculated by the weighted average of the cost of equity and cost of debt. It is often used as the required rate of capital investment.

**HURDLE RATE:** Also called the required rate of return, it is the minimum rate of return on total capital (debt+equity) necessary to induce an investor to buy and hold an asset.

**NET-PRESENT-VALUE METHOD** Compares the present value of the expected future benefits of a project to the present value of the expected cost of the project.
APPENDIX 3-3
SAMPLE OF THE BEGINNING SPEECH
FOR FOCUS GROUP INTERVIEW

Good afternoon and welcome to our session. Thank you for taking the time to join our discussion of hotel investment risk analysis and evaluation issues. I am Dr. and I represent the Hotel, Restaurant and Institutional Management Department at Virginia Polytechnic Institute and State University. Assisting me is , also from the Virginia Tech. We are attempting to gain information about hotel investment risk analysis and cost of capital estimation practices. We have invited people who have been dealing with these practices to share their experiences, perceptions and ideas.

You were invited to this meeting because you are all working in businesses related to hotel investments directly or indirectly. We are particularly interested in your views on evaluating hotel investment projects because you are representative of others in this field. Today we will be discussing how you dealt with the risk issue of an investment and how you determined the cost of capital of a hotel investment. This includes all your past experiences and your perspectives on these issues. There are no right or wrong answers but rather differing points of view. Please feel free to share your point of view even if it differs from what others have said.

Before we begin, let me remind you of some ground rules. This is strictly an academic research project. Please speak up—one person should talk at a time. We plan to tape-record the session. If several talk at the same time the tape will get garbled and we’ll miss your comments. However, you may be assured of complete confidentiality. Keep in mind that we’re just interested in negative comments as positive comments, and at times the negative comments are the most helpful.

Our session will last about an hour and a half, and we will not be taking a formal break. Feel free to leave for the rest room or a cigarette. A name card was placed in front of you to help us remember each other’s names. Let’s find out some more about each other by going around the room one at a time.

SOURCE: Adopted from The Focus Group Interview (Kreuger, 1988).
APPENDIX 4-1

FOCUS GROUP INTERVIEW PANEL INFORMATION

Top management officials were from the following companies:

Krish Hotel, Inc.
1917 Franklin Rd. S.W.
Roanoke, Va 24014

Eastern Motor Inn
P.O. Box 201
Roanoke, VA 24002

Guests Inc.
A Hospitality Management Company
98 Alexandria Pike, suite 22
Warrenton, VA 24186

Holiday Inn Tanglewood
4468 Starkey Rd. S.W.
Roanoke, Va 24014

First Virginia Bank
First Virginia Bank S. W.
P. O. Box 7585, Roanoke, Va 24019

Dominion Bank
P.O. Box 13327
Roanoke, Virginia 24040
APPENDIX 4-2

TAPE RECORDING SUMMARY OF THE FOCUS GROUP INTERVIEW

The following is the tape recording summary of the focus group meeting: (H) means the panel member is from the hotel industry; (B) means the panel member is from the banking industry; (O) shows that the panel member is a hotel owner.

Question 1

When you look at the hotel industry, what term do you use to describe this industry when you talk about risk? How do you characterize risk? What do you mean when you mention that the hotel industry is risky?

(H):
* Property’s competitiveness relies on its ability to explore new business sources, like the group business from the secondary market (source of clientele and market base).

(H/O):
* Governmental regulations and interferences.

(B):
* New construction of real estate financing is based on short-term and intermediate loans.
* Initializing as a permanent market (stabilization of cash flow generation).
* Time span of placing into the permanent market. The bank is likely to focus on the primary market.
* Length of being a good customer with the bank, long time cliental.
* Substantial deposit (large corporations).
* Strong influence of the bank’s stock analysts and the
board. They decide the percentage (ie. 15% to 17%) of real estate holdings in the overall product type (industry risk). This is the guideline for loan officers. As a conservative bank, within the range of this percentage, bank wants to invest into lower risk (or the least risk) real estate with acceptable returns, ie shopping mall, office building. These investments can roll into the permanent market much faster and have steady cash flow for debt services (degree of fluctuation on cash flow).

* Pressure and influence from the OCC and FDIC (governmental regulation risk).

(B):
* Large institutions, such as insurance companies offer long term (10 to 15 years) financing for hotels. In contrast, banks offer short to mid-term loans. They are not in the position to match assets and liabilities for long term loans (characteristics and structural of banking operation).

(B):
* Hotels business are highly specialized. It has strong dependability on its unique travel market. This market is not diversified enough to accommodate any external changes.
* The over supply of the industry makes it very risky.

(B):
* The single purpose of hotels makes them have high functional risk.
* Hotel investment is not just a real estate business deal (no stabilized cash flow, like rental or leasing fee) but rather than cash flow business.

(H):
* Hotels should look for non-traditional business in order to reduce its single market risk. Group business provides new business sources which go beyond the primary regions.
* Customers right now have less brand loyalty and concern more about price when choosing hotels.

(H):
* Current competition
* Age of hotel
* Future potential threat of new entrance
* Location of the property
* Functional obsolete
* Brand or flag of the property
* Current market supply and demand
* Operating leverage. High fixed asset investment.

(H/O):
* My full guarantee signature and back up assets for the bank is my risk. In order to get 50% loan, the first land equity has to be used for back up (this is not the definition of risk from finance point of view, noted by the author).

* Changes and consolidation among the franchisors. Some brands are becoming step-child in a big franchising family from former single franchising company. Franchising companies do not put equal emphasis on their brands. The value of the flag and referral business are then in risk.

**Question 2**

A particular hotel company has a cost of capital (weighted debt and equity). When you look at a new project of this company, do you give consideration on a risk premium above that corporate cost of capital?

(H/O):
* We do not do that kind of thinking. We just do our analysis based on experiences, guess and gut feelings. It is much more simplify.

(H):
* No formal quantifying of risk or formal risk assessment model were used in the company. I just added 1% or 2% to compensate any risky projects.

(B):
* As the bank we use a Pricing Model to reflect our decision rules. The cost of capital (pricing) is depending on who we are working with and the relationship with the company (tracking history with the bank).

(H):
* Assessment on the secondary market. We believed strong marketing effort and operational expertise.
(H):  
* Quality of operation/management reduced risk.

(B):  
* Interest rate risk is more emphasized than credit risk for the bank. We tried to assess the risk but it is very difficult to do. So just do whatever you can, if you can't, then you just let it be that way.  
* Market risk and follow standard guidelines.  
* Follow the result of feasibility studies.

**Question 3**

How do you evaluate the quality of a feasibility study? What worried you when you reviewed the results?

(B):  
* The history and reputation of the consulting firm. Based on the people you know. The name of the firm.

Why is like that way?  
* Influence and pressure for the approval.

**Question 4**

Name one single factor that creates the most concern to the risk?

(O/H)  
* Gut feeling, local knowledge and intuition.

(H)  
* The future growth of the market. The growth of business and economy of the area.

(B)  
* Competition of the market, cash flow, and debt service coverage ratio.

(H)  
* Market condition.

(H)  
* Quality of management, economic condition, and flexibility of adapting changes of consumer buying behavior.
APPENDIX 4-3

FOCUS GROUP FOLLOW-UP THANK-YOU LETTER

Dear Mr ***,

It was my great pleasure to get to know you at the focus group meeting on March 3rd, 1993.

Thank you very much for participating in the focus group meeting! It meant a lot to my research. Your contribution to the meeting will have significant influence on the result of my thesis, which would later enrich our knowledge base in the respect of hotel investment risk analysis.

I have analyzed the result and produced a detailed report. For your convenience, I enclosed the summary abstract. Please take a look and see if it is consistent with what we discussed in the meeting. You are very welcome to input any other ideas to the final report.

Following the report, I am constructing a Delphi survey among hotel managers, owners and lenders based on this exploratory study.

Once again, I truly appreciate your effort and support. I hope to have more opportunities to learn from you.

Good luck!
APPENDIX 4-4

ROUND I DELPHI SURVEY PACKAGE

Dear Mr. (Ms.)********,

It has been a while since the last time I chatted with you at the Christmas Party. How’s everything going? I am sure you are working hard and enjoy your good results. I am now at school temporarily to finish my Master’s thesis research. I expect to get it done by early May.

As part of my thesis research, I am conducting a survey under the guidance of my research and degree committee. They are Mr. Randy Higinbotham from Guests Inc., Dr. Michael Olsen from Virginia Tech Hotel Management Department and Dr. Francis Kwansa in Hotel Financial Management. The objective of the survey is to identify key risk factors related to hotel investments. These factors have impact on hotel investments’ total risk level.

You are selected as part of the survey population because you are considered experts in the hotel management field. Mr. Higinbotham and Mr. Smith have given me tremendous support in planning this research. We believe that this study will be beneficial to my research as well as to participating hotel management companies. Here I would like to extend my personal appreciation for your willingness to serve on the survey panel.

The survey consists of three rounds. The first round will present to you a pre-developed risk factor profile under which you will be asked for your opinion of those factors. Your opinion will help in the development of a final risk profile. In the following rounds, you will be asked to rank the level of influence of each factor to the hotel investment total risk level.

**Anonymity** is a characteristic of this survey. Please keep in mind that the success of the whole survey depends on your completion of all three rounds. Each round will only take you 30 minutes. I plan to complete all three rounds in about a week. Due to the time constraints, it will be a fax survey. Also, for your convenience and consensus, a definition of terminology is enclosed.

Please let me know if you have any questions. My phone number is (703) 951-5278; fax number (703) 231-8313. Enclosed you will find the first round survey questionnaire.
DEFINITION OF TERMINOLOGY
= The Delphi Research =

HOTEL INVESTMENT
Refers to large capital expenditure, such as acquisition of existing hotel property or building a new property from the ground.

RISK:
Commonly refers to the unknown future on success (making profit) or failure (losing money) on an investment. In research, it refers the degree of fluctuation or uncertainty associated with your cash flow or return on investment.

RISK FACTOR:
Also called risk variables, refers to factors in which investment risk/uncertainty can be identified. They have impact or influence on an investment project’s risk level. The risk level of an investment depends on the combined efforts of these factors.

OPERATING LEVERAGE
It is a measurement that reflects the degree of sensitivity of your return on investment towards the changes of hotel sales. The higher of the percentage of your fixed cost, the stronger of this sensitivity.
ROUND I DELPHI QUESTIONNAIRE
INVESTMENT RISK FACTOR VALIDATION

According to my exploratory research, the following could be some key risk factors which should be considered by hotel management and owners as to make prospective hotel investment decisions. These factors/variables could have various impact on the risk level of the investment. Based on your past experience, please only mark the one(s) which should be considered in determining riskiness of an investment with ( ), otherwise please leave ( ) empty. Check all that apply.

Please fax your result to "Yee Zeng" at Virginia Tech HRIM dept. at (703) 231-8313 by March 20. I can be reached at (703) 951-5278 at any time. Thank you!

PROPERTY FACTORS:

( ) * Property location
( ) * Age of property
( ) * Pricing of products offered by hotel
    (i.e. room rate & restaurant menu price)
( ) * Affiliation with chain and franchisor
( ) * Changing value of property’s brand name
( ) * Quality & expertise in operations
( ) * Strength of marketing effects
( ) * Types of design, layout and facilities available
    (Hotel’s functional usage)

DEMAND FACTORS:

( ) * National economic growth
( ) * Area’s economic and business growth potential
( ) * Changes of consumer buying behavior
( ) * Customer base dispersion (degree of business sources distribution)
SUPPLY/COMPETITION FACTORS:

( ) * Competition of the area

( ) * Degree of future potential threat of new entrance (potential new hotels)

( ) * Property’s competitive edge in secondary market (market position)

OTHERS RISK FACTORS:

( ) * Federal, state and local governmental law, regulation and involvement

( ) * Unionization

( ) * Level of equity investment required for financing

( ) * Degree of hotel operating leverage

( ) * Outlook of the overall hotel industry

( ) * Outlook of area-only supply and demand analysis

( ) * Degree of seasonality of the business

Please list any additional risk factors that you believed are important and should be considered by management and owners as to determine the risk level of prospective hotel investment:
Dear ********,

Thank you very much for completing round I of the survey to determine key risk factors having an impact upon hotel investment’s risk level. Your input is extremely significant and has helped the panel arrive at a comprehensive listing of key risk factors!

Round II will take you approximately 11 minutes to complete. Please fax your responses back to me by MARCH 26. My fax # is (703) 231-8313. Thank you again for your great support!

ROUND II
RATING OF KEY RISK FACTORS

DIRECTIONS

Below is a listing of key factors to be used for hotel investment risk assessment. The list was finalized from your contribution to the ROUND I survey.

Please indicate how influential you feel each factor is to the overall riskiness of a hotel investment by circling the appropriate number.

Please FAX to Yee Zeng at Virginia Tech, HRIM dept. Fax: (703) 231-8313 by MARCH 26, Thanks!

Rating Scales

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<td>3= Average Influence</td>
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<td>1= Very little Influence</td>
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PROPERTY COMPETITIVENESS FACTORS

1. Property location 5 4 3 2 1
2. Age of property 5 4 3 2 1
3. Pricing of products offered by hotel (ie. room rate & restaurant menu price) 5 4 3 2 1
4. Affiliation with a hotel chain 5 4 3 2 1
5. Affiliation with a franchisor 5 4 3 2 1
6. Changing value of the property’s brand name 5 4 3 2 1
7. Expertise in operations 5 4 3 2 1
8. Strength of marketing effects 5 4 3 2 1
9. Property’s competitive edge in secondary market (market position) 5 4 3 2 1
10. Track record of the management 5 4 3 2 1
11. Track record of the hotel 5 4 3 2 1
12. Design and layout of the property 5 4 3 2 1
13. Facilities offered (Hotel’s functional usage) 5 4 3 2 1
14. Management company run property VS. owner run property 5 4 3 2 1
15. Geographical clustering effect with other sister properties 5 4 3 2 1

SITE AREA FACTORS

16. Changes in zoning laws 5 4 3 2 1
17. Changes in roads (ie. bypasses, highway entrances) 5 4 3 2 1
18. Changes in area signage laws 5 4 3 2 1
19. Visibility from highway or roads 5 4 3 2 1
20. Neighborhood/surrounding demographics 5 4 3 2 1

DEMAND FACTORS

21. National economic growth 5 4 3 2 1
22. Area’s economic and business growth potential 5 4 3 2 1
23. Changes of guests’ buying behavior 5 4 3 2 1
24. Customer base dispersion (degree of business sources diversification) 5 4 3 2 1

SUPPLY/COMPETITION FACTORS

25. Direct competition in the area (competitors in the same lodging segment) 5 4 3 2 1
26. Indirect competition in the area (hotels in different lodging segments) 5 4 3 2 1
27. Degree of future potential threat of new entrants (potential new hotel competitors) 5 4 3 2 1

FINANCING FACTORS

28. Level of equity investment required for financing 5 4 3 2 1
29. Interest rate 5 4 3 2 1
30. Level of collateral required on loans 5 4 3 2 1

OTHERS RISK FACTORS

31. Federal, state and local governmental law, regulation and involvements 5 4 3 2 1
32. Unionization 5 4 3 2 1
33. Degree of hotel operating leverage (level of fixed cost among total cost) 5 4 3 2 1
34. Outlook of the overall hotel industry  5 4 3 2 1
35. Outlook of area-only (regional) hotel business  5 4 3 2 1
36. Degree of seasonality of the business  5 4 3 2 1

You may take this opportunity to add or change factors if you feel it necessary.

----------------------------------------

Questions?
Please call Yee Zeng at (703) 951-5278 at any time.
Thank ♥ You ☻ !
# APPENDIX 4-6

## RATING PROCESS OF INVESTMENT KEY RISK FACTORS

(Part I. and Part II.)

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### 1990-1992 Income Statement Summary

**Service Inc. Hotel A**

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See accompanying notes and accountants' report.
## 1990-1992 Income Statement Summary
### Service Inc. Hotel B

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See accompanying notes and accountants' report.
1990-1992 Income Statement Summary
Service Inc. Hotel C

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**Income before fixed expenses**  
$577,731  $491,229  $493,009

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**Net income (loss)**  
$73,411  $(33,871)  $(7,176)

See accompanying notes and accountants' report.
1990-1992 Income Statement Summary
Service Inc. Hotel D

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<tr>
<td>Other</td>
<td>14,866</td>
<td>19,054</td>
<td>20,198</td>
</tr>
<tr>
<td><strong>Total Revenues</strong></td>
<td><strong>$1,253,722</strong></td>
<td><strong>$1,203,818</strong></td>
<td><strong>$1,199,141</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating expenses:</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rooms</td>
<td>$ 246,207</td>
<td>$ 232,925</td>
<td>$ 244,079</td>
</tr>
<tr>
<td>General and administrative</td>
<td>100,725</td>
<td>94,583</td>
<td>102,882</td>
</tr>
<tr>
<td>Marketing</td>
<td>62,229</td>
<td>58,279</td>
<td>46,596</td>
</tr>
<tr>
<td>Management and franchise fees</td>
<td>145,850</td>
<td>136,542</td>
<td>154,302</td>
</tr>
<tr>
<td>Maintenance and repairs</td>
<td>38,867</td>
<td>40,692</td>
<td>46,864</td>
</tr>
<tr>
<td>Energy costs</td>
<td>113,809</td>
<td>94,777</td>
<td>101,196</td>
</tr>
<tr>
<td><strong>Total Operating Expenses</strong></td>
<td><strong>$ 707,607</strong></td>
<td><strong>$ 657,798</strong></td>
<td><strong>$ 695,919</strong></td>
</tr>
</tbody>
</table>

**Income before fixed expenses**  
$ 546,015  
$ 546,020  
$ 593,222

<table>
<thead>
<tr>
<th>Fixed expenses:</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation and amortization</td>
<td>$ 182,454</td>
<td>$ 188,011</td>
<td>$ 216,905</td>
</tr>
<tr>
<td>Taxes</td>
<td>44,755</td>
<td>50,184</td>
<td>21,944</td>
</tr>
<tr>
<td>Insurance</td>
<td>13,601</td>
<td>16,779</td>
<td>408,359</td>
</tr>
<tr>
<td>Interest</td>
<td>332,265</td>
<td>362,352</td>
<td>51,020</td>
</tr>
<tr>
<td><strong>Total Fixed Expenses</strong></td>
<td><strong>$ 573,075</strong></td>
<td><strong>$ 617,326</strong></td>
<td><strong>$ 698,228</strong></td>
</tr>
</tbody>
</table>

**Net (loss)**  
$ (27,040)  
$ (71,306)  
$ (195,006)

See accompanying notes and accountants' report.
### 1990-1992 Income Statement Summary
Service Inc. Hotel B

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room</td>
<td>$556,146</td>
<td>$589,438</td>
<td>$574,155</td>
</tr>
<tr>
<td>Telephone</td>
<td>16,290</td>
<td>17,291</td>
<td>18,489</td>
</tr>
<tr>
<td>Interest</td>
<td>4,058</td>
<td>3,939</td>
<td>6,099</td>
</tr>
<tr>
<td>Other</td>
<td>1,333</td>
<td>1,917</td>
<td>5,394</td>
</tr>
<tr>
<td><strong>Total Revenues</strong></td>
<td>$577,827</td>
<td>$612,585</td>
<td>$604,137</td>
</tr>
<tr>
<td><strong>Operating expenses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rooms</td>
<td>$137,307</td>
<td>$148,531</td>
<td>$141,817</td>
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<tr>
<td>General and administrative</td>
<td>69,865</td>
<td>68,584</td>
<td>60,842</td>
</tr>
<tr>
<td>Marketing</td>
<td>17,849</td>
<td>14,771</td>
<td>13,967</td>
</tr>
<tr>
<td>Management and franchise fees</td>
<td>72,518</td>
<td>75,181</td>
<td>73,477</td>
</tr>
<tr>
<td>Maintenance and repairs</td>
<td>19,624</td>
<td>22,116</td>
<td>21,429</td>
</tr>
<tr>
<td>Energy costs</td>
<td>28,135</td>
<td>28,693</td>
<td>29,350</td>
</tr>
<tr>
<td><strong>Total Operating expenses</strong></td>
<td>$345,298</td>
<td>$357,876</td>
<td>$340,882</td>
</tr>
<tr>
<td><strong>Income before fixed expenses</strong></td>
<td>$732,529</td>
<td>$254,709</td>
<td>$263,255</td>
</tr>
<tr>
<td><strong>Fixed expenses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation and amortization</td>
<td>$84,344</td>
<td>$90,964</td>
<td>$125,690</td>
</tr>
<tr>
<td>Taxes</td>
<td>16,710</td>
<td>19,288</td>
<td>22,619</td>
</tr>
<tr>
<td>Insurance</td>
<td>11,101</td>
<td>9,951</td>
<td>146,038</td>
</tr>
<tr>
<td>Interest</td>
<td>126,027</td>
<td>127,864</td>
<td>18,183</td>
</tr>
<tr>
<td><strong>Total Fixed expenses</strong></td>
<td>$238,182</td>
<td>$248,067</td>
<td>$312,530</td>
</tr>
<tr>
<td><strong>Net income (loss)</strong></td>
<td>$(5,653)</td>
<td>$6,642</td>
<td>$(49,275)</td>
</tr>
</tbody>
</table>

See accompanying notes and accountants' report.
### 1990-1992 Income Statement Summary
#### Service Inc. Hotel F

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room</td>
<td>$919,039</td>
<td>$808,017</td>
<td>$218,463</td>
</tr>
<tr>
<td>Telephone</td>
<td>19,405</td>
<td>14,534</td>
<td>3,563</td>
</tr>
<tr>
<td>Interest</td>
<td>3,257</td>
<td>4,897</td>
<td>1,768</td>
</tr>
<tr>
<td>Other</td>
<td>11,888</td>
<td>9,491</td>
<td>882</td>
</tr>
<tr>
<td><strong>Total Revenues:</strong></td>
<td>$953,589</td>
<td>$836,939</td>
<td>$224,676</td>
</tr>
</tbody>
</table>

| **Operating expenses:** |            |            |            |
| Rooms                  | $216,647   | $191,059   | $51,494    |
| General and administrative | 89,745   | 75,616     | 18,849     |
| Marketing              | 27,426     | 20,623     | 5,093      |
| Management and franchise fees | 153,535  | 132,144    | 33,962     |
| Maintenance and repairs | 22,238     | 28,325     | 9,091      |
| Energy costs           | 45,591     | 45,463     | 10,686     |
| **Total Operating expenses:** | $555,182   | $493,230   | $129,175   |

**Income before fixed expenses**

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$398,407</td>
<td>$343,709</td>
<td>$95,501</td>
</tr>
</tbody>
</table>

| **Fixed expenses:**   |            |            |            |
| Depreciation and amortization | $145,046  | $173,945   | $82,622    |
| Taxes                 | 26,401     | 28,546     | 3,800      |
| Insurance             | 8,453      | 9,712      | 60,876     |
| Interest              | 224,177    | 228,464    | 6,652      |
| **Total Fixed expenses:** | $404,077   | $440,667   | $153,950   |

**Net (loss)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$(5,670)</td>
<td>$(96,958)</td>
<td>$(58,449)</td>
</tr>
</tbody>
</table>

See accompanying notes and accountants' report.
## APPENDIX 4-13

### 1990 - 1992 Consolidated Income Statement

**Guest Hotel**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room</td>
<td>$1,232,150</td>
<td>$1,181,199</td>
<td>$958,912</td>
</tr>
<tr>
<td>Food and meeting</td>
<td>42,513</td>
<td>32,799</td>
<td>22,745</td>
</tr>
<tr>
<td>Telephone</td>
<td>31,053</td>
<td>48,853</td>
<td>44,043</td>
</tr>
<tr>
<td>Other</td>
<td>13,444</td>
<td>10,283</td>
<td>2,894</td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td>$1,319,160</td>
<td>$1,273,133</td>
<td>$1,028,594</td>
</tr>
<tr>
<td><strong>Operating expenses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rooms and food</td>
<td>$515,076</td>
<td>$495,197</td>
<td>$433,090</td>
</tr>
<tr>
<td>General and administrative</td>
<td>164,909</td>
<td>171,869</td>
<td>136,199</td>
</tr>
<tr>
<td>Marketing</td>
<td>81,028</td>
<td>127,340</td>
<td>94,028</td>
</tr>
<tr>
<td>Management and franchise fees</td>
<td>111,788</td>
<td>82,999</td>
<td>79,043</td>
</tr>
<tr>
<td>Maintenance and repairs</td>
<td>56,841</td>
<td>97,292</td>
<td>76,769</td>
</tr>
<tr>
<td>Energy costs</td>
<td>95,980</td>
<td>83,184</td>
<td>98,838</td>
</tr>
<tr>
<td><strong>Total Operating expenses</strong></td>
<td>$1,025,622</td>
<td>$1,057,881</td>
<td>$917,967</td>
</tr>
<tr>
<td><strong>Income before fixed expenses (G.O.P.)</strong></td>
<td>$293,538</td>
<td>$215,252</td>
<td>$110,627</td>
</tr>
<tr>
<td><strong>Fixed expenses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxes</td>
<td>82,327</td>
<td>95,817</td>
<td>59,829</td>
</tr>
<tr>
<td>Insurance</td>
<td>28,000</td>
<td>37,183</td>
<td>19,187</td>
</tr>
<tr>
<td><strong>Net operating income (N.O.I.)</strong></td>
<td>$183,211</td>
<td>$82,252</td>
<td>$31,611</td>
</tr>
<tr>
<td>Debt Service</td>
<td>NA</td>
<td>794,283</td>
<td>745,927</td>
</tr>
<tr>
<td>Others</td>
<td>NA</td>
<td>14,695</td>
<td>19,807</td>
</tr>
<tr>
<td><strong>Net income (loss):</strong></td>
<td>For Sale $726,726</td>
<td>$734,123</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 4-14

SERVICE INC. TOP MANAGEMENT’S RANKING
ON GUEST HOTEL’S SUBJECTIVE RISK PROFILE

= Determine the RELATIVE Risk of the Guest Hotel Property =

During your rating, please keep in mind this scenario:
You are already managing a group of six properties, called
the Service Inc. portfolio. Now you need to evaluate a
prospective property Guest Hotel’s riskiness in comparison
with your existing portfolio.

Risk Class 3, the Average Level, is the SAME as the
Service Inc.’s existing property portfolio’s risk level.

Risk Class Rating Scales

<table>
<thead>
<tr>
<th>5 = Very High</th>
<th>4 = Relatively High</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 = Average Level</td>
<td>2 = Relatively low</td>
</tr>
<tr>
<td>1 = Very Low</td>
<td></td>
</tr>
</tbody>
</table>

RISK FACTORS: RISK CLASS:

1. Property location
2. Changes in roads (i.e. bypasses, highway entrances) 5 4 3 [2] 1
3. Expertise in operations 5 4 3 [2] 1
4. Interest rate 5 4 [3] 2 1
5. Strength of marketing effects 5 4 3 2 [1]
6. Area’s economic and business growth potential 5 4 3 [2] 1
7. Direct competition in the area (competitors in the same lodging segment) 5 4 [3] 2 1
8. Level of equity investment required for financing
   5 4 3 [2] 1
9. Level of collateral required on loans
   5 4 [3] 2 1
10. Visibility from highway or roads
    5 4 [3] 2 1
11. Customer base dispersion (degree of business sources diversification)
    5 4 [3] 2 1
12. Degree of hotel operating leverage (level of fixed cost among total cost)
    5 4 [3] 2 1
13. Affiliation with a hotel chain
    5 4 [3] 2 1
14. Property’s competitive edge in secondary market (market position)
    5 4 [3] 2 1
15. Changes in zoning laws
    5 4 [3] 2 1
16. Changes in area signage laws
    5 [4] 3 2 1
17. Neighborhood/surrounding demographics
    5 4 3 [2] 1
18. Changing value of the property’s brand name
    5 4 [3] 2 1
19. Outlook of area-only (regional) hotel business
    5 4 3 2 [1]
20. Track record of the hotel
    5 [4] 3 2 1
21. Degree of future potential threat of new entrants (potential new hotel competitors)
    5 4 [3] 2 1
22. Age of property
    5 4 3 2 [1]
23. Degree of seasonality of the business
    5 4 3 [2] 1
24. Changes of guests’ buying behavior
    5 4 [3] 2 1
25. Affiliation with a franchisor
    5 4 [3] 2 1
26. Unionization
    5 4 [3] 2 1
27. Track record of the management
    5 4 3 [2] 1
28. Outlook of the overall hotel industry
    5 4 [3] 2 1
29. Design and layout of the property 5 4 3 [2] 1

30. Facilities offered (Hotel’s functional usage) 5 4 3 [2] 1

31. Federal, state and local governmental law, regulation and involvements 5 4 [3] 2 1

32. Pricing of products offered by hotel (ie. room rate & restaurant menu price) 5 4 [3] 2 1

33. National economic growth 5 4 [3] 2 1

34. Indirect competition in the area (hotels in different lodging segments) 5 [4] 3 2 1

35. Geographical clustering effect with other sister properties 5 4 3 [2] 1

36. Management company run property VS. owner run property 5 4 [3] 2 1
VITA

Yee Zeng (Victor) was born on October 23, 1965, in Canton, P.R. China. He received a Bachelor of Arts degree in Industrial and Business Administration with a minor in hotel and restaurant management from the College of Business, Sun Yat-Sen (Zhong Shan) University in Canton, China, in 1988. He was appointed as an instructor by the College of Business in Sun Yat-Sen University. In the same year, he received distinguished achievement scholarship from Ho’s Education Foundation in Hong Kong and was admitted by the School of Hotel Administration of Cornell University. He completed a one-year specially designed professional teaching program on hotel and restaurant management.

In fall, 1989, he went to the Hotel, Restaurant and Institutional Management department at Virginia Polytechnic Institute & State University to work towards a Master of Science degree. During his two-year course of study, he was a graduate research assistant and teaching assistant in the Hotel, Restaurant and Institutional Management department.

From the summer of 1991 to fall 1992, he joined the management of Guests Inc., a hospitality management company in Virginia. He held various management positions in several different hotels.

At the time of the completion of this thesis, he was a member of the management team of General Mills Restaurants, Inc.