Analysis of Factors Affecting Formation of Captive Insurance Companies In The Asia-Pacific Region

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ABSTRACT

The financing of risks by the formation of a captive insurance company has been the subject of academic study and comment. However, much of the information available is incomplete, subjective, or applicable only in special circumstances. In particular, there has been a conspicuous lack of empirical research, and much of the published work applies to the US and European countries and therefore may not be very useful for organisations in this region. There has also been a great deal of development and growth in the captive sector from the region, which justifies a study in this increasingly important form of risk financing.

The thesis contains three studies. In study one, I evaluate the possible impact on the value and market returns of parent companies, which are those holding a captive insurer, compared to comparative companies which do not hold such subsidiaries. The findings are indicative that there is no significant change in the stock returns of parent companies upon formation of a captive. The findings reinforce those of other academic studies carried out in the US (e.g., Diallo and Kim, 1989) and the UK (e.g., Adams and Hillier, 2000). They are also consistent with observations reported in the general risk management literature (e.g., Bawcutt, 1997). The results suggest that in the Asia Pacific region, the financial advantages of the captive insurance concept, relative to other risk transfer or financing strategies (e.g. conventional insurance), need to be more closely scrutinised by stockholders, prospective investors and financial analysts. This is essential to help improve understanding on the optimum operation of captive insurance and consequently enhance the maximisation of stockholders' value. In study two, I use the cumulative abnormal return (CAR) model to analyze the stock returns of parent companies incorporated in the Asia-Pacific Region during

the event period before and after the formation of a captive to see whether the results are different from that obtained by the paired-t/Wilcoxon Signed-Rank tests conducted in Study 1. There is evidence that there is no sign of abnormal performance in Japanese companies' stock prices before and after the date of formation of captives. On the other hand, there is some possibility of abnormal performance in the Australian parent companies. In study three, I attempt to provide a comprehensive review of captives in the region. To facilitate an in-depth understanding, a qualitative research approach was chosen. The main source of data for this broader study is a survey which was completed by all the captive managers in Singapore, as well as interviews conducted with them and the captive managers in other domiciles, who are involved with Asian Captives. In addition, I also interview risk managers and others, including finance directors and insurance brokers, who are involved in captives in the region.

The reasons why companies form captives are complex, befitting the complexities of risk management for the large organisations concerned. This study has shown that the motivations extend beyond purely insurance considerations in many cases. This study will help all who are, or will be, involved in captives to have a better understanding of captives in general, and captives in the Asia-Pacific Region in particular. The study provides important inputs for policy implications to the Singapore authority to achieve its aim of maintaining Singapore as the most important captive centre in this part of the world. Important information is obtained on the manner in which captives are formed and managed by companies in the Asia-Pacific Region, providing information on the behaviour of major companies and their reaction to risk. The information is useful to organisations operating or considering the formation of such facilities.

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CHAPTER ONE

INTRODUCTION TO PROJECT

1.1 BACKGROUND

"In the absence of any formal insurance protection, many industry groups have joined together and established organizations of which the principal objective is the provision of mutual indemnification against loss.'" At first glance, this statement seems to refer to an industry company, such as Oil Insurance Ltd., as it is known today. The fact is it is a form of financial protection devised and put into practice by the Flanders trade guilds in A.D. 779. This means it predates the earliest known insurance policy by almost 500 years.[2]

Lloyd's success is history. It originated in London when several shippers banded together to 'self-insure' within their group, although that was not the term they used. It was only after they had become successful with their self-insurance arrangement that they began to insure others in London, and eventually worldwide.

Similarly, the Travelers insurance company was originally established to provide accident insurance to railroads. The Factory Mutual was established to insure its "high-risk business". There are many other such examples.

It is difficult to define precisely when the captive[3] movement began, but some would argue that it has been traced to the formation of mutual insurers by textile companies in the US and shipping companies during the mid-1800s.[4] several of these industry or group captives are prospering today, although they are now considered to

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[1] Trennery (1926), p. 251.
[2] Hare and Smetana (1972), preface.
[3] For the sake of brevity and in accordance with popular usage, a captive insurance company will be referred to simply as a 'captive'.
[4] Young (1992), pp. 47-51.

be in the mainstream of the traditional insurance market. However, the roots of the modem captive movement reach back to the captives formed in the late 1920s by major industrial companies in the UK and domiciled onshore. Several similar companies were also founded and domiciled onshore in the US by major US companies around the same period.

The earliest known offshore captive was incorporated in Guernsey in 1922.[5] However, the origin of the word "captive" is attributable to the late Fred Reiss, an American risk management consultant, who founded the IRMG group of companies, which specializes in the management of captives. In 1953, Reiss used the term for his first client, since the primary purpose of the insurance subsidiary was to insure the exposures of the parent company and its subsidiaries. Reiss is widely regarded as the father of the captive movement and is the first captive manager to be inducted into the Insurance Hall of Fame [6] by members of the International Insurance Society (IIS) for his work on captives.

The author had the privilege of working as the Principal Officer in charge of the Asia-Pacific Regional Office of the IRMG group, based in Singapore. Since Reiss founded his first captive, captives have become popular self-insurance mechanisms among corporate risk managers and a major topic of discussion in the insurance world. IRMG was a top captive managing firm and is the only captive specialist firm among the top five captive managers in the world, until it was sold to the Swiss Re and subsequently to Aon. The rest are owned either by insurance company or broker.

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[5] *Guernsey insurance guide*,Guernsey Financial Services Commission, http://www.gfsc.guernseyci.com

[6] The Hall of Fame was founded in 1957 to honor leaders in the insurance industry.

1.2 MOTIVATION AND PURPOSE OF THE STUDY

The financing of risks involving the formation of a captive has received a substantial amount of attention in the insurance press and at conferences dealing specifically with the topic or wider risk management matters. It has also been the subject of academic study and comment. However, much of the information available is incomplete, subjective, or applicable only in special circumstances. In particular, there has been a conspicuous lack of empirical research, and much of the published work applies to the US and European countries and therefore may not be as useful for organizations in this region. On the grounds of differing tax and exchange control regulations alone, the subject is quite different when approached by a company in the Asia-Pacific Region.

It is also necessary to consider the differing insurance markets and the smaller size of the average industrial company in this region. The stage of development of risk management and attitudes to risk management also differ significantly.

There has also been a great deal of development and growth in the captive sector, which justifies a study in this increasingly important form of risk financing. In almost all areas of risk financing and corporate insurance buying, there has been change. Captives themselves have grown and expanded considerably. Formation has spread from a base which primarily emanated from the US and UK, to almost every country in the world, including countries in the Asia-Pacific Region, particularly Australia and Japan. Singapore has also developed into the most important captive domicile in this part of the world.

With the emergence of China and the liberalization of the financial sector and the increasing risk management awareness of companies in the region, it is anticipated that the growth of captives will become more rapid in the years to come. This offers an

attractive environment for captive formation, thus leading to the execution of this study.

The purpose of this thesis is to examine the subject of captive as it affects and is approached by companies in the Asia-Pacific Region (including Australia and New Zealand). This dissertation is divided into two parts: (1) the effect of captive insurance company formation on stock returns and (2) the factors important in the formation of captives.

1.3 SIGNIFICANCE OF RESEARCH

In 1982, the Singapore government decided to actively promote the formation of captives as a new area of insurance development in line with its main objective of developing Singapore as a financial centre. The Singapore government has targeted captive business as one of the most important areas of growth.

Lee (1986)[7] stressed the growing importance of developing Singapore into an attractive captive domicile and that Singapore should work towards becoming a major captive centre. The Committee on Singapore's Competitiveness Report (1998) reinforced this by making important policy recommendations stressing the importance of attracting captives to Singapore. Lee (1999) further stressed the importance of making Singapore a centre for Alternative Risk Transfer (ART), with market players offering a wide range of activities and services covering captives, financial reinsurance and the securitization of risks.

[7] Brigadier General (BG) Lee is now the Prime Minister of Singapore.

Captive is a new concept to companies in this region. Hence, even though some large companies have the capacity to set up a captive, this option is not considered - simply because of a lack of awareness and understanding. This study can help to solve this problem by bringing about a greater awareness of the captive as an important risk-financing vehicle.

Several captives established in Singapore and elsewhere have been de-registered. Some of these captives might have been formed for the wrong but generally perceived reason that captives are formed mainly for tax advantages. This study can help to reduce this problem by bringing about a clearer understanding of the rationale for captive formation and the pitfalls to avoid.

The Asia-Pacific Region is an untapped market. It holds great potential for captive development. It has many large corporations that easily have the capitalization to set up captives. However, to attract these companies to set up captives, deliberate efforts and incentives are needed. Education stands top on the list of what is needed to fan the captive potential into flames. There is therefore a need to educate the potential market on risk management concepts and the benefits of captives.

This study will help all who will be involved in captives to have a better understanding of captives in the Asia-Pacific Region. The study also provides important inputs for policy implications to the Singapore authority to achieve its aim of maintaining Singapore as the most important captive centre in this part of the world.

Important information is obtained on the manner in which captives are formed and managed by companies in the Asia-Pacific Region, providing information on the behavior of major companies and their reaction to risk. The methods are analyzed and this information is useful to organizations operating or considering the formation of such facilities.

1.4 LITERATURE REVIEW

Most of the work published are mainly contained in insurance periodicals and are concerned only with the general advantages and disadvantages of captives, questions of domicile, and taxation issues. Examples are Tarabaras (1997), McLeod (1999), Banham (2002) and Rigney and Scott (2003). Rarely has any attempt been made to collect and analyze data on the motivation, experience and practices of the organizations involved, and none was attempted in the Asia-Pacific Region.

Some literature such as Hare and Smetna (1972), Bawcutt (1997) and Zolkos (2003) deals with the formation and management of captives. The published papers of conferences also go into some detail with regard to the technicalities involved. However, most of these writings seem to have been produced merely to promote particular territories as sites for captives, for example Wynn (1998), Noonan (1999), Costle and Schauer (2000), Kang (2002), and Sullivan and Swift (2002).

Writings on captive can also be found in several general textbooks on insurance and risk management such as Skipper (1998) and in occasional journal articles such as Skipper (1984, 1987, 1988), Ostermiller (1998), Moore (1999) and Bradford (2003). Kloman (1990), Bawcutt (1997), and Porat and Powers (1999) in the US have written extensively on the technical aspects of captives, dealing (from an American viewpoint) with such matters as the forrnation and management of captives, taxation and reinsurance. However, their writings are not based on organizations in the Asia-Pacific Region.

Damary (1976) studied the risk management practices of 80 European companies (under the auspices of the Geneva Association). The survey covered the use of captive insurance techniques. However, Damary dealt only with the motivations of

organizations briefly. In particular, Damary[7]s study concerned only European companies.

Several doctoral dissertations dealt with topics related to captives. Allen (1980) investigated the formation and management of captives and such matters as taxation and reinsurance. One of its primary concerns is an estimation of the numbers of British companies employing captive techniques. This is useful in gauging the size of the subject, as captives were not so common then, and serves as an indication of the reliability of data. Allen also studied the motivations and attitudes of companies and individuals working in industry and commerce who are directly affected by captives. He produced a classification system for the different forms of captive arrangements. However, Allen's study is from a British viewpoint only and was done more than 20 years ago.

Porat (1981) investigated the formation and management of captives and such matters as taxation, investment and reinsurance. However, Porat's study focused on companies with captives in Bermuda and was conducted more than 20 years ago. In particular, Porat's analysis is from an organizational and management theory viewpoint, an approach hardly common in the research of risk and insurance topics. Porat has also written extensively on the various aspects of captives. However, his writings are from an American viewpoint and might not apply to the organizations in the Asia-Pacific Region.

Talib (1985) attempted to forecast the number of US states with captive legislation, the percentage share of captives from the property/liability market in the US and the international market, the percentage share of captive premiums derived from reinsurance operations, and premiums derived from the primary underwriters for non-parent risks. An attempt was also made to forecast the year in which the Internal

Revenue Service would consider captives bona fide insurance companies and the percentage of outside underwriting required. An increase in all areas was indicated by the results of the study. While related to captives, Talib's findings are of little relevance to the current study and are not discussed here.

Hur (1993) suggested an insolvency prediction model for captives as an alternative to the insolvency surveillance system for the property-liability industry because many characteristics of captives differ from those of traditional insurers. Hur argued that state regulators are limited in the application of conventional surveillance techniques to captives. As an alternative to conventional surveillance techniques, his study proposed a logit model with seven variables to be applied to captives.

Lee (1994) analyzed the behavior within a group captive, including the use of full insurance as an optimal insurance coverage and the choices of efforts on loss control activities under moral hazard. Lee further examined loss control as a remedy to mitigate the moral hazard problem.

Kang (1998) considered a tax-deductible issue for captives that attracted the attention of both academic and industry researchers, in part due to several multi-million dollar tax court cases. To address this issue, a brief review of risk spreading and risk shifting in insurance was presented. Kang evaluated the tax deductibility issue for captive pools by focusing on a fundamental aspect of risk transfer and risk reduction in a pool of captives. Based on his analysis, Kang suggested that whether a risk pooling or transfer exists in the captive is determined by the proportion of its total pure risk that a captive transfers to the reinsurance pool and by the ownership size of the mutual reinsurance pool.

Although the above theses touched on captives, they focused on the American or British scenes. This study is the first academic study of captive as it applies to the

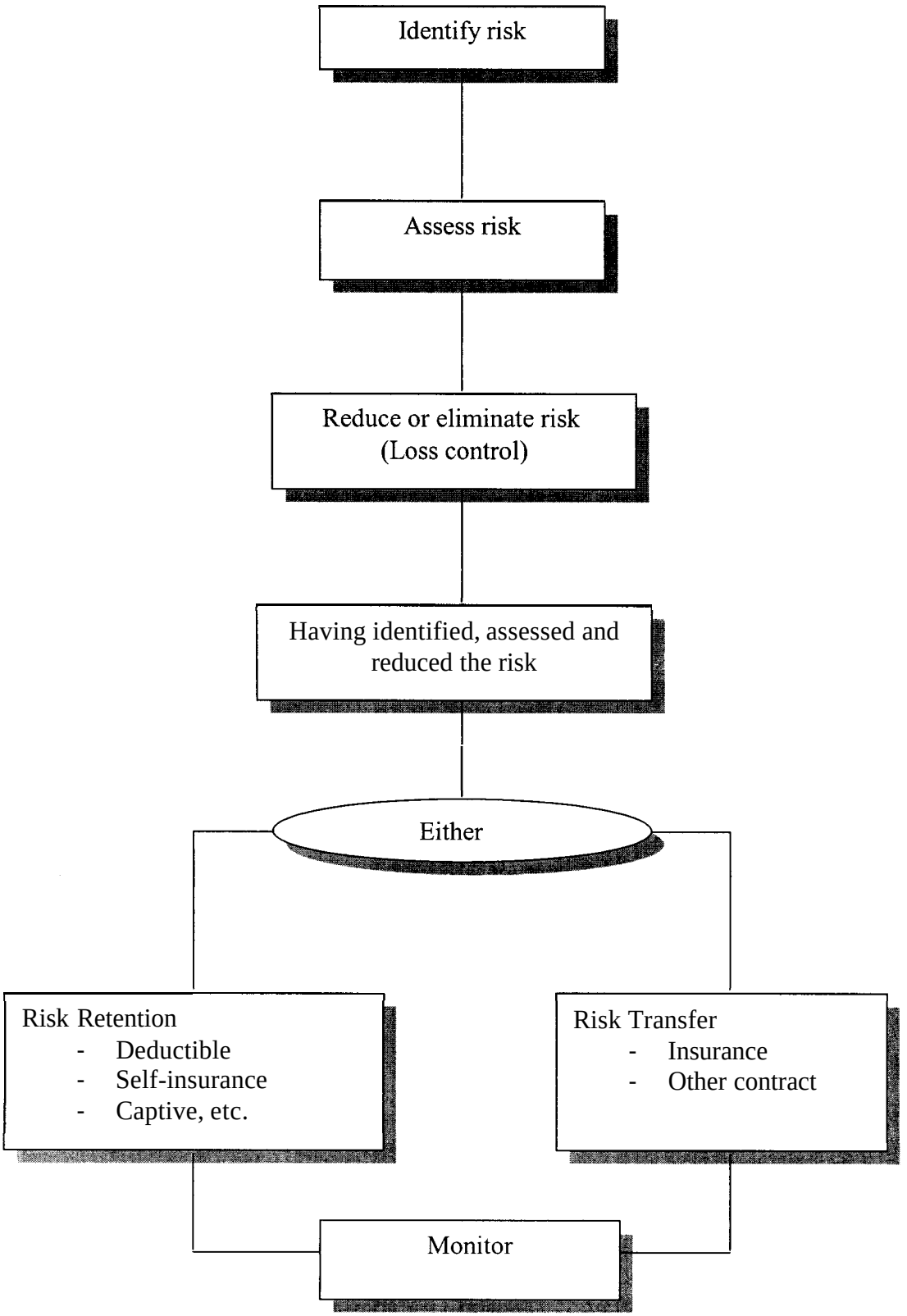
Asia-Pacific Region and analyses the factors that lead to the formation of captives in the Asia-Pacific Region. This research directly addresses the issues surrounding the formation and operation of captives from the perspective of the Asia-Pacific Region.

1.5 THE RISK MANAGEMENT PROCESS

It is worthwhile to briefly discuss the risk management process for an understanding as to why captives have become such a valuable tool of risk management. Textbooks on risk management such as Dorfman (2005) often offer procedures for risk management. A risk management procedure would normally contain the following elements as illustrated in Figure 1.1.

a) ***Risk*** *identification* – The risk management process starts with a thorough examination of the organization to establish all the significant risks it faces. Organizations are often unaware of many of the risks that they are exposed to and would benefit from such an exercise. It is imperative that all the significant risks faced by the organization are properly identified by a qualified person, especially when a captive is considered. If any significant risk were not identified, it would be retained by the organization unknowingly. This might result in financial problems when the loss occurs.

Figure 1 1 – The Risk Management Process



b) *Risk assessment* – After identifying the risks, the next step is to assess the likelihood of each event arising, and the impact on the organization if it does occur. Statistical estimates of loss frequencies and severities can be arrived at provided there is sufficient data. The issue of impact is concerned ultimately with whether the contingency is significant to warrant consideration. The two factors should be considered in combination.

The contingency with a low frequency of occurrence but with potential high severity would obviously be more serious than a contingency with high frequency of occurrence but low severity in impact. Because of transaction costs, it would be uneconomical to insure a contingency with high frequency of occurrence but low severity in impact.

For exposures with a low frequency of occurrence but with potential high severity, it is usually the reinsurers of the insurer who would pay the bulk of a major loss. A captive could also insure such exposures and reinsure to reinsurers. The insured would then enjoy the cash flow advantages instead of losing them by purchasing traditional insurance.

c) *Risk elimination or reduction* – Organizations would normally insure a risk if it is 'economical' to do so. However, this sometimes occurs even before any attempt has been made to eliminate or reduce the extent of the exposure. Organizations often try to reduce the probability of a risk exposure and the impact if it happens, before considering insurance, including captive insurance. This is because many of the losses resulting from an accident are not covered by insurance. These include lower morale and productivity following a loss, higher premium and more restrictive coverage in the following year's renewal,

management time in preparing documents for supporting claim submission and court appearance, loss of market share, etc.

d) *Risk transfer* - A risk can often be passed on to another party, normally by purchasing insurance or a risk transfer clause in a contract, for example between manufacturers and suppliers or between building owners and tenants. The traditional way of risk financing is to transfer the financial impact of a loss through insurance. However, many major organizations have now used or are exploring the use of captives (or other risk retention methods) as a more effective and efficient form of risk financing, as will be discussed in the subsequent chapters.

e) *Risk financing* – Risk avoidance, such as not manufacturing a certain product, may be impractical because of the loss of potential profit. In addition, not all risks can be economically transferred. It might also be decided that some residual risks are not significant and better financed internally. For significant risks, some form of risk financing is typically used to pay for the losses that might occur. This is usually done through purchasing (conventional) insurance or setting up a captive to finance the potential losses to ensure the survival of the organization.

f) *Risk monitoring* – Risk transfer and financing methods need monitoring to ensure the survival of the organization. It must be recognized that risks operate in a dynamic environment and, as with all effective systems of management, risk management cannot be a one-off exercise. It must be a continuous task to ensure that existing risk exposures are re-evaluated regularly and new, emerging risks are identified and analyzed, perhaps resulting from innovation or a change in circumstances. Monitoring the implemented risk management

program is therefore a vital step that will ensure that the basic objective of the organization to protect asset and financial resources is achieved and kept in focus.

It is obvious from the above brief discussion of the risk management process that organizations are exposed to a variety of risks. These in turn deserve different treatment. For example, there would normally be data from an organization's own records or the insurance industry that help to determine the potential of a fire occurring in the organization's premises. Similarly, it is possible to estimate the potential impact if a fire does occur. However, it is difficult to estimate the risk of a riot, as occurred in Indonesia. The nature of the risk and the absence of a discernible pattern would mean the potential impact could not be calculated with much confidence.

Risks that produce losses of determinable value can be subject to statistical calculation and might be reduced. On the other hand, risks whose outcomes cannot be calculated with much confidence can be subject only to broad estimation. Conventional insurance is normally available for the first type of risks only. Captives are often formed to insure the second type of risks, as well as insuring the first type of risks.

1.6 SELF-INSURANCE FUNDING

Where losses are independent and occur in large numbers so that their incidence is fairly easy to predict statistically, it normally is beneficial for an organization to pay for such losses out of its own fund, rather than to insure them conventionally. Purchasing conventional insurance against such losses results in a situation of swapping dollars.

The combined profit and expense ratios of insurance companies often approach 40 per cent of premiums. So a company can save by self-insurance. There are further savings as the insureds do not have to incur the operating costs of the conventional insurers such as the need for sales staff. Administrative saving also are likely, for example, by settling losses within an organization rather than the usual cumbersome insurance claim procedures. In addition, insurers often insure large risks with deductibles, that is insurers pay losses only above a set amount. It normally benefits an organization to fund the deductible internally, which is effectively the risk retained by the organization. The deductible is treated the same as a small risk.

However, several difficulties face organizations that wish to adopt self-insurance funding. First, if self-insurance funding is adopted, large reserve funds may be required to ensure that losses are met. Second, transfers to a self-insurance fund are not considered as insurance premiums for tax purposes. This factor alone has limited the use of self-insurance. Hence some organizations form their own insurance company to finance their risks. An insurance company set up for such purposes is commonly called a 'captive '. However, a captive does not always result from a self-insurance fund. Some companies have adopted self-insurance funding before setting up their captives.

A captive can be viewed as a self-insurance fund as money to finance losses is kept within an organization in both cases. However, payments to captives are legally 'premiums', and payments out legally 'claims'. Captives can offer additional advantages to an organization, which are not available through self-insurance funds. These will be discussed in later chapters.

Many captives start to operate by funding deductibles. In situations where the rates charged by insurers seem high or the desired coverage is not available, an

organization might also self-insure the whole of such risks, including large risks. As there will be the risk of large losses rendering the self-insurance fund insufficient to pay for the losses, particularly in the early years before sufficient fund is built up, additional risk financing is necessary. This can normally be achieved by way of reinsurance through a captive. This is another common reason for forming a captive, which is to have access to reinsurance. After a few years when the captives have built up their funds, they can then retain more risks.

A captive is essentially a risk-financing tool available to risk managers. Its primary purpose is to insure or reinsure the risks of the group of which it is a part. Captives changed the face of the insurance industry in the 20th century. From the 1960's to present time, interest in and the use of captive have grown. According to the CRADD Captive Review Annual Domicile Directory 2005 [CRADD, 2005], captives have hit the mainstream and are still in its ascendancy. Captives now provide vast amounts of business insurance coverage that was once monopolized by traditional commercial insurance companies.

1.7 DEFINITION OF CAPTIVE ADOPTED

Reiss first used the term captive in 1953. Since then, the term captive became widely used but its meaning has, to some extent, been broadened to include not only single parent ownership but traditional association business, jointly owned insurance ventures and risk purchasing groups as well as other risk retention groups.

There have been many attempts to define a captive. For example, Hare and Smetna (1972) defined a captive as "a wholly owned insurance subsidiary of an individual company or industry that has been set up to fulfill a complementary corporate need - the financing of some portion of the risks of its owner or owners on a

more economical basis, as opposed to an independently operating company which offers its product to the public". For this thesis, the definition provided by Scordis and Porat (1998) is adopted: Captive insurers are "formal insurance subsidiaries established to ***primarily*** finance risks of their parent organizations". This definition distinguished a captive from one that an organization sets up as a normal enterprise such as a conventional insurance company owned by banks and large organizations. Several points are essential to an understanding of what a captive is and the focus of this study:

(a) A captive may be wholly owned by one company or may be owned by several companies jointly. Many companies have joined to form captives, the participants often being members of a trade association. One good example is Oil Insurance Limited set up by the American Petroleum Institute.

(b) A captive is an insurance subsidiary.

(c) It is a properly constituted insurance company that charges premiums, issues policies, pays claims, purchases reinsurance, etc. in the same way as a conventional insurance company.

(d) A captive is primarily concerned with the risks of its owners, at least during the initial years of its existence. This differentiates a captive from a conventional insurance company set up as a subsidiary company to offer insurance to the public. Most conventional insurance companies are set up in this way.

1.8 TYPES OF CAPTIVES COVERED BY THIS STUDY

This study adopts the following commonly accepted terms to differentiate the different types of captives:

a) Pure captive;

b) Industry captive;

c) Association captive;

d) Group captive; and

e) Open market or broad captives.

An insurance subsidiary is a *pure captive* if it is wholly owned by and insures only the risks of its parent and affiliates, as are all the captives that are managed in Singapore. The focus of this study is on pure captives in the Asia-Pacific Region. A pure captive can later develop to insure outside risks. It is then a mixed or market captive. It can develop further to become part of the established insurance or reinsurance market. In fact some captives have developed into very large commercial insurance or reinsurance companies.

An *industry captive* is one established by organizations in a particular industry. This is usually because the industry has a special insurance problem such as the oil or medical industries. An *association captive* is run by or for a trade association and insures the risks of the member organizations of the sponsoring association and its affiliates.

A *group captive* is set up jointly by two or more organizations that have no industry or association links. Smaller companies not ready to have their own captive can also set up a Joint Venture Captive. These companies share their retention, operational costs and profits or losses and are common among specialized joint

ventures such as oil companies and hospitals. Alternatively, a company can rent a captive instead of going through the trouble of setting up its own captive. In this case, there is no sharing of retention with other participants. Each participant keeps separate accounts but enjoys the economy in overall administration.

Some conventional insurance companies are set up by non-insurance companies to insure the public and also act, in varying degrees, as captives to the companies that own them. Such insurance subsidiaries may display all the features of captives when dealing with the risks of the parent companies and are often referred to as open-market or broad captives and are not the focus of this study. Also companies set up subsidiaries to administer pension funds. Pensions are a specialized field outside the scope of the study.

Traditionally, ship-owners insure certain risks not covered by their marine hull policy with Protection and Indemnity (P & I) Clubs. These are mutual associations of ship-owners similar to mutual insurance companies. However they have the power to raise further levies from members in the event of a deficit, unlike most mutual insurance companies that either cannot or chose not to do so. Although such P & I Clubs and mutuals are set up by and for a limited group of people or organizations, they are set up mainly to insure parties outside the original group. Many organizations other than the original founders insure with P & I Clubs, and they view them in the same way as conventional insurance companies. P & I Clubs are normally not considered as captives just as the many specialist or composite mutual insurance companies that exist. They are therefore not the focus of this study.

1.9 EXTENT OF USE OF CAPTIVES IN THE ASIA-PACIFIC REGION

There is no official source of information on captives, and data on the exact number of captives are non-existent. Tillingghast-Towers Perrin, in association with A.M. Best Company, publishes the monthly Captive Insurance Company Reports covering worldwide developments in the captive market and the yearly Captive Insurance Company Directory. However, these can provide only an educated estimate on the number of captives in most captive domiciles. Details of the captives from the Asia-Pacific Region listed in Appendix A are extracted from the 2005 directory and other sources. It should be noted that these are not official data from the respective captive authorities, which are reluctant to release official data except those in the public domain, which is quite limited and consists mainly of the names of the captives, without disclosing other important information such as the name of the parent companies.

1.9.1 Captives from Japan

The Asia-Pacific Region's most developed captive markets are Australia and Japan, the two most economically developed countries in the region. Appendix A1 shows 81 captives with Japanese owners. However, many of the parent companies are not pure Japanese companies, but are joint ventures with US companies or US subsidiaries.

Interviews with the captive managers[8] revealed that Japanese companies form captives for the same reasons as found in other markets. They also emphasized the global approach of Japanese business just as in other multinationals that use their captives to centralize information and insurance programs.

Table 1.1 – Domiciles of Japanese captives[9]

Domicile	*Number of captives*
Bermuda	26
Singapore	12
Ireland	15
Hawaii	7
Luxembourg	5
Cayman	3
Guernsey	3
Hong Kong	2
Isle of Man	2
Switzerland	2
Vermont	2
Japan	1
Arizona	1
Total	81

[8] To increase responses and facilitate frank discussions, no names of individuals and their organizations are disclosed specifically. However, individual names and the names of their companies are stated in the acknowledgement.

[9] Extracted from CRADD Captive Review Annual Domicile Directory, 2005 Edition.

Table 1.1 shows that Singapore is an important domicile for Japanese captives. One reason for Japanese captives to domicile in Singapore is that they seek domiciles whose income tax rates are greater than 25 per cent to avoid consolidation of the captive income with the Japanese parent's income in Japan. Japanese companies are taxed on their worldwide income when it is repatriated to Japan. As long as the captive pays income tax of more than 25 per cent, the balance is not taxed until and unless it is repatriated.

Under the Japanese Anti-Tax Haven Legislation, any country with a tax rate above 25 per cent is exempted from accrual tax in Japan. Countries with tax rate below 25 per cent are considered tax havens and are subject to the accrual tax. As the corporate tax in Japan is 50 per cent, Japanese captives in Singapore can choose to pay the full corporate tax (reduced from 26 per cent to 25.5 per cent in 2000) and be exempted from paying accrual tax. On the other hand, if Japanese captives opt for the 10 per cent concessionary tax in Singapore, they must pay the difference of 40 per cent in Japan.

The Singapore tax authority announced a corporate tax rebate of 10 per cent in 1999. This reduced the effective tax rate from 26 per cent in 1999 to 23.4 per cent, which is less than the required minimum tax rate of 25 per cent for Japanese companies to ensure they do not suffer tax penalties in Japan. A few Japanese captives have since been de-registered, perhaps because of the perceived consequences of the reduction of effective tax rate in Singapore to below 25 per cent. However, the Japanese captives could choose not to accept the 10 per cent corporate tax rebate and be exempted from paying accrual tax.

The Singapore government has gradually been reducing its corporate tax rate, and it is now 22 per cent. Not surprisingly, more Japanese captives have been de-

registered and new ones are being set up elsewhere, especially in Hawaii, which has been aggressively courting them. Even though captives are not primarily set up for tax reasons, tax remains an important consideration for the decision as to *where* the captives are to be based, just as in the case for other type of operations.

1.9.2 Captives from Australia

Table 1.2 shows that Singapore has the most Australian captives. Appendix **A2** shows that there are at least 76 known captives from Australia.

Table 1.2 – Number of Australian captives at each domicile[10]

Domicile	*Number of Australian captives*
Singapore	44
Australia	10
Bermuda	8
Cayman	4
Guernsey	3
Barbados	2
Ireland	2
Isle of Man	1
Jersey	1
Luxembourg	1
Total	76

[10] Extracted from CRADD Captive Review Annual Domicile Directory, 2005 Edition.

1.9.3 Captives from China

As early as the 1930s, when Singapore was still a British colony, Shanghai was the financial and insurance centre of the Asian region. By 1937, before the war with Japan, 166 foreign insurance companies had set up in Shanghai (including agent institutes). Before the Communist Party liberated Shanghai in 1949, 238 insurance companies were operating, including The People's Insurance Company of China (PICC), which was established in 1949 with the fund of the Republic of china.[11] However, during the Cultural Revolution, the Chinese government stopped operations of all insurance enterprises. It was not until 1979, that PICC resumed business, maintaining a monopoly until 1986. Since then, the Chinese insurance sector has achieved an average annual growth rate of 40 per cent. With the deepening of the reform and receptivity to foreign culture in the last few years, changes have taken place in China's insurance market. Several insurance companies have been established, bringing some competition for the insurance business. China will continue to open its insurance sector step by step given its commitments to the World Trade Organization (WTO).

Several factors contribute to a low awareness of insurance in China. In the past, the government offered "from cradle to tomb" welfare to all its workers. In addition, most factories and plants were owned by the states and many enterprises are not wholly responsible for their performance and their physical risks. This makes it difficult to cultivate a sense of risk management, which remains at a low level. Because of the low risk management culture, captive has not been recognized as a form of better risk financing at the nation-wide level. However, captive is not a

[11] Source: "China Daily", 21 February 1996.

completely new concept in China. Two insurance companies of a captive nature have been incorporated in Northwest China and Shanghai.

Xinjiang Construction Unit Insurance Company (Xinjiang Insurance)[12] was established in 1986 in Xinjiang Autonomic Region in the Northwest of China. Its establishment marked the reform of the insurance sector and broke up the PICC monopoly. Xinjiang Construction Unit, the parent of the insurance subsidiary, is a unit in the People's Liberation Army (PLA) of China. Its task was not fighting - but to cultivate a vast remote wasteland in north Xinjiang and to develop it into agricultural land or livestock farms. Later on, it developed into a large and decentralized political and economic entity engaging in agricultural and farming products for profit. The unit has about four million employees, even larger than that of Singapore's total population.

Xinjiang Insurance was originally an experiment to underwrite the nation's agricultural insurance, which has high loss ratios. It was set up under the discretion of the central government to underwrite agriculture and farming insurance policies for its parent. An important point to note is that Xinjiang Insurance was set up before the enactment of the Insurance Law in 1996 (the Act). In the Act, it is clearly stipulated that no other entity can conduct any insurance business other than an insurance company. Hence, the Act prevents any other commercial institutions from forming their own insurance company or captive for accepting risks from themselves or others. This is another obstacle to the growth of captives in China.

Volkswagen Insurance Company (Volkswagen Insurance) is a captive set up with the expertise from its overseas parent company - Germany's Volkswagen

[12]Formerly known as Xinjiang Construction Unit Agriculture and Pastoral Insurance Company.

Automobile. Its Chinese parent company is the Shanghai Volkswagen Co. Ltd., the largest foreign joint venture in China. It is among the earliest joint ventures in China.

With the opening-up of China's insurance market and inflow of foreign capital, top Chinese executives will come to recognize the importance of captives. Many captive managers interviewed agreed that the size of the parent company has been the most significant factor in determining the use of a captive. An analysis of the Top 500 companies in China easily shows the potential of the Chinese captive market.

The largest Chinese companies are mainly from basic capital-intensive industries such as power, metallurgy, oil refinery, chemical and the engineering industry. Experience has shown that such companies are the most likely companies to form captives, and many of the top 500 Chinese companies are in the capital-intensive industries.

In comparison with other insurance markets such as Singapore, competition among conventional insurers is less stiff, which is why a higher rate is charged. Given such higher rates, Chinese companies could save much by setting up captives, if they can acquire the foreign experience and expertise. However, management and ownership of the state-owned enterprises are not separated and this is a major consideration. It is impossible to set up a captive without the approval and full support from the enterprises' supervisory authority. One way to get around this obstacle is to encourage the government authority that rules the enterprise to form its own captive within its own vertical organization. In fact, some ministries and departments under the National Council have started to research in the feasibility of setting up their captives in this way. Good examples are the Ministry of Power (several of top companies are power companies and they are under the charge of the Ministry of Power) and the Ministry of Construction. Both industrial sectors are well known for their profitable

incomes. Captives could provide a good alternative to save premiums, besides other advantages.

Another obstacle is the opaque regulations and restrictive controls on the financial sector. Regulations are presently fixed and disposed without any clear governing rules or regulations. A few companies from Hong Kong already had captives before Hong Kong was returned to China, and Hong Kong has been trying to develop its captive domicile. Appendix A3 lists 21 captives from Hong Kong. Table 1.3 shows that they are all domiciled outside Hong Kong.

Table 1.3 – Domiciles of Hong Kong captives[13]

Domicile	*Number of captives*
Bermuda	16
Bahamas	2
Cayman	3
Total	21

1.9.4 Captives from New Zealand

Three major companies in New Zealand have set up captives, as shown in Appendix A4. However, the potential for more captives is limited because there are not many large New Zealand companies.

[13] Extracted from CRADD Captive Review Annual Domicile Directory 2005

1.9.5 Captives from Taiwan

Taiwan's insurance industry was officially established as a government-owned entity at the end of World War **II** when the central government of the Republic of China took over the governing of Taiwan from the Japanese. By 1963, 14 domestic general insurance companies and eight domestic life insurance companies were operating in Taiwan, but the market remained closed to foreign entrants and was regulated strictly. Appendix A5 lists four Taiwanese captives. When the Taiwanese market is fully liberalized, there should be more Taiwanese captives.

1.9.6 Captives from Korea

The situation of South Korea is similar to Japan. However, there is only one Korean captive, as shown in Appendix A6. One of the key themes of the government's program is to end the close relationships between government and big business. Another significant change is encouraging the development of more competitive distribution channels. The above changes would bring about more captives in the years to come.

1.9.7 Captives from ASEAN

Some of the countries in the Association of Southeast Asian Nations (ASEAN) were among the worst hit by the Asian financial crisis. Only a few major corporations in some of these countries such as Singapore and the Philippines have set up captives, as shown in Appendix A7 and **A8.** Market liberalization would be inevitable but the pace of change will vary by country, and so would the growth of captives from these countries.

1.10 CONCLUSION

There are currently few captives in the region because of the heavy state control of insurance markets, which has inhibited maturation of the markets and creation of captives in many Asian countries. Many restrictions hinder captive development, particularly in an offshore environment.

Although the number of captives in the region is low, as the markets mature and the necessity and value of risk management techniques become more self-evident, use of captives should increase. In addition, in some countries, insurance costs did not seem very significant in overall terms. Hence, corporations did not bother about something that was a very small percentage of expenses. However, all has changed since the Asian financial crisis.

Another reason for the low number of captives is the dominance of domestic insurers. In several markets, buyers did as insurers told them to, and that is do not form captives. There is also a lack of risk management education and many managers here are conservative. Many CFOs in the region, except Australia, still do not have a comfort zone for risk retention under a captive.

The low number of captives could also be due to the lack of risk managers. Among executives and managers of companies in the region other than in Australia, risk managers are not common. However, knowledge of risk management and captives is increasing in the region. Further, organizations are becoming more concerned about the financial security of insurers, following the financial crisis where several insurance companies have become insolvent. Large organizations have to question why they should be transferring risk to an insurer that may not be around in five years' time or to an insurer that is a smaller organization than the insurance buyer.

Some organizations are also questioning the quality of service they receive from their insurers, which they may be able to do better themselves. Given the pressure on margins, characteristic of many deregulated and liberalized insurance markets and the considerable volatility of results, there is potential for captives. With the greater focus on shareholders' value and the change this brings to the risk management culture, corporations start to seek financial protection against major swings that can upset shareholder and market confidence, be it caused by insurable or non-insurable risks. Against this backdrop, there is potential for captives to gain acceptance and popularity in this region. However, it is also important to recognize the disparity of the markets in this region. The forces driving demand for captives in each country are different - depending on whether the economy involved is a highly developed one like Australia or one of an emerging market where most of the countries belong.

The actual pace of captive development will depend on how fast the market opens up, how receptive regulators are towards captives, and the ability of the organizations to move up the risk management learning curve. The number of captives in the region, other than Japan, would probably not increase dramatically in the near future. In the long term, China is expected to produce the most captives in the region.

1.11 OVERVIEW OF REPORT

The first chapter describes the background of captives in the world, the significance of the research, the literature review, the definition of captive adopted in this study, the types of captives and the scope of captives covered by this study, and the extent of the use of captives in the region. Chapter 2 discusses the results of the study on the effect of captives on stock returns and systematic risks. Chapter 3 discusses the results of the cumulative abnormal return (CAR) model to analyze the

stock returns of parent companies during the event period before and after the formation of a captive to see whether the results are different from that obtained by the paired-t/Wilcoxon Signed-Rank tests conducted in Chapter 2. Chapter 4 discusses the results of the study on the analysis of factors affecting the formation of captives. Chapter 5 discusses the feasibility of having a captive. Chapter 6 discusses the practical considerations in the setting up of a captive and the roles and functions of the captive manager. Chapter 7 discusses the practical considerations in the choice of the captive domiciles. Chapter 8 discusses the working relation between the insurance industry and captives. Chapter 9 provides concluding remarks for the thesis.

CHAPTER TWO

EFFECT OF CAPTIVES ON STOCK RETURNS AND SYSTEMATIC RISKS

2.1 INTRODUCTION

This study encompasses two principle objectives. The first objective is to analyze any significant differences in the market returns of parent companies based in the Asia-Pacific Region prior to and after the formation of the captive. The second objective is to investigate whether the formation of captive subsidiaries has any effect on the betas (i.e. systematic risk) of parent companies. The analysis of market returns and systematic risks is also examined across industries and across countries.

There has not been a similar study done on the Asia-Pacific Region based parent companies. The focus of this study is to analyze if Asia-Pacific parent companies behave differently from their US and UK counterparts. The results of this study could be a useful benchmark to studies in the US [Cross, Davidson and Thornton, 1986, 1988; Wood, Glascock and Bigbee, 1988; Diallo and Kim, 1989; Yeon Hur and Young Na, 1999]and UK [Adams and Hillier, 2000].

2.2 COMPOSITION OF SAMPLE

The activities of insurance companies throughout the world are subject to supervision in the interest of consumer protection. However, this does not apply to the same degree to captives, as they are generally wholly owned subsidiaries established for managing the parent organizations' risk exposures and providing a more efficient means of financing risk. Information on captives is therefore fragmented and difficult to obtain. In addition, most regulators do not release much detail on captives under their jurisdictions.

The only data that are available are those belonging to the parent companies of the captives. The immediate problem is the correct identification of the parent companies. Once we are able to correctly identify the parent companies, we can then proceed to collect information about the parent companies for our studies.

As mentioned in chapter 1, Best's Captive Directory is possibly the most comprehensive listing of all captives domiciled throughout the world. Even then, this is not official information and can serve only as a guide. Moreover, the information is not complete. For example, many of the names of the parent companies are simply stated as 'a bank', 'a shipping company', etc. Many of the names are also not accurate. The next problem is the difficulty in collecting the data required for the study, as they are not available in one single database.

The empirical analysis was based on a sample collected from Best's Captive Directory. The focus was on parent companies in the Asia-Pacific Region with captives. Subject to information availability, we could identify 52 parent companies that satisfy the following two conditions: (1) they can be identified with confidence, and (2) they are publicly listed and their share prices are obtainable for the period under investigation. The majority of these captives were formed between 1983 and 1999.

Data were collected from two main sources: Thomson DataStream and Bloomberg. Consistent with previous US-based and UK-based captive studies[14], the captives' formation dates were taken as the relevant dates for the purpose of this study. The first set of data comprised of the daily stock prices 120 trading days before and after the date of the formation of captives. With these prices, the expected stock

[14] US-based studies by Wood, Glascock and Bigbee (1988), Cross, Davidson and Thornton, (1986, 1988), and Diallo and Kim (1989) and UK-based studies by Adams and Hillier (2000).

returns before and after the captive formations were calculated. The composition of the sample is shown in Table 2.1.

Unfortunately, a complete data set covering all parent companies from the Asia-Pacific Region was not available. Despite that, the sample included 32 per cent[15] of the total estimated number of listed parent companies from the Asia-Pacific Region with captives. Hence, the sample tested was considered a reasonable representation of the total population of captive parents from the Asia-Pacific Region.

Table 2.1 – Composition of Sample for Study 1

Country	Number of Parent Companies chosen	% of Sample
Japan	28	53.8
Australia	16	30.8
Hong Kong	2	3.8
New Zealand	2	3.8
Taiwan	2	3.8
Korea	1	1.9
Philippines	1	1.9
	52	

[15] 52 out of about 164 parent companies from the Asia-Pacific Region with captives as estimated by Best's Captive Directory, 2000 edition.

2.3 MARKET INDICES

The second set of data consisted of the daily market indices 120 trading days before and after the date of the formation of captives for the country in which the parent companies were located. Capitalization weighted market returns were selected, as their returns were consistent with the theoretical market series of market returns.[16] The expected market returns before and after the formation of the captives were calculated for each parent company. Table 2.2 shows the market indices that were taken for the respective countries.

Table 2.2 – Market Indices Used

Country	Market Index
Australia	ASX **All** Ordinaries Index
Hong Kong	Hang Seng Index
Japan	Nikkei 300 Index OSE
Korea	Korea Composite Index
New Zealand	NZSE All Ordinaries Index
Philippines	Philippines Composite Index
Taiwan	Taiwan Weighted Index

[16] Reilly and Brown (2000), pp. 301

2.4 RISK FREE RATES

The third set of data contained the daily risk-free rates, 120 trading days before and after the date of the formation of captives, for the country in which their parent companies were located. The average rates before and after the captive formations were calculated for each parent company.

Table 2.3 shows the yields that were taken for the respective countries to represent their risk-free rates. Government bonds and treasury notes are good representations of risk-free rates as they are guaranteed by the government. As the period for 120 trading days before and after the date of formation is approximately one year, the yield with the maturity period closest to that was chosen.

Table 2.3 – Yields Used

Country	*Yields Chosen*
Australia	Australian Treasury Note
Hong Kong	Hong Kong Prime
Japan	Japan Benchmark Bond
Korea	Korea Monetary Stable Bond
New Zealand	New Zealand Government Bond Yield
Philippines	Philippine Treasury Bill
Taiwan	Taiwan Prime First Bank

2.5 BETA MODELLING

The Capital Asset Pricing Model (CAPM) was adopted for beta modeling, as it is a common measurement used in the analysis of capital investment projects and stock investments. CAPM was the chosen instrument in this study as it was also used in two different publications: Merril Lynch's Security Risk Evaluation Report and Value Line Investment Survey.[17]

Previous papers have also shown support for CAPM[18] implying the relevance of the model. Instead of an absolute measure of risk, CAPM measures risk relative to that of the market norm. This makes it more useful than the standard deviation or inter-quartile range. With the three sets of data collected from DataStream and Bloomberg keyed into Excel, the beta values were computed using the following CAPM equation:

$$E(R_i) = R_f + \beta \{E(R_m) - R_f\}$$ [19]

$E(R_i)$ = the expected stock return on share i

R_f = the risk-free rate

$E(R_m)$ = the expected market return

β = the beta of share i

Beta is a measure of systematic risk that is based on a stock's covariance with the market portfolio. It indicates the variability of returns that is due to macroeconomic factors, which affects all risky assets. As the variability affects all risky assets, it cannot be eliminated through diversification. Generally, the more stocks there are for a longer period in the portfolio, the more stable the beta value becomes.

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[17] Reilly and Brown (2000), pp. 319.
[18] Reilly and Brown (2000), pp. 323.
[19] Day (2001), p.173.

2.6 DEVELOPMENT OF THE HYPOTHESES

2.6.1 Hypothesis of Stock Returns and Captive Formations

This study investigates the reaction of the stock returns of the Asia-Pacific parent companies to the establishment of a captive subsidiary. The formation of captives confers business benefits to the parent companies, such as providing risk protection and offering flexibility. Barille (1979), Loy and Pertl(1982) and Doherty (1985) argued that the formation of captives should have enabled parent companies to have achieved important financial management advantages, such as better loss control, more efficient tax management, improved cash flows from reduced risk financing costs and enhanced risk management capacity and flexibility. This leads to the belief that, other things being equal, the formation of captives should have a positive impact on equity prices (cum dividend) and improve the overall risk profile of the parent corporations.

The formation of a captive should also improve risk management procedures and encourage managers to enhance their loss control. This is likely to have a positive effect on stockholders value. Mayers and Smith (1982) contended that risk was transferred from inefficient to more efficient risk bearers and that the variability of substantial future cash flows was reduced. With insurance, risks could be more efficiently diversified at insignificant costs. In fact, there was statistical evidence (albeit weak) supporting a positive relation between security returns and the formation of captives in the US corporate sectors [Cross, Davidson and Thornton, 1986, 1988].

Scott and Adams (1994) reported that an important benefit of forming a captive was that it encouraged managers in the corporate group to better control their loss probabilities, thus reducing the volatility of cash flows in order to enhance stockholder value. This is of particular significance to public-listed companies as it effectively

signals to capital markets that their business risks are well managed and enables them to reduce their cost of capital.

According to Brealey and Myers (1996) "the key point of risk management is not simply to reduce [organizational] risk but to add value." However, there are also contentions as to whether the formations of captives conferred any positive effects on the values of the parents' market returns. Porat (1982a) argued that managers could improve their organizational specific utility by investing generated cash flows in captives. This can be at the expense of stockholders' wealth, particularly if resources can instead be invested in alternative projects with higher net present value cash flows.

Furthermore, the formation of a captive involves substantial capital investments and high operating costs. Kloman and Rosenbaum (1982) argued that the captive investment might not necessarily yield a positive net present value nor add to shareholders value. Resources could also have been invested in alternative projects which could have generated equally as much shareholder value if not more.

Mayers and Smith (1982) noted that, in frictionless capital markets, stockholders would be disinclined to insure their business activities because they could more effectively diversify against insurable risks at negligible costs by holding balanced portfolios of investments. In fact, empirical evidence cited in the US based captive studies conducted by Wood, Glascock and Bigbee (1988) and Diallo and Kim (1989) supported the contention that stockholders and prospective investors would at best be indifferent, or at worst hostile, to the formation of a captive. This indicated that equity prices would not respond positively to the formation of a captive.

Diallo and Kim (1989) further argued that there was an absence of positive benefits under the asymmetric information hypothesis and wealth transfer hypothesis. They pointed out that managers frequently had large proportions of their wealth tied-up

as organizational specific human capital and as such, it was them, and not the owners, who had incentives to establish captives to reduce the total risk profile of the corporate group.

Knight and Pretty (1996) suggested that a firm's shareholder value was independent of insurance. Despite the ability to diversify risks, managers may have been inefficient bearers of risk, having chosen to improve their personal utility at the expense of shareholders wealth. Moreover, if the decision on the formation of a captive was actually to help promote private expense preferences of managers [May (1995); Schmit and Roth (1990); Scordis and Porat (1998)], then the linkage between stock returns and corporate risk was unlikely to be favorable.

Bawcutt (1997) argued that one reason why the formation of a captive may not have represented a sound investment was that managers might not have been overseeing captives in a way that would have enhanced stockholder utility. In other words, captives may not achieve the expected cash flow advantages from the better management of group company risk and conversely, offer increased opportunities for aberrant managerial behavior (e.g. excessive perquisite consumption). Bawcutt also argued that managers might not have necessarily operated their captives in a way that supplemented stockholder value. This leads to testing the following hypotheses:

H_0: *There is no difference in the average stock return of parent companies before and after the formation of captive*

H_1: *There is a difference in the average stock return of parent companies before and after the formation of captive*

2.6.2 Hypothesis of Stock Returns in Different Industries

The next step attempts to determine whether, upon forming a captive, the industry of a parent company affects its stock returns. The benefits of a captive may be neutralized by the increased costs and information irregularities. The initial and operating costs are also inflated. Barnea, Haugen and Senbet (1985) stated that as companies get larger, information irregularities between parties were worsened. Larger industries tend to have wide global operations. Hence, efficiently managing losses with traditional risk management methods can be rather difficult. However, due to different products offered, different growth rates and different technology, a captive investment can have varied effects among industries. Larger industries with a wide scope of operations can generate greater cost savings upon the formation of a captive. The following hypotheses are therefore tested:

H_0: *There is no difference in the median stock return of parent companies in dtfferent industries, before and after the formation of captive.*

H_1: *There is a difference in the median stock return of parent companies in different industries, before and after the formation of captive.*

2.6.3 Hypothesis of Stock Returns in Different Countries

Regardless of the location of the parent, a captive should help to transfer risks and encourage managers to better control their loss probabilities. The captive should therefore reduce risk and enhance stockholder value. There is no limitation on the captive in regard to the location of the parent company. However, in different countries, there are different cultures, ethics and practices, and different professional

training, experience and managerial attitudes. These may lead to different results from the formation of a captive. The following hypotheses are therefore tested:

H_0: *There is no difference in the median stock return of parent companies in different countries, before and after the formation of captive*

H_1: *There is a difference in the median stock return of parent companies in different countries, before and after the formation of captive.*

2.6.4 Hypothesis of Beta and Captive Formations

Studies such as Barille (1979) and Scott and Adams (1994) suggested that one of the main motives for forming a captive was to insure risks that traditional insurance markets did not completely cover or cover at all, such as patent suits, environmental catastrophe liabilities, terrorist risks and medical malpractice insurance. As a result, the formation of captives was encouraged to successfully reduce these risks. A captive is a risk-financing instrument that controls systematic as well as non-systematic risks. The beta represents systematic risks, which should be reduced upon the captive formation.

Mayers and Smith (1982) argued that the existence of market imperfections drove managers to undertake insurance as a pre-loss financing decision. They argued that forming captives enhances loss control, reduces taxation liabilities (by the deduction of insurance premiums from taxable annual earnings) and minimizes the variability of future cash flows. These attributes are particularly useful for public-listed companies because they effectively indicate that business risks are being efficiently managed and thus enabling reduction in the cost of capital.

In addition, the financing of self-insured risks through a captive can be an efficient and effective alternative for alleviating business risks, which either cannot be completely covered in the direct insurance market or fully diversified by owners of parent companies. This is due to market imperfections such as high transaction costs, information asymmetries and the indivisibility of assets [Cross, Davidson and Thornton, 1986].

Bawcutt (1997) contended that financial reinsurance obtained through a captive insurer was one such mechanism for meeting the risk management and capital needs for international corporations with uninsurable exposures. However, upon forming a captive, certain difficulties arise. Reasonable premium rates need to be established and managers must appropriately transfer non-diversifiable risks to the captive. A US study by Loy and Pert1 (1982) found that captives were inefficient risk transfer vehicles and that they often held retention levels that were comparable to companies without a captive.

Captive managers can also be reluctant to invest and underwrite complex risks due to the high opportunity costs involved. Having a captive will therefore not necessarily result in a reduction of risk levels. Wood, Glascock and Bigbee (1988) argued that captives provide little or no increased control over the risk management function because it was possible that UK-owned parent corporations retained much of the loss exposure prior to the formation of captives.

According to Borch (1990), few captives could underwrite sufficient policies to efficiently spread risks. More importantly, it may be that only unsystematic risks are transferred to reinsurance companies instead of systematic risks. Before the reinsurance process, parent companies incur some costs upon the establishment of captives. This limits the potential benefits of captive formations. Another problem is

captives may insure only inconsequential corporate risks. Doherty and Dionne (1993) suggested that parent companies might take into account other risk transfer techniques that managed systematic risks more effectively.

Bawcutt (1997) argued that many captives, particularly those outside of the US corporate sector, were not sophisticated risk financing vehicles. Also observed was that few non-US captives were actively involved in the management and economic control of liability exposures and other potentially non-diversifiable risks.

In a UK study, Adams and Hillier (2000) contended that the formation of captives did not cause a significant change in systematic risks. They proposed that captives may have been too small to have a major impact on the overall systematic risk profile of the corporate group and were inefficient at managing risks as compared to the commercial insurance sector. The following hypotheses are therefore tested:

H_0: *There is no difference in the average systematic risk of parent companies before and after the formation of captive*

H_1: *There is a difference in the average systematic risk of parent companies before and after the formation of captive*

2.6.5 Hypothesis of Beta in Different Industries

Despite different management procedures and ethics, the underlying risks faced by companies are basically the same. Adams and Hillier (2000) suggested that industry-specific risks were unlikely to change upon parents' formation of a captive. However, as mentioned previously, different industries undergo different operations and therefore experience different risks. As larger industries tend to have wider global operations, the risks faced are larger and more varied. Business risks are not easily

diversified using conventional insurance markets, thus necessitating the formation of captives. The following hypotheses are therefore tested:

H_0: *There is no difference in the median systematic risk of parent companies in different industries, before and after the formation of captive*

H_1: *There is a difference in the median systematic risk of parent companies in different industries, before and after the formation of captive*

2.6.6 Hypothesis of Beta in Different Countries

Similar to different industries having different operations, different countries might have different cultures and work ethics. The risks experienced by different countries are naturally also different. The following hypotheses are therefore tested:

H_0: *There is no difference in the median systematic risk of parent companies in different countries, before and after the formation of captive*

H_1: *There is a difference in the median systematic risk of parent companies in different countries, before and after the formation of captive*

2.7 STATISTICAL TECHNIQUES USED

The two main statistical techniques applied in this study were the paired sample t-test and the Wilcoxon sign-ranked test. For all the tests conducted in this study, a 5 per cent level of significance was adopted. A p-value of less than 0.05 gave statistically significant evidence to reject the null hypothesis, H_0.

2.7.1 Paired Sample t-tests

The main aim of this study is to discover any difference in stockholder's returns and the level of risks apparent, before and after the formation of a captive. As

the data for 120 trading days before and 120 trading days after the formation date had been obtained, the two groups of data (with a sample size of *52* for the test on stock return, and 46[20] for the test on beta) formed the basis for the 2-tailed paired sample *t*-tests.

The first test was conducted to observe if the captive formation had any effect on stock returns, wherein the average stock return of each parent company before the formation was compared to the average stock return of each parent after the formation. Since the sample size was considerably large (greater than **30),** the average of the differences of average stock returns before and after captive formations could be approximately normally distributed. The test statistic (with N-1 degrees of freedom) follows:

$$t = \frac{\bar{D} - \mu_D}{s_D / \sqrt{N}} \qquad \text{where}$$

D_i is the difference, $x_{1i} - x_{2i}$ (x_{1i} being the average stock return of each parent before the formation and x_{2i} being the average stock return after).

$\bar{D} = (\Sigma D_i) / N$

N = sample size

μ_D = mean of $\bar{D}$

s_D = sample standard deviation of the differences

As H_0 was to test for no difference before and after captive formation, the hypothesized mean difference, μ_D, was equated to zero. The same techniques applied to the test for the effect on the average beta value.

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[20] The risk-free rates for the period before 1983 were not available and as a result, six companies with captives formed around that period had to be eliminated from the tests involving systematic risks.

2.7.2 Wilcoxon Sign-Ranked Tests

For the tests on the relation between stock returns and country or industry, the data was subdivided into categories of country or industry. However, the sizes of the subcategories were too small and possibly made the assumption of normal distribution invalid. The Wilcoxon Sign-Ranked Test, a non-parametric test that tests for differences between paired scores and requires fewer assumptions was therefore used.

The parameter of interest was the median of differences between each pair of values for before and after the captive formation. The difference, $\boldsymbol{D} = x_2 - x_1$ (x_1 being the average stock return of the parent before the formation and x_2 being the average stock return after), was assumed to be symmetric and mutually independent.

The signs of the differences were used to classify each case into one of three groups: differences below 0 (negative ranks), above 0 (positive rank), or equal to 0 (ties). Tied cases were ignored. The $\boldsymbol{D}$'s were ranked in an ascending order of their absolute size (i.e. without regard to positive or negative sign). For the development of the test, three statistics were defined:

$\mathbf{T}^+$ = the sum of the positive ranks

$\mathbf{T}^-$ = the sum of the negative ranks

$\mathbf{T}_{max}$ = max (T^+, T^-)

In the Wilcoxon test, $\boldsymbol{H_0}$ was the same as that for paired sample t-tests being that there was no difference before and after formation of captives. Hence, if $\boldsymbol{H_0}$ was true, it is expected that some of the larger ranks would come from the positive $\boldsymbol{D}$'s whereas others would come from negative D's (similarly for beta values before and after formation). Hence, $\mathbf{T}^+$ and $\mathbf{T}^-$ were both expected to be about equal when $\boldsymbol{H_0}$ was

true. Alternatively, if $\mathbf{T}^{+}$ were very much different from $\mathbf{T}^{-}$, the inference would be that the formation of a captive did affect average stock returns of the parent companies.

2.8 ANALYSIS OF STOCK RETURNS

The data collected was first used to test whether the formation of captives brought about significant changes in the average stock values of parent companies. Of specific interest was to find out if the captive formations appeared to benefit stockholders via a positive change in value of stock returns.

H_0: *There is no difference in the average stock return of parent companies before and after the formation of captive*

As seen in Table 2.4, the p-value of 0.161 is greater than 0.05, hence, H_0 cannot be rejected. This suggests that formation of captives has insignificant effect on the stock price reactions of the parent companies. This result reinforces the studies by Wood, et al., (1988) and Diallo and Kim (1989) in their US-based captive event studies, and Adams and Hillier (2000) in their UK-based study.

Table 2.4: Test Results For Average Stock Returns

	Degrees of Freedom	*t-value*	*p-value*	*Conclusion*
Average stock returns before less average stock returns after	51	1.424	0.161	Do not reject H_0

2.8.1 Effects by Industry

The sample was next subdivided into seven industry groups[21] (namely automobile, consumer products, financial, heavy industries, manufacturing, transportation and others) according to the industries in which the parent companies operated. A Wilcoxon sign-ranked test was run to compare the stock price reactions to the captive formations in the different industries, in order to test the following hypothesis:

H_0: *There is no difference in the median stock return of parent companies in different industries, before and after the formation of captive.*

Table 2.5: *Test Results For Stock Returns Across Industries*

Industry	*Sample Size*	*P* $(T_{max} \geq c)$[22]	*p-value*	*Conclusion*
Automobile	7	0.2891	0.5782	Do not reject H_0
Consumer products	8	0.4219	0.8438	Do not reject H_0
Financial	8	0.0273	0.0546	Do not reject H_0
Heavy industries	12	0.4548	0.9096	Do not reject H_0
Manufacturing	8	0.3203	0.6406	Do not reject H_0
Transportation	4	0.4375	0.8750	Do not reject H_0
Others	5	0.5000	1.0000	Do not reject H_0

[21] Please refer to Appendix B
[22] Siegel Castellan (1988), Table H, pp.332-334

Table 2.5 summarizes the results. From the p-values, there was no evidence to claim that the formation of captives has affected the stock returns of the parent companies in the various industries.

2.8.2 Effects by Country

The sample was next subdivided according to countries, which were primarily made up of Australia, Japan and the rest of the region (South Korea, Hong Kong, Philippines, Taiwan and New Zealand). Again, the Wilcoxon test was used, this time to compare the stock price reactions to the formation of captives in the countries. Tables 2.6a and 2.6b are a summary of the test results, which show that there was no statistically significant evidence at the 0.05 level to reject H_0.

H_0: *There is no dfference in the median stock return of parent companies in different countries, before and after the formation of captive.*

Table 2.6a: Test Results For Stock Returns Across Countries For Sample Size > 15

Country	*Sample Size*	*z-value*	*p-value*	*Conclusion*
Australia	16	-1.758[a]	0.079	Do not reject H_0
Japan	28	-0.410[b]	0.682	Do not reject H_0

Table 2.6b: Test Results For Stock Returns Across Countries For Sample Size ≤15

Country	*Sample Size*	*P ($T_{max} \geq c$)*[23]	*p-value*	*Conclusion*
Others	8	0.2734	0.5468	Do not reject H_0

Hence, it is concluded that the formation of captives did not trigger any significant reaction in the stock returns of parent companies in their respective countries. This result is consistent with the reasoning given by Adams and Hillier (2000) that the formation of a captive is a zero sum project that does not produce windfall gains for stockholders. The captives may also not be efficiently and effectively used by managers for various reasons, such as the absence of sufficient risk management expertise, under-utilization of reinsurance market potential and managerial inertia. The findings are also indicative of the possibility that parent companies are unable to achieve substantial reductions in the cost of insuring risk exposures through their captives, which are incapable of generating enough free cash flows to fund abnormal dividend distributions. This may lead to little or no value added to the stockholders.

[23] Siegel and Castellan (1988), Table H, pp.332-334

Table 2.7: Summary of Betas

	N*	Average Rate	Before Captive Formation			After Captive Formation		
			Min	Max	Mean	Min	Max	Mean
Whole sample	46	0.9999	0.7603	1.1496	0.9952	0.8675	1.1986	1.0047
By Industry								
Automobiles	4	1.0123	0.9208	1.0391	0.9908	0.9995	1.0919	1.0338
Consumer pdts	7	1.0067	0.9630	1.0419	1.0045	0.9585	1.0859	1.0090
Finance	7	0.9900	0.9310	1.0895	0.9903	0.8675	1.0345	0.9898
Heavy industries	11	0.9931	0.8640	1.1496	0.9919	0.9368	1.0713	0.9943
Manufacturing	8	1.0041	0.9726	1.1131	1.0216	0.9274	1.0269	0.9867
Transportation	4	1.0046	0.9413	1.0202	0.9957	0.9934	1.0451	1.0136
Other industries	5	1.0201	0.9976	1.0003	0.9996	0.9120	1.1986	1.0407
By Country								
Australia	15	0.9866	0.7603	1.0397	0.9627	0.9406	1.1986	1.0104
Japan	23	1.0066	0.9208	1.1496	1.0160	0.8675	1.0919	0.9972
Other countries	8	1.0059	0.9310	1.0141	0.9963	0.9873	1.0290	1.0155

* N is sample size

2.9 ANALYSIS OF SYSTEMATIC RISK

From the data collected, the beta was calculated using the CAPM formula. The results are summarized in Table 2.7 and, as seen in the table, the calculated beta values revolve around 1.0, which is the benchmark beta value for Fortune 500 companies [Fama and French, 1992].

Among all industries, the heavy industries group (e.g., oil refining and mining) and the financial sector (e.g., banks and investment companies) have average systematic risks (beta) that are slightly lower than the rest. This result reinforces the observations of commentators [Brockett, Cox and Witt, 1986] that the advantages of captive formations are biased towards large-sized companies that have sufficient resources to capitalize and operate efficiently.

2.9.1 Effects of Captive Formation On Systematic Risk

The next examination was whether the systematic risks of parent companies in the Asia-Pacific Region were stable around the establishment date of their captives. The result in Table 2.8 shows that the formation of captives does not produce any statistically significant impact on the average systematic risks of parent companies. As a consequence, the formation of captives does not appear to have enhanced stockholders' value by reducing systematic risks.

Table 2.8: Test Results For Average Beta Values

	Degrees of Freedom	*t-value*	*p-value*	*Conclusion*
Average beta before less average beta after	45	-0.648	0.520	Do not reject H_0

2.9.2 Effects by Industry

The sample was subdivided into seven industry groups and tested to examine the extent to which captive formations affected the different risk exposures in the respective industries. From the results shown in Table 2.9, specifically the large p-values, there were no statistically significant changes in the systematic risks for the different industries. This result further supports the suggestion by Adams and Hillier

(2000) that the potential impact of industry-specific risks is unlikely to affect the study concerning the impact of captive formations on parent companies' systematic risk postures.

Table 2.9: Test Results For Beta Values Across Industries

Industry	*Sample Size*	*P* $(T_{max} \geq c)$[24]	*p-value*	*Conclusion*
Automobile	4	0.3125	0.6250	Do not reject H_0
Consumer products	7	0.4063	0.8126	Do not reject H_0
Financial	7	0.2344	0.4688	Do not reject H_0
Heavy industries	11	0.4155	0.8310	Do not reject H_0
Manufacturing	8	0.1250	0.2500	Do not reject H_0
Transportation	4	0.3125	0.6250	Do not reject H_0
Others	5	0.2188	0.4376	Do not reject H_0

2.9.3 Effects by Country

Wilcoxon sign-ranked tests were used to test the impact of captive formations on the systematic risk posture of the parent corporations in the different countries. As shown in Table 2.10a, with the resulting p-value of 0.429, the null hypothesis is not rejected at the 0.05 level of significance.

[24] Siegel and Castellan (1988), Table H, pp.332-334

Table 2.10a :Test Results For Beta Values Across Countries For Sample Size >15

Country	*Sample Size*	*z-value*	*p-value*	*Conclusion*
Japan	23	-0.791[a]	0.429	Do not reject H_0

Similarly in Table 2.10b, for cases with a sample size smaller than 15, it can be concluded that the formation of captives does not appear to cause any statistically significant changes in the systematic risk postures of the parent companies in different countries. The captives in the Asia-Pacific Region could be too small to have a substantial impact on the overall systematic risk profile of their parents.

Table 2.10b: Test Results For Beta Values Across Countries For Sample Size ≤15

Country	*Sample Size*	*P* $(T_{max} \geq c)$[25]	*p-value*	*Conclusion*
Australia	15	0.0677	0.1354	Do not reject H_0
Others	8	0.0742	0.1484	Do not reject H_0

Another plausible explanation for the results obtained is that captives in this region could be less efficient at retaining risks as compared to the commercial insurance sector. Unlike many of their US and UK counterparts, captives in this region may be covering only traditionally insurable (unsystematic) risks and not systematic risks, such as environmental risks (e.g., earthquakes). It appears that the formation of captives in the region does not substantially improve stockholders' value by reducing systematic risks.

[25] Siegel and Castellan (1988), Table H, pp.332-334

2.10 CONCLUSION AND RECOMMENDATIONS

This study examined the stock price reaction and the effect on systematic risks of parent corporations following the establishment of captives in the Asia-Pacific Region. The research finds no statistically conclusive evidence that the formation of captives produces any changes to stock returns. In addition, there was no significant evidence to prove that the establishment of captives changes the systematic risk postures of parent corporations.

We have considered evidence pre and post the formation of a captive. The captive may be just a formalization of a previously self-insured approach to risk financing, and so may not radically change the risk profile at the parent corporation level. The motivation for forming a captive is usually not purely financial, but also to assist with the centralization and control of the parent corporation's approach to risk management and financing. In addition, the formation of a captive is probably not usually widely broadcast to the stock market (in fact there is a much bigger issue here in that the nature of a major public corporations' insurance and risk financing program are not generally disclosed to shareholders at all, except in extreme circumstances).

The primary function of a captive is to provide insurance protection to its parent, especially larger amounts of coverage and providing non-conventional coverage, but the impact on the parent company may not be perceived as significant as the size of a captive pales in comparison with its parent. The formation of a captive may also not significantly reduce the systematic risk of its parent through increased control over the risk management function as the increased control is offset by an increase in the risk of exposure loss that is retained by the captive.

The findings reinforce those of other academic studies carried out in the US (e.g., Wood, Glascock and Bigbee, 1988; Diallo and Kim, 1989) and the UK (e.g., Adams and Hillier, 2000). They are also consistent with observations reported in the general risk management literature (e.g., Bawcutt, 1997; Strutt, 1997).

By internalizing the risk financing function through an insurance captive, parent companies could be forgoing the signaling benefits of insuring directly with the conventional insurance market. Investors could have more confidence in the experience of conventional insurers than in the risk management capabilities of insurance captive managers (Main, 1982). The results suggest that, in the Asia-Pacific Region, the financial advantages of the captive concept, relative to other risk transfer or financing strategies (e.g., conventional insurance), need to be more closely scrutinized by stockholders, prospective investors and financial analysts. This is essential to help improve understanding on the optimum operation of captives and consequently enhance the maximization of stockholders' value.

The findings indicate weak statistical evidence not to reject H_0 for changes in stock returns in the financial sector of the Asia-Pacific Region. It is suggested that detailed follow-up studies should be done to ascertain the effects of captive formations in the financial industry when more captives are formed and more data are available.

In the course of the analysis and data collection, difficulties were encountered that might have compromised the results. The risk-free rates for the period before 1983 were not available and, as a result, six companies with captives formed around that period had to be eliminated from the tests involving systematic risks. A large percentage of the sample consisted of Japanese and Australian based parent companies, thus possibly skewing the results due to country bias. Finally, event studies such as this could be sensitive to methodological issues such as the length of the event

window (i.e., period taken into consideration prior to post captive formation) and confounding effects on the movement of equity prices (e.g., as a result of pre-announcement information leakage).

Unlike more advanced countries like the US, data had to be collected individually over a long period of time. Perhaps in future when data are more readily available and more captives are formed in this region, a more comprehensive study could be conducted.

CHAPTER THREE

EVENT STUDY ON IMPACT OF CAPTIVE FORMATION ON STOCK RETURNS OF PARENT COMPANIES

3.1 INTRODUCTION

Even if the formation of a captive affects the return on its parent company, the effect of the captive may not be felt immediately following the formation. In practice, it would probably be more reasonable to think that the effect will be felt gradually over the period surrounding the formation date. This kind of problem can be appropriately handled by techniques related to event studies. I therefore also consider this approach to see whether the results would be different from those obtained by the paired-t/Wilcoxon Signed-Rank tests conducted in the previous chapter.

The main objective of this study is to analyze the stock returns of parent companies incorporated in the Asia-Pacific Region during the event period before and after the formation of a captive. I use the cumulative abnormal return (CAR) model (also called 'cumulative average residuals model') [Fama et al., 1969] in my analysis.

An event study is an empirical investigation of the relationship between stock prices and economic events. In this context, the economic event that is hypothesized to have an impact on stock prices is the formation of a captive. We can use event studies to study market efficiency and investigate the extent to which stock prices around the time of the event are abnormal, i.e., they differ from stock prices that are predicted by some process that determines equilibrium expected returns [Coutts et al., 1994].

3.2 RESEARCH METHODOLOGY

Event studies, such as the cumulative abnormal return (CAR) model that I use in this study, are used to assess the extent to which security price performance around the time of the event has been abnormal [Brown and Warner, 1980]. Event studies provide a test of market efficiency.[26]According to the efficient market hypothesis, an efficient security market is one in which the price of every security fully reflects all available information and hence is equivalent to its true investment value. In particular, the stock market is efficient if stock prices adjust very rapidly to new information that is made available in the public domain.

Research has shown that stock price data are preferred to accounting data because they are more accurate and generally provide a greater number of observations than accounting data [Binder, 1985]. Furthermore, well-specified models of expected return can be used to isolate company-specific effects from market wide shocks. In addition, the time factor is another consideration: accounting data measure current earnings, while stock prices measure future earnings. Hence, if we were to make use of accounting data, the tests could only be conducted after the announcement of the formation of the captive. In my study, I am interested in comparing returns before and after captive formation. Hence, I use stock price data rather than accounting data.

To determine whether a security's price performance is considered 'abnormal', a benchmark is required. Brown and Warner (1980) suggest three general representations of the normal-returns generating models assumed in event studies.

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[26] Three common forms of the efficient market hypothesis (EMH) are:

1) Strong form: Market prices reflect all information, regardless of whether the information is available in the public domain or not.
2) Semi-strong form: Market prices reflect all publicly available information.
3) Weak form: Market prices reflect all information in historical price data.

They are Mean Adjusted Returns model, Market Adjusted Returns model, and Market and Risk Adjusted Returns model. In my model, I assume the expected return for stocks is generated by the Market Adjusted Returns model. This model assumes the expected returns are equal across securities, but not necessarily constant for a given security. The abnormal return on any security is the difference between the return on the stock and the return on the market portfolio: $\varepsilon_{it} = R_{it} - R_{mt}$

There will be certain days when the realized stock returns on a security do not coincide with the predicted returns. However, in an efficient market that we are assuming here, returns cannot systematically differ from those that are predicted. Hence, any difference between realized and predicted returns is attributed to the unexpected and diversifiable component[27] of the risk in the security. The abnormal returns conditional on the captive formation event day can therefore systematically be non-zero, which also applies to abnormal returns conditional on no event [Brown and Warner, 1980].

Daily and monthly data differ in several respects. Firstly, daily returns depart more from normality than monthly returns [28] [[Fama, 1976], [Scholes and Williams, 1977], [Brown and Warner, 1985]]. On the other hand, although daily excess returns are highly non-normal, the mean excess return in a cross-section of securities converges to normality as the number of sample securities increases. Secondly, non-

[27] This type of risk depends on factors that affect the individual security and are unrelated to the whole security market. It can be called "specific risk", which can be reduced by diversification. However, systematic risk is risk relating to the market as a whole. It cannot be reduced by diversification.

[28] Scholes and Williams (1977) suggest that the use of daily data introduces into the market model a potentially serious econometric problem. Many securities listed on organized exchanges are traded only infrequently, with few securities that traded so actively that their prices are recorded almost continuously. Because prices for most securities are reported only at distinct random intervals, complete and accurate calculation of returns over any fix sequence of periods is almost impossible. This introduces the econometric problem of errors in variables into the market model.

synchronous trading[29] complicates the estimation of market model parameters from daily data by creating bias in the ordinary least squares estimates [Scholes and Williams, 1977]. As a consequence of non-synchronous trading, daily excess returns can exhibit serial dependence. However, past studies have shown that non-synchronous trading appears to have a detectable but limited impact on the choice of appropriate methodology [Brown and Warner, 1985]. Finally, another issue involves the cross-sectional dependence of the security-specific excess returns and stationarity of daily variances. Brown and Warner (1985) state that tests which assume non-zero cross-sectional dependence are only about half as powerful and they are not particularly better than those assuming independence of excess returns

The CAR model has been used in event studies concerning tests of abnormal returns around the dates where new information concerning a stock is released into the market. The main reason in using CAR to test for abnormal returns on the date of news announcement is that analysts foresee the possibility of a leakage of information. This leakage refers to information relating to a relevant event being released to a small group of investors before the official public release. Thus, there is a possibility that the effects of such important news might create an impact on the stock prices even before the official announcement date. The stock prices of the parent companies may therefore fluctuate during the pre-formation period of the captive. Hence, this point supports the use of the CAR model, which takes into account a period of 240 days before captive formation [Bodie et al., 2004].

[29] In practice, the market model is not continuously observable since most securities trade at discrete time intervals. Prices are recorded only at points of actual trades. The market model cannot be observed at all times. This is the problem of non-synchronous or discontinuous trading of securities.

3.3 COMPOSITION OF SAMPLE

I conduct a cluster sampling where random sampling is carried out within each country from the Asia-Pacific Region. This is to ensure that the sample is representative of most Asia-Pacific countries. The composition of the sample firms is intended to come from Asia-Pacific countries such as Japan, Australia, Hong Kong, New Zealand, Singapore, Taiwan, Korea, and the Philippines. However, only companies incorporated in Japan and Australia are used. This is due to inadequate stock price and market indices data for stocks of parent companies incorporated in the other countries. Any conclusions drawn on parent companies incorporated in these countries will therefore not be a true representation of the actual impact of captives. Hence, companies in these countries are left out in this study. Table 3.1 shows the number of parent companies used from each country and the total number of parent companies that are known as at December 2004.

Table 3.1 – Compositionof Sample for Study 2

Country	*No. of Parent Companies Used*	*Total number of known Parent Companies (as at Dec 2004)*[30]	*% of Parent Companies used to Total known Population*
Japan	23	81	28%
Australia	18	76	24%
Hong Kong	0	21	0%
Taiwan	0	4	0%
New Zealand	0	3	0%
Singapore	0	3	0%
Philippines	0	3	0%
Korea	0	1	0%

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Stock returns and market indices are collected from two main sources: Bloomberg and Thomson DataStream. The majority of the captives are formed between 1975 and 2000. Relevant stock returns on some parent companies with captives formed before 1975 cannot be retrieved. Table 3.2 shows the market index that I have selected for each country. I base my selection on the degree of representation of the index on the various industries of the country as well as the time period of availability of the market index data. I then extract the historical stock prices and market indices 240 days before and after the captive formation date.

Table 3.2 - Market Indices used

Country	***Market** Index*
Japan	Topix 1000
Australia	ASX All Ordinaries Index

We cannot pinpoint an exact event date because the event date does not necessarily represent the date of official registration of the captive, but denotes the date of the new information arrival in the stock market. However, in the case of event date uncertainty, if we use a slightly longer period of event window and test accumulated excess/abnormal returns, we can detect events without exactly pinpointing the event date. All previous studies have employed 91 days window due to the same problem (Hur and Na, 1999). The event period spans from Day – 45 to Day + 45 around the date of formation of the captive. Hence, including the day of captive formation, the event period has a total of 91 days.

A study by Cowan (1993) shows that the event period should not be longer than 200-day event period. The use of long event periods of more than 200 days might render the true market model parameters to change over time. In addition, it could induce a survivorship bias by eliminating firms that experience negative abnormal returns unrelated to the event. Furthermore, it is impossible to control for the confounding

information by screening out firms with non-event related announcements, unlike in the case of short event periods. Based on the CAR model requirements, I record the daily stock prices of the parent companies 240 trading days[31] before and after their captive's formation date.

3.4 USE OF THE CAR MODEL

Based on the model suggested by Diallo and Kim (1989), I carry out an empirical investigation using the CAR model to test for excess returns, if any, on stock prices of the parent companies that own captives. The sample companies chosen are incorporated in the Asia-Pacific Region, regardless of where the captives are domiciled. Sources of these companies come from information that is published in Best's Captive Directory 2000 and 2001, the CRADD Captive Review Annual Domicile Directory (2005), as well as data provided by captive managers around the world. I verified and updated existing data and enlarged my sample size. One difficulty that I face is that information provided by CRADD Captive Review Annual Domicile Directory (2005) are arranged according to domicile instead of the origin of the parent companies. Table 3.3 is a summary of the transition difficulties encountered.

[31] The entire length of the investigation is 240 trading days before and 240 trading days after the date of formation of the captive. This 481-day investigation period includes the event period (also referred to as 'event window'), which includes 45 trading days before and 45 trading days after the date of formation of the captive.

Table 3.3 - Transition Difficulties of the CAR model

CAR Model	*Empirical Investigation*[32] *(Base)*	*Transition Difficulties*	*My Model*
Sample Composition	Two samples of firms: ▪ Domestic Sample: Captive insurers domiciled in the US ▪ Offshore Sample: Captive insurers domiciled in Bermuda.	My area of interest is in captives whose parent companies are from the Asia-Pacific Region. The location of domicile is irrelevant in my context.	Two main samples: ▪ Japan Sample ▪ Australia Sample. Other countries do not have sufficient captives to form a meaningful analysis.
Sample Size	Domestic Sample: 21 firms Offshore Sample: 70 firms.	I group the Asia-Pacific parent companies according to the countries they are from.	Japan Sample: 23 firms Australia Sample: 18 firms.
Source of Sample	Captive Insurance Company Directory 1983.[33]	Information regarding captives from the Asia-Pacific Region is very limited. Some data which is originally available in the Captive Insurance Company Reports and Captive Insurance Company Reviews are no longer published after 2000/2002.	▪ CRADD Captive Review Annual Domicile Directory 2005 ▪ Data provided by captive managers ▪ Monetary Authority of Singapore (MAS) ▪ Best's Captive Directory 2000 and 2001.
Source(s) of Dates of Incorporation	Domestic Captives: Obtained by telephone survey and from Best's Insurance Reports. Offshore Sample: Collected at the Insurance Division of the Department of the Registrar of Companies of Bermuda.		
Source of Stock Data	Obtained from the CRSP[34] daily returns file and daily index file.	Certain companies' stock returns cannot be found or are incomplete. The databases do not have historical data that dated back to 1975.[35]	Obtained from Bloomberg and Thomson DataStream.
Market Index Used	New York Stock Exchange.	Since I am carrying out the analysis according to the country of origin of parent companies, no single market index can be applied for the whole sample.	Japan: Nikkei Topix 1000. Australia: ASX All Ordinaries Index.

[32] This investigation refers to [Diallo and Kim, 1989].
[33] Issued by the Risk Planning Group, Inc.
[34] CRSP: Centre for Research in Security Prices (University of Chicago).
[35] Due to this constraint on data retrieval, I have to remove certain companies from my sample.

The cumulative abnormal return (CAR) model is originally known as the 'cumulative average residual' technique [Fama et al., 1969]. This technique is used to find the average market model residuals for the sample stocks over a number of periods around the event. In my study, the event is captive formation. Through examining the CAR of the sample stocks for an event day t, I can find out whether the average residuals, starting from the day of accumulation up to that day, are systematically different from zero. The CAR model, often known as the market model is as follows:

$$\tilde{R}_{jt} = a_j + b_j \tilde{R}_{mt} + \tilde{e}_{jt}$$

where:

$\tilde{R}_{jt}$	=	rate of return on security j at time t
a_j, b_j	=	constant parameters
$\tilde{R}_{mt}$	=	rate of return on market portfolio at time t
$\tilde{e}_{jt}$	=	random error term in the return on security j at time t
$E(\tilde{e}_{jt})$	=	0

There are two types of stock prices: adjusted and unadjusted. Adjusted stock prices mean the historical prices shown have taken into account the daily movements, whereas unadjusted historical stock prices show only the last stock prices at the closing of that particular trading day. I use the adjusted stock price information because it is a fairer representation of the day's trading activity and such data is available from databases such as Bloomberg and Thomson DataStream.

With regards to the market indices, a common market index is used for all parent firms belonging to a particular country. The purpose is to isolate the differences in movements of the market indices and prevent test results from being distorted.

Companies listed on the various market indices are different. Hence, it would not be logical to group companies from various countries together. The market indices used are value-weighted.[36] As stated in Brown and Warner (1980), the stock market indices used should ideally be a equally weighted index. However, all of the stock market indices available in the Asia-Pacific Region are using a value-weighted type.

I have decided on using market indices that consist of all publicly listed firms (Japan's Topix 1000 and Australia's ASX All Ordinaries Index) rather than market indices that consist of selected firms (e.g., Japan's Nikkei 300) that are top stock performers. This is because not all firms I use are in the top performers' range. If these indices were used, it resulted in a non-linear relationship when a regression between stock prices and market indices was performed. A non-linear relationship would impair analysis since the CAR model assumes a linear relationship between stock and market returns before estimating the market model parameters.

In addition, the market indices consisting of top performers are newer types of indices and do not extend to early 1970s. Hence, some of the companies whose captives are formed in the early 1970s have to be rejected. In view of this problem, my priority is to maintain the sample sizes (which are already relatively small) and select a more suitable market index instead. With the stock returns and market indices extracted from Bloomberg and Thomson DataStream, linear regressions are carried out for each company using the SPSS software.

[36] This is not the best option. However, due to data limitations, I have to choose value-weighted market indices. Please refer to the sections on Limitations for further discussion. A value-weighted market index adds up the market capitalization of all stocks in the index and divides this by a divisor. Source: http://www.pittstate.edu/econ/621_3.ppt

The next step is to obtain the expectation of the parameters (a, ; b,), which give the values of (E (a,,); E (b,)). The event window from - 45 to + 45 days around each captive's formation date is not included in the calculation of the estimated parameters [Diallo and Kim, 1989]. This is to prevent the event from influencing the normal performance model parameter estimates [MacKinlay, 1997]. The value of abnormal return for each parent firm over the event period (91 values in total for each firm) was then obtained using the formula:

$$\hat{e}_{jt} = R_{jt} - (\hat{a}_j + \hat{b}_j R_{mt})$$

where

$\hat{a}_j, \hat{b}_j$ = estimated values of parameters a_j and b,

R_{jt} = realized return on security j at time t

R_{mt} = return on the value weighted index at time t

e_{jt} = residual for security j at time t

The results are then averaged across all firms included in the sample to obtain the average residual (AR_t) such that:

$$AR_t = \left(1/N\right)\sum_{j=1}^{n} \hat{e}_{jt}$$

N represents the number of companies. Thus, we have 91 AR_t values for each of the countries, as there are 91 days in the event period. Next, the AR_t values are then used to compute the CAR_t. This is a continuous summation of the AR_t values. This method of summation is also known as the "arithmetic method" because returns are summed across

securities and over time [Dissanaike, 1994]. Since this method implies arithmetic averaging over securities, this means that equal weights are placed on each security and on each day. The CAR for a given day t within the event period is:

$$CAR_t = CAR_{t-1} + AR_t$$

The market reacts positively to the event if $CAR_t > 0$, negatively if $CAR_t < 0$ and no response if $CAR_t = 0$. The CAR over the event period is:

$$CAR_1 = \sum_{t=f}^{l} AR_t$$

where f stands for the first day of the event period, and 1 represents the last day.

Test Statistic:

Diallo and Kim's (1989) variance is technically a replica of Brown and Warner (1980). Hence, this study will employ Brown and Warner's estimation to evaluate the results conservatively (Hur and Na, 1999). Following Brown and Warner (1980), the test statistic for the null hypothesis of no abnormal return to stockholders during the event period is:

$$\frac{CAR_t / \sqrt{91}}{1/N \left(\sum_{j=1}^{N} \left(1/388 \left(\sum_{t=-240}^{-46} AR' + \sum_{t=46}^{240} AR' \right) \right)^{1/2} \right)}$$

where $AR' = \left(\hat{e}_{jt} - \bar{e} \right)^2$

$$\bar{e} = 1/390 \left(\sum_{t=-240}^{-46} \hat{e}_{jt} + \sum_{t=46}^{240} \hat{e}_{jt} \right)$$

The statistic is distributed t with 389 degrees of freedom, which behaves approximately like a normal distribution. Using t distribution is an appropriate choice since the number of captives found in some countries is below the sample size of 30.[37] The t-statistics for no abnormal return to stockholders during any event day t are obtained by replacing the numerator of the test statistic with AR_t. My hypotheses are:

***H_0**: There is no excess return from the stock of parent companies after the formation of the captive, as compared to stock returns before formation of the captive.*

***H_1**: There is excess return from the stock of parent companies after the formation of the captive, as compared to stock returns before formation of the captive.*

3.4.1 Limitations in Building of Sample

The Best Captive Directory edition 2000 and 2001 are the most recent editions available in the school library. I also source from the latest Captive Insurance Company Reports and Captive Insurance Company Reviews to retrieve more information. Unfortunately, the monthly publications with section updates on newly formed captives also cease to exist after 1999 and 2000. I proceed to source for further information from the Captive Insurance Companies' Reports/Reviews editors, who kindly provide the CRADD Captive Annual Domicile Directory (2005), which provides the captives grouped according to domiciles. However, details such as the parent companies' origins and some of the captive formation dates are not included. I also emailed captive

[37] Central Limit Theorem: If the sample size is sufficiently large (approximately more than 25 to 30), then the population of all possible sample means is approximately normally distributed, no matter what probability distribution describes the sampled population. Furthermore, the larger the sample size is, the more nearly normally distributed is the population of all possible sample means.

managers in the various domiciles requesting more captive information. The responses provide more information but most of them are only partially useful for my study. In addition, certain captive formation dates mentioned in the captive insurance company reports and reviews cannot be used because the databases do not hold any stock price information on the parent companies.

Due to the limited information available on captive formation dates, 1 can use only the parent companies from Australia and Japan in my tests. Though a few parent companies from each of the other countries such as Korea, New Zealand, Hong Kong and Taiwan can be found with complete information, they are excluded because the sample sizes are too small relative to the size of total captive population in each of these countries. Performing such tests would not produce representative, unbiased and accurate results. My decision whether to use parent companies from a certain country is based on whether the number of captives with available information makes up a reasonable proportion of the total number of captives from the particular country. It is not based on whether the sample size for each country exceeds 30. The sample size is further reduced due to some non-listed, privately managed parent firms where no information is available.

3.4.2 Limitations in Retrieving of Stock Prices and Market Indices

Using the consolidated list, I retrieve the daily stock prices and market indices from Thomson DataStream and Bloomberg servers. Some parent companies formed captives in 2004. These companies have to be excluded due to insufficient trading days to

fulfill the requirements of the CAR model as the CAR model requires stock price and market index information for a full 240 days after captive formation.

3.4.3 Limitations in the use of the CAR Model

Previous researches (e.g. [Diallo and Kim, 1989], [Adams and Hillier, 20001) using the CAR model in the US and UK make use of common stock data from a single market index. For the Asia-Pacific Region, there is no market index which represents companies around the region. Hence, I need to use separate market indices according to the country of origin. I apply the CAR model to each country on its own so as to preserve the commonality of the stock data. This move isolates the effects of currency value differences as well as difference in stock price and market index computation methods.

3.4.4 Limitations in the use of the CAPM Model

The CAPM equation is:

$$\mathbf{E}(R_i) = R_f + \beta \{\mathbf{E}(R_m) - R_f\}$$

where $E(R_i)$ = expected stock return on share i

R_f = risk-free rate

$E(R_m)$ = expected market return

β = beta of share i

According to Bartholdy and Peare (2003), expected excess return is equal to the β for the share, relative to the world market portfolio, times the expected risk premium on

the world market portfolio. In practice, the world market portfolio is not observable. Hence, a proxy is needed.

When I mention risk-free rates, I am referring to the rates that are credit risk free as I assume governments of countries used in my analysis have the ability to repay all its liabilities as it has taxing power. To obtain the risk-free rates, T-bills are therefore used. T-bill rates would have been closer to the 240 days period where relevant stock prices and market indices were used in our computation. I use 10 year T-bond rates as the most relevant risk-free rates as Bloomberg and Thomson DataStream do not keep the records of daily T-bill rates or the daily rates of T-bonds with shorter maturity.

For Japan, the Gensaki interest rates are also relevant for this study. The constraint is that the data sources (PACAP) only provide monthly interest rates instead of daily interest rates. Hence, it cannot fit into the CAPM model if I were to regress daily stock prices against daily market returns. Considering the above limitations, the CAR model is preferable to the CAPM model for testing for abnormal stock performance.

3.5 RESULTS AND ANALYSIS

3.5.1 Results and Analysis for Japan

Table 3.4 shows the list of Japanese parent companies that I use in my study, as well as their respective captives. The event period is defined as 45 days before and after the date of captive formation. The residuals are averaged over the 23 Japanese firms for every day t. The residuals are calculated for the event window only (i.e. Day - 45 to Day - 1 and Day + 1 to Day + 45). The average residual (AR_t) for each day of the event period is calculated using the formula:

$$AR_t = \left(1/23\right)\sum_{j=1}^{23} \hat{e}_{jt}$$

The cumulative abnormal return (CAR_t) is computed by summing AR_ts overtime. The CAR for a given day t within the event period is:

$$CAR_t = CAR_{t-1} + AR_t$$

Table 3.4 – List of Japanese Parent Companies in Sample

No.	*Name of Parent/Sponsor*	*Name of Captive*
1	Orix Corporation	Cygnus Reinsurance Pte Ltd
2	Fujisawa	Huntington Int'l Insurance Co.
3	Yamaha Motor Co. Ltd	Inno Reinsurance Pte Ltd
4	Mitsui & Co.	Insurance Co. of Trinet Asia Pte Ltd
5	Mitsubishi	New Century Insurance Co Ltd
6	Honda Motor Co	New Atlantic Insurance Co Ltd
7	Marubeni Corporation	New Marble Insurance Company Pte Ltd
8	Mitsui O.S.K. Line Ltd	Orange Assurance Ltd
9	Sony Corp	PMG Assurance Ltd
10	Sumitomo Chemical Co.	S.C.C. Insurance Pte Ltd
11	Seiko	SEI Insurance Pte Ltd
12	Secom Co Ltd	SIS Insurance Pte Ltd
13	Kanematsu Corp	Southern Pacific Ins. Pte Ltd
14	Nippon Oil Co	Sun & Star Insurance Co Ltd
15	Sunstar Inc.	Sunstar Insurance Pte Ltd
16	Sumitomo/Sumitomo Marine	Bluewell Ins. (Singapore) Pte Ltd
17	Nissho Iwai Corporation	Unimax Insurance Pte Ltd
18	Bridgestone	Xylos Assurance Ltd
19	Hankyu Express International Co Ltd	C. F. H. Insurance Pte Ltd
20	Citizen Watch Co., Ltd	Aquablue Insurance Company Ltd
21	Heiwa Corporation	Heiwa Insurance Inc
22	Kinki Nippon Tourist	H & M Insurance Pte Ltd
23	Alps Electric Co. Ltd	Alps Insurance Pte Ltd

Table 3.5 – ARs and CARS during event window (Japan)

Day	AR_t	T-stat	CAR_t	Day	AR_t	T-stat	CAR_t	Day	AR_t	T-stat	CAR_t
-45	-0.23502	-0.23502	-0.23502	-14	0.090393	0.090393	-5.3552	15	0.111562	0.111562	-1.99875
-44	-0.23472	-0.23472	-0.46975	-13	0.064025	0.064025	-5.29118	16	0.07013	0.07013	-1.92862
-43	-0.21545	-0.21545	-0.68519	-12	0.095008	0.095008	-5.19617	17	0.108294	0.108294	-1.82032
-42	-0.1662	-0.1662	-0.8514	-11	0.10096	0.10096	-5.09521	18	0.113255	0.113255	-1.70707
-41	-0.13333	-0.13333	-0.98473	-10	0.151427	0.151427	-4.94378	19	0.097622	0.097622	-1.60945
-40	-0.15352	-0.15352	-1.13824	-9	0.079498	0.079498	-4.86428	20	0.023668	0.023668	-1.58578
-39	-0.19917	-0.19917	-1.33742	-8	0.090289	0.090289	-4.77399	21	-0.00044	-0.00044	-1.58622
-38	-0.19321	-0.19321	-1.53063	-7	0.087741	0.087741	-4.68625	22	2.94E-05	2.94E-05	-1.58619
-37	-0.20816	-0.20816	-1.73879	-6	0.079552	0.079552	-4.6067	23	-0.01729	-0.01729	-1.60348
-36	-0.31184	-0.31184	-2.05063	-5	-0.00404	-0.00404	-4.61074	24	-0.01624	-0.01624	-1.61972
-35	-0.29389	-0.29389	-2.34452	-4	0.015183	0.015183	-4.59555	25	-0.04229	-0.04229	-1.662
-34	-0.33095	-0.33095	-2.67548	-3	0.0372	0.0372	-4.55835	26	-0.05826	-0.05826	-1.72026
-33	-0.30094	-0.30094	-2.97642	-2	0.065229	0.065229	-4.49312	27	-0.06449	-0.06449	-1.78475
-32	-0.32942	-0.32942	-3.30584	-1	0.124334	0.124334	-4.36879	28	-0.03739	-0.03739	-1.82215
-31	-0.31264	-0.31264	-3.61847					29	-0.01511	-0.01511	-1.83726
-30	-0.32559	-0.32559	-3.94406	0	0.058672	0.058672	-4.31012	30	-0.10743	-0.10743	-1.94469
-29	-0.31101	-0.31101	-4.25507					31	-0.00756	-0.00756	-1.95226
-28	-0.29167	-0.29167	-4.54674	1	0.041168	0.041168	-4.26895	32	-0.12778	-0.12778	-2.08004
-27	-0.21609	-0.21609	-4.76283	2	0.126437	0.126437	-4.14251	33	-0.10609	-0.10609	-2.18612
-26	-0.30031	-0.30031	-5.06314	3	0.121672	0.121672	-4.02084	34	-0.16253	-0.16253	-2.34865
-25	-0,19918	-0.19918	-5.26232	4	0.169867	0.169867	-3.85097	35	-0.18455	-0.18455	-2.5332
-24	-0.08593	-0.08593	-5.34825	5	0.199904	0.199904	-3.65107	36	-0.18871	-0.18871	-2.72191
-23	-0.09611	-0.09611	-5.44436	6	0.252537	0.252537	-3.39853	37	-0.15387	-0.15387	-2.87578
-22	-0.09937	-0.09937	-5.54373	7	0.252032	0.252032	-3.1465	38	-0.10042	-0.10042	-2.9762
-21	-0.0262	-0.0262	-5.56994	8	0.249063	0.249063	-2.89744	39	-0.15559	-0.15559	-3.13179
-20	-0.0126	-0.0126	-5.58254	9	0.196043	0.196043	-2.70139	40	-0.20768	-0.20768	-3.33947
-19	0.011667	0.011667	-5.57087	10	0.146749	0.146749	-2.55464	41	-0.14435	-0.14435	-3.48382
-18	0.031802	0.031802	-5.53907	11	0.083701	0.083701	-2.47094	42	-0.12375	-0.12375	-3.60757
-17	0.091665	0.091665	-5.4474	12	0.112203	0.112203	-2.35874	43	-0.0837	-0.0837	-3.69128
-16	-0.0207	-0.0207	-5.4681	13	0.142638	0.142638	-2.2161	44	-0.11167	-0.11167	-3.80294
-15	0.02251	0.02251	-5.44559	14	0.105793	0.105793	-2.11031	45	-0.12485	-0.12485	-3.9278

Table 3.5 shows these values. The CAR over the event period is obtained using the formula:

$$CAR_1 = \sum_{f}^{l} AR_t = \sum_{t=-45}^{-1} AR_t + \sum_{t=1}^{45} AR_t$$

where f stands for the first day of the event period and 1 represents the last day of the event period. My calculated value of $CAR_t = -3.9278$.

Following Brown and Warner (1980), the test statistic for the null hypothesis is:

$$\frac{CAR_2 / \sqrt{91}}{1/23 \left(\sum_{j=1}^{23} \left(1/388 \left(\sum_{t=-240}^{-46} AR' + \sum_{t=46}^{240} AR' \right) \right)^{1/2} \right)}$$

where $AR' = \left(\hat{e}_{jt} - \bar{e} \right)^2$

$$\bar{e} = 1/390 \left(\sum_{t=-240}^{-46} \hat{e}_{jt} + \sum_{t=46}^{240} \hat{e}_{jt} \right)$$

I use a two-tailed t distribution to analyze the statistical significance[38] of the daily AR and CAR returns. Since we cannot use prior information to impose restriction on the sign (positive or negative) of the abnormal performance, the appropriate test is two-tailed. However, the ability to discern abnormal performance is then reduced significantly. At $\left| t_{\alpha/2} = t_{0.05} \right|$, where $\alpha = 10\%$, each tail of the t-distribution encompasses 5%. If the t-statistics lie beyond an absolute value of 1.282, then the AR return and CAR return on that particular day would be statistically significant. This means the null hypothesis is to

[38] Statistical significance at the α level: we reject the null hypothesis by setting the probability of a Type I error equal to α (Bowerman and O'Connell, 2003).

be rejected on that day. In Japan's case, all the daily t-statistics in the event window (from -45 to +45) lie within the range of –1.282 and +1.282. Hence, the AR and CAR returns over the event window are not statistically significant.

The overall CAR over the entire event window of 91 days is –3.9278, which has a t-value of –0.12485. Analyzing the CAR trend in greater detail, we can see a continuously negative trend throughout the event window. In addition, the CARS are fluctuating randomly between a range of 0 and –4.3. The test-statistic, which is distributed t with 389 degrees of freedom, has a value of –0.41174. Both are not statistically significant at 5 per cent level of significance. Hence, we cannot reject the null hypothesis that there is no excess return from the stock of parent companies after the formation of the captive, as compared to stock returns before formation of the captive. I therefore conclude that there is no significant impact on the stock prices of the Japanese firms following the formation of captives. This is consistent with the findings of other academic studies carried out in the US captive insurance industry [Diallo and Kim, 1989], as well as in the UK captive insurance industry [Adams and Hillier, 2000].

3.5.2 Results and Analysis for Australia

Table 3.6 shows the list of Australian parent companies that I use in my study, as well as their respective captives. I carry out the calculations of the AR and CAR returns, as shown in Table 3.7. The only difference from Japan's calculations is that the formula to calculate the average residual (AR_t) for each day in the event window is now

$AR_t = \left(1/18\right)\sum_{j=1}^{18} \hat{e}_{jt}$ to reflect the 18 firms in Australia's sample. The same change is made to the test statistic:

$$\frac{CAR_t / \sqrt{91}}{1/18\left(\sum_{j=1}^{18}\left(1/388\left(\sum_{t=-240}^{-46} AR^{'} + \sum_{t=46}^{240} AR^{'}\right)\right)^{1/2}\right)}$$

Table 3.6 – List of Australian Parent Companies in Sample

No.	*Name of Parent/Sponsor*	*Name of Captive*
1	Mayne Nickless Ltd	Transport Security Ins. (Pte) Ltd
2	Santos Ltd	Sanro Insurance Pte Ltd
3	Onesteel Ltd	Onesteel Insurance Pte Ltd
4	Newcrest Mining Ltd	Newcrest Insurance Pte Ltd
5	National Australia Bank Ltd	Nautilus Insurance Pte Ltd
6	Rio Tinto Group	Metals and Minerals Insurance Pte Ltd
7	MIA Group Ltd	MIA Risk Services Pte Ltd
8	Suncorp Metway Ltd	Suncorp Metway Risk Management Pte Ltd
9	Lion Nathan	Lion Nathan Insurance (SG) Pte Ltd
10	Wesfarmers Ltd	Wesfarmers Risk Management Ltd
11	Cole Myers	Sanco Insurance Pte Ltd
12	Amcor Ltd	Amcor Insurance Pte Ltd
13	CSR Ltd	CSR Insurance Pte Ltd
14	QBE Insurance Group Ltd	Equator Reinsurances Ltd
15	Hills Industries	Pathfinder Insurance Pte Ltd
16	Pasminco Ltd	Pasminco Insurance PL
17	Austal Ltd	Austal Insurance
18	Clough	Challenge Insurance

Table 3.7 – ARs and CARs during event window (Australia)

Day	AR	T-Stat	CAR	Day	AR	T-Stat	CAR	Day	AR	T-Stat	CAR
-45	0.09986	0.09986	0.09986	-14	-0.05458	-0.05458	-1.739	15	-0.4053	-0.4053	-8.09579
-44	0.149821	0.149821	0.249681	-13	-0.04778	-0.04778	-1.78678	16	-0.45055	-0.45055	-8.54634
-43	0.091251	0.091251	0.340933	-12	-0.06863	-0.06863	-1.85541	17	-0.39746	-0.39746	-8.9438
-42	-0.10708	-0.10708	0.233853	-11	-0.08868	-0.08868	-1.94408	18	-0.40556	-0.40556	-9.34935
-41	-0.13138	-0.13138	0.102472	-10	0.020439	0.020439	-1.92365	19	-0.33962	-0.33962	-9.68897
-40	-0.1268	-0.1268	-0.02432	-9	-0.02383	-0.02383	-1.94748	20	-0.42292	-0.42292	-10.1119
-39	-0.04733	-0.04733	-0.07166	-8	0.050395	0.050395	-1.89709	21	-0.4476	-0.4476	-10.5595
-38	0.110157	0.110157	0.038501	-7	0.029084	0.029084	-1.868	22	-0.44515	-0.44515	-11.0047
-37	0.061042	0.061042	0.099543	-6	-0.01677	-0.01677	-1.88477	23	-0.49233	-0.49233	-11.497
-36	0.096502	0.096502	0.196045	-5	0.03321	0.03321	-1.85156	24	-0.43521	-0.43521	-11.9322
-35	0.051136	0.051136	0.247181	-4	-0.09745	-0.09745	-1.94901	25	-0.3509	-0.3509	-12.2831
-34	0.049491	0.049491	0.296672	-3	-0.13004	-0.13004	-2.07906	26	-0.30861	-0.30861	-12.5917
-33	-0.03188	-0.03188	0.26479	-2	-0.19265	-0.19265	-2.27171	27	-0.33182	-0.33182	-12.9235
-32	-0.09222	-0.09222	0.172567	-1	-0.25259	-0.25259	-2.5243	28	-0.4085	-0.4085	-13.332
-31	-0.08939	-0.08939	0.083177					29	-0.3945	-0.3945	-13.7265
-30	-0.24095	-0.24095	-0.15778	0	-0.33625	-0.33625	-2.86056	30	-0.39425	-0.39425	-14.1208
-29	-0.06085	-0.06085	-0.21863					31	-0.41047	-0.41047	-14.5312
-28	-0.0632	-0.0632	-0.28183	1	-0.33991	-0.33991	-3.20046	32	-0.39636	-0.39636	-14.9276
-27	-0.03967	-0.03967	-0.3215	2	-0.26475	-0.26475	-3.46522	33	-0.43528	-0.43528	-15.3629
-26	-0.02287	-0.02287	-0.34437	3	-0.24363	-0.24363	-3.70885	34	-0.43238	-0.43238	-15.7953
-25	-0.0498	-0.0498	-0.39417	4	-0.22922	-0.22922	-3.93807	35	-0.39101	-0.39101	-16.1863
-24	-0.15476	-0.15476	-0.54893	5	-0.26787	-0.26787	-4.20594	36	-0.46006	-0.46006	-16.6463
-23	-0.08899	-0.08899	-0.63792	6	-0.32762	-0.32762	-4.53356	37	-0.48449	-0.48449	-17.1308
-22	-0.08111	-0.08111	-0.71903	7	-0.37921	-0.37921	-4.91277	38	-0.43425	-0.43425	-17.5651
-21	-0.06568	-0.06568	-0.78471	8	-0.42516	-0.42516	-5.33793	39	-0.42244	-0.42244	-17.9875
-20	-0.12037	-0.12037	-0.90507	9	-0.44124	-0.44124	-5.77917	40	-0.42989	-0.42989	-18.4174
-19	-0.20414	-0.20414	-1.10922	10	-0.43319	-0.43319	-6.21236	41	-0.3469	-0.3469	-18.7643
-18	-0.14785	-0.14785	-1.25707	11	-0.44919	-0.44919	-6.66155	42	-0.3496	-0.3496	-19.1139
-17	-0.17529	-0.17529	-1.43236	12	-0.34394	-0.34394	-7.0055	43	-0.38006	-0.38006	-19.494
-16	-0.14195	-0.14195	-1.57431	13	-0.35444	-0.35444	-7.35994	44	-0.40179	-0.40179	-19.8957
-15	-0.1101	-0.1101	-1.68441	14	-0.33055	-0.33055	-7.69049	45	-0.32344	-0.32344	-20.2192

For Australia's sample of 18 companies, I also use a two-tailed t distribution to analyze the statistical significance of the daily CAR and AR returns. The findings show that the daily t-statistics lie within the range of -1.282 and 1.282, which are similar to those of Japan's sample. Hence, I conclude that there is no sign of abnormal stock performance during the event window of 91 days. However, I observe a different trend in the CAR for Australia's sample. Instead of fluctuating randomly between 0 to - 4 as in Japan's scenario, the CARs decrease progressively in the Australia's sample. Furthennore, the fluctuations are relatively huge. The CAR decreases from 0.09986 to -20.2192.

The test statistic for Australia's sample is -2.1195. The null hypothesis is rejected at 5 per cent level of significance, but is not rejected at 1 per cent level of significance. This is not consistent with the findings by Adams and Hillier (2000) that captive formation is a zero sum project that will not give rise to windfall gains for stockholders. One reason for this is Australia's captive industry is relatively more developed as compared to Japan's captive industry, and investors are more sophisticated and do take into consideration the formation of a captive. However, even though H_o is rejected at 5 per cent level of significance, there is weak evidence that H_1 is true since H_o is not rejected at 1 per cent level of significance.

3.6 CONCLUSION AND RECOMMENDATIONS

In this study, there is no evidence of abnormal performance in Japanese companies' stock prices before and after the date of formation of captives. On the other hand, there is some possibility of abnormal performance in the Australian parent

companies. We should note that this result may not be representative of the true situation since I use only 24 per cent of the known Australian captive population. To verify whether the findings are true, further research could be done when there are more complete data on Australia's captives.

The lack of statistically significant positive abnormal returns on stock prices following the formation of captive insurers could reflect acute information asymmetries between risk managers, investors and the financial analyst community. Investors and financial analysts may not recognize that risk management is (or should be) about value creation and not just concerned with risk reduction (Adams and Hillier, 2000). As a result, closer liaison between risk managers and financial analysts could be encouraged by those engaged in the promotion and delivery of the captive insurance concept such as international insurance brokers and independent captive insurance managers.

A further effort can be made in carrying out a cross-sectional analysis based on the grouping of companies in the same industry instead of coming from the same country. In so doing, we can check for the confounding effects of industry membership. In this case, the stock price and market index range can differ greatly due to the difference in the currency values. Hence, all stock prices and stock market indices have to be standardized (can be done using statistical software such as SPSS) because firms in different countries but the same industry need to be consolidated together before the test statistic can be applied [Brown and Warner, 1980]. The formula for standardization is:

$$R_{jt}' = \frac{R_{jt} - \overline{R}_{jt}}{s_{R_{jt}}}$$

where R_{jt}' = standardized predicted stock price

R_{jt} = observed stock price

$\overline{R}_{jt}$ = mean observed stock price

$s_{R_{jt}}$ = standard deviation of observed stock price

In addition, a multivariate regression analysis (MVRM) can be done to further analyze the abnormal stock performance. According to Adams and Hillier (2000), such an analysis can give further insights into the abnormal returns during three sub-periods: pre-formation sub-period, formation sub-period, and post-formation sub-period. However, this can only be done when a bigger sample and more data are available.

A study can also be conducted to examine the stock returns beyond the 240-day period after the date of formation of the captive because this event window may be a rather short period and not conclusive of the true picture. The captive insurance industry may take time to disseminate the information of newly formed captives. Hence, the effect might manifest only in the longer run. However, we cannot rule out the possibility that other events can occur over the longer term and stock price fluctuations may be due to other reasons apart from the captive formation.

As a limitation, this study follows a conventional way of interpreting the results: mainly focusing on CAR behaviors. Interpretation of the results based on CAR has two main disadvantages. First, by nature, there is a serial correlation among values of CAR. Hence, CAR does not indicate any trend in abnormal stock returns correctly. Second, interpretation of one or more large (negative or positive) abnormal values may be

misleading as this may follow one or more large (positive or negative) AR values and vice versa (Hur and Na, 1999).

In addition, event studies like the CAR model, or even the multivariate model, can be sensitive to methodological issues such as the length of the event window and confounding effects on the movement of stock prices [Diallo and Kim, 1989]. I have taken such issues into consideration and attempted to control for these limitations while performing the study.

There has been a burgeoning literature on the importance of other factors in the return generating process, apart from market returns. Adams and Hillier (2000) suggest that these extra-market factors include company size, potential for tax-loss selling, dividend yield, price-earnings ratio, maturity of the company, the size effect, the turn-of-the-year effect, and several other factors. The CAR or CAPM model is a simplification of reality and it would be ideal to incorporate these extra-market factors into the study to provide a more realistic picture of the possibility of abnormal stock performance. However, such analysis would take a considerably long period of time if it were to be performed on companies in the Asia-Pacific Region. This is because historical data are not available or are insufficient at the present. Furthermore, the method of measurement of such factors might differ greatly from that in the US and UK. Hence, future researchers in this field should be cautious in comparing Asia-Pacific studies with those of the US and UK. To rule out all the confounding effects is an ideal that is difficult to fulfill. It is important for Asia-Pacific researchers to incorporate the unique features of the region so as to form a meaningful and all-rounded analysis.

The future outlook of the captive insurance industry still remains bright. Though the soft market has been around for a prolonged period, captives have still managed to maintain their market share in risk financing. This shows that parent companies are not merely looking to captives for perceived underwriting profit during hard markets [Dimson and Marsh, 1986]. Instead, they also seek to earn accrued investment income on their premiums during soft markets. Hence, having a captive allows a company to constantly seek new financial opportunities regardless of the market conditions.

CHAPTER FOUR

ANALYSIS OF FACTORS AFFECTING FORMATION OF CAPTIVES

4.1 INTRODUCTION

Captives continued to be formed in increasing numbers in spite of the measures taken by the tax authorities against them. One broad objective of my study is to give better insight into issues specifically related to captives in the Asia-Pacific Region. The following chapters deal with these issues.

4.2 RESEARCH METHODOLOGY

As explained in the previous chapters, available published data are lacking. Hence, this study is a qualitative exploration. The main source of data for this broader study is a survey. It was not possible to send the questionnaire to the parent companies because of lack of resources and information. An attempt was made to enlist the help of the captive managers to provide the contact person and address of the parent companies proved unsuccessful because the captive management companies have confidentiality contracts with their clients, and they were not able to help us. The captive managers were not even able to provide the names and email addresses of their clients. A further attempt to enlist the help of the Monetary Authority of Singapore also failed. Because of the lack of resources and constraints, it was decided to conduct a survey of all captive managers in Singapore. All the captive managers have kindly responded with complete answers. Six of the largest captive managers were interviewed to gain further insights on the motivations in forming captives and the various factors that hinder the development of captives in this region.

In addition, during various meetings such as regional conferences and seminars, risk managers and others involved in captives or have considered using captives were asked to complete the questionnaire and were also interviewed whenever they were willing. The result of this study can be used as a basis for more in-depth study in the future when more information and resources are available.

4.3 QUESTIONNAIRE DESIGN

The questionnaire groups the potential motivational factors towards captives into:

1) direct monetary advantages;
2) deficiency in conventional insurance market;
3) better risk management; and
4) influence of insurance brokers, captive specialists and risk managers.

4.3.1 Direct Monetary Advantages

The arguments of Ullrich (1992), Vaughan (1997) and Rejda (2005) in support of captives are fairly typical. It seemed reasonable that many of the factors could be seen as part of one major objective of saving (or indeed making) money on an organization's insurance. The following are the factors chosen.

4.3.1(a) Captives have lower operating costs than conventional insurers

Insurance companies are normally high cost enterprises. Many insurers typically spend more than 30 per cent of their premiums on operating expenses, with about 15 per cent of this paying for agents' or brokers' commission. Insurance companies also need to spend large sums of money on staff salaries, branch networks,

advertising, public relations and other administrative expenses. On a smaller scale, they need to pay subscriptions and make donations to associations such as the Singapore Insurance Institute. Some expenses are irrelevant to captives. Both Barile (1973b) and Sennett (1976) mentioned captives with expense ratios of only 5 per cent. However, a captive that is set up by a small organization might not enjoy the economies of scale of an insurance company. Hence, captives are usually set up only by large organizations. A well-managed captive with a reasonable level of premium income (say around S$1 million per annum) would probably enjoy savings, and most captives are much larger than this. The respondents were asked to confirm whether this is a motivating factor for setting up their captives.

4.3.1(b) Retain insurers' profit and investment income

Insurance companies make underwriting profits and investment income. Organizations may wish to retain these amounts if they can. Insurers' earnings from investments are an important factor in their growth. A captive could secure that investment income for its parent company. The respondents were asked to confirm whether this is a motivating factor for setting up their captives.

4.3.1(c) Access to the reinsurance market

Reinsurance is often less expensive than direct insurance. The advantages of using captives to access the reinsurance market are a regular theme of risk management commentators.[39]

[39] See for example, **Skipper** (1998), **p. 664.**

The reinsurance market is more flexible than the direct insurance market and could provide valuable insurance education and training for the reinsured. However, normally only bona fide insurance companies can gain access to the reinsurance market. The respondents were asked to confirm whether this is a motivating factor for setting up their captives.

4.3.1(d) Less insurance regulations in offshore captive domiciles

Most insurance regulations require an insurance company to be approved by the regulatory authority; have a significant paid-up capital; maintain a pre-determined margin of solvency; and submit frequent financial reports. A captive in an offshore domicile is usually subject to less stringent requirements, because the offshore authorities recognize that captives do not insure the general public. Although some offshore domiciles require a captive to have reasonable levels of capital and reserves (e.g., S$400,000 for a Singapore captive) so that it can function properly, these are usually much lesser than what would be required in the parent's country (e.g., A$2 million in Australia.)

In addition, offshore captives do not have to submit the detailed annual returns typically required of conventional insurance companies. Preparing such returns involves considerable expense and time. It is also not uncommon for quarterly returns to be required. The respondents were asked to confirm whether this is a motivating factor for setting up their captives.

4.3.1(e) Tax deductibility of captive premiums

Cross, et al. (1987, 1988) and Borch (1990) conclude that the initial popularity of captives arose from their ability to provide income tax relief to their parent corporations. However, even when tax deductibility was prohibited, captives continued to be formed. Captive managers simply stopped using the tax status of captives to argue in favor of operating single-parent captives. Kamath and Southworth (1992) concluded that, for their sample of 693 firms listed on the New York Stock Exchange (NYSE) in 1990, the decision to use captives is not heavily influenced by the issues surrounding the tax deductibility of premiums paid to captives. The respondents were asked to confirm whether this is a motivating factor for setting up their captives.

4.3.1(f) Lower taxation offshore

A significant advantage of having a captive offshore is that it will usually enjoy a much lower tax on profits (e.g., 10 per cent concessionary tax for Singapore captives) than it would if set up on-shore. In some offshore domiciles, captives pay no tax at all except for licensing fees (e.g., US$6,098 in Cayman Islands; HK$22,600 in Hong Kong) and stamp duty. Captives are thus able to rapidly build up their funds and play a greater role in protecting their parents' risks. The tax question is one of the most widely discussed aspects of captive operation, and attitudes fall into two camps:

1) Opponents of captives. Tax authorities of some parent countries such as the US claim that captives are set up for tax reasons and should therefore be prosecuted. Some captive commentators also believe that virtually no captives would exist if there were no tax havens.[40]

[40] See, for instance, Dixon (1974).

2) Supporters of captives. Many captive commentators emphasize that a captive should not be formed for tax purposes.[41] Others stress the disadvantages of domestic captives, rather than the advantages of offshore captives. For example, Barile (1973a) said that 'limited tax advantages (at home) are one of the contributing factors to the increasing growth of the offshore captive.'[42]

Some captive supporters stress that the money that is accumulated tax-free would eventually be repatriated to the parent country anyway. Tax would then have to be paid. The captives are therefore only engaging in tax deferment.[43] Porat (1982a) attempted to assess the status of Bermuda-based offshore captives and to determine the goals of captives or the motives for their formation. Porat concluded that tax benefits are not a primary reason for forming captives. Other captive commentators said that captives have now moved from being seen as a tax-planning tool to an accepted tool for risk management in an increasingly sophisticated world.[44] Hence, an offshore captive could be set up largely for insurance reasons, but with tax benefits as an added advantage.

On balance, taxes do influence the decision of where to locate the captive. In the most extreme cases, a captive might be established with little intention of operating fully as an insurer. For example, the parent company might artificially inflate the premiums payable to the captive just to get more money into the tax haven. In such cases, the parent company would rightly be accused of tax evasion.

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[41] See, for instance, Cossar (1996), pp S9-S17
[42] Barile (1973a), p. 70
[43] See, for instance, Sennett (1976)
[44] See, for instance, Grieves (1998), pp 22-25

A middle view taken by some practitioners is that although tax advantages do exist, their transitory nature should mean that they are not considered when deciding whether a captive should be set up, that the tax advantages should be seen as a possible bonus, rather than a real motivation. The questionnaire therefore asks whether the respondent had been influenced by the possibility of building up funds in a captive domicile for other than insurance purposes. In the case of companies that had considered the formation of a captive, but had not proceeded, a furtherquestion asked whether the respondent thought companies that had formed captives were so influenced.

Difficulties in identifying motivating factors with regard to taxation

Where a person involved in the management of a captive states that the captive was formed largely for tax reasons, we can be fairly certain that is the truth. However, in most cases, respondents would be reluctant to be so candid in such a delicate issue.

This is also an area where the captive managers might not be able to answer for their captives. For example, a captive manager might really believe that savings in insurance costs and risk management advantages are the main motivations, but at a higher level in the parent company, or in the tax department, the captive might be regarded as part of the organization's international tax plans, besides the insurance factors. Hence, it is necessary to attempt to obtain information from other officials in respondent organizations, particularly the senior managers or directors in the financial functions who were involved in the decisions relating to the formation of the captives. However, it is difficult to gain access to such people.

The risks of offshore operations

It is necessary to consider the factors that might dissuade organizations from forming captives offshore. In the UK, the report of the Association of Insurance and Risk Managers in Industry and Commerce (the AIRMIC Report) provided evidence that insurance buyers were not very concerned about encountering difficulties with the conventional market or the issues of cost or possible lack of expertise. Political risks offshore appeared to be the only risk taken seriously. Raley (1976) holds the view that the primary factor that appeared to be of concern is the political risks of operating in a tax haven. Respondents were therefore asked to comment on this view.

Implications vary depending on whether the captive is deemed a "controlled foreign corporation" or a non-controlled foreign corporation. For example, in 1997, Australia's federal government changed the "controlled foreign corporations" law by reducing the number of countries (including Singapore) on its so-called "white list" of identified countries considered to have comparable tax rates.[45]

The reduced "white list" is perceived to discourage Australian companies from setting up new captives in Singapore, the main domicile for Australian captives, and to encourage existing Australian captives in Singapore and elsewhere to relocate to Australia. Indeed, a few new Australian captives were established onshore and a few existing Australian captives were relocated to Australia because of the change in the Australian tax rules.

[45] Tilley (1998).

Similarly, several Japanese captives were relocated out of Singapore, and new Japanese captives were set up elsewhere after the Singapore government lowers its tax rates to below 25 per cent. However, this is not conclusive evidence that these captives are set up for tax reasons. It only shows that tax is an important consideration in the choice of the captive domicile, which can be changed easily.

4.3.1(g) Making profit from underwriting second and third party risks

Captives often insure second-party (e.g., customers, dealers, distributors and suppliers) risks.[46] In addition to enhancing relationships with customers, distributors, suppliers, etc. this additional captive business is expected to bring in profits. Captives can usually make profits from such business as they have existing relationships with the second-parties and understand their risks well. For example, some automobile manufacturers sell automobile warranties, and computer manufacturers sell disaster recovery and transit coverage to their customers. These activities also enable businesses to generate additional revenue directly by making their products more marketable.

Another common example of such business is credit insurance. For example, a manufacturer can provide credit insurance for its dealers and customers through its captive. This value-added insurance program helps protect the business and assets of the manufacturer's dealers and customers, while adding profit to the manufacturer's bottom line.

[46] For example, PSA Corp's captive in Singapore insures second-party risks.

The ability to write customer business has many potential advantages for corporations. These include moving the captive from being viewed as a cost centre to being a profit centre; enhancing the opportunity to tax-deduct the premiums on corporate risk paid to the captive; and providing an additional service to the corporation's customer base thereby increasing customer contact and loyalty.[47]

Several captive practitioners warned that writing third-party business introduce the same sort of volatility into the captives' results that the captives were formed to prevent.[48] Nevertheless, many captives successfully wrote substantial amount of unrelated businesses, particularly through reinsurance exchanges with other captives.

Captive development in Singapore seems to be following their evolution in the US and UK. Captives in Singapore are permitted only to insure first and second-party risks. It is unlikely that earning profits from third party risks is an important reason for forming a captive in this region. Nevertheless, the study seeks to confirm whether this is indeed the case.

4.3.2 Deficiency in Conventional Insurance Market

Rogers, et al. (1996) mentioned that captives were originally created to compensate for shortcomings in the traditional insurance market, particularly during cyclical hard markets. The following factors could be seen as part of one major objective of enjoying more flexibility in the treatments of an organization's risk management needs.

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[47] Cossar **(1996),** p. S9.
[48] For example, Milligan (1991).

4.3.2(a) Restrictive limitation and exclusions of insurance cover

A common complaint is that insurers should be more responsive to the needs of their insureds. The general theme was that a captive could provide operational convenience for its owners. It also suggested that a captive could deal with 'unusual risks'.

Milligan (1991) mentioned an example of a company that manufactures equipment for nuclear reactors. The company could sell its products only with a certificate of product-liability insurance. However, no underwriter would offer such coverage. The solution was to set up a captive and issue the certificate through its captive. This study seeks to establish whether captives have less exclusion and limitations in their policies, insure difficult-to-place risks, or settle claims quicker.

4.3.2(b) Inflexible attitude of the traditional market to policy wording

It is often argued that insurers are rigid in their attitude to policy wording. A captive could, in theory at least, issue whatever policy wording it chose. Reinsurers are more flexible than direct insurers. Where only moderate values not requiring reinsurance are at risk, the captive manager can use whatever wording he desires. Similarly, where a risk cannot be insured with the direct market and reinsurance is not available, captives can use whatever wording is necessary. MacDermott (1998) stated that, "The increased insurance flexibility and cost savings are a major advantage of captives." The survey seeks to establish whether captives issue any special policy wording that is not available in the conventional insurance market.

4.3.2(c) Insufficient coverage

In practice, a large organization requiring substantial sums for insurance has to insure with more than one insurer, a system known as 'co-insurance'. Although insurers have reinsurance facilities that enable them to pass on large parts of their acceptance to the reinsurance market, those facilities might not be large enough to allow even the biggest insurers to handle the whole of a major industrial risk, such as the Singapore Mass Rapid Transit (SMRT) projects. This is not an unusual situation for many of the pharmaceutical companies, petrochemical firms, banks and other organizations with high-risk exposures that have experienced such capacity problems. Captives have been used as a means for providing the insurance capacity needed to fully insure the large exposures.[49]

A major difficulty with a captive being set up to provide the extra capacity is that such a captive could (even with substantial reinsurance) retain only small amounts of insurance. To operate safely, a captive should follow the general principles for the restriction on retention. However, an organization that could not purchase all its insurance in the conventional market could insure the remainder with a captive, rather than carry the risk internally.

[49] See, for instance Barile (1972)

The capacity problem is related to the insurance underwriting cycle where insureds enjoy wide cover at low premiums during soft markets and experience restricted cover and high premiums during hard markets. Such cycles can play havoc with the corporate budgeting process. Porat's (1986) study on the captive formation rates in Bermuda reveals a strong correlation between the fluctuation in annual captive formation rates and the insurance cycles in the US. His study covered three complete cycles, in which periods of high profitability, high prices, and capacity shortages were followed by increased competition through price reduction and liberal underwriting standards that ultimately resulted in large losses.

According to Gallagher (1995), "Captives have proven themselves able to smooth out the insurance cycles, as captives are flexible and responsive in the design and implementation of insurance programs and therefore can meet the specific needs of the parent organizations in both hard and soft markets." Corporations with captives would still experience underwriting cycles, but they are better prepared than if they have no captive at all. The study seeks to establish whether this is an important consideration when deciding whether to set up a captive.

4.3.3 Better Risk Management

Several factors that seemed to influence the setting up of captives could be grouped under the concept of better risk management after forming a captive. The notion being that captive enhances attention on risk improvement and management. Captives also give those involved greater scope for action and provide general management with more incentives to risk improvement as they now have greater direct vested interest in keeping down the level of losses.

4.3.3(a) Greater risk consciousness

A captive is an actual insurance company that requires its parent to continually monitor its financial status. As a result, the captive forces its parent to take a formal, rigorous approach to risk retention, including the use of actuarial reviews and annual audits. The management of an organization insuring itself may be less likely to resist loss control measures such as installing loss control equipment, and is likely to be more active in educating its workforce in safety procedures.

According to MacDermott (1998), "The development of greater risk awareness throughout an organization is a major advantage of captives." The issue of which comes first - the captive or greater risk consciousness makes it difficult to identify the actual motivations in each case. One of the basic requirements of a captive is that its risks are already well managed. Some companies likely put in more risk management effort after a captive is set up. On balance, it seems that this would be an important factor. The study therefore seeks to verify this.

4.3.3(b) Better control of risk

Several commentators cited the advantage of greater control of risk, particularly with regard to the harmonization of the worldwide insurance of international companies.[50] Others cited more flexibility, global consistency and longevity in the structure of insurance programs; improved cash flow management; external premium expenditure can be concentrated on catastrophe exposures; and reduction in the dependence on the direct insurance market over time.[51]

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[50] See for instance, Budge (1971).
[51] See, for instance Moore (1999), p. 52.

Hare and Smetana (1972)[52] suggested that, in the area of loss control activities, some industries with special problems have set up captives primarily to improve them. According to Shayne (1999), captives provide opportunities for the parent organization to improve risk controls by centralizing the risk management function. It is possible that companies would form captives with a view to using this particular advantage. The study seeks to establish whether captives result in better risk consciousness and loss control, and respondents were given the opportunity to comment further.

4.3.4 Influence of Insurance Brokers, Captive Specialists and Risk Managers

Insurance brokers, captive specialists and risk managers all have personal interests in the decision whether to set up a captive and do have considerable influence. The study seeks to verify this.

4.3.4(a) Influence of insurance brokers and captive specialists

It is generally accepted that insurance brokers have considerable influence in the placing of the insurance and handle the majority of the business of the major companies.[53] With their close contacts with the types of organization that are likely to form captives, it is not surprising that US brokers became involved in the management of captives almost as soon as they began to be formed in the 1950s.

In more recent years, other brokers have also developed expertise in the subject and major broking firms have staff specializing in captive advice, with facilities established in one or more captive domiciles. It is possible that brokers without captive expertise will try to persuade their clients not to form captives, as this will reduce their

[52] Hare and Smetana (1972), p.4.
[53] See, for instance, Garrett (1975).

brokerage income. However, brokers with captive expertise will also persuade their clients to form captives. Historically, brokers resisted the captive movement. Other organizations (independent of broking houses) that specialize in the establishment and management of captives were actually responsible for most of the first offshore captives. The study attempts to find out the current situation among the brokers in the region.

4.3.4(b) Influence of risk managers

Scordis and Porat (1998) propose that the operation of single-parent captives enhance the stature of managers and find that corporations with heightened manager-owner conflicts of interest are more likely to operate single-parent captives. The study uses a sample of 234 corporations for each of the years 1977 through 1994, with a mean market value of US$3.1 billion and median market value of US$0.7 billion. Thus, the corporations in the sample are large and the results of this study may not extend to corporations in this region, which are smaller.

The information available on the status and role of risk managers is limited. An outdated investigation by what was then known as the Association of Insurance Managers in Industry and Commerce Report (1969) found that 41 per cent of respondent 'risk managers' in the UK reported to the company secretary, 27 per cent to a director, and 20 per cent to the financial controller. In this sample, only 20 per cent were involved in risk reduction. The others were concerned almost entirely with insurance work. This limited and outdated information confirms the general view in the insurance industry that, although some risk managers in the UK hold important positions in their companies, the risk management function in most organizations is not highly regarded, even today. A risk manager may see considerable personal

advancement in pushing the captive concept in the organization, but it is difficult to see how the person can have much impact if the status is lacking initially.

Damary (1976) found that 38 per cent of the risk managers in the 80 companies he investigated reported to the company secretary or administrative director, and 45 per cent to the financial director. More than half (56 per cent) of the 'risk managers' were concerned solely with insurance matters. This means they were not involved with broader risk management issues such as risk reduction. However, none of Damary's sample was Asian based and all were large organizations. Thus, the results of this study may not extend to corporations in this region, which are smaller.

A comparative study of the top 200 Singapore companies ranked by sales with a similar US survey of Fortune 500 companies by Yee and Christner (1999) shows that most of the risk managers[54] in Singapore come from the finance division. This shows that the insurance function is not an important role in most Singapore companies and is not a full-time job. As shown in Table 4.1, in the US, the person responsible for risk management is the Director of Risk Management. Most of the Singapore respondents reported to the CEO (45 per cent), followed by the Vice President (14 per cent), and the General Manager (14 per cent) while the remaining 27 per cent reported to other categories like Director, Human Resource Manager or Local Management. In the US survey, all the risk managers report to the Treasurer, CFO (Chief Financial Officer) or Assistant Treasurer. However, the differences are diminishing as the risk managers in Singapore are learning from their US counterparts.

[54] "Risk Manager" here means anyone in charge of risk management activities.

Table 4.1 - Position held by risk managers in Singapore v. US

Risk Manager	Singapore		US	
	No.	%	No.	%
Director of Risk Management	-	-	125	100%
Finance/Admin. Manager	12	27%	-	
Financial Controller	13	30%	-	
Head of Insurance Claims Dept.	4	9%		
Accountant	4	9%	-	
Senior Management (VP, Director)	5	11%	-	
Property Manager	2	5%	-	
Contracts Manager	2	5%	-	
Local Management	1	2%	-	
Risk Manager	1	2%	-	
Total	44	100%	125[55]	100%

The stark difference lies in the education and experience of the risk managers. For the US, most of the risk managers are full-time with an average of 16 years experience. Most also had extensive insurance related experience and possessed professional insurance or risk management designations. In Singapore, the dominant educational training was accounting related (61 per cent). All handled risk management as a part of their other mainly financial responsibilities. Discussion with interviewees reveals the same practice in the region, except in Australia where many of the risk managers are holding full-time jobs in risk management.

[55] Out of the Top 500 US Fortune 500 companies, 125 (25 per cent response rate) responded to the survey that was done in 1998.

It is well accepted that the interests of managers often conflict with the interests of corporate owners. For example, Amihud and Lev (1981) said that managers might pursue a strategy of unrelated diversification to enhance their job security. In surveying the reasons why risk managers operate captives, Porat (1987) found that almost 10 per cent of the 466 managers surveyed admitted that status and prestige motives influence the formation of new captives. Schleifer and Vishny (1989) said that managers may entrench themselves by favoring irreversible projects that require expertise possessed by the current management only.

Kloman (1990) ascribes the formation of a captive to the desire of some managers to take part in the "heady pleasures of playing the [insurance] game in New York and London..." Porat and Powers (1995) have guardedly speculated that captives may enhance the stature of corporate risk managers, rather than add value to corporate stock. As it is not easy to research on the true influence of the risk managers, the issue is dealt with by asking about the risk manager's role before and after the captive was formed, including a request to indicate any change in job title.

4.3.5 Primary Motivating Factors

Even after the factors that seem to motivate organizations to form captives have been identified, a clearer picture of decision-making could be obtained if respondents placed the factors in order of importance. Hence, each respondent is asked to rank the most important reasons why his captives were formed. The reasons why organizations actually form captives are likely complex, befitting the complexities of risk management for the large organizations concerned. After explaining the philosophy behind the construction of the questionnaire, we next analyze the responses from the survey.

Table 4.2 - Importance of various factors as pre-condztzons for captiveformation

Pre-Conditions for Captive Formation	*Score*
1. Management commitment to understanding implications of captive	5.0
2. Adequate commitment & involvement of top management to risk management	4.4
3. Good loss history	4.0
4. Strong financial position of parent company	4.0
5. Centralization of risk management activities & control	4.0
6. Top management understand how insurance & captive market works	4.0
7. Healthy risk-taking philosophy of the parent company	3.7
8. Positive attitude of local managers to local retention levels	3.6
9. Good loss control	3.5
10. Good claims handling services	3.4
11. Adequate service locally at reasonable cost	3.4
12. Market co-operation in fronting facilities	3.3
13. High retention capability of the company	3.1
14. High premium volume	2.9
15. Risk exposures are well spread-out geographically	2.4
16. Low risk exposure	2.4

4.4 ANALYSIS OF RESPONSES

4.4.1 Importance of Various Factors for Captive Formation

Responses on the most important pre-conditions for captive formation are highlighted in Table 4.2. The respondents rate the majority of the factors mentioned 'significant' – i.e., over the significant value of 3 (out of 5). 'Score' is calculated as the

sum of (scale of importance multiplied by the percent response), with a nil response scaled as zero, i.e., a non-response is simply ignored. A score of 1 denotes that the factor is not important or relevant, and a score of 5 denotes that the factor is very important or relevant. Any score over 3 is deemed to be significant.

All the respondents believed that management commitment to the understanding of the implications of captives is the most significant for the formation of a captive, with all the respondents giving a maximum score of 5 to the question. The second most important factor is adequate commitment and involvement of top management to risk management (4.4). Other factors of substantially high importance are good loss history, strong financial position of the parent company, centralization of risk management activities and control, and top management should understand how insurance and captive markets works, with each factor scoring the same high score of 4.0.

Although scoring lower than the above factors, the following factors are also rated as important: healthy risk-taking philosophy of the parent company (3.7), positive attitude of local managers to local retention levels (3.6), good loss control (3.5), good claims handling services (3.4), adequate service locally at reasonable cost (3.4), market co-operation in fronting facilities (3.3), and high retention capability of the company (3.1).

Contrary to generally accepted expectations, the following factors are deemed not very important for the formation of a captive: high premium volume (2.9), risk exposures are well spread-out geographically (2.4), and low risk exposure (2.4). The captive managers rated the 'influence of captive consultant' as the least important motivation (1.9). As mentioned by several respondents, the captive idea was not 'sold' to their clients, but rather their clients have often conducted their own study or have

relied on various additional advice before accepting the captive consultants' recommendations.

Table 4.3 - Satisfaction of the various pre-conditions for captive formation

Pre-Conditions for Captive Formation	*Importance*	*Achieved*
1. Management commitment to understanding implications of captive	5.0	4.1
2. Adequate commitment & involvement of top management to risk management	4.4	3.9
3. Good loss history	4.0	3.9
4. Strong financial position of parent company	4.0	4.0
5. Centralization of risk management activities & control	4.0	3.9
6. Top management understand how insurance & captive market works	4.0	3.7
7. Healthy risk-taking philosophy of the parent company	3.7	3.6
8. Positive attitude of local managers to local retention levels	3.6	3.1
9. Good loss control	3.5	3.3
10. Good claims handling services	3.4	3.7
11. Adequate service locally at reasonable cost	3.4	4.0
12. Market co-operation in fronting facilities	3.3	3.3
13. High retention capability of the company	3.1	3.6
14. High premium volume	2.9	2.9
15. Risk exposures are well spread-out geographically	2.4	3.3
16. Low risk exposure	2.4	3.0

4.4.2 Extent of Satisfaction of Pre-Conditions for Captive Formation

After identifying the relative important factors in the formation of a captive, the next question asked about the extent to which the respondents' captives have satisfied these criteria. This is reflected in the summaries of Table 4.3.

Almost all the respondents' captives were able to satisfy all of the 13 important factors for the formation of captive, which they considered of significance (score above 3). The five most important factors are well satisfied by most of the captives.

4.4.3 Motivations or Benefits to Captives

The next question investigates the various benefits or motivations to captive formation. Table 4.4 shows what the captive managers regard as important benefits or motivations for captive formation.

The factor of 'using the accumulated fund generated by the captives for non-insurance purposes' is rated low (1.9). Most of the respondents have previously worked in the conventional insurance market and might tend to stress the use of captive fund for insurance purposes, rather than for non-insurance purposes, such as for investment.

'Improving the status of the risk manager' is also rated low (2.0). This may be explained by the fact that most risk managers whose firms have offshore captives are not directly involved in managing the captives. This situation arises partly because almost all the organizations with captives in Singapore engage professional captive managers to manage their captives, rather than using their existing risk managers.

In addition, if an offshore captive is to maintain that it is not trading in the parent company's country (which is essential for tax reasons and to avoid the insurance regulations) it will have to be kept at arms length from the parent and the existing risk

manager. It should be noted that all but two of the captives managed by the respondents are offshore captives.

Table 4.4 - Importance of Benefits or Motivations to Captive Formation

Benefits or Motivations to Captive Formation	*Score*
1. To retain profit made by insurer	4.4
2. Cash flow benefits and investment income	4.4
3. To retain investment income made by insurer	4.3
4. Direct access to reinsurance	4.3
5. Broader coverage	4.3
6. Lower Premium rate	4.1
7. Improvement in loss control because of higher motivation	4.1
8. Create capacity for big risks (Conventional insurer could not provide full capacity; insured forced to be co-insurer)	4.1
9. Co-ordinated multinational insurance programs	4.0
10. Greater control of risk (harmonization of world-wide insurance)	4.0
11. Control over cash flow	3.9
12. Leverage in claims handling & control of reserves	3.6
13. Captive operate far more cheaply because of lower overheads	3.4
14. Tax advantages	3.4
15. Insure the uninsurable	3.4
16. Creation of profit centre	3.4
17. Better funding mechanism	3.4
18. Overcoming regulatory restrictions	3.3
19. Overcome underwriting cycle	3.3
20. To obtain more generous terms for deductibles	3.2
21. Can build up fund faster in offshore location	3.0
22. Provide insurance services to related third parties	2.3
23. Improves status of risk manager	2.0
24. Can even use accumulated fund for non-insurance purposes	1.9
25. Captive idea 'sold' by captive consultant	1.9

'Tax advantages' is rated as the 14th most important motivation (3.4), rather than the most important, as stressed by several commentators. All respondents maintain that captives were formed for legitimate risk management and cost saving reasons. These include 'retaining profit that would otherwise go to the commercial insurers' (4.4), 'cash flow and investment benefits' (4.4), 'access to the reinsurance market' (4.3), 'broader coverage' (4.3), 'lower premium rate' (4.1), 'improvement in loss control' (4.1), 'greater capacity for big risks' (4.1), 'co-ordinated multinational insurance programs' (4.0), 'greater control of risk' (4.0), and 'greater leverage in claims handling' (3.6).

Although 'insuring the uninsurable' is rated as the 15th most important motivational factor (3.4), the survey revealed that the most common risks covered by the respondents are fire material damage, fire business interruption, public liability and cargo risks. The respondents mentioned the following 'non-conventional' covers provided by them: foreign currency exchange risk, expropriation and confiscation risk, environmental impairment, criminal and financial indemnity covers, and weather related coverage.

As often mentioned by the respondents, the insurance industry here is already competitive. Hence, few special policy wordings can be quoted which differ significantly from that of the conventional insurers. Moreover, as conventional insurers are increasingly becoming more diversified in their underwriting programs, they offer more variety in their policy wording to stay competitive. Hence, the captives offer protection covers that are similar to that of conventional insurers.

However, the captives are not restricted to the traditional forms of insurance, but can explore any forms of risk funding requirements. There is a trend moving away

from assets or liability insurance to alternative risk transfer (ART) products. Some of the captive managers do cross risk or multi-year contracts or capital market instruments that conventional insurers have been slow to offer, double trigger event and other forms of ART products whenever required by clients. The captives are also used as vehicles to finance and access reinsurance capacity for the conventional as well as 'non-conventional' covers, as the conventional markets are often more expensive. Captive managers who do not currently provide any specific special wordings mentioned that with the past soft conventional market, 'you can buy any risk'. They will see to their parent companies' needs and develop appropriate policy wordings to write the required risks.

Several captive managers mentioned that it is not important for captives to be profit centers and this is ranked 16th (3.4). The general view is that captives should be used for easier access to the reinsurance market in the light of protecting the balance sheet of the parent companies.

4.4.4 Realization of Benefits or Motivations by Captives

Comparing Tables 4.4 and 4.5, the 13 most important factors ranked in Table 4.4 have been successfully realized by the respondents. However, the 14th most important factor of 'tax advantages' (3.4) was not realized as it only receives a low rating. The other important motivations such as insuring the uninsurable (3.4), creation of a profit centre (3.4), better funding mechanism (3.4), overcoming regulatory restrictions (3.3) and overcoming underwriting cycle (3.3) are all realized.

Table 4.5 – Realization of Benefits or Motivations by the Captives

	Importance	Achieved
1. To retain profit made by insurer	4.4	4.1
2. Cash flow benefits and investment income	4.4	4.3
3. To retain investment income made by insurer	4.3	4.4
4. Direct access to reinsurance	4.3	4.9
5. Broader coverage	4.3	4.6
6. Lower Premium rate	4.1	4.1
7. Improvement in loss control because of higher motivation	4.1	3.9
8. Create capacity for big risks (Conventional insurer could not provide full capacity; insured forced to be co-insurer)	4.1	3.9
9. Co-ordinated multinational insurance programs	4.0	4.1
10. Greater control of risk (harmonization of world-wide insurance)	4.0	4.3
11. Control over cash flow	3.9	3.9
12. Leverage in claims handling & control of reserves	3.6	3.7
13. Captive operate far more cheaply because of lower overheads	3.4	4.3
14. Tax advantages	3.4	2.3
15. Insure the uninsurable	3.4	3.1
16. Creation of profit centre	3.4	3.7
17. Better funding mechanism	3.4	3.7
18. Overcoming regulatory restrictions	3.3	3.0
19. Overcome underwriting cycle	3.3	3.3
20. To obtain more generous terms for deductibles	3.2	3.2
21. Can build up fund faster in offshore location	3.0	3.3
22. Provide insurance services to related third parties	2.3	2.1
23. Improves status of risk manager	2.0	2.7
24. Can even use accumulated fund for non-insurance purposes	1.9	2.3

Table 4.6 - Obstacles in Achieving Benefits or Motivations for Captives

Obstacles in Achieving Benefits or Motivations for Captives Formation	*Score*
1. Strict tax supervisory authorities	3.5
2. Internal pressures in relation to premium rating	3.3
3. Internal pressures in relation to claims settlements	3.0
4. Considerable amount of management time involved in captive	2.8
5. Loss control problems	2.7
6. High administrative effort	2.7
7. Reserving problems	2.5
8. Continuous supply of considerable information to authorities	2.5
9. Risk of insolvency, particularly in early stage of development	2.3
10. Problem in motivating loss prevention activities	2.3
11. Difficulties in collecting statistics	2.2
12. Strict insurance supervisory authorities	2.2
13. High reinsurance cost	2.0
14. Difficult to justify premium rate	2.0
15. Higher expenses in loss control	2.0
16. Fronting problems	2.0
17. Difficulties due to local company legislation	2.0
18. High capitalization requirements	1.8
19. Problems in claims handling	1.8
20. Problem of high reserves required by local regulations	1.8
21. Control over solvency requirements	1.8
22. Exchange control restrictions	1.8
23. Low spread of risk	1.7
24. Higher need for reinsurance	1.7
25. Delay in formation of captive	1.5
26. Admissibility of assets in relation to reserves held	1.5

1 = minor problem; 2 = not so significant problem;
3 = significant problem; 4 = quite significant problem;
5 = major problem; n/o = no opinion

4.4.5 Obstacles to Achieving the Benefits

Although the majority of the respondents' captives are able to realize the motivations or benefits for the setting up of the captives, there are three main obstacles faced in the attempt to achieve them. Table 4.6 shows the significance of the obstacles encountered.

The three significant problems encountered are strict tax supervisory authorities (3.5), the internal pressures in relation to premium rating (3.3) and internal pressures in relation to claims settlements (3.0). The other problems were dismissed as 'minor problems': management time involved in captive management (2.8), loss control problems (2.7), high administrative effort (2.7), reserving problems (2.5), reporting to local authorities (2.5), risk of insolvency, particularly in early stage of development (2.3), problem in motivating loss prevention activities (2.3), and difficulties in collecting statistics (2.2).

It is interesting that 'strict insurance supervisory authorities' (2.2) is stated as a 'minor problem' even though the Singapore authorities are often deemed to be too strict. Most of the respondents pointed out that the major problem is the 'soft insurance market' over the past 30 years, where insurance premium rates have been kept very low. However, all the respondents agree on the necessity of forming a captive despite the 'soft' market. One respondent pointed out that it is in fact the best time to form a captive during a 'soft' market, to prepare for the invariably 'hard market,' which is the case now. Another respondent pointed out that a captive's job is not only to provide funding for insurable risks, but also to provide for non-conventional risks like product recall, product guarantee and credit risks which are relatively expensive in the conventional insurance market, even during a 'soft market'.

Table 4.7 - Importance of Various Factors in the Location of Captives

Importance of Various Factors in the Location of Captives	*Score*
1. Good infrastructure - banks, fund management, telecommunications, travel, hotel, lawyers, accountants, etc. in domicile	4.7
2. Availability of local captive management expertise	4.6
3. Political stability of domicile	4.6
4. International reputation of domicile	4.4
5. Attitude of insurance authorities in domicile	4.1
6. Stage of development of insurance industry in domicile	4.0
7. Low capitalization requirements	4.0
8. Low solvency requirements	4.0
9. Financial reinsurance allowed	4.0
10. Attitude of tax authorities in domicile	3.9
11. Cultural and social factors	3.9
12. Little regulatory restrictions	3.9
13. Influence of captive managers (include broker)	3.7
14. Stage of development of the reinsurance industry in domicile	3.6
15. Little regulatory disclosures requirements	3.6
16. Can provide insurance services to related second & third parties	3.4
17. Same time zone	3.3
18. Tax advantage	3.1
19. Intangible benefits (e.g. golfing facilities)	2.4

1 = not important; 2 = not so important; 3 = important;
4 = quite important; 5 = very important; n/o = no opinion.

4.4.6 Factors Affecting Domicile of Captive

Another aspect of interest in the study is to examine the important factors affecting the choice of the location of the captive. The survey elicits such information from the experts. Table 4.7 shows the most important factor regarded by the respondents is the availability of good infrastructure (4.7) such as good banking, hotel and telecommunications facilities, ease of travel, expertise in fund management, availability of reputable lawyers and accountants, etc. Other important factors are the availability of local captive management expertise (4.6), political stability (4.6), international reputation of domicile (4.4), and positive attitude of the insurance authorities in the domicile (4.1). Other factors of growing importance are the stage of development of the insurance industry (4.0), low capitalization and solvency requirements (4.0), and the tolerance of financial reinsurance in the domicile (4.0).

As the main objective of a captive is to save the parent company money in a direct way, the 'attitude of the tax authorities' (3.9) and 'tax advantages' (3.1) are rated important although they are not ranked among the most important factors. Interestingly, cultural and social factors (3.9), little regulatory restrictions (3.9) are ranked more important than tax advantages. No doubt captive managers do influence the final choice (3.7) and the stage of development of the reinsurance industry (3.6) is an important factor as the captive would need good reinsurance support if it is to really act as a risk financing vehicle for the parent company and not just as a tax saving vehicle.

Little regulatory disclosure requirement (3.6) is an important factor as this would translate to much saving in costs and management time. An added incentive would be the liberty to write second and even third party business (3.4). Not surprisingly, same

time zone is important (3.3) as it is then easier to communicate during normal office hours.

Table 4.8 - Importance of Various Factors That Hinder the Formation of Captives

Importance of Various Factors That Hinder the Formation of Captives	*Score*
1. Possibility of interference by tax authority in home country	4.4
2. Concern about political risks of operating in tax havens	4.0
3. Possibility of interference by insurance authority in home country	4.0
4. Firm's broker hostile to captive idea	4.0
5. Firm's insurance manager hostile to captive idea	3.9
6. Higher risks of offshore operations	3.6
7. Insurance industry in firm's country hostile to captive idea	3.4

4.4.7 Factors which Hinder Firms from Setting Up Captives

The next area investigated is the factors that might hinder firms from setting up a captive. Table 4.8 clearly pointed out that the 'possibility of interference by the tax authority in the home country' (4.4) is considered as the main hindrance in preventing firms from setting up captives.

Other important factors that could hinder firms from setting up captives include concern about the political risks of operating in tax havens (4.0), possibility of interference by the insurance authority in the home country (4.0), hostility of a firm's broker (4.0) towards the captive idea, firm's insurance manager hostile to captive idea (3.9), higher risks of offshore operations (3.6), and hostility of the insurance industy

in firm's country (3.4) to the captive idea. The four major types of political risks are changes in taxation, asset restrictions, operational requirements, and violence.

Table 4.9 - Whether Captives Would Use the Following ART Products

ART products	*Using now*	In 5-years time	In 10-years time	Not foreseeable
Finite risk re/insurance	57.1%	28.6%	-	14.3%
Insurance derivatives	-	28.6%	-	71.4%

4.4.8 Usage of Alternative Risk Transfer (ART) by Captives

Since captives are only one of the ART products, the survey also investigated the usage of other ART products by the captives that can enhance the efficiency of the operation of captives. Table 4.9 shows that, among the ART products available in the market, finite risk re/insurance is the most used ART product by the respondents, with 57.1 per cent of the respondents currently using it and 28.6 per cent likely to use it in five years time. As for the insurance derivatives, a high percentage of 71.4 per cent of the respondents do not foresee its use and only 28.6 per cent foresee its use in five years time.

4.5 CONCLUSIONS

Because of non-availability or uncertainty of insurance covers from commercial insurers, we are likely to see a much greater interest in the use of alternative risk financing methods, principally in the use of captives, as self-insurance techniques

become more widespread. There is potential for rapid growth as companies in the Asia-Pacific Region become aware of the benefits of having their own captives.

More corporations will become large enough to have their own captives. The increasing number of captives, particularly in the developed countries, testifies to the desirability of captives. However, a captive is not the solution to every risk-financing problem.

The reasons why companies form captives are complex, befitting the complexities of risk management for large organizations. This study has shown that the motivations extend beyond purely insurance considerations in many cases. The results of the survey suggest that captives are normally formed with the main objective of reducing the parent company's expenditure on insurance. Monetary advantage is seen to stem from the retention of insurers' profit and investment income, operating at a lower cost than conventional insurers, and obtaining better terms (particularly with regard to deductibles) through access to the reinsurance market.

In addition, improving risk management in the parent organizations is a consideration in the formation of captives. Many companies are also motivated by what is seen as inflexibility in the insurance market. Although many captives are formed in 'tax havens', tax advantages are not the main reasons for the formation of the captives. Only a small minority of the captives appears to be operated solely for tax reasons. Most respondents consider the possibility of interference by the tax authority in the captive's parent country and the political risks of operating in a tax haven to be most worrisome. Some are also concerned about the possibility of repercussions from the conventional insurance market in the home countries.

CHAPTER FIVE

FEASIBILITY OF A CAPTIVE

5.1 INTRODUCTION

This chapter and chapters six to eight highlight the information obtained from a variety of sources. These include interviews with people specializing in captive management and risk managers and finance officers in the region who have captives. A major objective of this research is to obtain information on the manner in which captives are formed and managed. Doing so will provide information on the behavior of major companies in the region and their reaction to risk and should be of use to organizations operating or considering the formation captives.

5.2 COLLECTION OF DATA

The sources of information were discussions during formal and informal interviews with interested parties such as insurance brokers, captive managers, insurers, reinsurers, and finance officers involved with captives in the region. Wherever possible, at least one expert in each major area of the subject is interviewed, with information obtained from the types of organization known to be involved. Information from organizations that had investigated the subject but had not formed captives is also included where appropriate. The diversity of approach by respondents makes it impossible to compile detailed data for analysis. However, the research is able to reveal certain patterns of practice common amongst respondent organizations.

5.3 THE NEED FOR SUFFICIENT PREMIUM VOLUME

Whether an organization could produce enough premiums, net of reinsurance, for its captive depends on a combination of factors. The amount of money an organization is currently spending on insurance is obviously important. There is a level below which a captive would be impractical. However, the more crucial issues are the types of business that can be placed with the captive. This is because some of the risks that are currently insured conventionally might not be suitable for the captive. If it is necessary for the captive to pass large proportions of its premium to reinsurers, then the amount remaining may be so small as to possibly render the exercise pointless.

Interviews with captive managers in the region show that the "minimum" premium volume required to set up a captive ranges from S$250,000 to S$5 million, although it is generally regarded as S$1 million, depending on the program intended for the captive, even though all the captives set up in Singapore have much higher premium volume. However, a more important issue is the exposure the captive is intended to finance. A typical view is that at least 20-50 companies in Singapore alone can set up captives or at least some managed fund. Examples of such companies are the Singapore Technology Group, Fraser and Neave, Creative Technology, Singapore Telecoms, Singapore Mass Rapid Transit and the Sembawang Group.

5.4 CAPITAL REQUIREMENTS

The amount of capital a captive needs will be determined by the requirements imposed by the government of the country in which the captive is to be domiciled. For example, captives in Singapore need a minimum capital of S$400,000. With regard to the capitalization of captives, most of the interviewees took the view that the capital provided should generally be more than the statutory minimum capital as such a figure will be too low in comparison with the risks involved.

Information regarding paid-up share capitals of the captives is not readily available. However, all the interviewees pointed out that their captives have capital in excess of the legal requirements and in some cases, the amounts involved exceed the minimum by a substantial amount. The general impression gained from the intewiewees was that the final decision on how much capital to put into a captive will often be a compromise between a wish to provide only the minimum that is necessary and the realization that higher capital will produce a far sounder operation, provide more credibility with reinsurers, and produce tax benefits. Interviewees all agree that a formal review of the frequency and severity of past losses is essential before making the final decision, as adequate funding levels are absolutely essential to ensure that the captive will be able to pay losses as they come due.

A non-quantitative factor is the willingness of the organization's senior management and board to take risks. Both must be comfortable with the concept and the level of self-insurance. Senior management and trustees must also be confident in the organization's ability to manage effectively losses that do occur.

5.5 VARIATIONS BY TYPES OF INDUSTRIES

The type of industry is likely to affect (1) the amount of premium generated, as well as (2) the spread of risk. For example, certain industrial processes are more hazardous than others and therefore attract higher premiums. Similarly, some industries are more likely to have high sums at risk at single locations and therefore restricted spreads of risk. These two factors are connected. The hazardous industry (e.g., plastics) is likely to be one with a high degree of technology and therefore requires major items of plant. On the other hand, other industries (e.g., chemicals) may have large concentrations of property that are generally considered to be good risks, but which are subject to catastrophe loss potential. Conversely, a company in a less hazardous industry (e.g., shopping centre) is more likely to operate on several sites and in smaller units. Hence, in terms of feasibility for a captive, the hazardous industry is likely to produce the necessary large premiums. However, the large sums at risk at single locations may result in low retentions. The predominance of use of captives among oil and chemical companies show that catastrophe hazard is not an obstacle to captive operations for the major company. However, this might be due to a more important factor, i.e., the size of such organizations.

5.6 USE OF CONSULTANTS IN CAPTIVE FEASIBILITY STUDIES

Few organizations have staffs qualified to conduct feasibility studies without outside assistance. Among all the respondents, feasibility studies were conducted by outside specialists. The following are the main reasons given:

1) Lack of expertise within the organization.

2) Lack of time by staff.

3) Desirability for second opinion even if staff has the requisite knowledge.

5.7 THE PURPOSE OF FEASIBILITY STUDY

Companies wishing to set up captives in Singapore are required by the Insurance Authority to conduct technical feasibility studies to show the need for and commercial viability of their proposals. Appendix C shows a typical Captive Proposal Application (with names disguised.)

According to Zolkos (1996), "A well-conducted captive feasibility study should give prospective captive parents a firm understanding of whether a captive truly is preferable to self-insuring or seeking traditional insurance coverage." The feasibility study should make it clear how the planned structure of the captive and other issues associated with its operation relate to the costs associated with capitalizing and operating it.

According to Brockmeirer (1974), "The main purpose of a feasibility study is to cost the various alternative strategies and to place the most likely ones before management for a final decision." The main issues are to decide what risks a captive could handle, the amount of premium that could be channeled into it, and the amount of that which could be safely retained net of reinsurance. In selecting the risks for a potential captive, investigators usually reveal the types of risk that are currently insured, but do not limit themselves to these risks. A study sometimes reveals the need for insurance that was not previously apparent or deal with risks that could not be insured conventionally.

Where reinsurance is necessary, the premiums charged by a captive will have to

approximate to market rates, so that reinsurers can be persuaded that they will receive adequate remuneration. A feasibility study also covers decisions regarding precautions against loss and risk management engineering in general. Some studies proceed on the assumption that precautions are in order and that little change is to take place.

5.7.1 The Feasibility Study Report

A typical report will cover the following areas with regard to each alternative presented:

1) The amount of capital required, with information on any special arrangements for moving the funds to an overseas territory.
2) The insurance to be placed with the captive, with an indication of any special terms that are recommended.
3) Projection of premiums, claims, expenses and profits.
4) Details of reinsurance arrangements and their costs.
5) Details of the proposed management of the captive, e.g., whether the company should manage it itself, engage a specialist firm or insurance broker, or make arrangements with accountants or lawyers.
6) Proposals for investment and dispersal of funds.

The emphasis will almost always be on comparing the proposed arrangements with the present insurance arrangements, in an attempt to show that a captive will produce savings in cost, as this will invariably be the dominant factor. Proposals concerned with such matters as the insuring of risks at present uninsurable and the improvement of cover and policy wording will usually be considered secondary, unless the company has a serious problem in such an area. The provision of insurance

arrangements most closely suited to the needs of the organization may be included in the recommendations and are important selling points, but reduction in cost will nearly always be the most important consideration.

Outline contingency plans for moving to other territories might be provided where a captive would be relying on an offshore domicile, but these are usually not included. Where an organization's existing broker has been involved, careful consideration is often given to stressing the alternative of continuing with conventional insurers, possibly with proposals for improving existing arrangements. Captive specialists will more likely ignore such matters.

5.8 THE SELF-INSURANCE FUNDING ALTERNATIVE

The feedback from the interviews indicated that self-insurance funding is not widely used in this region as alternatives to conventional insurance. On several occasions, respondents stated that self-insurance funding had been considered but had been quickly dismissed as being unfeasible, although the impression often gained was that little attempt had been made to check whether adoptions of the traditional self-insurance funding approach would be practical. On the few occasions where self-insurance funding was used as an extensive risk management tool, the organizations seemed satisfied with the system that had been devised.

5.9 MORE USE OF CAPTIVES ANTICIPATED

According to a survey by Munich-American Risk Partners,[56] twice as many risk managers plan to use captives in the next two years; while only 23 per cent of respondents currently use captives, 46 per cent said they anticipate using captives in the near future. The survey, which was sent to 1,400 risk managers, found risk managers believe price, coverage and capacity are the three biggest challenges they will face over the next year. "Participants are more concerned about the hard market than they were a year ago," said Kuczinski, who presented the survey results at a media conference at the 41st RIMS Annual Conference and Exhibit in Chicago.

However, the above survey covers mainly US risk managers, and the survey results may not be representative for this region. According to Moore (1999), "In the US, nearly 50 per cent of Fortune 500 companies own captives, whereas in Australia, captive participation is only about 10 per cent." In other countries in the region, captive participation is even lower. Nevertheless, interviewees all agreed that there would be more companies in the region forming captives in the future. In addition, risk managers (including those who do not have a captive) are finding captives useful for solving some unique risk financing problems. For example, one risk manager has started to use his captive for terrorism exposure. Another risk manager is using his captive for exposures such as weather risks, index-type risks such as crops, price risks and others that are "not part of ordinary insurance risk." Others are using their captives for extended warranty, employee benefits, construction defect and other difficult-to-insure exposures.

[56] More risk managers are considering captives, especially in liability lines, Best's Review, Jun 2003, Vol. 104, Iss. 2, p. 86.

5.9.1 Protected Cell Company legislation

Following concerns that, in the event of insolvency of the owner of a rent-a-captive, renters have no legal basis for denying claims against their funds by creditors, Guernsey has taken the initiative with the introduction of Protected Cell Company (PCC) legislation. The Cayman Islands has also developed a similar approach with Segregated Portfolio Company legislation. The assets and liabilities of individual cells of a conventional rent-a-captive are segregated and protected through contract. The PCC legislation offers a similar structure, with the benefit of the security of statute behind each cell.

The PCC concept has significantly promoted the 'old idea' of rent-a-captives. Recognizing the benefits derived from such facilities, the MAS is keen to see rent-a-captives and PCCs operating in Singapore to enhance Singapore's position as the leading Asian captive domicile. According to Hauw (2000), "MAS would be formulating the regulatory framework for such facilities and looking into issues involved in enacting PCC legislation." Many of the companies in the region do not have a captive. Many of these can certainly form a captive or utilize the rent-a-captive or PCC facility.

CHAPTER SIX

ROLE OF CAPTIVE MANAGER

6.1 INTRODUCTION

The choice of the captive manager is of utmost importance. A company forming a captive can, if it wishes, engage its own staff to manage the captive, but it is more likely to appoint an agent. Our discussion focuses only on captives that are managed by captive agencies.

6.2 EXTERNAL CAPTIVE MANAGERS

Regulatory and environmental considerations provide the strongest case for professional management of a captive. The following types of captive management agencies were used by the intewiewees:

1) Specialist firms, involved only in the management of captives.
2) Insurance broking organizations that have developed an expertise in captive management such as Marsh Management Services, Aon Insurance Managers and Richard Oliver International.
3) Insurance companies that have a risk management subsidiary, for example, Tokio Management Services.

Most of the captives in the region are managed by captive managers that are owned by major insurance brokers. Hall and Ezekiel (1988) cited the reasons for this: depth of resources, continuity, expertise in varied disciplines, leverage, research and

development, global representation, stability, and security. Whoever is finally chosen as the captive manager, it must be possible to show that the captive is being run from the captive domicile rather than simply being a paper operation which is in reality managed by the parent company. The consequences of not operating the captive at "arms length" from the parent are serious, as the whole arrangement could then be treated as a self-insurance scheme and the premiums would not be allowed as a tax-deductible expense. The necessity of keeping a distance between the parent and the captive means that at the very least, the captive must have a representative resident in the captive domicile who is seen to be managing the captive.

6.2.1 Advantages of Captive Management Agents

According to Bannister (1976), the main arguments for using a captive management agent concern simplicity, a shortage of expertise and cost:

1) Simplicity. Although probably not beyond any company large enough to have a captive, the trouble and risk involved in finding local advisers, obtaining premises, appointing staff, arranging reinsurance and actually running the captive are considerable. However, it will be a fairly simple matter for an agency that has formed captives and had gathered the relevant expertise in managing them, in particular having established the necessary facilities in an appropriate territory.
2) Expertise and cost. Not many people have captive management expertise. Hiring suitable personnel for a self-managed captive could therefore prove difficult. In addition, some agencies have reinsurance pools for the captives they manage, which make the cover easier to obtain and usually provide better terms than are available elsewhere.

Table 6.1 – The Largest Captive Managers in the World In 2001[57]

	Captive Manager	No. of Captives	%
1.	All others	2,366	49.3%
2.	Aon Insurance Managers *	874	18.2%
3.	Marsh Management Services **	835	17.4%
4.	Willis Corroon	182	3.8%
5.	Mutual Risk Management	130	2.7%
	Self-managed	408	8.5%
	Total	4,795	100.0%

* Aon has acquired Alexander Insurance Managers (S) Pte. Ltd, Minet Risk Services (S) Pte Ltd., ARM/IRMG, and Sinser.

* Marsh has acquired Sedgwick, and Johnson & Higgins.

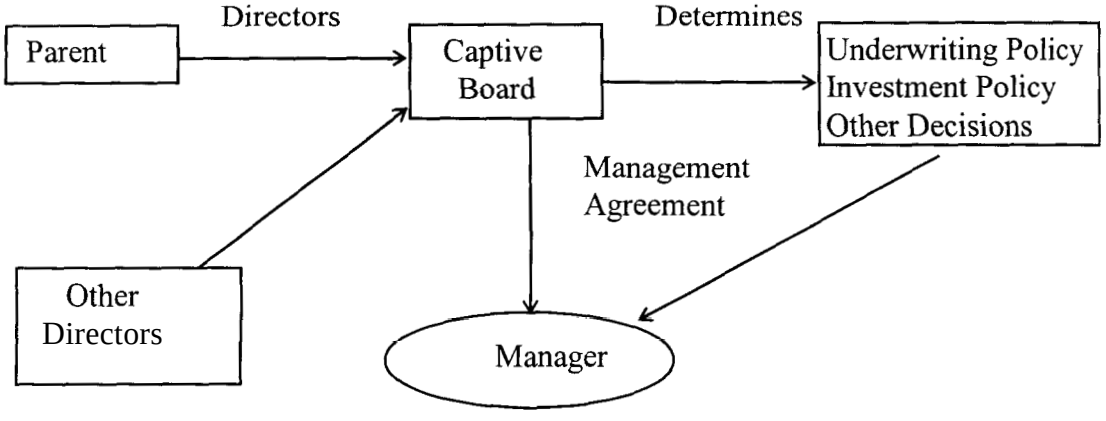
6.2.2 Dominance of Broker Managers

Table 6.1 shows Aon and Marsh control 35.6 per cent of the captives worldwide. A distant third is another broker-controlled manager, Willis. Next comes Mutual Risk Management, the only surviving large independent captive manager. The organization that pioneered the concept of captive insurance, the International Risk Management Group (IRMG), and also the largest independent captive management company, was sold to Swiss Re and later to Aon. The remaining captive managers are composed of 300 smaller managers, many of these have insurance company sponsors.

[57] Adapted from "Sinser now part of Aon", Captive Insurance Company Reports, October 2001.

Risk managers interviewed generally agree that the various agencies that offered captive management services were usually well known and their financial and general stability could not be doubted, even if sometimes their experience in the area was somewhat limited. All interviewees indicated that they were satisfied with the service provided by their management agents, with none raising any serious complaint.

Figure 6.1 - Role of Captive Manager



6.3 THE ROLE OF A CAPTIVE MANAGER

After deciding on who will run the captive, the next step is to set up the captive. This involves the negotiation of the scope of the Management Agreement and management fees between the captive manager and the parent company. A management's Board of Directors is also set up to overlook the management and review the performance of the captive manager.

The Management Agreement, Board of Directors resolutions and policy guidelines govern the role of a captive manager. Figure 6.1 shows the parent company will usually have directors as representatives. They will attend the board meeting

conducted at least once a year either at the parent country or the country where the captive is located. During the board meeting, the directors will determine the underwriting policy, investment policy, and other decisions. Sometimes, they will also revise the scope of the Management Agreement for the period of contract.

The role of a captive manager also depends on the types of captive it is managing. If a captive manager deals only with a reinsurance captive, his usual responsibilities are to provide accounting reports and give commendations base on the financial reports. On the other hand, if the captive manager deals with a direct captive, his responsibilities will include underwriting, claims handling, reinsurance, and financial accounting. In short, the role of the captive manager is to tender advice to the board of the captive and to implement decisions and manage on a day-to-day basis, within the guidelines lay down by the captive board.

It is important to set out the Management Agreement between the parent company and the captive manager precisely to avoid misunderstanding and problems that may occur in future, particularly when a major claim occurs. The Management Agreement is usually renewed annually and covered the usual role of the captive manager.

6.3.1 Legal and Financial Services

In most of the cases, a lawyer in the captive domicile chosen was engaged to handle the formation and regulatory procedures, although a few interviewees used the same lawyers that the parent company is using. Banking and investment was usually supervised by the agency, but the actual authority vested in them varied. In some cases, investment decisions were taken in the domicile, but the parent company usually had close control or took complete responsibility. Accounts have to be kept in the domicile

and all the interviewees engaged local firms for this purpose, including local auditors.

6.3.2 Risk Management Services

This involves matters such as risk identification and analysis, and general improvements in risk. There is also the surveying of risks and the stipulation of requirements for improvement before they can be insured or reinsured. This was a subject that was found to have considerable diversity of treatment among the interviewees. Some interviewees arranged for the managing agency to provide a full risk management service, this being more typical where an insurance company or large broking house was acting as agent. Some shared the tasks between their risk management staff and their agents. Some used a combination of agency and consultant expertise and two interviewees did everything themselves. The distinguishing features seemed to be the complexity of the risks involved, their spread throughout the country and the world (help being needed for foreign risks and those distant from in-house specialists).

6.3.3 Underwriting and Reinsurance Management

These two factors are considered together as they are closely linked. There was usually substantial involvement by the parent company's risk management staff, although decisions would have to be passed to the captive by way of "advice" in order to maintain arms-length dealings. In nearly every case, underwriting decisions involved the risk manager of the parent company. It was the particular firm involved rather than the agent that was found to be the determining factor, and some firms seemed more likely than others to be involved in the underwriting. In most cases, reinsurance was placed through brokers. Decisions generally involved the parent

company too.

6.4 THE RISKS INSURED

Interviewees revealed the captives are concerned with property insurances (largely fire, special perils and theft) and with consequential loss following damage to property by fire and special perils. Most captives also write liability type risks. Some of them are involved with marine insurances and motor accidental damage risks. Some interviewees suggested that their intention is to use the captives largely for those insurances that represent the major items of expenditure and to avoid risks that are likely to produce delayed claims run-offs and cause settlement problems.

6.4.1 Insurances Against Damage to Property and Consequential Losses

The main item of insurance expenditure for most industrial organizations is for material damage and consequential loss risks. This explains the concentration in this area amongst the captives. Having decided to form the captive on the basis of fire risks, most interviewees took the view that it was only sensible to include other perils, particularly the special perils conventionally dealt with as an adjunct to a fire policy. Most of the captives insured a wide range of risks, with only one interviewees revealing that his captive does not insure consequential loss risks, because the captives was only recently established and may expand into the field later.

6.4.2 Marine Risks

In some cases, marine insurance was considered to be a major part of the captive operations. Only one interviewee said his captive wrote both hull and cargo risks, all the others involved with marine risks being almost wholly concerned with cargo only. In another case, the captive operated purely as a marine insurer.

6.4.3 Personal Accident Risks

Some interviewees placed employees' personal accident and/or sickness insurances with their captive. Such insurances seem to be suitable for a captive as the benefits provided are relatively modest. However, some interviewees said their captives prefer not to be involved in such risks as it was best for a company to restrict its captive to insuring its own risks and there might be claims settling problems with the firm's own employees.

6.4.4 Liability Insurance

Liability risks include employers' liability, public liability, motor third party liability, general liability, product liability, excess liability, and professional indemnity. The opinion of some interviewees was that captives should not insure liability risks. The reasons given can be summarized as follows:

1) Normally only authorized insurance companies can write employers' liability and motor third party insurances.
2) Indemnities on some liability policies are unlimited or very high and therefore require substantial reinsurance. Where unlimited liabilities are concerned (principally on motor third party liability and employers' liability), very high excess of loss protection will still leave a catastrophe risk, as it is practically

impossible to obtain treaties with unlimited cover nowadays. One parent company had agreed to a limit on the amount it could claim from its captive, but that would seem to defeat the object of having insurance.

3) The handling of claims is time consuming and often highly technical, involving such matters as the collection of witnesses statements, medical evidence, the application of law, and the consideration of legal opinion.

4) Liability insurance accounts are subject to protracted run-offs, as claims can arise long after the end of a period of insurance, and large claims take many years to settle. It is therefore difficult to know the precise position when estimating profits. In addition, if inflation exceeds the general interest rate levels, the premiums and reserves for outstanding claims may be insufficient. There is also the danger that other factors may affect settlement levels, for example changes in the rules for calculating damages (e.g. adding interest to court awards) and general changes in the law (e.g. amending the limitation rules).

5) Dealing with third parties can be difficult. Interviewees revealed that in most circumstances, the insured company would have to handle much of the negotiating if the captive is offshore, and the captive manager is only involved when liability is established.

6.4.5 Miscellaneous Risks

Interviewees mentioned varied risks they have insured with their captives. These include theft, glass breakage, "all risks" to property, travel, machinery breakdown and business interruption, "contractors all risks", difference in conditions/difference in limits, mobile equipment breakdown and business

interruption, fidelity guarantee, performance bonds, and credit risks.

6.4.6 Unconventional Insurances

Although a common advantage cited for setting up a captive is that it can insure the unconventional risks, few of the interviewees handled risks that cannot be insured in the conventional market. This supports some commentators' views that captives are not generally formed as vehicles for unusual risks.

The unconventional risks that are insured by the interviewees are products recall risks, commodity losses, insurance on warranty of goods, financial risks, credit life insurance on credit cards, fluctuation on exchange risks, electronic fraud, terrorism risks, risks in the change of weather, consequential loss following strikes, accidental production contamination, pollution, and political risks.

A components manufacturer insures the risk of defects in products that necessitate their recall from purchasers. Although such insurance can be obtained in the conventional insurance market, it is more expensive and difficult to purchase. The interviewee had not insured products recall before the captive was formed, partly because of the difficulties encountered in obtaining the cover.

In another case, the interviewee issues a widely worded policy in respect of losses on commodity dealings that may arise from various contingencies, including cancelled contracts. However, losses from changes in market prices are not insured. The consequential loss strikes insurance issued by the third interviewee is a conventionally worded loss of profits arrangement, but the peril is a stoppage of production by strike action. Both the commodity losses and strikes contingencies could not be insured in the conventional market.

6.5 ACCEPTANCE PROCEDURES

A conventional insurance company usually has reinsurance arrangements that enable it to accept large amounts of risk on a 100 per cent basis, placing amounts surplus to that which it can safely retain with its treaty reinsurers. Where a risk is too large for a particular insurer, even with its reinsurance treaties, several insurers will share the risk on a coinsurance schedule. In deciding how large a share it can accept, it is normal practice for an insurer to include an amount to place with its reinsurers, the actual amount accepted being called the gross line and the amount finally retained by the insurer for its own account the net line.

Captives were found to be following different procedures, both with regard to the extent of use made of coinsurance and the manner in which it was used. In particular, none of the interviewees' captives were operating on a coinsurance basis (other than fronting arrangements). Only one interviewee disclosed that his captive has no reinsurance treaties and consequently only wrote net lines.

6.5.1 Fronting

'Fronting' is where, instead of placing insurance direct with its captive, an organization arranges for a conventional insurance company to issue policies in respect of certain risks, and then reinsure most of the insurance with the captive. Only a few interviewees use fronting. However, several others indicated their company's intention to expand their captives into world-wide operations and that they therefore expected to use fronting in the future. Sennett (1976) identified two main reasons for fronting:

1) Most countries recognize only the policies issued by insurers authorized under their domestic insurance regulations as valid in complying with compulsory insurance requirements.

2) Largely as an attempt to reduce the loss of foreign exchange, and also in an endeavor to create their own insurance markets, some countries do not permit any insurance on risks within their territories to be placed with non-admitted insurers. However, most of these countries do permit the placing of reinsurance outside the country. Table 6.2 shows the position regarding some of the countries in the region where captives have been set up or have the potential to set up captives. Where there is no restriction on the placing of reinsurance, a company with a captive could arrange for its risks in such a country to be fronted by a locally authorized insurer and then reinsured with the captive.

Table 6.2 – Whether insurance with non-admitted insurers is allowed [58]

Countries	Allowed or not
Australia	Allowed
Bangladesh	Not Allowed
Brunei	Allowed
Canada	Allowed
Hong Kong	Allowed
India	Not Allowed
Indonesia	Not Allowed [a]
Japan	Not Allowed [b]
Korea, South	Not Allowed
Malaysia	Not allowed
New Zealand	Allowed
Philippines	Not Allowed
Singapore	Allowed
Taiwan	Allowed
Thailand	Not Allowed [c]

(a) No more than 25 per cent of premiums may leave the country by way of reinsurance on any one risk.

(b) Insurance can only be placed outside the country if the authorities give permission.

(c) Home foreign placing is possible under certain circumstances.

[58] From various sources, including Insurance Commissioners' Reports, Insurance Directories, and Insurance Guides.

6.5.2 Reinsurance Captives

A reinsurance captive is a fronting arrangement in that the parent company arranges for all the insurances that are to be handled by the captive to be placed with a conventional insurance company, which then retains a token percentage and reinsures the rest with the captive. None of the captives in Singapore is a reinsurance captive, and none of the interviewees is involved in a reinsurance captive from the region although some of them were involved with reinsurance captives elsewhere. The main disadvantage of a reinsurance captive cited is that the captive would tend to become locked into one insurance company, resulting in inflexibility.

The main advantage of a reinsurance captive cited is that the fronting insurer can handle most of the burden of operating an insurance company, particularly as regards surveys, loss control and underwriting. However, the main motivation for such arrangements was found to be a reaction to political risk, rather than purely on administrative grounds. There are also some domiciles where only reinsurance captives are allowed to be formed.

Some interviewees pointed out that they had formed reinsurance captives because the parent companies feared that there might be action from the parent revenue authorities against captives in the near future. A reinsurance captive was considered safer than a direct captive because of the following factors:

1) a fronted captive would be more difficult to discover;
2) it might be possible to defend a fronted captive against a ruling that a captive was not a bona fide insurer;

3) reinsurance captives might not be an early target for the authorities who would be more likely to take action against the more obvious direct captives first, thus giving them more time for the next move.

6.6 METHODS OF PREMIUM RATING

Bannister (1976) mentioned that a captive has two main options when deciding how to calculate the premiums to be charged to the parent company:

1) Market rate basis - an attempt to assess what rates would be charged by the conventional market for the risks involved, or
2) Pure risk plus expenses basis – rates to be based on previous loss experience, plus a loading for expenses of operation.

6.6.1 Market Rate Basis

Market rate means the rate a conventional insurer would charge the company for the risks involved, and for large organizations, this is usually based on the previous loss experience. At the initial stage of the captive formation, the captive manager will have a good idea of what the market rates for his risks are, or at least for those that have been insured if previously uninsured risks are also to be placed with the captive.

There are good arguments for initially basing a captive's premiums on what has been charged by insurers previously, although some increase might be added to allow for increases that might have been required by insurers to cater for inflation and other factors such as lesser spread of risks than conventional insurers, as this increased risk warrant higher rates. This rating system is simple and does not need actuarial calculations. It will also be a safe level of premium, as captives are usually only

formed by companies whose previous insurers were making a profit on their business. In addition, the lower operating costs of a captive should produce a surplus.

An important advantage is that the charging of market rates makes the system more easily explainable to reinsurers and therefore gains their support, as reinsurers want to know that they are receiving a share of an adequate level of premium. However, the estimation of the "market rates" after a captive has been in operation for several years will be less easy. This is because a risk manager who is not from the insurance industry may lose touch with the current rates for the organization's risk. For example, factors such as loadings for inflation, increases in operating expenses of insurance companies, higher court awards affecting liability insurance, and changes in loss experience of certain industries will be difficult to gauge both generally and as they apply to the company. A professional captive manager from an insurance company or insurance broking firm who is engaged to manage the captive may therefore has an advantage in this respect.

6.6.2 Pure Risk Plus Expenses Basis

A captive manager adopting this rating basis estimates the future losses based on the loss experience in the last five years (possibly up to 10 years for liability risks) in order to arrive at the 'correct premiums.' Loadings are then added to cover additional factors such as management and other expenses, allowance for inflation, and allowance for safety. Loadings may also be required for extra hazards (such as new processes) that have arisen, and discounts might be permitted for risk improvements. Where completely new risks are involved, the captive manager will have to use his experience to arrive at the premium, perhaps trying to gauge the market rate for the risk.

6.7 CLAIMS MANAGEMENT

Interviewees usually follow the pattern of conventional insurance companies in appointing adjustors for all but smaller claims. According to Bannister (1976), this is necessary to show that the captive is acting remotely from the parent, and it is also essential that the captive be able to demonstrate to the reinsurers that it is acting properly. In practice, it will be difficult for those engaged in managing the captive offshore to be closely involved. It is usual to leave the claimant (in the form of the parent company or one of its subsidiaries or divisions) and adjustor to settle the claims, with reference to the captive manager.

6.8 INVESTMENTS MANAGEMENT

Income from the investment of reserves and insurance funds is an important source of revenue. A captive's returns on its investments should at least approach those of insurers in the parent company's domestic insurance market. In addition, as much of the benefit of offshore operations stems from tax free (or low tax) investment income, careful attention to investments is essential. However, literature on captives reveals only occasional reference to the rates of return on investments that a captive should achieve, and discussion on the methods to be employed is largely lacking. Investment procedures have also rarely formed the basis of major discussion at the various conferences on captives.

Interviewees commented that the shortage of information stems from practitioners wishing to keep their methods secret or because returns are low and the

average captive manager knows little about investment and most rely on advisers in outside firms or banks. Interviews disclosed that most captives relied on outside investment advisers or existing parent company investment staff, with only a few captives management agencies being responsible for investment decisions, except in the initial stage of the captive.

A captive, because of its modest size in comparison with the conventional insurance companies, will usually need to be more cautious than the conventional insurer, leaving out property and other equity investments. This is borne out by the fact that the majority of the interviewees supplying information on their captive's investments had their funds in short-term investments only, mostly on deposit with banks.

6.8.1 Lending Back

A form of investment involves the captive lending money back to the parent company. Interviewees disclosed that this might be considered for several reasons. After paying the full cost of capitalizing the captive, the parent company may want to receive the money back once the captive is in operation. Some parent companies may believe that the return to be obtained on the money will be higher when placed with them than if invested elsewhere. The captive may also have accumulated funds that it no longer needs and the device might be used to make funds available to the parent without incurring the tax liability on repatriation. Interviewees cautioned that if the captive were to lend back to the parent organization, it would have to charge a commercial rate of interest. Otherwise the arrangement will amount to tax evasion and liability for tax on the money lent would arise as if it has been repatriated in the normal way.

CHAPTER SEVEN

CHOICE OF CAPTIVE DOMICILES

7.1 INTRODUCTION

If a feasibility study shows that the captive will play a beneficial role, the next question to consider is location or domicile. For ease of administration, it is best to form the captive at the parent's country. In practice, however, captives are usually formed in another country that has a legislative environment conducive to the needs of captives. The following is a summary of the views expressed by the interviewees. Unlike traditional insurance companies, captives are mobile and can be set up in many places. The various captive domiciles hold different attractions for parent organizations based on financial, regulatory and other individual tax advantages. The key to choosing correctly is assessing all factors and deciding which are of most benefit for a company.

7.2 OFFSHORE VERSUS ONSHORE CAPTIVES

Historically, offshore domiciles had the best tax and regulatory laws for the booming captive business. However, some onshore domiciles have become credible competitors, a good example being Vermont. As most of the domiciles now have competitive terms to attract captives, geographical convenience is a significant factor. The following are some of the other significant factors:

1) the type of company that can be formed,
2) the laws or practices that govern the captive operation, and

3) the tax environment in the domicile vis-a-vis the country of the parent company.

Since Singapore has a Double Tax Treaty with Australia, it is the location of choice for Australian-owned captives.[59] Tax factors will continue to have significant influence on the choice of the domicile even though the captives are not set up just to gain the tax advantages. To continue to grow, a captive domicile will have to be seen as cost-effective, innovative, flexible and appropriately regulated.

On cost consideration, it may be more advantageous to domicile the captive in a location that has the best access to markets in which the parent organization trades. In addition, insurance accounting principles differ between countries, especially in the area of technical reserves and this needs to be taken into account in deciding the domicile of a captive.

Owners of captives in the region tend to select domiciles that are close to their own country. The domiciles that are most active tend to attract more captive management companies and have a better chance of convincing the parent companies to form their captives there. Further developments in the region are likely to include an increase in the number of captives owned by organizations that have their head office in the region.

[59] Captive Base - What Makes You Decide'? ReActions, No. 8, pp. 33-36, August 1988

7.3 DOMESTIC CAPTIVES

Despite efforts by the Australian government in encouraging Australian parent companies to set up their captives onshore and discouraging them from setting up offshore by way of tax disincentives, only 10 of the 81 Australian captives are onshore. The only onshore Singapore captives are the Singapore Airlines' (SIA) captive and the PSA Corporation's captive, and the reasons are quite obvious, as they are both government-linked companies. The SIA's captive is registered as a commercial insurance company, and in fact operated as a traditional insurance company, rather than as a captive as defined in this study. However, it has now truly operated as a captive and stopped writing third party business, although it is still registered as a traditional insurance company.

Although the application procedure is not a simple one, interviewees who had dealt with applications agreed that they are well within the capabilities of the average risk manager of a major organization, who will be aided by a company lawyer. The interviewees stated that the procedure is not over-burdensome, although the first application is likely to be followed by requests for still further information. Their experience was that discussions with the insurance authority proceed with reasonable speed and that the whole procedure did not generally take more than a year.

Given that the procedure is somewhat protracted, this may produce a lack of motivation in some companies, but the matter was not considered a serious obstacle by the interviewees. The general supervision and filing of returns following authorization may, however, be a more serious difficulty. The interviewees did not express too much concern about the trouble and expense involved with the provision of the voluminous returns required of an insurance company, but it was apparent that these regulations

could adversely affect the viability of a small domestic captive.[60] It is also to be noted that the insurance authority has very wide powers for the control of insurance companies.

7.3.1 Considerations of the Domestic Alternative

It is difficult to conclude that the problems involved in operating domestic captives are actually causing organizations not to form them, or whether the alternative is simply not normally considered because of the distinct advantages of having a captive offshore, set up in an established captive domicile. The results of the research into organizational motivation have shown that companies are attracted by the tax benefits of going offshore and that avoiding regulations by going offshore was an important but not a major factor.

Some interviewees were concerned about the political risks that arise with offshore operations and recognize that there are costs that arise overseas that will not be incurred onshore. Whatever the motivations, it was apparent that many of the interviewees' companies had not made a thorough examination of all the options available when contemplating a captive and that consequently the possibilities of a domestic captive was often not fully considered.

[60] A cursory look at The Insurance Companies (Accounts and Forms) Regulations is sufficient to appreciate the problem.

7.4 OFFSHORE CAPTIVES

Provided the captive is formed and managed professionally, the legal position of an offshore captive should not cause difficulties to its owners. As long as the captive operates as a bona fide insurance company, the tax authority will allow premium payments to an offshore captive as a tax-deductible business expense, in the same way as it allows premiums to domestic captives. In the latter respect, few interviewees seem to have experienced great difficulties to date in persuading the tax authorities that their captive is a properly constituted insurance company.

7.4.1 Tax Havens for Captives

A tax haven is a country that has a lower rate of tax than the territory in which the company or individual concerned is ordinarily resident. This means that in theory, if a country like Singapore has a lower corporation tax rate than Australia, an Australian organization might be tempted to transfer some of its operations to Singapore, in which case Singapore would be used as a tax haven. Such manipulations do in fact occur from time to time.

The prevailing tax rates would be a material issue for a company starting a new venture, but in general practice, tax haven activities are concerned with those territories, normally smaller countries, that either have a very low rates of tax or none at all, and which actively encourage organizations to move some of their operations into the territories for tax reasons. A company that sets up its captive in a tax haven usually seeks to achieve two things:

1) To pay a lower rate of tax than it would in its parent country, or in some cases, no tax at all and that may make a substantial difference. It is

important to note that tax savings are not just a matter of gaining an advantage in a particular year, as the cumulative effect of earning interest, tax free, on untaxed profits will be quite dramatic over just a few years. Thus, in a tax free situation, the faster accumulation of funds will mean that the captive will be able to take on larger risks sooner or with less capital and therefore become a more effective risk management tool in a shorter time, making more money for the parent company in the process. Clearly, the larger the organization that owns the captive, the greater will be the advantage.

2) To avoid the insurance regulations in the parent country. Most tax havens have more lax systems of control, particularly where the captives are not insuring risks in the territory, which is the case with most captives from the region. The savings in expense make the operation more feasible.

There are a number of tax havens around the world but many were considered, by those involved, to be unsuitable for captive operations. A particularly important technicality was found to be the manner in which the government of the country had created the tax advantages, for in many cases the tax laws differentiate between local companies transacting business in the country, which have to pay a certain amount of tax and those domiciled there but only trading outside the territory, usually referred to as non-resident companies, which pay little tax.

For most tax havens purposes, non-resident status is sufficient as the actual business can be transacted elsewhere, but an insurance company must trade offshore in order to achieve the remoteness from the parent company that is necessary if the premiums are to be allowed as an expense before tax. In addition, a captive that could

not show that it was being operated at "arms-length" from the parent will be treated as a self-insurance fund by the tax authority at the parent country. The consensus amongst those interviewed is that for a particular domicile to be used for captive purposes with a good degree of safety and ease, the following factors (not necessarily in the order of priority) need to apply:

1) Captive management expertise and ancillary services. It was sometimes apparent that those involved in managing captives put forward such arguments in an attempt to ensure that potential clients considered only countries where the former had offices.
2) Stable government.
3) Good travel and communications systems. The ability to operate in the same or near time zones might be important where time critical advice must be given and decisions taken.
4) Familiar language and legal system.

7.5 DOMICILES CHOSEN BY CAPTIVES FROM THE REGION

I discuss briefly the following main captive domiciles used for captives from the region: Australia, Bahamas, Bermuda, British Virgin Islands, Cayman Islands, Guam, Guernsey, Hawaii, Hong Kong, Ireland, Isle of Man, Labuan, Luxembourg, New Zealand, and Singapore.

7.5.1 Bermuda

This British colony is by far the most popular domicile in the world for captives, as well as for captives with parents from the Asia-Pacific Region. Table 7.1

shows that, by the end of 2002, Bermuda had 1,602 captives. Most of the captives have US parents but Bermuda is anxious to develop other areas. Bermuda and Singapore have the most (57 each) captives with parents from the Asia-Pacific Region.

Table 7.1: Captives by domicile in 2002[61]

Captive domicile	Captive regulators statistics[62]		A. M. Best statistics [63]	
	No.	%	No.	%
Bermuda	1,602	34.6%	1,426	29.5%
Cayman Islands	600	13.0%	642	13.3%
Vermont	438	9.5%	454	9.4%
Guernsey	382	8.3%	408	8.4%
British Virgin Islands	282	6.1%	269	5.6%
Luxembourg	265	5.7%	280	5.8%
Barbados	197	4.3%	207	4.3%
Ireland	186	4.0%	209	4.3%
Isle of Man	166	3.6%	173	3.6%
Hawaii	101	2.2%	102	2.1%
Singapore	49	1.1%	51	1.1%
Bahamas	25	0.5%	25	0.5%
Jersey	19	0.4%	21	0.4%
Australia	NA	NA	NA	NA
Hong Kong	2	0.0%	2	0.0%
Arizona	1	0.0%	10	0.2%
Total	4,625	100.0%	4,837	100.0%

One of the key attractions is the tax incentive offered in Bermuda, where captives need not pay any tax on their income earned. This is a strong factor in the formation of captives as can be seen with several captives that were set up in Bermuda from the Philippines, Taiwan and Korea. The low taxation in Bermuda is a particularly strong advantage because when a risk manager does a feasibility study for a captive,

[61] Adapted from Captive Insurance Company Reports, June 2003, p. 11, which quotes from Best's Captive Directory as of 31 December 2002.

[62] Captive regulators statistics reflect the number of captives based on published domicile information or are accumulated by A.M.Best from captive regulators.

[63] It should be noted that A.M.Best's statistics may differ from the regulatory records since individual captive determination is based on corporate mission - rather than its licensing status under captive legislation. For example, as mentioned earlier, the Singapore Airlines' captive is registered as a traditional insurance company, but in all operating aspects, it is a pure captive now.

tax will be considered a cost to the company. Hence, it would seem that forming a captive in Bermuda is less expensive compared to other domiciles such as Singapore.

Bermuda has also gained a reputation as an established captive domicile. Many merely follow the crowd/leader. For example, Yukong Ltd., one of South Korea's largest manufacturing groups, formed its captive in Bermuda because "Bermuda already has many of the world's major captives and Yukong hopes to benefit from exchange of information." [64]

Bermuda probably has the most experienced captive managers due to the long history of captive operation in Bermuda. The reinsurance market in Bermuda is also more in tune with state-of-the-art thinking because of the large volume of captives present.

However, there are some disadvantages of forming a captive in Bermuda in relation to this region such as different time zones and lack of Asian language skills. Bermuda is also far from the region. Although this can be overcome with the usage of advance technology, business interactions are more inconvenient and time-consuming. In addition, with reference to the tax issue, as captives in Bermuda are enjoying almost zero taxation, Bermuda might be blacklisted as a tax-free operation and therefore not allowed by some countries. However, Bermuda has over the past 20 years not been blacklisted. Another major disadvantage is the high cost of living on the Island. The provision of accommodation for staff and business use is expensive; as a consequence fees charged by consultants are high compared with elsewhere. A company deciding to manage its own captive would therefore have to produce a high level of premium income to make the exercise worthwhile.

[64] Bermuda Captures Pacific Rim Captives, Captive Insurance Company Review, November 1996, p. 2.

7.5.2 Singapore

Singapore began developing its captive industry in the early 1980s. It initially served as a location for the captives of Australian parent companies who saw it as a viable domicile. As interest in the captive concept gained momentum in Asia, Japanese multinational corporations began establishing captives in Singapore in the early 1990's. After the initial spurt in growth, the number of captives registered in Singapore has remained static in recent years at around 50, with the majority having Japanese and Australian parents.

The main advantage of Singapore as a captive domicile for the Asia-Pacific Region is its strategic location. Its time zone advantage and state-of-the-art telecommunications system allow companies to conclude any business transactions with any part of the world within a single working day.

Another advantage is the stable business environment. With the government's commitment to ensuring a conducive business environment for the sound development of the economy, Singapore has enjoyed an excellent record of political, economic and social stability. As an established international financial centre and an important regional reinsurance centre, Singapore is able to provide a range of financial and professional services to meet the captives' needs. The captive management, legal, accounting, investment and banking services available are of international standards. In addition, investment capital and profits can be freely repatriated and there is no exchange control.

The Singapore government has been reducing its corporate tax rate over the years. From 2003, the corporate tax rate is reduced to 22 per cent. In addition, captives in Singapore can apply to enjoy a concessionary tax rate of 10 per cent, but without the adverse image associated with tax-haven domiciles, as MAS welcomes only financially sound and reputable companies with good track records to establish their captives in Singapore. The parent company needs to demonstrate to the MAS that it has a long-term commitment in the use of a captive as a risk management vehicle.

Singapore has established Double Tax Agreements with many countries. These include: Australia, Bangladesh, Canada, China, India, Indonesia, Japan, Malaysia, New Zealand, Philippines, South Korea, Thailand, and Vietnam. Important reasons given by interviewees for setting up their captives in Singapore include Singapore's geographical position and political stability, separate regulation for captives, and the availability of captive services infrastructure.

A common theme put up by the interviewees is that Singapore continues to benefit from its traditional strengths, notably sound regulation at a competitive cost. Ideally, Singapore needs to use its strengths to open new markets, most obviously in Asia. However, Asian companies are reluctant to form captives, and when they do, the preference is often a domicile with a zero tax, as opposed to Singapore's optional concessionary rate of 10 per cent for offshore business.

Australian-owned captives continue to see Singapore as an attractive domicile because it remains the closest low-cost domicile that offers firm but flexible regulation. The hardening Australian insurance market, fuelled partly by the collapse of Sydney-based HIH Insurance Ltd., has driven much new captive interest, as well as a marked increase in the activity levels of existing captives.

According to Hauw (2000), "All of Singapore's captives are single-parent insurers, and most are owned by large corporations writing global property/casualty programs. While none has been set up, there is interest in forming group captives, and regulations do not bar those types of insurers."

Singapore faces some challenges, though, as it competes for captives with such domiciles as Bermuda, Cayman and Hawaii. Those other domiciles may be further away for Asia/Pacific-based companies, but they offer some advantages. The future of Singapore as a desired captive domicile will depend on how well the authorities assimilate the lessons of both the successes (Bermuda and Vermont) and the failures (Malta) of other domiciles. Captive managers interviewed agree with Tilley (1999) that "one cannot set up a domicile, cross one's arms and wait for captives to spring up like magic mushrooms. Success demands an aggressive but sound environment, support from government and some heavy-duty marketing."

One interviewee sums up with a positive note, "Singapore has to compete to attract new captives, as there is increasing competition from the other captive domiciles. However, with its stable political climate, excellent business and services infrastructure, abundance of captive management expertise, being in the same time zone and having some cultural similarities with its Asian neighbors, Singapore has much to offer as a captive domicile for captives from the region."

7.5.3 Labuan, Malaysia

Table 7.1 does not list any captives in Labuan, Malaysia. However, the Labuan Offshore Financial Services Authority (LOFSA) has produced its Annual report 2001, which listed 18 captives – nine from Malaysia, five from Australia, and one each from

Bangladesh, Hong Kong, Japan, and Thailand. [65] LOFSA is an active central authority that governs the financial activities in Labuan.

In another updated report by the Captive Insurance Company Review, Labuan has increased its number of captives to 23, at the end of 2002.[66] Beinga Muslim country itself, Labuan has an advantage in attracting the potential captives from the neighboring Muslim countries in Asia. Malaysia companies and individuals are encouraged to go to Labuan first. Only when their needs cannot be met by Labuan are they allowed to go overseas. However, Labuan still lacks well-trained professionals.

Labuan offers a low tax rate of RM20,000 per annum or 3 per cent of profit depending on which option the company prefers. Capital requirement is RM300,000. Labuan offers low costs, and being small, it offers a special quality of life - no traffic jam and more time to spend with families. Labuan aims at becoming a financial park complex with state-of-the-art facilities. A new airport will cater for international flights. Basic infrastructure like roads, electricity and telecommunication will be upgraded to provide better support services.

7.5.4 Dublin, Ireland

The combination of Ireland's status as a member of the European Union (EU) and its tax concessions for companies in the International Financial Services Centre (IFSC) continues to give Dublin considerable advantages as an insurance centre, both for captives and commercial insurance companies. The Irish Development Authority (IDA) promoted the IFSC as a captive centre with the attraction of offering the corporate risk manager a competitive location from which to issue policies for risks

[65] Labuan reports 2001 growth, Captive lnsurance Company Review, May 2002, p. 4.
[66] 2002: **A** record year for captives, Captive lnsurance Company Review, March 2003, p. 11.

anywhere in the EU. IDA has been successful in this respect with about 200 captives, including 17 captives from the Asia-Pacific Region.

7.5.5 Australia

There are 10 captives in Australia. These are all on-shore captives. The Australian government has been reducing its corporate income tax rate over the years. On 1 July 2001, the tax rate was reduced to 30 per cent. In addition, tax reform by the Australian taxation office on foreign-source income creates a 'white list' and a 'grey list' of countries.

The 'white list' contains a few countries that the Australian Taxation Office accepts as having a truly comparable taxation system. The much longer 'grey list' contains countries which also impose a comparable level of tax but which the Australian Taxation Office does not really trust. A controlled foreign company (CFC) which is a resident in Australia that have moved from the 'white list' to the new 'grey list' (example Singapore) will be required to first determine whether it has earned a significant amount of 'tainted income'. This will clearly increase the compliance costs. The tainted income of a CFC in a 'grey list' country will now be attributed back and taxed in Australia even if the income does not benefit from any designated income tax concession.

According to the respondents, whether an Australian captive will move back is a business decision and not a political or social decision. Australian corporations will locate their captives where it is most financially advantageous to do so. They will not move if Singapore obviously offers more than their own country. So if there is little advantage in Singapore, the Australian corporations might choose an onshore captive rather than offshore captives for easy management. More Australian captives in

Singapore might move to Australia, or move elsewhere in the world depending on what a feasibility study determines.

Singapore also has lower labor cost. Some of the Australian captives have also been in Singapore for a long time and therefore have incurred fixed overhead cost. It does not make sense to liquidate the assets in Singapore and move back to Australia. Another reason is that captives in Australia take up a very small portion in the Australia's insurance market and the regulations in Australia are often subject to change with little or no consideration to the impact on captives, giving rise to much uncertainty. On the other hand, Singapore is well known to be clear in its focus on international business in general and the need for stability in its regulations. Businesses value stability very highly.

The main reason for Australian captives that are moving back is not the change in taxation rule in Australia. Rather, it is because the Australian parent companies want to take back control of the management of the captives, which are used to be controlled by the Singapore captive managers. A few have moved back as they feel they are more familiar with the operation system in Australia. One Australia captive has moved back to Australia because of an acquisition of two companies where the parent company already has a captive in Australia.

7.5.6 Cayman Islands

The Cayman Islands is the second largest captive domicile, with more than 600 captives, including 11 from this region. The territory has been used as a site for captives for many years. It has not enjoyed the level of popularity of Bermuda, but it is substantially used by American corporations.

7.5.7 Guernsey

Guernsey is Europe's largest captive domicile and it has attracted eight captives from this region. The development of captive management facilities has been encouraged by the desire of the authorities to create a captive centre. Guernsey has a long history of political stability and well-established financial facilities.

7.5.8 Luxembourg

Luxembourg is Europe's second largest captive domicile and it has attracted six captives from this region. It is conveniently situated and easily accessible from France, Belgium and Germany. There are good connections by air and rail to other European countries and Luxembourg is a member of the EU. A good network of legal, accounting and investment services is available. In particular, Luxembourg is an important banking centre. The languages used are French and German in addition to Luxembourgois. English is also widely spoken.

7.5.9 Hawaii

Hawaii is another favorite domicile. It is the second largest captive domicile in the US, after Vermont. Hawaii has seven captives from the region. However, this number is expected to grow quickly.

Hawaii has some unique advantage for Japanese owned captives. Japan has a tax treaty with the US where income taxed in the US will not be taxed in Japan until dividends are repatriated to the parent. Japanese companies therefore gain a tax saving for the difference between the Japanese corporate tax rate of about 40 per cent (reduced from 50 per cent in 2000) and the US federal tax rate of about 35 per cent.

Where there is no tax treaty or where the tax rate of the country is less than 25 per cent, Japan taxes its companies' foreign earnings at Japanese tax rates. Most foreign captive domiciles used by Japanese captives in the past, such as Bermuda, Ireland and Singapore, now have tax rates of less than 25 per cent. Tax rates reductions in Ireland and Singapore have caused Japanese companies to re-examine their choice of captive domicile. Although re-domiciling has not been frequent due to the time and expenses involved, Japanese companies are certain to consider tax advantages for new captive formations.

Legislation in Hawaii has been directed to increase growth of Pacific Rim captives. For example, branch captive legislation was introduced in 1999 in response to a request from a Japanese company.[67] Branch captives allow the formation of a captive as a branch of another captive, so the Hawaii captive need not be incorporated or separately capitalized. Many companies find this preferable to establishing another foreign corporation.

Another reason Hawaii is popular to Japanese companies is that it is about eight-hour flight from Japan, making it substantially more accessible than most of the other domiciles. The 19-hour time difference means Hawaii is accessible by phone for about half the business day in Japan.

Another strong advantage is the familiarity of Hawaii to the Japanese. About 30 per cent of Hawaii's tourism is from the Japanese market. As a result, there are familiar and desired facilities. The Japanese own about 80 per cent of the total foreign investment in Hawaii and about 18 per cent of Hawaii's population is of Japanese ethnicity. Hence many Japanese companies are comfortable with the business and

[67] Hawaii Attracts Japanese Owned Captives, Captive Insurance Company Reports, September 2001, p. 7.

cultural environments.

7.5.10 Isle of Man

The Isle of Man has attracted 166 captives, including four captives from the Asia-Pacific Region. Situated in the Irish Sea, it is about 40 miles from the English coast. There are regular flights to London and other UK centers. It has common citizenship with Britain but has separate jurisdiction with its own sovereign parliament. It is not a member of the EU but has a special relationship under which it is treated as being within the EU for the customs area and freedom of trade and movement of capital. The territory has been a tax haven for many years, being used extensively by people retiring from the mainland.

7.5.11 British Virgin Islands

Only the northern islands of the group are administered by the UK, the southern islands being possessions of the US. The islands have been used as a tax haven. A small number of captives have been formed and it is apparent that the authorities actively encourage captives. To date virtually all the captives formed have been American owned, with only two captives from the Asia-Pacific Region.

7.5.12 Bahamas

The Bahamas are a group of about 700 islands in the Caribbean. They were a British colony for over 250 years until independence in 1973. A large number of captives were formed there in the 1960s, the country often being preferred to Bermuda. However, in 1969, the government considered it necessary to act against certain disreputable elements and passed an Insurance Act requiring insurers to maintain

minimum reserves of B$140,000 or 20 per cent of annual non-life premium income whichever was the greater. According to Barile (1973a), the Act provided such unfavorable conditions for even the reputable operators and most of the captives domiciled in the islands moved elsewhere. More recently, a few new captives have been established in the Bahamas, including two from the Asia-Pacific Region. However, interviewees all agreed that the territory cannot compete with Bermuda.

7.5.13 Hong Kong

There are two captives domiciled in Hong Kong, both from the region. Hong Kong is similar to Singapore in many aspects and would be more favorable to the upcoming and huge China market. In terms of business environment, Hong Kong is a world-class financial centre and has a pool of professionals who can provide the captive services needed. There are also attractive tax concessions.

The Hong Kong government believes that substantial benefits can accrue to the economy by promoting insurance and captive business. Capital funds will then flow into the economy and at the same time, employment rate will increase. Offices are being set up in major cities in the world for promoting the insurance industry. The insurance authority has also engaged a film producer to produce a video to promote Hong Kong as an attractive captive domicile. Tertiary institutes in Hong Kong are encouraged to provide insurance related programs. This would provide a continuous inflow of professionals with the insurance knowledge to support the industry.

7.5.14 Guam

Representatives from Guam have been seen in recent risk management conferences promoting Guam as an alternative captive domicile. Although Table 7.1 did not show Guam as a captive domicile, Guam has attracted its third captive to the domicile, an Australian captive.[68]

Guam is within a one-hour time zone difference with Australia. Besides trying to attract Australian captives, Guam has also been actively making efforts to attract Japanese captives. Guam is similar to Hawaii in a few aspects. The Guam Captive Lnsurance Association (GCIA) hosted the 1st Guam Captive Insurance Forum in Tokyo on 4 July 2002. In May 2002, the Guam Legislature introduced rent-a-captives legislation to include cell and rental captives. There is an indication of potential for protected cell captives business from Australia/NewZealand region.

7.5.15 New Zealand

Although Table 7.1 did not show New Zealand as a captive domicile, five insurance companies domiciled in New Zealand can be classified as captives.[69] All these are subsidiaries of New Zealand companies. The information required to set up a captive in New Zealand is minimal and a deposit of NZ$500,000 is also the maximum amount required, which can also be served as a capital base. The Ministry of Economic Development has also released a discussion paper that recommends the removal of the deposit, as well as reporting exemption for captives.

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[68] "Guam sees Asian and PCC potential", Captive Insurance Company Review, September 2002, p. 3.
[69] "New Zealand entices captive insurance", Captive Insurance Company Review, October 2002, p. 13

7.6 TAX HAVEN CONTINGENCY PLANS

There are risks of operating in a tax haven. One would therefore expect owners of offshore captives to have contingency plans to deal with an emergency that may arise that would affect the status of their captives. However, none of the interviewees disclose any such contingency plans but some mentioned that they could easily relocate the captives because of the special nature of captives, especially pure captives, which could easily be transferred to another captive domicile within a short notice. The type of event that could occur can be divided between changes in the country hosting the captives and action by the authorities in which the parent companies are domiciled.

CHAPTER EIGHT

INSURANCE INDUSTRY AND CAPTIVES

8.1 INTRODUCTION

Insurers, reinsurers and insurance brokers have all traditionally resisted the formation of captives. This chapter briefly discusses the current situation and the impact of captives on the insurance industry.

8.2 INSURANCE COMPANIES' REACTION

Insurers traditionally resist the formation of captives, even though some have reluctantly cooperated in providing fronting facilities for captives. Adding to the complexity is the shrinking number of insurers because of mergers over the years. This affects the willingness to act as fronting companies to captives as support, for a fee. However, some insurance companies have now been actively engaged in captives, including setting up specialist units to manage captives.

8.3 INSURANCE BROKERS' REACTION

Even insurance brokers traditionally resisted captives, but they have now accepted the inevitability of captives and most of the top brokers have formed specialist divisions specializing in the management of captives. Brokers now dominate the captive management scene.

The important role brokers play in the formation of captives is quite evident. In those countries where there has not been a tradition of insurance broking, there have been fewer captives. This is the case in many of the countries in the region. Most broker markets generate captives because many brokers see offering captive

management services as a means of attracting business, or getting their foot in the door. When there is no broker culture, that aggression does not exist and captives are not formed.

8.4 REINSURANCE COMPANIES' REACTION

When captives were first started, reinsurers were hesitant to offer their services to captives. One reason could be pragmatic, the fear of annoying the traditional insurance companies, which are the main customers of the reinsurers. The situation has changed. For example, the world's largest reinsurer, Munich Re, has a unit that offers Alternative Risk Transfer (ART) facilities, including captives, to corporate buyers directly. The second largest reinsurer, Swiss Re, bought the IRMG in 1988, but has since sold it to Aon.[70]

Access to the international reinsurance market has been one of the key advantages of insuring a company's risks in a captive. The reinsurance market is generally more international, more flexible and cheaper than the direct insurance market. Parent companies with captives have access to all these advantages. According to Greenwald (1998), "Reinsurance for captives is usually plentiful and cheap because the close eye that corporate owners keep on their captives makes the business highly desirable for reinsurers who are eager to boost their premium."

Many of the major reinsurers are already pursuing business from captives. Interviewees say that the often-touted virtues of better risk management - including intensive knowledge of the organization's exposures and the ability to control them - make captives an attractive source of new business for the increasingly competitive

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[70] Sale of IRMG: The Passing of an Era or the Opening of a New Chapter? Captive Insurance Company Reports, February 2001, pp. 1 – 3.

reinsurers. However, under intense pressure from losses attributed to the September 11, 2001 terrorist attack, reinsurers are now much more reluctant to back captives fully.

8.5 INSURER AND REINSURER SOLVENCY

According to the respondents, one issue that risk managers who operate captives are concerned about is insurer and reinsurer solvency. Major fronting insurers of captives have also been raising questions about the solvency of reinsurers. This is causing concern for risk managers who may see the protection of their captives compromised if an insurance (fronting company) or reinsurance company (reinsuring the captive) should fail, as there have been such failures.

8.6 OTHER PLAYERS IN THE INDUSTRY

Other players in the industry such as loss adjusters and other professionals support the industry, including accountants and auditors, lawyers, and investment advisers. As far as these are concerned, there is little impact, as captives still need to use such services.

8.7 DO CAPTIVES BENEFIT THE LOCAL INSURANCE INDUSTRY

Since there has been resistance to the captive movement by the insurance industry as captives take away a large portion of many said the best business from the industry, I investigate whether captives actually benefit the insurance industry at all. An important study called "The Impact of Captive Insurance Companies on the Insurance Markets of Developing Countries" prepared under the auspices of the United Nations Conference on Trade and Development (UNCTAD), notes that captives can

benefit the insurance markets and economies of developing countries. According to Skipper (1988), the study has been provided to, and its conclusions endorsed by, every developing country in the world.

Most of the countries in this region are still considered as developing countries. As the report runs many pages, interviewees were shown and asked to comment on Professor Skipper's article commenting on the report instead. Interviewees generally all agree with Professor Skipper's expert commentary on the report, and none offered any strong differences in view. Those who now own or who will be considering the formation of a captive would be well advised to closely examine the UNCTAD study.

The study observes that UNCTAD has long noted that reliance on foreign insurance and reinsurance by developing countries should be limited only to situations where inadequate or inappropriate local insurance coverage was available. The idea has been that local economic development and the minimization of foreign exchange outflow required such "localization." The concern regarding captives is the possibility that captives are having a negative impact on the growth of the domestic insurance markets in the developing countries if the companies there form captives. This in turn, is judged to mean that captives can have a negative impact on the growth of the overall economy of a developing country. The study presents both possible positive and negative effects that could emerge for developing countries from the operation of captives, and these are discussed next.

8.7.1 Potential Positive Aspects of Captives

The UNCTAD study concludes that captives can possibly offer benefits for the insurance markets and economies of developing countries. It has been widely observed that captives (and risk management generally) have focused attention on weaknesses in

the quality and quantity of insurance supplied in both developed and developing countries. For example, pricing in insurance has often been deficient. Insurance rates have often been higher than justified, and techniques for fair rate discrimination between "good" and "bad" risks often have been deficient. This in turn, results in an underwriting system that often does not appropriately evaluate differences in loss potential. This has been one of the key causes for the formation of captives, as companies with better risk management practices do not want to subsidize those with less advanced risk management practices by paying somewhat similar premium rates.

Inadequate credit for use of deductibles is another common characteristic of many insurance markets, including those in the region. Captives have focused on these pricing deficiencies and have been the cause of insurance markets throughout the world altering many of these practices. Similarly, captives have been the cause of insurers providing broader coverage through more liberal policy conditions and the increased coverage of perils. This has been done by helping fronting insurers improve insurance contract language and through competitive pressure in the insurance and reinsurance markets.

One of the most repeated areas where captives are said to offer a benefit to developing countries relates to the introduction of more modem risk management techniques at the level of both the fronting insurer and the parent company. It is observed that the parent company that forms a captive is typically one that has developed a strong appreciation for modern risk management and has attempted in various ways, to instill this view in its affiliates and its captive. This is quite evident from the list of companies that have formed captives in the region, as they are all the leading companies in their fields.

The UNCTAD study points out that developing countries could leam from the

mistakes of their developed country counterparts regarding captives. Captives evolved in developed countries for a host of reasons. One reason is related to the perceived weaknesses within the traditional commercial insurance market place. Hence, developing countries and their insurance markets could benefit from an examination of their own insurance market places, with a view toward uncovering and correcting inefficiencies and practices that could create an environment conducive to captive formation. The study notes that even with such an examination, it could be that some large enterprises may benefit from the creation of their own captives. For example, captives can obtain better reinsurance terms, conditions and prices for themselves than insurers or reinsurers can obtain in developing countries.

It should be noted that many insurance markets in the region are, by government design or otherwise, not competitive. The growth of captives simply indicates the flaws that exist in the markets. The UNCTAD study concluded that the activities of captives brought about an increase in the quality of coverages, efficiency, loss prevention and other services from local insurers, and awareness and education in risk management of local personnel. According to Skipper (1988), "Case studies carried out for the UNCTAD staff as background for the study support these contentions."

8.7.2 Potential Negative Aspects of Captives

The UNCTAD study also pointed out the potential negative aspects of captives. The two broad issues raised were: (1) questions about the solidity and technical competence of captives, and (2) questions of whether insurance business and foreign exchange may be diverted from developing countries because of the operation of captives.

The UNCTAD study notes that undoubtedly some captives are shaky operations. However, the study also notes an ample supply of equally shaky non-captive insurers. The main focus should therefore be the insurance authorities. The insurance authorities that permit unsound captives to operate also permit unsound non-captive insurers to operate.

As corporations that have captives would naturally utilize their captives at the expense of the local insurance market, most (developed as well as developing) countries prescribe some limitations on the placement of direct insurance with foreign insurers, and most captives are set up offshore and therefore considered as foreign insurers. Even if a captive could become an admitted insurer locally, it would usually not choose to do so because of the attendant costs and inconvenience, as well as legal or other practical barriers.

Since few countries place limitations on the placement of reinsurance, many captives simply appoint a local insurer as a fronting insurer, which then transfers most of the risk to the captive in return for a fronting fee that is intended to cover its expenses and profits. Fronting operations are common in developing countries. The UNCTAD study notes that this practice may be a cause of concern if the fronting insurer reinsures a greater proportion of the exposure or reinsures on less favorable terms than those it would have in an arms-length transaction. The chief concern is that foreign exchange, which is badly needed by developing countries, would be diverted from these countries because of such operations by captives.

Another danger would be that domestic insurance markets of developing countries may not retain as much or as high quality business as they might have otherwise. As a result, the strength and growth of these markets may suffer. Related to these other dangers is the possibility that links between international insurers (which

do most of the fronting) and captives can deprive local markets of experience in writing certain lines of business and the potential for captives to "cream" business within a market. The effect could be that the local market fails to realize maximum benefits from what would otherwise be genuine local insurance.

The UNCTAD study does note that it is in the parent company's interest to maintain good relationships with host countries. Efforts are made by international companies to minimize conflict, so the parent company would normally avoid taking actions on non-critical matters that may be disruptive to a good relationship. Premiums flowing to a captive are not considered crucial to the parent company's operation, and the typical captive is simply viewed as a convenient, efficient, self-insurance device that is of minor importance within the total structure when compared to many factors. Hence, companies that may otherwise form captives may not do so just to avoid offending the host countries.

The UNCTAD study also notes that a developing country can do much to discourage unnecessary reliance on reinsurance, including fronting through captives, by merely showing an interest in foreign reinsurance transactions. The study observes that if the regulatory authorities are concerned about the potential problems of captives, they should also approach the parent company at the level of upper management.

It is interesting to note that the UNCTAD study concludes that "captives may ***provide*** (emphasis added) an outflow of business and foreign exchange at a time when the capacity of the domestic market has not been fully utilized." However, the study does not show this to be the case. Rather, it is hypothesized that this can *occur* (emphasis added), and it is more likely to occur in a flawed insurance market.

The study also notes that the lack of transparency in captive operations "renders

control of their activities more difficult… and the positive aspects of captives for developing countries could be attainable also by the competitive forces of a traditional insurance market." However, according to Skipper (1988), "This ignores the important point that dozens of markets in developing countries are monopolistic or otherwise have little competition from which to benefit. Captives exist because of a lack of competitiveness (and therefore lack of product availability at reasonable prices)."

Another useful report on the role of captives is an attempt by Porat (1982a) to assess the status of Bermuda-based offshore captives and to determine the goals of captives or the motives for their formation. For data, Porat used three independent sources: (1) data obtained from the Bermuda government's files, (2) a captive operators' (parent companies) survey, and **(3)** a captive managers' survey.

Porat's study concludes that "captives generate a significant insurance market. In addition, the market is dominated by large captives and is rather conservative in its underwriting exposure ratio." It was also concluded that tax benefits are not a primary reason for forming captives, and the insurance industry has been linked with the growth of the captive movement.

In another paper, Porat (1984) concludes that "captives contribute to the public interest when they increase the availability of some coverages that otherwise could not be available, if they operate more efficiently, or are well-capitalized, well-managed, and reliable, or if they add to competition that results in lower prices." The paper is based on a survey conducted in 1980. Opinions were collected from 148 captive operators. Most of the respondents consider captives, to some degree, serve the public interest in each criterion. Operators of captives believe that captives are price competitive and that they reduce their parent's insurance costs. They also believe that

captives offer a high-quality product. Many of the respondents report between 25 per cent and 50 per cent savings in their overall cost of risk because of their captive.

CHAPTER NINE

CONCLUDING REMARKS

9.1 INTRODUCTION

As difficult as conditions now are for many buyers of commercial insurance, their situation would be immensely worse if they did not have viable alternatives to traditional insurance for their risk financing needs. Fortunately, alternatives are available and buyers are taking advantage of them.

Even when conditions improve in the commercial market, it seems unlikely that captives will wither, any more than they did in the soft market. They truly are an integral part of risk management, a fact that the corporate insurance community has come to accept. In 2002 alone, according to statistics compiled by A.M. Best Co., more than 450 captives were set up worldwide, which is a record since the advent of captives more than 30 years ago. However, there are currently 192 captives in this region, and data are almost non-existent.

The insurance costs here did not really seem very significant in overall terms. Profits were substantial and there was no need to bother about something that was a small percentage of expenses. Another reason for the low number of captives is the dominance of domestic insurers. In many markets, buyers did what their insurers told them to do, and that is not to form captives.

In addition, in those countries where there has not been a tradition of insurance broking, there have been fewer captives. This is because many brokers offer captive management as a means of attracting business, or as a means of pre-empting others from persuading their clients to form captives and therefore take away their business.

Many countries in the region do not have a broker culture, such as was the case in China, and captives are not formed because of the lack of aggression in offering risk management advice. Changing attitudes are likely to lead to captive growth.

As international insurance brokers are increasingly being allowed to operate in the region (for example, China), there is reason to expect an increase in captive growth in the region. The increasing insurance cost is also a motivator to persuade companies about alternatives to traditional insurance. Insurance premiums have been rising and coverage becoming less available. The September 11 terrorist attack caused billions in insured property losses - the single largest insurance hit in history. To replenish lost financial capacity, insurers raised prices an average 30 per cent to 40 per cent, although premiums for some lines - such as policies for high-rise office buildings, aviation and business interruption - double and even triple. Captive formation as a possible risk management solution is now on the radar screens of companies who may never have considered it an option before.

Moreover, knowledge of captives is increasing as there are more seminars being organized and publications on captives in recent years. In the past, many perceived captives as mere tax avoidance vehicles. Now, there is less emphasis on the tax benefits because of the attack that tax authorities made on captives. Ironically, because of these attacks and the fact that captives continue to be formed despite such attacks, there has actually been an increase in the credibility of using captives as legitimate risk financing vehicles. Generally speaking, captives are no longer regarded as a dubious activity and are becoming more accepted.

Howard (1987) mentioned a dated but still valid comment by Paul A. Bawcutt, Managing Director of Risk and Insurance Research Group Ltd.: "the captive movement must achieve a number of objectives to assure its future, including

eliminating the grip of the insurance market, and making government understand the economic contributions of captives."

9.2 STUDY 1

The formation of captives confers business benefits to the parent companies, such as providing risk protection and offering flexibility. I therefore investigate the possible impact on the value and market returns of parent companies, compared to comparative companies which do not hold such subsidiaries. I find no significant change in the stock returns of parent companies upon formation. The findings reinforce those of other academic studies carried out in the US captive industry (e.g., Wood et al., 1988; Diallo and Kim, 1989) and the UK captive industry (e.g., Adams and Hillier, 2000).

They are also consistent with observations reported in the general risk management literature (e.g., Bawcutt, 1997; Strutt, 1997). The results suggest that in the Asia Pacific, the financial advantages of the captive concept, relative to other risk transfer or financing strategies (e.g. conventional insurance), need to be more closely scrutinized by stockholders, prospective investors and financial analysts. This is essential to help improve understanding on the optimum operation of captive and consequently enhance the maximization of stockholders' value.

9.3 STUDY 2

Even if the formation of a captive affects the return on its parent company, the effect of the captive may not be felt immediately following the formation. It would probably be more reasonable to think that the effect will be felt gradually over the period surrounding the formation date. I therefore use the cumulative abnormal return (CAR) model to analyze the stock returns of parent companies incorporated in the Asia-Pacific Region during the event period before and after the formation of a captive to see whether the results are different from that obtained by the paired-t/Wilcoxon Signed-Rank tests conducted in Study 1.

There is evidence that there is no sign of abnormal performance in Japanese companies' stock prices before and after the date of formation of captives. On the other hand, there is some possibility of abnormal performance in the Australian parent companies. However, this result may not be representative of the true situation since I could use only 24 per cent of the known Australian captive population. To verify whether the findings are true, further research could be done when there is more complete data on Australia's captives.

9.4 STUDY 3

I also attempt to provide a comprehensive review of captives in the region, including the factors that are important for the formation of captives and the benefits from captive formation and how well these benefits were realized, the problems faced by the captives, important factors in the selection of the captive domicile, and factors

that hinder captive formation. To facilitate an in-depth understanding of the nature of captives, a qualitative research approach was chosen.

The main source of data for this broader study is a survey which was completed by all the captive managers in Singapore, as well as interviews conducted with them and the captive managers in Bermuda, Ireland, Australia, Cayman Islands, Guernsey, Hawaii, Isle of Man, and other domiciles who are involved with Asian captives. In addition, I also interviewed risk managers and others, including finance directors and insurance brokers, who are involved in captives in the region.

A survey consisting of open-ended questionnaire as well as Likert-type items was completed by all the captive managers in Singapore. I requested interviews to gain further insights into their practices and most of the captive managers have kindly agreed to be interviewed. The interview questions were designed to gain an in-depth knowledge of the respondents' goals, perceptions, attitudes and beliefs, relating to the captives that they are involved in.

The interviews were semi-structured. I was guided by the list of questions shown in Appendix D, but neither the exact wording nor the order of the questions was precisely determined in advance. The interview questions were divided into four broad areas, as advocated by Patton (1980). These were about:

1) Behavior or experience, for example, "Are there any significant changes in the nature of captives during the years?"
2) Opinions and values, such as, "How useful to you think captives will be to your organization?"
3) Emotional responses and feelings, for example, "How do you feel about captives being used for tax advantages only?"

4) Background demography, for example, "Have you been involved in the insurance industry before getting involved in captives?"

9.4.1 Data Analysis

The aim of the data analysis is to tell the story of the respondents in a way that could be recognized by other researchers and educators. The analysis involved integrating my interpretations and explanations into a coherent description, as shown in Chapters 4 to 8. I presented my preliminary findings at international conferences in the region, for example, the 2002 International Risk Management Conference in Taiwan[71] and the 2003 Asia-Pacific Risk and Insurance Association Conference in Bangkok.[72] Feedback from these presentations was used to refine the analysis.

9.5 CONCLUSION

The aim of research is to illuminate the phenomena under investigation. To do this, a spectrum of methodologies is available to the researcher. Methodologies are not defined by the types of data collection or analytic techniques deployed but by the purpose of the investigation. In this research, my aim was to provide a comprehensive review of the practices of captives in the region. The research tools I used depended on the questions I wanted to answer.

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[71] Yee (2002).
[72] Yee and Wu (2003).

In study one, I was able to explore on a quantitative basis as the study involved the effect of captives on stock returns and systematic risks of the parent companies that own captives. In study two, I was also able to explore on a quantitative basis as the event study involved analyzing the stock returns of parent companies during the event period before and after the formation of a captive, using the cumulative abnormal return (CAR) model. Such quantification of data allowed overall patterns to be discerned and provides a basis for comparative studies. This can be difficult if an entirely narrative style is used to describe data.

However, there is no other available published data that I can use. Hence study three is a qualitative exploration. This required exploration, rich description and qualitative interpretation. By using a variety of methods of data collection and analysis, I have endeavored to shed light on some aspects of the complexity of captives.

If, as Dey (1993) suggests, research is about meaning, then how best to capture and convey meaning is the core dilemma for any researcher. Some researchers choose either qualitative or quantitative methods and defend the chosen path with missionary zeal (for example, Menon, 1993). In the end, however, as suggested by Gill (1996), the selection of appropriate research methodology is an act of judgment. My selection of research tools and methods depend on what questions I wanted to answer.

This study is the first to investigate the relation between security returns and captive insurer formation in the Asia-Pacific Region. As a consequence, my results could provide a useful benchmark against which US-based studies (e.g., Cross et al., 1986; Cross et al., 1988; Wood et al., 1988 and Diallo and Kim, 1989) and US-based studies (e.g., Adams and Hillier, 2000) examining the effect of captive formation can be compared and evaluated. The study also extends the literature by providing new insights as to what factors determine the captive insurance decision.

9.5.1 Limitations of the research strategies

The open-ended questions used in study three allowed each respondent's own experience and opinions of captives to be explored. However, several questions arise. For example, how should one interpret interview data, in view that not all interviews take place on the same footing? What are reliable data? In short, do we need improved criteria for evaluating how data are collected and analyzed?

Moreover, this method assumes the respondents understand the questions and are able and willing to express their thoughts. Some respondents gave too little information. These limitations were unavoidable under the conditions in which the research was carried out and with the resources available to me.

9.5.2 Suggestions for Future Research

The findings indicate that there is weak statistical evidence not to reject ***Ho*** for changes in stock returns in the financial sector of the Asia-Pacific Region. It is suggested that detailed follow-up studies be done to ascertain the effects of captive formations in the financial industry. There is also some possibility of abnormal performance in the Australian parent companies. To verify whether the findings are accurate, further research could be done when there is more complete data on Australia's captives.

There are less than 200 known captives from the Asia-Pacific Region, compared to approximately 2,300 captives owned by US organizations and roughly 600 captives owned by UK entities (Adams and Hillier, 2000). In addition, it is extremely difficult and tedious to gather the data required for this study. Unlike more advanced countries like the US and UK, data had to be collected individually from

many sources over a long period of time. Perhaps in future when data are more readily available and more captives are formed in this region, a more comprehensive study could be conducted.

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Appendix A'
Captives from the Asia-Pacific Region

	Countries of Parent/Sponsor								
Domicile	*Japan*	*Australia*	*Hong Kong*	*New Zealand*	*Singapore*	*Taiwan*	*Philippines*	*Korea*	*Total*
1. Singapore	12	44	-	-	1	-	-	-	57
2. Bermuda	26	8	16	-	2	2	2	1	57
3. Ireland	15	2	-	-	-	-	-	-	17
4. Cayman	3	4	3	1	-	-	-	-	11
5. Australia		10	-	-	-	-	-	-	10
6. Guernsey	3	3	-	1	-	1	-	-	8
7. Hawaii	7	-	-	-		-	-	-	7
8. Luxembourg	5	1	-	-	-	-	-	-	6
9. Isle of Man	2	1	-	-	-	1	-	-	4
10. Hong Kong	2		-	-		-	-	-	2
11. Bahamas		-	2	-	-	-	-	-	2
12. Vermont	2		-	-	-	-	-	-	2
13. British Virgin Islands		-	-	1	-	-	1		2
14. Barbados		2	-	-	-	-	-	-	2
15. Switzerland	2		-	-	-	-	-	-	2
16. Japan	1	-	-	-	-	-	-	-	1
17. Arizona	1	-	-	-	-	-	-	-	1
18. Jersey		1	-	-	-	-	-	-	1
Total	81	76	21	3	3	4	3	1	192

[1] Data for appendix A were obtained from CRADD Captive Review Annual Domicile Directory 2005 and various other sources.

Appendix A1 – Captives from Japan

Type	*Captive*	*Parent/Sponsor*	*Domicile*	*Captive Manager*	*Other information*
S	I. Abbey Reinsurance	FDB International Holdings	Luxembourg	Eurco SA	
S	2. Alps Insurance Pte Ltd.	Alps Electric Co. Ltd.	Singapore	Interisk Asia Pte Ltd	Licensed 28 Sep 1999
S	3. Appleton Insurance Co. (Bermuda) Ltd	Automanage Inc. (Toyota dealerships)	Bermuda		Licensed 4 Sep 1991. Class 3
S	4. Aquablue Insurance Company Ltd	Citizen Watch Co., Ltd	Hawaii	Marsh Management Services	Licensed 10 Aug 2001
S	5. Arcadia Insurance Co. Ltd	Showa Lines	Bermuda	Skandia/Sinser	Formed 16 May 1975. Class 1, Type 1
S	6. Ark Re Ltd	Sompo Japan Insurance Inc	Guernsey	International Risk Mgmt (Guernsey) Ltd	Licensed 1998. Type 1
S	7. Asia Sunrise Co. Pte Ltd	Idemitsu Kosan Co. Limited.	Singapore	Idemitsu Int'l (Asia)	Licensed 28 Oct 1991
S	8. Bluewell Ins.(Singapore) Pte Ltd	Mitsui Sumitomo Co. Ltd	Singapore	Interisk Asia Pte Ltd	Licensed 16 Mar 1991
S	9. Bluewell Reinsurance Co. (Bermuda) Ltd	Bluewell Corp	Bermuda	Zurich International	Formed 1 Jan 1999. Class 3
S	10. C. F. H. Insurance Pte Ltd	Hankyu Express International Co Ltd	Singapore	Richard Oliver International Pte Ltd	Licensed 7 May 1999
S	11. Compass Insurance Co.	Shipping Company	Isle of Man	Marsh	Licensed 1998

S	12. Concord Enterprise Ins. Co. Ltd	Shossan Company Ltd	Bermuda	Nissan Mgt (Bermuda) Ltd	Formed 11 Mar 1998. Class 3
S	13. Cresent Insurance Pte Ltd	Kao Corporation.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 24 Nov 1989
S	14. Cygnus Insurance Co. Ltd	Kawasaki (ultimate owner)	Bermuda	Marsh	Formed 17 Oct 1974. Class 1
S	15. Cygnus Reinsurance Pte Ltd	ORIX Corporation	Singapore	Dowa Insurance Management Pte Ltd	Licensed 23 Sep 1983
S	16. Dione Re S.A.	Cosmo Oil Co.	Luxembourg	Gecalux	Licensed 1992
S	17. D&N Insurance (Bermuda) Ltd	Nissay Dowa General Insurance Co Ltd	Bermuda	Becher & Carlson	Licensed 2000
S	18. Eagle Reinsurance S.A.	General Sekiyu KK	Luxembourg	Marsh	Licensed 1990. Oil business
S	19. Eterna Insurance Co. Ltd	Yasuda Fire & Marine Insurance Co. Ltd (rent-a-captive)	Bermuda	Becher & Carlson	Formed 17 Sep 1998. Class 3 & long-term.
S	20. First Bermuda Assurance Ltd	Wabash Shipping Co. Ltd.	Bermuda	Marsh	Formed 22 Mar 1977. Class 1, Type 1
S	21. Green River Insurance Co.	Kawasaki Motors Corp. USA	Vermont	Aon	Licensed 1987. Product liability
S	22. Griffin Insurance Co. Ltd	Kinki Nippon Tourist Co. Ltd	Bermuda	Skandia/Sinser	Formed 15 Mar 1993. Class 3, Type 3
S	23. Gulliver Europe Ltd	Gulliver International Co., Ltd.	Switzerland	GECALUX Group	Licensed 2001

S	24. Heiwa Insurance Inc	Heiwa Corp	Hawaii	Becher & Carlson	Licensed 30 Mar 2001
S	25. Highland Re Limited	Engineering Corporation	Ireland	Willis Mgmt.	Licensed 1986. RIca tive. Type 1
S	26. Hitachi Credit Insurance Corp. Limited	Hitachi UK/Japan	Ireland	Marsh	Licensed 1996. Direct-writing.
S	27. Huntington Int'l Insurance Co.	Fujisawa	Bermuda	Becher & Carlson	Formed 18 Aug 1989. Class 1. Type 1
S	28. Hyphoon	Nihon Yusen/Tokio Marine	Hong Kong	Tokio	Licensed 1991
S	29. Inno Re Pte Limited	Yamaha Motor Co. Ltd	Singapore	Interisk Asia Pte Limited	Licensed 24 May 1999
S	30. Insurance Company of Trinet (USA) Inc	Mitsui Bussan Insurance and Consulting	Hawaii	Becher & Carlson	Licensed 19 May 2003
S	31. Itochu Ins. Ltd	Itochu Trading	Hong Kong	GT Insurance	
S	32. Jupiter Assurance Ltd	Navix Line	Bermuda	Marsh	Formed 15 Nov 1974. Class 1
S	33. Kyo-ya Insurance Services Ltd	Kyo-ya Company Ltd	Hawaii	Marsh	Licensed 1994. Type 1. Casualty
S	34. Magellan Insurance Co. Ltd	Shohoko Fund	Isle of Man	AIG	Licensed 1998
S	35. Mitsui Sumitomo Reinsurance Ltd	Mitsui Sumitomo Insurance Group	Ireland	GE Re Management Services Ltd	Licensed 1999
S	36. M M Reinsurance Co. Ltd	Reid Finance Ltd	Bermuda	Skandia/Sinser	Licensed 9 Sep 1997. Class 3 & long-term.
S	37. MO Reinsurance S.A.	Mitsui D.S.K. Lines Ltd	Luxembourg	Gecalux	Licensed 1991

S	38. New Atlantic Insurance Co. Ltd	Honda Kaihatsu Co. Ltd/ Honda Motor Co.	Bermuda	Marsh	Formed 11 Dec 1987. Class 1
S	39. New Century Insurance Co. Ltd	Mitsubishi	Bermuda	Marsh	Formed 27 Jul 1984. Class 1
S	40. New Marble Insurance Company Pte Ltd	Marubeni Corp	Singapore	Aon Insurance Managers (S) Pte Ltd	Licensed 13 Oct 1995. Type 1
S	41. Nissan Motor Casualty Ins Corp.	Nissan Motor Ins. Holding Corp.	Hawaii	Becher & Carlson	Licensed 1991. Type 1. Casualty
S	42. Nissan Motor Insurance Corp.	Nissan North America	Hawaii	Becher & Carlson	Licensed 1992. Type 1. Casualty
S	43. Nissan Motor Life Insurance Corp.	Nissan Motor Ins. Holding Corp.	Arizona	Becher & Carlson	Licensed 1991
S	44. Nisshin Insurance Guernsey PCC Ltd	Nisshin Fire & Marine Ins Co Ltd	Guernsey	Willis Management (Guernsey) Ltd	Licensed 2000
S	45. Oak Assurance Ltd	Suntory Finance	Bermuda	AIG	Formed 26 Oct 1987. Class 1, Type 1
S	46. Omnivintage Insurance Co. Ltd	A.C.S. Ltd	Bermuda	AIG	Formed 7 Oct 1999. Class 3, Type 3
S	47. Orange Assurance Ltd	Mitsui O.S.K. Line Ltd	Bermuda	Marsh	Formed 10 Jan 1975. Class 1
S	48. Pacific Re Ltd.	Charitable trust	Cayman	Midland Bank Trust	Restricted B license 1998.
S	49. Parametric Re Ltd.	Charitable trust	Cayman	Midland Bank Trust	Licensed 1997, restricted B. Property catastrophe SPV.

S	50. Perpetual Reinsuance Ltd	Education, Religious, and Charitable Trusts	Cayman	Caledonian Insurance Services Limited	Licensed 2001
S	51. Pine Grove Co. Ltd	Kashima Oil Co.	Bermuda	Argonaut	20 Mar 1978
S	52. Pine Grove Luxembourg	Kashima Oil Co.	Luxembourg	Sinser	Licensed 1993. Sister company in Bermuda
S	53. Pleiades Insurance Co. Ltd	Subaru of America	Bermuda	Becher & Carlson	Formed 24 Jun 1988. Class 1, Type 1
S	54. PMG Assurance Ltd	Sony Corp.	Bermuda	Marsh	Formed 23 Jun 1975. Class 3.
S	55. Reinsurance Co. of European Trinet Ltd	Mitsui & Co.	Ireland	Sinser	Licensed 1997. RI captive. Type 1
S	56. Reyben Reinsurance Ltd	Japan Tobacco Int'l	Ireland	AIG	Licensed 1999 Employee benefit captive
S	57. SANYO Global Insurance, Inc	SANYO Electric Co Ltd	Japan	Marsh Management Services	Licensed 30 July 2004
S	58. S.C.C. Insurance Pte Ltd	Sumitomo Chemical Co. Ltd	Singapore	Interisk Asia Pte Limited	Licensed 6 Mar 1997. Type 1
S	59. Spac Insurance (Bermuda) Ltd	Sumitomo Marine	Bermuda	Marsh	Formed 15 Oct 1987. Class 2, Type 2
S	60. States Insurance Ltd.	Four Seeds Corp.	Ireland	Zurich International	Licensed 1997. RI captive. Type 1
S	61. Sumitomo Marine & Fire Insurance Co. Ltd	Sumitomo Marine Reinsurance (Ireland)	Ireland	Self-managed	Licensed 1999. RI captive

S	62. Sun East (Dublin) Co. Ltd	Tonen Corp.	Ireland	Marsh	Licensed 1991. RI captive.
S	63. Sun God Insurance Co. Ltd	Kambara Kisen	Bermuda	AIG	Formed 1 Sep 1987. Class 1, Type 1
S	64. Sun & Star Insurance Co. Ltd	Caltex Petroleum/Nippon Oil Co.-J/V	Bermuda	AIG	Formed 3 Apr 1990. Class 2, Type 2
S	65. Supreme Insurance Co. Ltd	Tomen America Inc.	Bermuda	Aon	Formed 20 Sep 1968. Class 2
S	66. The Toa 21st Century Reins Company, Ltd.	The Toa Reinsurance Company, Limited	Switzerland	GECALUX Group	Licensed 2002
S	67. Tokio Marine Ireland Ltd	Tokio Marine & Fire	Ireland	Aachen Mgt Services	Licensed 1996. Agency reinsurance
S	68. Toyota Motor Ins. Corp. of Vermont	Toyota Motor Corp.	Vermont	Marsh	Licensed 1985. Type 1.
S	69. Toyota Motor Insurance Company	Toyota Motor Corporation of Japan	Iowa		
S	70. Toyota Tsusho Re Singapore Pte Ltd	Toyota Tsusho Corporation	Singapore	Aon Insurance Managers (S) Pte Ltd	Licensed 19 Mar 2004
S	71. Trinet Asia Pte Ltd	Mitsui & Co. Ltd	Singapore	Interisk Asia Pte Limited	Licensed 28 Mar 1991
S	72. Triple A Ltd	Japan Airlines	Ireland	Sinser	Licensed 1992. RI captive. Type 1
S	73. TSR Co. Ltd	Takefuji Corp	Ireland	Aon	Licensed 1998. RI captive. Type 1
G	74. Twenty-one Insurance Co. Ltd	Group of Individuals	Bermuda		Formed 11 Mar 1998. Class 2
S	75. Unimax Insurance Pte Ltd	Nissho Iwai Corp.	Singapore	Richard Oliver International Pte Ltd	Licensed 24 Jun 1997

S	76. Westfalische Re	Westfalische Provinzial	Ireland	Aachen Mgmt. Services	Agency reinsurance
S	77. Wingspan Insurance Ltd	All Nippon Airways Co. Ltd	Ireland	Willis Mgmt.	Licensed 1990. RI ca tive. Type 1
S	78. Xylos Assurance Ltd	Bridgestone/Firestone Inc.	Bermuda	Marsh	Formed 28 Oct 1981. Class 1
S	79. Yamato Reinsurance (Dublin) Ltd.	Japan Energy Corp.	Ireland	Marsh	Licensed 1994. RI captive. Type 1
S	80. Yazaki Insurance Company Inc	Yazaki International Corporation	Hawaii	Marsh Management Services	Licensed 24 Mar 2000
S	81. Yokogawa Reinsurance Ltd	Yokogawa Electric Corp.	Ireland	Zurich Int'l	Licensed 1998. RI captive. Type 1

The following captives had been separated from the above list as they were in some stage of liquidation.

Type	Captive	Parent/Sponsor	Domicile	Captive Manager	Other information
S	1. Alive Insurance Pte Ltd	Transportation Company	Singapore	Tokio Management Services (Asia) Pte Ltd	Licensed 25 May 1989
S	2. A & M Insurance Pte Ltd.	Nippon Travel Agency	Singapore	Marsh	Licensed 1 Mar 1994. Type 2
S	3. H & M Insurance Pte Ltd	Kinki Nippon Tourist Co. Ltd	Singapore	Tokio Management Services (Asia) Pte Ltd	Licensed 21 Mar 1990

S	4. Seacap Insurance Pte Ltd	Mitsubishi Oil	Singapore	Tokio Management Services (Asia) Pte Ltd	Licensed 1991
S	5. SEI Insurance Pte Ltd	SEIKO	Singapore	Tokio Management Services (Asia) Pte Ltd	Licensed 6 Apr 1989
S	6. SIS Insurance Pte Ltd	Secom Co. Ltd	Singapore	Tokio Management Services (Asia) Pte Ltd	Licensed 3 Jan 1989
S	7. Southern Pacific Ins. Pte Ltd	Kanematsu Corp.	Singapore	Tokio Management Services (Asia) Pte Ltd	Licensed 21 Dec 1989
S	8. Sunstar Insurance Pte Ltd.	Sunstar Inc.	Singapore	Marsh	Licensed 27 Mar 1997. Type 1
S	9. Toyota Ins. Services of Singapore Pte Ltd	Toyota	Singapore	Marsh	Licensed 16 Jul 1992. Type 1
S	10. T & T Insurance Pte Ltd	Tokyu Tourist Corp.	Singapore	Tokio Management Services (Asia) Pte Ltd	Licensed 27 Jun 1990

Appendix A2 - Captives from Australia

Type	*Name of Captive*	*Parent/Sponsor*	*Domicile*	*Captive Manager*	*Other information*
S	1. Abigroup Risk Mgt. Services Ltd	ABI Group	Guernsey	IRMG	Licensed 1998. Type 1
S	2. Amcor Insurance Pte Ltd	Amcor Ltd	Singapore	JLT Risk Solution Mgmt (Asia Pac) Pte Ltd	Mfg company. Licensed 23 Jan 1989. Type 1.
S	3. Austal Insurance	Austal Ships Limited	Singapore	JLT Risk Solution Mgmt (Asia Pac) Pte Ltd	Licensed 6 Mar 2000.
S	4. BG Insurance Company Pte Ltd	BG Group PLC	Singapore	Aon Insurance Managers (S) Pte Ltd	Licensed 2003.
S	5. B.H.P. Marine & General Insurances Proprietary Ltd	Broken Hill Proprietary Co. Ltd	Australia	Self-managed	
G	6. Barristers' Sickness and Accident Fund Proprietary Ltd	Barristers' group	Australia	Self-managed	
S	7. Boral Insurance Ltd	Boral Limited	Australia	Self-managed	
S	8. Castle Pacific Insurance Pte Ltd.	Metal Manufacturers Limited	Singapore	Marsh Management Services Singapore Pte Ltd	Licensed 31 Dec 1987. Type 1
S	9. Caypac Insurance Limited	Private investors	Cayman	Absit Insurance Management Ltd	Licensed 1988 Unrestricted B License

S	10. Challenge Insurance	Clough Engineering Ltd	Singapore	Marsh Management Services Singapore Pte Ltd	Licensed 20 Sep 1999.
S	11. Charabanc & General Insurance Co. Ltd.	Tour & school bus operators	Cayman	IRMG	Unrestricted B License 1997. Auto/bus liability.
S	12. Coala Insurance Co. Limited.	Alcoa Australia	Cayman	IRMG	Unrestricted B License 1982.
S	13. Corrvas Insurance (Singapore) Pte Ltd	PD Int'l Pty	Singapore	Richard Oliver Int'l Pte Ltd	Licensed 2004
S	14. Coselco Insurance Pty. Ltd.	Commonwealth Serum Co.	Australia	Self-managed	License 1998.
S	15. Creare Pte Ltd	Creare SA	Singapore	JLT Risk Solution Mgmt (Asia Pac) Pte Ltd	Licensed 2004
S	16. CSR Insurance Pte Ltd.	CSR Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 11 Jul 1987.
G	17. Dentists' Sickness and Accident Insurance Proprietary Ltd.	Dentists' group	Australia	Self-managed	
S	18. Difyno Insurance Ltd.	McConnell Dowell	Bermuda	Aon	Formed 14 Aug 1998.

S	19. Engineering Insurances Pte Ltd	Connell Wagner Group Holdings Pty Ltd	Singapore	Aon Insurance Managers (S) Pte Ltd	Licensed 18 Oct 2002
S	20. Equator Reinsurances Ltd.	QBE Insurance Group Ltd.	Bermuda	Kemper Management	Formed 31 Oct 1983.
S	21. Evergreen Insurance Pte Ltd	Gunns Limited	Singapore	Richard Oliver Int'l Pte Ltd	Licensed 24 Aug 2004
S	22. FGL Insurance Company Pte Ltd	Foster's Group Ltd	Singapore	JLT Risk Solution Mgmt (Asia Pac) Pte Ltd	Licensed 30 Aug 2004
S	23. Flagstaff Insurance Co. Ltd.	Flagstaff Australia Pty. Ltd.	Bermuda	Marsh	Formed 10 Mar 1999.
S	24. GF Insurance & Risk Management Serv Ltd	Goodman Fielder Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 31 Dec 2001
S	25. Great Western Assurance Ltd.	T.N.T. (transportation firm)	Barbados		License 1987.
S	26. Harflex Limited	James Hardie	Jersey	Aon	Redomiciled from Singapore in 1993. Type 1. Running off
S	27. Heritage Motor Vehicle Insurance Co.	Motor vehicle company	Guernsey	Aon	Licensed 1999
S	28. IAG Re Ltd.	Nonclassifiable Establishments	Ireland	Aon Insurance Managers (Dublin) Ltd	Licensed 2001

S	29. Imperium Insurance Pte Ltd.	EGIS Consulting Australia Pte Ltd.	Singapore	**Marsh Management Serv Singapore Pte Ltd**	**Licensed 30 Apr 1987. Type 1**
S	30. Lion Nathan Insurance (SG) Pte Ltd	Lion Nathan Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 31 Mar 1994
S	31. LMI Insurance Pte. Ltd	PT Lingkamulia Indah	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 2002
S	32. M A Insurance Limited	Motorcycling Australia Ltd	Isle of Man	Aon Insurance Managers (Isle of Man) Ltd	Licensed 2002
S	33. Medical Indemnity Co. of Western Australia	Medical Defense Assn. of Western Australia	Australia	Self-managed	
S	34. Medical Insurance Pte Ltd	Cochlear Ltd	Singapore	Richard Oliver Int'l Pte Ltd	Licensed 2004
S	35. Metals & Minerals Insurance Pte Ltd.	Rio Tinto Group	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 1 Jan 1987. Type 2
S	36. MIA Risk Services Pte Ltd	MIA Group Limited	Singapore	Aon Insurance Managers (S) Pte Ltd	Licensed 1 July 2002
S	37. Mimsure Insurance Pte Ltd.	MIM Holdings Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 30 Sep 1993. Type 1
S	38. Mu Vi Re	Wiener Staedtische Wechselseitige VAVV	Luxembourg	Marsh Management Services (LU) SA	Licensed 1997

S	39. Nautilus Indemnity Ltd.	National Australia Bank Ltd.	Bermuda	P. Hubbard	Formed 4 Oct 1988. Class 2
S	40. Nautilus Insurance Pte Ltd.	National Australia Bank Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 22 Jun 1988. Type 1
S	41. Newcrest Insurance Pte. Ltd	Newcrest Mining Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 28 Aug 2002
S	42. Newmont Insurance *(SG)* Pte Ltd	Newmont Australia Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 1996
S	43. North Insurances Pty Ltd.	North Broken Hill Peko Ltd.	Australia	Self-managed	Insures WC in NSW
S	44. Nufarm Insurance Pte Ltd.	Nufarm Ltd.	Singapore	JLT Risk Solution Mgmt (Asia Pac) Pte Ltd	Licensed 1996.
S	45. OneSteel Insurance Pte. Ltd	OneSteel Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 2 Dec 2002
S	46. Opal Insurance (Singapore) Pte Ltd	Leighton Holdings Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 8 Nov 2004
S	47. Orica Insurance Pty Ltd.	ICI Chemical	Australia	Self-managed	Licensed 1998
S	48. Pathfinder Insurance Pte Ltd.	Hills Industries	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 27 Jun 1986. Type 1
S	49. P.I. Insurance Co. Ltd.	Pioneer International Ltd.	Guernsey	Willis Mgmt.	Licensed 1996. Type 1

S	50. Prof. Indemnity Ins. Co. of Australia	Medical Defense Assn. of Victoria	Australia	Self-managed	
S	51. QLS Insurance Pte, Ltd	Queensland Law Society	Singapore	Aon Insurance Managers (S) Pte Ltd	Licensed 11 Sept 2001
S	52. RHL Insurance Pte Ltd.	British American Australasia Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 30 Jun 1987. Type 1. Tobacco Co.
S	53. Sanco Insurance Pte Ltd.	Coles Myer Ltd.	Singapore	JLT Risk Solution Mgmt (Asia Pac) Pte Ltd	Licensed 29 Jul 1986. Type 1.
S	54. Sanro Insurance Pte. Ltd	Santos Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 30 Mar 2002
S	55. Seasure Insurance Pte Ltd.	Thomco Pty. Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 4 Dec 1992. Type 1.
S	56. SNC Insurance Company (Barbados) Ltd	IRIGHTI Investments	Barbados	MIMS International	Licensed 2000
S	57. Southern Cross Insurance Pte. Ltd.	Qantas Airways Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 20 Jul 1988. Type 1.
S	58. Southern Insurance Pte. Ltd.	Pratt Group	Singapore	Marsh Management Serv Singapore Pte Ltd	License 6 Mar 1990. Type 1. Member of Hopewell.

S	59. SteelCap Insurance Pte. Ltd	BHP Asia Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 27 June 2002
S	60. St. George Insurance Pte. Ltd.	St. George Bank Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	License 13 Apr 1989. Type 1.
S	61. Stockland Singapore Pte Ltd	Stockland Corporation Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 30 June 2004
S	62. Sunarise Insurance Co. Ltd.	Ricegrowers Co-operative Ltd.	Bermuda	IRMG	Formed in 1995. Class 1. Type 1.
S	63. Suncorp Metway Risk Management Pte Ltd	Suncorp Metway Ltd	Singapore	Aon Insurance Managers (S) Pte Ltd	Licensed 2002
S	64. Taxi Insurance Cooperative Ltd.	Taxi owners	Australia	Self-managed	
S	65. Tenix Insurance Company Pte Ltd	Tenix Pte Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 30 June 2003
S	66. TPG Mercury Re Ltd	T N T	Ireland	Marsh Management Services (Dublin) Ltd	Licensed 1998
S	67. Trans Pacific Insurance Group	Insurance Agents, Brokers, and Service	Cayman Islands	Aon Insurance Managers (Cayman) Ltd	Licensed 27 July 2001

S	68. Transport & Security Ins. Co. Ltd.	Mayne Nickless Ltd.	Bermuda	Marsh	Formed 14 Nov 1979. Ultimate parent: Loomis Armored Car Service.
S	69. Transport & Security Ins. (Pte) Ltd.	Mayne Nickless Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 25 Mar 1989. Type 1.
S	70. Wembley Ins. Pte Ltd.	Smorgan Steel Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 25 Mar 1989. Type 1.
S	71. Wesfarmers Risk Management Ltd.	Wesfarmers Ltd.	Bermuda	Pinehurst Mgmt.	Licensed 24 Mar 1995. Class 1. Type 1.
S	72. Westminer Ins. Pte Ltd.	WMC Resources Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 31 Aug 1988. Type 1.
S	73. WFI Ins. Pte Ltd.	WESFI Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 31 Dec 1993. Type 1.
S	74. Woolworths Ins. Pte Ltd.	Woolworths Ltd.	Singapore	JLT Risk Solution Mgmt (Asia Pac) Pte Ltd	Licensed 30 May 1987. Type 1.
S	75. Zinifex Insurance Pte Ltd	Zenifix Limited	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 31 Mar 1994
S	76. Zurich Global Ltd	Zurich-US	Bermuda	Zurich International (Bermuda) Ltd	Licensed 1992

The following captives had been separated from the above list as they were in some stage of liquidation.

Type	Name of Captive	Parent/Sponsor	Domicile	Captive Manager	Other information
S	1. ANZCOVER Insurance Pte Ltd.	Australia and New Zealand Banking Group Ltd.	Singapore	Marsh Management Sew Singapore Pte Ltd	Licensed 1997. Type 1
S	2. BTR Nylex Insurance Pte Ltd	BTR Nylex Limited	Singapore	Richard Oliver	Licensed 19 Mar 1988. Deregistered 1999
S	3. NM Insurance (S) Pte Ltd.		Singapore	CGU	Licensed 1991.
S	4. Normandy Insurance Pte Ltd.	Normandy Mining Ltd.	Singapore	Marsh Management Sew Singapore Pte Ltd	Licensed 28 Nov 1996. Type 1
S	5. Pacific Dunlop Insurance Pte Ltd.	Pacific Dunlop Ltd.	Singapore	Richard Oliver	Licensed 8 Jun 1987
S	6. Pasminco Insurance PL	Pasminco Ltd.	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 31 Mar 1994. Type 1
S	7. Ovoid Insurance Pte Ltd	Inghams Enterprises Pty Ltd	Singapore	Aon	Licensed 1989. Type 1. Liquidated 1999
S	8. Rylandes Insurance Co. Pte Ltd.	Peabody Resources Limited	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 16 Jul 1983. Type 1.
S	9. Senturion Insurance Pte Ltd.	Amatek Ltd.	Singapore	Richard Oliver	Licensed 3 Jun 1987. Deregistered 1999

S	10. W.R.M.S. Insurance Pte. Ltd	Westfield Holdings Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 2002

Appendix **A3** – Captives from Hong Kong

Type	*Name of Captive*	*Parent/Sponsor*	*Domicile*	*Captive Manager*	*Other information*
S	1. ASM Pacific (Bermuda) Ltd	ASM Pacific R. A. Ltd	Bermuda	Aon	Formed 22 Jan 1997. Class long-term
S	2. AXA China Region Ins Co (Bermuda) Ltd	National Mutual Hong Kong Ltd	Bermuda	John Raynor	Formed in 1959. Class 3 and long-term license
S	3. Dah Sing Life Assurance Company. Ltd	Dah Sing Financial Holdings Ltd	Bermuda	Westbroke	Licensed 1 Nov 1989. Permit company. Long-term license
S	4. DCH Insurance Co. Ltd	Dah Chong Hong	Bermuda	Pinehurst Mgmt.	Licensed 4 Dec 1995. Class 2, Type 1
S	5. DFI Insurance Services Ltd.	Dairy Farm International Holdings Ltd.	Bermuda	Triangle Ins. Mgmt.	Licensed 20 Jun 1996. Class 1, Type 1.
S	6. Exchange Insurance Ltd.	Hong Kong International Holdings	Bermuda	Triangle Ins. Mgmt.	Licensed 20 Jun 1996. Class 1, Type 1
S	7. Fastrack Insurance Ltd	MTR Corp.	Bermuda	Willis Mgmt. (Bermuda) Ltd	Formed 14 Nov 1997. Class 1
S	8. Hang Seng Insurance (Bahamas) Ltd	Hang Seng Bank Ltd	Bahamas	Self-managed	Type 2
S	9. HSBC Life (Int'l) Ltd	HSBC Asset Mgmt. Asia Pacific Ltd	Bermuda	Freisenbruch-Darrow	Licensed 19 Jun 1981. Formerly called Carlingford Swire. Long-term license
S	10. Insurance Group of Asia (Bermuda) Limited	Bright Victory Int'l Ltd	Bermuda	Freisenbruch-Darrow	Formed 2 Sep 1997. Class 3. Long-term.

S	11. Landmark Insurance Ltd	Brown, C. and Holgate, J.	Bermuda	Triangle Ins. Mgmt.	Licensed 28 Nov 1994. Class 1, Type 1
S	12. Lockhart Insurance Co. Ltd	Jardine Matheson Holdings Ltd	Bermuda	Triangle Ins. Mgmt.	Formed 16 Aug 1977. Class 1, Type 10. Private Act
S	13. Malayan Int'l Insurance Corp. Ltd	Malayan Group of Insurance Companies	Bahamas	Higgs & Johnson	Third-party business. Type 12
S	14. Oakhurst Insurance Ltd	Reckitt & Coleman Hong Kong Ltd	Bermuda	Aon	Formed 17 May 1999. Class 1
S	15. Ormaryd Insurance Co Ltd	Manufacturing Industries, NEC	Cayman	Marsh Management Services Cayman Ltd	Licensed 1997
S	16. Onlop Insurance Co.	Manufacturing firm	Cayman	Cayside	Licensed 1997. Unrestricted B. Property reinsurance
S	17. Pacific Life Insurance Co. Ltd	Chao In Chang Investment/ Multiway Co. Ltd	Bermuda	Pinehurst Mgmt.	Formed 6 May 1992. Long-term license. Type 8
S	18. Regga Insurance Ltd	Western Navigation (Far East) Ltd	Bermuda	Westbroke	Formed in 1991. Class 1
S	19. SJF Insurance Co. Ltd	Oak Steamship Co.	Bermuda	Aon	Formed 23 May 1978. Formerly called Safeway. Class 1
S	20. Top Glory Insurance Co. (Bermuda) Ltd	Bright Victory Int'l Ltd	Bermuda	Appleby, Spurling & Kempe	Licensed 1992. Ultimate owner Top Glory. Long-term license
S	21. Warrander Insurance Co. Ltd.	Health care organization	Cayman	Absit	Unrestricted B license 1996. Group medical and uninsured risks.

Appendix A4 - Captives from New Zealand

Type	*Name of Captive*	*Parent/Sponsor*	*Domicile*	*Captive Manager*	*Other information*
G	1. CSI Insurance Group (BVI) Ltd	Church group (New Zealand Trust)	BVI	AMS Insurance Mgmt.	Licensed 1997
S	2. Risk Reinsurance Ltd	Transpower	Cayman Islands	Marsh Management Services Cayman Ltd	Licensed 12 Feb 2001
S	3. Terrace Insurances Ltd	Fletcher Challenge Ltd	Guernsey	IRMG	Incorporated 31 Mar 1986. Type 1

The following captives have been separated from the above list as they were in some stage of liquidation.

Type	*Name of Captive*	*Parent/Sponsor*	*Domicile*	*Captive Manager*	*Other information*
S	1. Fernz Insurance Pte. Ltd.	Medisup Securities Ltd.	Singapore	Marsh	Licensed 4 Mar 1996. Type 1
S	2. Forests Int'l Ltd	Carter Holt Harvey Int'l Ltd	Bermuda	Marsh	Formed 17 Aug 1976. Class 1. Wound up December 1999
S	3. Teleco Insurance Inc.	Telecom Corp. of New Zealand Ltd	Hawaii	Marsh	Licensed 1991. Type 1. Dissolved 1999

Appendix A5 - Captives from Taiwan

Type	*Name of Captive*	*Parent/Sponsor*	*Domicile*	*Captive Manager*	*Other information*
S	1. Chinfon-Manulife Insurance Co. Ltd.	Manufacturers Life Ins./Chinfon-Global Corp.	Bermuda	Reid Mgt.	Licensed 14 Jun 1996. Class 3. Long-term
S	2. Evergreen Insurance Co. Ltd	Evergreen Int'l S.A. (Panama)	Bermuda	Marsh	Formed 26 May 1999. Class 3
S	3. Marinair Insurance Co. Ltd	Transportation firm	Isle of Man	Marsh	Licensed 1992. Type 3
S	4. UNIC Insurance Ltd.	China General Plastics Corp. et al.	Guernsey	Willis Mgmt./ Richard Oliver	Licensed 3 Dec 1996. Managed jointly

Appendix A6 - Captives from Korea

Type	*Name of Captive*	*Parent/sponsor*	*Domicile*	*Captive Manager*	*Other information*
S	SK Insurance (Bermuda) Ltd	SK Corp.	Bermuda	Marsh	Formed 18 Sep 1996. Class 1. Formerly called Yukong Insurance

Appendix A7 - Captives from Singapore

Type	*Name of Captive*	*Parent/Sponsor*	*Domicile*	*Captive Manager*	*Other information*
G	1. Kepital Insurance Ltd	Kephinance Investment Pte Ltd	Bermuda	Marsh Management Services (BM) Ltd	Licensed 1990
S	2. Noah Insurance Co Ltd	HRD Singapore	Bermuda	Marsh Management Services (BM) Ltd	Licensed 1999
S	3. PSA Insurance Pte Ltd	PSA Corp Ltd	Singapore	Marsh Management Serv Singapore Pte Ltd	Licensed 26 Sept 1997

Appendix A8 - Captives from the Philippines

Type	*Name of Captive*	*Parent/Sponsor*	*Domicile*	*Captive Manager*	*Other information*
S	1. Asia-PAC Reinsurance Co. Ltd.	Insurance group	BVI	AMS Insurance Mgmt.	Licensed 1993
S	2. Overseas Ventures Insurance Corp. Ltd	Petron Corp.	Bermuda	IRMG	Licensed 16 Nov 1995. Class 1, Type 1
S	3. Standard Security Re Ltd	Standard Insurance Co. Inc.	Bermuda	Reid Management	Formed 22 Oct 1997. Class 2

17	Sumitomo Marine	Japan	Bluewell Ins. Pte. Ltd.	Singapore	Heavy industries
18	Kao Corporation	Japan	Cresent Insurance Pte. Ltd.	Singapore	Consumer Products
19	ORIX Corporation	Japan	Cygnus Reinsurance Pte. Ltd.	Singapore	Finance
20	Kinki Nippon Tourist Co. Ltd.	Japan	Griffin Insurance Co. Ltd.	Bermuda	Others
21	Hitachi	Japan	Hitachi Credit Insurance Ltd.	Ireland	Manufacturing
22	Fujisawa	Japan	Huntington Int'l Insurance Co.	Bermuda	Consumer Products
23	Yamaha Motor Co. Ltd.	Japan	Inno Reinsurance Pte. Ltd.	Singapore	Automobiles
24	Mitsui & Co.	Japan	Insurance Co. of Trinet Asia	Singapore	Manufacturing
25	Honda Motor Co.	Japan	New Atlantic Insurance Co. Ltd.	Bermuda	Automobiles
26	Mitsubishi	Japan	New Century Insurance Co. Ltd.	Bermuda	Automobiles
27	Marubeni Corp.	Japan	New Marble Insurance Co. Pte. Ltd.	Singapore	Finance
28	Nissan Motor	Japan	Nissan Motor Casualty Ins. Corp.	Hawaii	Automobiles
29	Mitsui O.S.K. Line	Japan	Orange Assurance Ltd.	Bermuda	Heavy industries
30	Sony Corp	Japan	PMG Assurance ltd.	Bermuda	Consumer Products
31	Sumitomo Chemical	Japan	S.C.C. Insurance Pte. Ltd.	Singapore	Heavy industries
32	SEIKO	Japan	SEI Insurance Pte. Ltd.	Singapore	Consumer Products
33	Secom Co. Ltd.	Japan	SIS Insurance Pte. Ltd.	Singapore	Others
34	Kanematsu Corp.	Japan	Southern Pacific Insurance Pte. Ltd.	Singapore	Others

Appendix B

Parent Companies For Study On Effect of Captive On Stock Returns

	Parent	*Country*	*Name of Captive*	*Domicile*	*Industry*
1	Amcor Ltd	Australia	Amcor Insurance Pte. Ltd.	Singapore	Manufacturing
2	Austal Limited	Australia	Austal Insurance	Singapore	Heavy industries
3	Clough Limited	Australia	Challenge Insurance	Singapore	Heavy industries
4	CSR Limited	Australia	CSR Insurance I Pte. Ltd.	Singapore	Manufacturing
5	McConnel Dowell	Australia	Difyno Insurance ltd.	Bermuda	Others
6	QBE Group Ltd.	Australia	Equator Reinsurances Ltd.	Bermuda	Finance
7	James Hardie	Australia	Harflex Limited	Singapore	Manufacturing
8	National Australia Bank Ltd.	Australia	Nautilus Insurance Pte. Ltd.	Singapore	Finance
9	Pasminco Ltd.	Australia	Pasminco Insurance PL	Singapore	Heavy industries
10	Hills Industries	Australia	Pathfinder Insurance Pte. Ltd.	Singapore	Consumer Products
11	Coles Myer Ltd.	Australia	Sanco Insurance Ltd.	Singapore	Consumer Products
12	Mayne Nickless Ltd.	Australia	Transport Security Ins. Co. Ltd.	Singapore	Transportation
13	Wesfarrners Ltd.	Australia	Wesfarmers Risk Management Ltd.	Bermuda	Others
14	MIM Holdings Ltd.	Australia	Mimsure Insurance Pte. Ltd.	Singapore	Heavy industries
15	Cosmo Oil Co.	Australia	Dione Re S.A.	Luxembourg	Heavy industries
16	Australia & NZ Banking Group Ltd.	Australia	ANZCOVER Insurance Pte. Ltd.	Singapore	Finance

35	Nippon Oil Co.	Japan	Sun & Star Insurance Co. Ltd.	Bermuda	Heavy industries
36	Sunstar Inc.	Japan	Sunstar Insurance Pte. Ltd.	Singapore	Consumer Products
37	Tokyu Tourist Corp.	Japan	T&T Insurance Pte. Ltd.	Singapore	Transportation
38	Toyota	Japan	Toyota Ins. Services	Singapore	Automobiles
39	Toyota Motor Corp.	Japan	Toyota Motor Ins. Corp.	Vermont	Automobiles
40	Japan Airlines	Japan	Triple A Ltd.	Ireland	Transportation
41	Nissho Iwai	Japan	Unimax Insurance Pte. Ltd.	Singapore	Finance
42	All Nippon Airways	Japan	Wingspan Insurance Ltd.	Ireland	Transportation
43	Bridgestone/Firestone Inc.	Japan	Xylos Assurance Ltd.	Bermuda	Automobiles
44	Yokogawa Electric Corp.	Japan	Yokogawa Reinsurance Ltd.	Ireland	Manufacturing
45	ASM Pacific R.A. Ltd.	Hong Kong	ASM Pacific (Bermuda) Ltd	Bermuda	Manufacturing
46	Dah Sing Financial Holdings	Hong Kong	Dah Sing Life Assurance Company Ltd.	Bermuda	Finance
47	New Zealand Investment Trust	New Zealand	CSI Insirance Group	BVI	Finance
48	Lion Nathan Ltd.	New Zealand	Lion Nathan Insurance Pte. Ltd.	Singapore	Consumer Products
49	Petron Corp.	Philippines	Overseas ventures Insurance Corp.	Bermuda	Heavy industries
50	SK Corp.	Korea	SK Insurance Ltd.	Bermuda	Heavy industries
51	Evergreen Int'l S.A.	Taiwan	Evergreen Insurance Co. Ltd.	Bermuda	Heavy industries
52	China General Plastic Corp.	Taiwan	UNIC Insurance Ltd.	Guernsey	Manufacturing

Appendix C
Proposal To Set Up A Captive In Singapore

MSR Limited

Section I

Parent company of proposed "captive"

1. Name

   MSR Limited

2. Date and place of Incorporation

   Incorporated as the Original Sugar Refining Company Limited on 23 July 1887, in Sydney, Australia.

3. Brief history of the company

   A one-page abstract of MSR's entry in Moodys International directory is attached (attachment 1). Also attached are a chronology of the company (attachment 2) and a recent review of the company's performance and prospects, by its management (attachment 3).

4. Names and addresses of shareholders owning 10% or more of the shares in the company and their respective share-holdings

   One holder only, the NMP Society, of Sydney Cove, Sydney, holds more than 10% of MSR. The NMP holding is currently 18.82% (122.4 million shares)

5. Names of insurance and reinsurance companies and insurance intermediaries in Singapore or elsewhere in which the company or any of its subsidiaries have an equity interest.

   - A captive insurance company in Australia (Closure Limited), currently in process of being liquidated.
   - In-house insurance broking operation in Australia, trading as Closure Insurance Broking Pty Ltd., currently being phased out.

6. Description of the company's business and activities and details on its areas of specialisation.

   MSR occupies a dominant position in the Australian sugar industry – both in raw sugar manufacture and sugar refining. It is also a major manufacturer of building products in Australia which includes gypsum wall boards, fibreglass and mineral fibre insulation, low and high density particle-boards, fibreboard, and a range of hard rock quarry products, premixed concrete and asphalt products.

MSR is also involved with oil and gas exploration and production, operates a gas pipeline, and is involved with exploration for minerals. It is also a major producer of coals for domestic and overseas markets and holds investments in the bauxite and aluminium industries. MSR has very recently sold its interest in the Cooper Basin oil and gas producer, Alpha Petroleum Pty. Limited.

For further detail, see attached Notes on MSR (attachment 4).

7. Details on the company's international network of branches and subsidiaries.

MSR maintains branch offices of MSR International Pty. Limited in Tokyo and London. The following subsidiaries operate in the international arena.

- MSR Investments (Asia) Pte Ltd., domiciled in Singapore, carries on business in Hong Kong
- Northland NV (60% MSR Group), domiciled in the Netherlands, carries on business in the Netherlands
- Antilles NV (60% MSR Group), domiciled in Netherlands Antilles, carries on business in the Netherlands Antilles
- MSR Orient Oil Pte Ltd., domiciled in Singapore, carries on business in Hong Kong and Peoples Republic of China
- MSR Petroleum (Asia) Ltd., domiciled in Hong Kong, carries on business in Indonesia and Hong Kong
- Drillwell International Ltd., domiciled in Hong Kong, carries on business in Hong Kong
- PT Musang Mining (70% MSR Group), domiciled in Indonesia, carries on business in Indonesia
- PT Metaun Mining (60% MSR Group), domiciled in Indonesia, carries on business in Indonesia
- Marisan Minerals Pte Ltd., domiciled in Singapore, carries on business in Indonesia
- Mriselda Trading Pte Ltd., domiciled in Singapore, carries on business in Indonesia
- Malmaheras Minerals Pte Ltd., domiciled in Singapore, carries on business in Indonesia
- Miberina Trading Pte Ltd., domiciled in Singapore, carries on business in Indonesia
- MTT Minerals Pte Ltd., domiciled in Singapore, carries on business in Indonesia
- Mumbawa Minerals Pte Ltd., domiciled in Singapore, carries on business in Indonesia
- Metar Minerals Pte Ltd., domiciled in Singapore carries on business in Indonesia
- PT Mangoni Minerals (80% MSR Group), domiciled in Indonesia, carries on business in Indonesia
- Mradford Roakwool (M) Sdn. Bhd. (70% MSR Group), domiciled in Malaysia, carries on business in Malaysia
- MGL Services N.V., domiciled in Netherlands Antilles, carries on business in Netherlands Antilles.

Greater detail is available in attachment 1 and on pages 55, 56 and 57 of MSR's 1998 Annual Report (attachment 5).

8. Ranking of the company in its home country in terms of income, total assets or other indicators, if available. Please supply 1 copy of the Annual Report and financial Statements of the company for each of the last five years.

   Copies of Annual Reports and financial statements for the last five years and some other indicators of size are attached (attachment 5). The 1999 Annual Report will be forwarded when available in late June.

9. What was the total cost of insurance incurred by the company and its subsidiaries for each of the last five years?

Year	*A$ (million)*
1999	12.0
1998	11.0
1997	8.3
1996	8.3
1995	4.2
	(Coal Division not included)

   The above figures represent the premiums paid out for insurance for mainstream parent activities. They do not include premiums for any Oil and Gas activities, nor do they include Workers' Compensation Premiums.

10. How are the insurance needs of the company and its subsidiaries presently being met? **(e.g.** insurance with conventional insurers, self-insurance, etc.)

    MSR has had an Australian based captive since June 1982. This captive has insured property/business interruption risks for most of the MSR Group – other insurances have been placed in the insurance market. A degree of self-insurance has been in place.

11. Does the company or any of its subsidiaries already own a captive insurer? If so, please give reasons why it is necessary to set up another captive insurer in Singapore and supply 1 copy of the Annual Report and Financial Statements of the captive insurer for the last five years.

    MSR has had an Australian based captive (Closure Limited) since 1982. It is currently being closed down. MSR acknowledges the benefits to a large company of having some control over its insurances via a captive and wishes to continue to obtain these benefits in a more favourably structured insurance business environment.

    Copies of Closure's annual reports for years 1995 - 1998 are enclosed (attachment 6). The 1999 report will be forwarded when available in late May.

12. Details on the expertise that the company has (or has access to) in the following areas:

(i) Insurance underwriting

It is intended that underwriting and management services within Singapore will initially be provided by contracted service facilities. Either Very Good Management Services or Singaporean Risk Management will be appointed to this role. We understand that both of these organisations are acceptable to the Monetary Authority of Singapore.

(ii) Loss prevention and risk management

Local Risk Managers Pty. Ltd. are retained to administer insurance and advise on loss prevention and risk management. The services of other loss control engineering organisations will also be utilised and co-ordinated by Local Risk Managers Pty. Ltd.

Section **II**

Proposed Operations In Singapore

1. Name of proposed captive

MSR Insurance Pte Limited.

2. Authorised and paid-up capital of proposed captive

Authorised Capital : S$5,000,000 (Singapore $5 million)
Paid Up Capital : S$1,000,000 (Singapore $1 million)

3. Names and addresses of shareholders and their share-holdings in proposed captive.
MSR Limited,
G.P.O. Box 123,
Sydney, 2000 Australia 100% share-holding

4. Names, addresses, occupation and nationality of directors of proposed captive. (Please include Identity Card numbers for proposed Singaporean directors).

Mr. W. George Bush,
c/o MSR Limited,
Box 123, G.P.O., Sydney,
Australia 2000
(Company Officer – Australian)

Mr. Colin R. Webster,
c/o Bradford Rockwell (M) Sdn Bhd
No. 8 Lorong 1A,
Bukit Raja Industrial Estate,
Kelang Selangor Malaysia
(Company Officer – Australian)

Mr. Donald Samden,
c/o MSR Limited,
Box 123, G.P.O., Sydney,
Australia 2000
(Company Officer – Australian)

Mr. Bulien de B. Noakes,
c/o P T Moba Tin
Floor 10, Arthaloke Building,
JL Jend Sudirman No. 2,
Box 3089/Jkt PO,
Jarkarta Indonesia
(Company Officer – New Zealander)

Mr. Sam Tan,
Good Speaking Lawyers,
Standard Chartered Bank Building,
6 Battery Road 27-01,
Singapore 049909
(Advocate and Solicitor – Singaporean, Singapore Identity Card No. 1330007H)

5. Outline the objectives of your proposed captive in Singapore and elaborate how it would be of economic benefit to Singapore and contribute to the development of the Singapore Insurance Industry.

1) To enable MSR to develop a worldwide strategy for external insurance coverage and risk retention.
2) To facilitate the provision of arm's length insurance needs to the worldwide MSR activities. The captive will charge commercial premiums, assume a defined level of risk and seek reinsurance for catastrophic risk.
3) To reduce MSR insurance costs by providing across to world reinsurance markets.
4) To provide access to reinsurance facilities only available to captive insurance companies. This may have the additional advantage of providing a mechanism for insuring contingencies that are difficult or impossible to insure in the direct insurance market.
5) Singapore will benefit from taxes that the company will pay, together with the employment of local people in the underwriting and management areas.

6. If the company had considered other locations for its proposed captive before selecting Singapore, please explain why Singapore was selected.

Singapore was selected in view of:

- Encouragement offered by the provision of special legislation for wholly-owned captive insurance facilities
- Availability of the financial services in an economically and politically stable business environment
- MSR's involvement and aspirations in the South East Asian region
- Proximity to Australia – minimal time differences, ease of travel.

7. Details on the tax benefits that would accrue to the company if its captive were located in Singapore. Would the proposed captive be able to take advantage of the 10% concessionary tax rate on offshore business?

Captive would be able to take advantage of the 10% concessionary tax rate on offshore business. It is not intended that any business be underwritten in respect of Singapore domiciled subsidiaries or activities.

8. Details on the classes of business which the proposed captive would write and the estimated volume of business (gross and net premiums) for the first 5 years of operations for these classes. Please indicate the source of such business.

The proposed classes of business to be underwritten initially, anticipated annual gross premiums and source:

Fidelity Guarantee	A$250,000 - World-wide subsidiaries
Motor Vehicles	A$550,000 - Australian subsidiaries
Difference in conditions	A$3 million - Australian subsidiaries
General Accident – Equipment	A$1 million - Australian subsidiaries
Machinery Breakdown	A$250,000 - Australian subsidiaries

None of these classes of business will encompass any Singapore activities or exposures.

Additional classes of business will be underwritten in the areas of Public and Product Liability, Special Contingency, Political Risks and possibly Strike Risks. In most cases these risks are currently insured in the normal commercial insurance market and will not fall due for review or alternative placement until later in this year.

Based purely on the above-described initial business to be underwritten, the first five years of expected premiums (Thousands of Australian dollars) are:

	1999/2000	2000/01	2001/02	2002/03	2003/04
Gross	5,050	5,300	5,567	5,845	6,138
Net	3,788	3,977	4,175	4,384	4,603

9. Details on the management of the proposed captive in Singapore. If the proposed captive is to be managed by a captive management company give the name and address of the management company. If the proposed captive is to be managed by the company's own executives, provide details on the insurance expertise, qualifications and experience of such persons.

Underwriting management will be provided by either:

Singaporean Risk Management Pte Ltd.,
888 Bridge Road,
#10-01 Peninsula Plaza,
Singapore

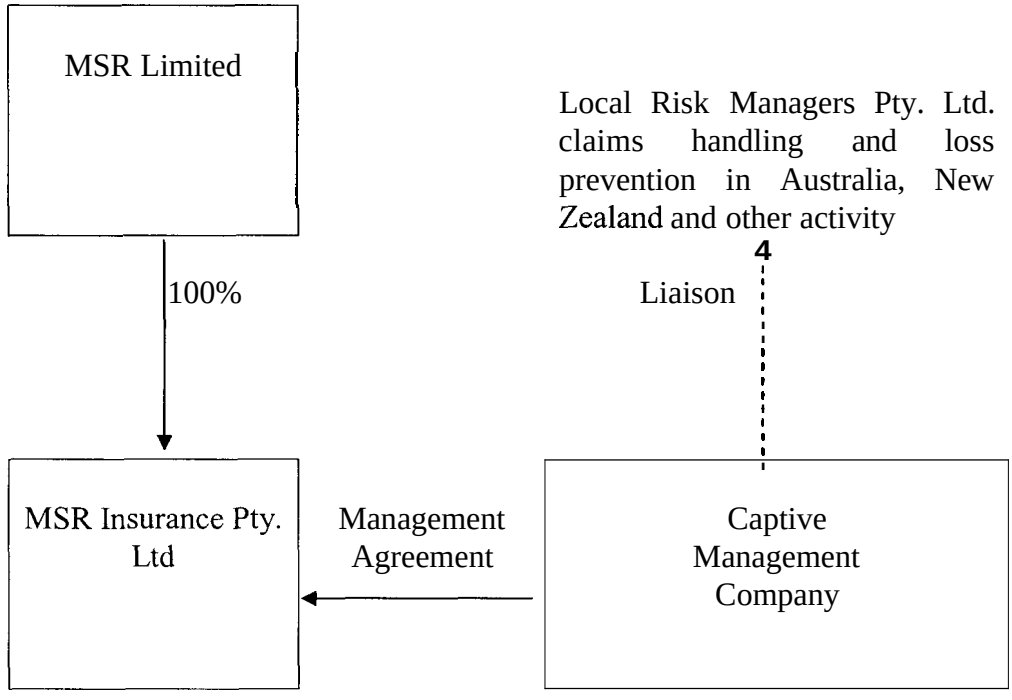
or

Very Good Management Services Pte Ltd.,
1 Battery Road
Singapore

It is understood that either of these companies would be acceptable to the Monetary Authority of Singapore. The decision as to which company will be utilised will be advised by 30 May 1999.

10. Supply a copy of the organisation chart of the proposed captive in Singapore.

Organisation Chart



11. Would the proposed captive handle all of the insurance requirements of the parent company and its subsidiaries? If not, please explain why?

It would not be possible for a captive to handle all the insurance requirements of MSR Limited.

It is the intention to utilise the captive for part of the insurance requirements of the parent company and its subsidiaries, where it can do so cost-effectively and on sound underwriting bases. There are some insurances in which it may be inappropriate for the captive to participate due to small premium volumes, local market practises or unsuitability due to adverse loss experience.

12. Details on the reinsurance arrangements that would be made for the proposed captive.

Initially the captive will be writing mainly low level losses of fairly high frequency and the premium base would be adequate to cover most situations. It is possible, if experience deteriorates simultaneously on a number of classes, that the captive could be exposed to loss. The captive will purchase Excess of Loss reinsurance across the entire book of business to provide adequate protection in the worst foreseeable situation in the respect of the captive, per occurrence or aggregate retention.

13. Details on the investment policy for the proposed captive.

The Captive Board will establish an investment policy and programme. In the initial years of operation, the captive will probably invest underwriting funds on deposit with local banks and lend surplus capital back to MSR at commercial rates of interest.

14. Supply a copy of the report on the feasibility of the company forming a captive in Singapore or elsewhere.

The Board of MSR Limited had earlier accepted the concept of establishment of a captive subsidiary on the basis of a feasibility study in 1982. The proposed establishment of the captive in Singapore is a replacement of this existing corporate structure.

15. Name and address of the proposed auditor in Singapore for the captive insurer. (The proposed auditor is subject to the approval of the Authority).

Very Thorough Auditor Pte Ltd.,
Standard Chartered Bank Building,
6 Battery Road #10-01,
Singapore 049909

Section III

Others

1. Name and address of senior officer of the company to whom queries on the application can be directed.

Mr. W. George Bush,
Treasurer,
MSR Limited,
G.P.O. Box 123,
SYDNEY 2000 AUSTRALIA

Telephone No: (61-2) 123 1221
Telex No. : 11- 12236
Facsimile No. : (61-2) 122 1126

2. The application should be accompanied by certified copies of letters from the relevant home authorities approving the company's plan to set up a captive in Singapore. Where such approval is not required, a statement to this effect should be given by the applicant.

No such approval is required.

3. The application should be signed by a director of the company. This director should also certify that the information given in the application is true and complete.

This application completed for and on behalf of MSR Limited by A. B. Albert, Director.

Appendix D

Interview questions for captive and risk managers

1. What is the purpose of establishing a captive?
2. Where would you recommend a captive to be located?
3. Would you recommend the parent company to locate the captive domestically or offshore?
4. How will the geographical location affect the management of the captive?
5. What is the potential of captives in Singapore?
6. What is usually included in the captive as insured risks? (Owner's risks, customers' risks, suppliers' risks, unrelated business risks?)
7. Is there any particular legislation or tax law which is beneficial or is a hindrance to captives that are being managed?
8. What are difficulties encountered in setting up captives offshore or onshore?
9. How many captives does your company run? What are the main types of captives? (paper captive, small-scale captive or full-scale captive?)
10. Must the 6 preconditions to forming a captive exist?
    1) loss control
    2) management commitment
    3) retention capability
    4) premium volume
    5) market co-operation
    6) management capability
11. What are the costs of establishing and managing different types of captives?
12. Who usually makes up the board of captive?
13. In the midst of economic downturn, is there a higher rate of claims?
14. Is there any possibility of a captive getting fraudulent claims?
15. Because insurance accounting is very different from conventional accounting, is it better to have your own accountant or to employ the service of outside accountants? As mentioned that insurance accounting is different, is there any additional training required of the accountant?
16. With regards to the premiums, who makes the decision on the investment strategy? (captive owner or management service provider?)

17. Does the investment strategy meet the captive criteria in relation to solvency and location requirements? Does it also relate to the parent's overall financial strategy and objectives?

18. What are the financial benefits to the company, taking into account of the savings, both short- and long-term, in insurance premium?

19. What impact does the improved cash flow and investment income have on these financial benefits?

20. What impact does the captive have on loss control motivation in the company and what implication does this have for companies with international structure?

21. Does the captive improve the company's overall risk-financing strategy?

22. What is the condition of the loss prevention status in the captive owners?

23. What is the attitude of the insurance market to the company's decision to form captive and how can this be best managed?

24. Will the fronting companies require parental guarantees or letters of credit, are these acceptable to the company's management and what form will they take?

25. What political considerations need to be taken into account both domestically and elsewhere in the world if a multinational is involved?

26. Were there any international problems in the form of insurance legislative difficulties, exchange control or political problems that need to be taken into account?

27. What are the problems in relation to implementation and imposition of a centralized risk-financing strategy?

28. In relation to the risks that the captive will be retaining and its overall exposure, what are the needs for capitalization and what are the attitudes of the company to solvency margin?

29. On behalf of the captive owners, has there been any acceptance of more than half the underwriting premium from unaffiliated sources?

30. Do you think the tax concessions for captives in Singapore are attractive enough to make more companies consider Singapore as their captive location?

31. Do you think captives give companies advantages apart from deferral and by siting operations in offshore locations where tax burden is light or non-existent?

32. A captive is a true independent entity operating on its own in a commercial sense. What do you think of captives using some of their money as loans back to the parent company or the parent company issuing a guarantee in respect of the captive?

33. In your view, is it more beneficial for a captive to be established in a high tax area where there is substantial allowance for technical, equalization or safety fund reserves than to maintain the captive in a nil tax region subjected to the full weight of residency problems and all the other difficulties which establishment in a tax haven involves?

34. What determines the success of the captive? Is it the ability to control losses retaining within operations, maintain reinsurance expenditure where profits are maintained, reducing reinsurance cost...?

35. What do you think are the key factors for future loss control? Is it the allocation of responsibility, motivation or training?

36. Could you please elaborate on the risk management programme to control risk or measure risk potential?

37. Does the use of international insurers to front for a captive reduces exchange rate problems?

38. Can you comment on the trends for captives in the future?
    - do they include the reaction of direct insurance market to growth of captives, such as the efforts to retrieve business lost to captives or instead co-operation with captives?
    - how about the legislative restraints and requirements in locations used for captive formation, increasing hostility of tax authorities throughout the world towards captives and other offshore companies, development of captive companies as shareholders' fund increase?
    - does the saturation of underwriting risk of the parent and development of new risk financing techniques, such as financial reinsurance and its application as a support mechanism to captive insurance companies count?

39. Do you agree that the capacity crisis resulted in major insurance buyers finding solutions which insurance was unable to handle? (e.g. group insurance companies formed to provide capacity protection, services paid based on an individual fee-related basis rather than original payment)

40. In your opinion, what is the aim of captive moving into unrelated business?
    - is it to increase the captive's own retention, reduce reinsurance ceded to commercial market, exchange profitable risks with other companies or increase amount of non-related business underwritten?
    - could it be also to allow individual approach to underwriting, provide experienced underwriting back up, expand risk spread of captive or keep administrative costs low?

41. Do you think having a number of captives may not be in the interest of the captive owner, for instance, more money on management fees and directors and wastage of capital?

42. Do you agree with the point that risk managers should spend more time on risk management and risk control activities instead of just focusing on profits that the captive can generate?

43. What do you think are the factors to be considered in shutting down a captive other than the vulnerability to losses?

. Can you comment on the extension of financial insurance to companies outside the insurance and reinsurance industries and in particular to international corporations with uninsurable exposures? Is it heralding a change in the way major corporations finance their risk and assisting with loss spreading and capitalization requirements so that captives could write greater levels of risk and get involved in difficult risk areas?

45. Who decides on which reinsurer to use? (Captive owner or captive management service provider?)

46. How important do you view reinsurance security?

47. Did you examine the retrocession arrangements of these reinsurers to ensure that their retention is protected by the security of the reinsurance arrangements that they are making themselves in respect of their own retention strategy?

48. With regards to reinsurance, which are the most commonly used methods used by the captives? (Quota share, excess of loss, stop-loss or surplus?)

49. What do you think insurance companies should do to change their services from the captive owner's point of view?
    - is it about offering fronting facilities for captives, writing excess insurance cover for self-insurance programmes especially liability and workers' compensation or creating a separate major commercial accounts department which has greater freedom of action and operating as a separate profit centre?
    - could it be underwriting the whole of the insurance buyer's business and not just selected individuals ones or the separation of services offered from pure risk-financing need offering technical and other services on a free basis to customers?
    - how about a quotation based on the net of commission basis enabling brokers to be remunerated on a fee basis, buyer given opportunity to pay premium directly to insurer instead of being held by intermediaries or further development on retrospective rating and other innovative underwriting plans to ensure that buyer gets maximum investment control over reserves generated?

50. What do you think of the market now?