Strategic Expansion for Insurance Companies:

Quantitative Methods using Real Options

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Introduction

A company is sitting on a pile of cash it wants to invest. The common method is to take on additional projects in the same geographical region. A less traveled road is to expand in foreign countries. The lure of foreign expansion is enormous. Many companies get much higher returns on their investment from foreign operations. Generally, the risks in foreign countries are higher as well.

Even if there is no political and other risks associated with foreign countries, there is always the risk of currency fluctuations unless the other country also uses the same currency. In European Union, the countries (with a few exceptions like the UK) have adopted a new currency that eliminates this source of uncertainty. Others have tried to eliminate the fluctuations by pegging their currencies to others. But, without explicit elimination of their own currency, there is always the problem of long term commitment to such a strategy (as the crisis in Argentina in 2002 demonstrates, where the local currency once was traded at par with the US dollar only to fall by 75% in six months).

This article discusses some "standard" methods of foreign expansions. Strategic decisions for expansion in foreign countries require more than qualitative discussions about

foreign expansion. It requires hard numbers on the benefits of such strategic expansion plans. I illustrate that with a concrete example.

Foreign Expansion of Insurance Companies

The most elemental form of expansion of operation in a foreign country is through *export*. Exporting *goods* is well tried and true method. But exporting *services* (like insurance) is another matter. Exporting goods involves (mostly) a one way flow. Shoes are sent from Italy to Canada to be sold. Once sold, nothing more needs to be done. In case of consumer durables, additional services need to be provided. This requires establishment of infrastructure in the foreign country where goods are being sold. Suppose now an Italian insurance company selling insurance policies in Canada. For any claim, the state of the claim has to be verified in Canada. Thus, even for export, services like insurance will always require setting up of infrastructure. In summary, exporting goods may be a feasible alternative, exporting services is not.

The next level of foreign involvement is through a joint venture. Joint venture requires a fully functional partner in the host country. In many countries, joint ventures are the only possible form of expansion by law. For example, India opened its doors for foreign participation in the insurance business in 2000. However, the law does not allow foreign companies to have controlling interest in any Indian insurance company. The limit is set at 26% of a company (see Sinha, 2002, for more details on the developments of Indian insurance markets). In other countries, joint ventures have other types of restrictions. For example, in China, joint ventures do allow 100% foreign ownership but they restrict geographic spread. For example, foreign joint ventures with foreign controlling interest operating in Shanghai cannot operate at all in the nearby Zhejiang province. Mexico has a different form of restriction. It allows for wholly owned subsidiary of foreign insurance

companies but only foreign countries permitted are the members of the North American

Free Trade Agreement (NAFTA).

Political Risk

Political risk is an action by the host country government that reduces the value of

the foreign company. There are three broad categories of political risks: (1) Confiscation,

expropriation and nationalization, (2) Contract repudiation and frustration and (3) Currency

risk. There are many historical examples of confiscation, expropriation and nationalization.

In Mexico, oil companies were nationalized in 1938. In Russia, after the revolution of 1917,

all foreign companies were confiscated. All three categories are similar but they might

differ in terms of recompensation. At one extreme, no money might be paid to the foreign

company. At the other, a full market value would be paid to the foreign company. In reality,

most foreign companies are recompensated at a value somewhere between these two

extremes. There could be many reasons for contract repudiation. For example, a company

called Metalclad was granted permission by the Federal Government to operate in

Aguascalientes in Mexico. State Government of Aguascalientes changed the zoning law in

such a way that it became impossible for the company to operate after it started

construction. It lost substantial amount of money as a result. The company was able to use

NAFTA laws to get compensated by the Mexican Federal Government for the loss of

investment. In general, however, such an avenue is not open to companies of foreign

countries. Currency risk is also a part of the political risk. It can arise from the

convertibility of the currency either in full or in part. Many countries impose restrictions on

repatriation of profits. These types of restrictions are not necessarily the domain of the

developing countries. For example, in the US, the Community Reinvestment Act of 1977

prevents repatriation of profit even out of the community by financial institutions.

There are not very many different ways of quantifying political risks. Even the services that provide political risk assessment, only give qualitative advice (for example, through the Coplin-O'Leary Rating System). These methods do provide a way of valuing future of companies operating in the country (see, for example, Erb *et al* 1996).

Handling Political Risks

There are two ways of handling them: (1) management of risks through "standard" methods, (2) buying insurance. The problem with the use of the standard methods is the difficulty in quantify political risks mentioned above. However, under normal conditions, political risks are not correlated across countries. This fact allows us to use the portfolio approach to manage country risk. In other words, if we form a portfolio of different countries with uncorrelated risks, we can reduce the unsystematic part of the risk. There are several problems with this method. First, it is unlikely that a company will be able to form a portfolio of sufficiently large number of countries to manage the risk in this manner. Some companies, like AIG, can possibly do this (AIG operates in more than 200 countries). Second, certain classes of countries tend to affect one another. Thus, in 1997, a number of East Asians countries were affected simultaneously even though they all did not suffer from the same problem (so called contagion). In this type of situation, the method of portfolios will not work. The second option is buying explicit insurance policies against such a problem. It is possible to some extent to buy insurance from an Intergovernmental Agency called MIGA (Multilateral Investment Guarantee Agency). It has a limited capacity. It has around $1 billion in capital. It covers risks in more than 110 countries with membership open to all World Bank members. Even with a limited capacity, it is quite powerful as MIGA can use World Bank loans as a stick. It serves investors who do not have access to other official political risk insurers. Specific governments also provide insurance against

political risk for their domestic companies. US government has several agencies such as the Overseas Private Insurance Corporation and the Export Import Bank. Private companies also offer policies. For example, AIG has provided political risk cover since 1974. Lloyds of London is famous for political risk cover.

Expansion Strategies: General Issues and Examples

Financial services in general and insurance in particular are size and scope dependent. Bigger companies tend to have higher profitability. Simple ways of expanding the size of the company is through mergers and acquisitions. Economies of scope can help. If a bank distribution channel is available for selling insurance, it can be very useful.

The criteria of economies of scale and scope are generic. It helps us explain why the largest long term health care company in the world, UNUM Corporation, expanded its business to Japan and Argentina when it decided to outside of the United States. It was a classic use of economies of scale and scope. UNUM could extensively use its knowledge in the US to manage similar risks in Japan and Argentina. Moreover, these two presented them with expanded markets with rapidly aging population. They also presented uncorrelated risks across countries.

Principal Financial Group is in the business of pension world over. When it decided to expand in the middle 1990s, it went to China and Mexico. These two countries presented them with long term growth prospects in pension industry. The company deemed that these two countries were at the cusp of future growth. Is it possible to foretell future growth in demand for certain types of insurance? The answer is a qualified yes. It is *qualified* because there is some uncertainty around it.

Determinants of Demand

There are several important classes of factors: (1) economic factors, (2) demographic factors, (3) legal factors, and (4) social and cultural factors.

Economics factors. Obviously, a rise in *income* should lead to a rise in the demand for insurance of both life and non-life kinds. But there is an empirical regularity: It has been observed that the rise in the demand for insurance is a nonlinear function of per capita income. There are three phases. When the income is low, insurance demand rises slowly (in terms of income elasticity of demand, it means income elasticity is less than one). At some income level, it starts to grow more rapidly (income elasticity more than one). Finally, with mature markets, the rise tapers off. In other words, the demand is income inelastic at very low incomes, it becomes elastic at certain level only to become inelastic at very high income levels. *Price* is another important economic factor. The price level in turn depends on the level of competition which is determined by legal factors. Thus, these determinants are not independent but they reinforce one another.

Legal factors. Laws affect the competitiveness of the industry. If, by law, an insurance company has a monopoly (as it was in India up to 1999), it will affect the demand as it will affect the price charged per unit of service. Thus, deregulation can give a boost to the demand structure. Here, we need to distinguish between domestic deregulation and the possible foreign entry. In India, what we observe is a (largely) domestic deregulation. Foreign companies cannot enter with full force. In Mexico, on the other hand, after January 2000, foreign insurance companies (from NAFTA countries) can enter without any restriction (see, further discussion on this issue in Condon and Sinha, 2001).

Socio-economic and demographic factors. Level of education can affect the demand for insurance. It is not easy to document that education alone (and not income) is of

importance. But there seem to be some evidence that higher level of education leads to higher demand for insurance. Demographic factors play a role. Older the population higher the demand for long term care.

General Checklist

Once a company decides to expand to a foreign country, it needs to decide where. For that, a cold hard look at its current strategy is necessary. It has to look at a number of (obvious but important characteristics of the potential market. First, the size of the market. Even if the country of Nauru had a great growth rate, very few companies will go there. There are 12,000 Nauruans. The market is too small. Second, future growth potential. If the market has future growth potential, it is attractive. Third, maturity of the market players. If the market is already saturated with sophisticated domestic companies, future potential for foreign competitors could be limited. It is still possible to buy into a company to get a foothold in the market. Fourth, access to distribution. If the market allows new entrants to have access to the existing chain of distribution of their products, it might be attractive to the foreign company. Fifth, regulatory regime. If there are regulatory restrictions for market entry, it could deter a company.

Case of Mexico

Compared with the United States and Canada, Mexico (still) has a small insurance market (Table 1). The United States has a population base 3 times higher than Mexico. There are 98 million Mexicans residing in Mexico. But, the size of the insurance market in the United States is 100 times as large. The market in Mexico is roughly comparable to that of the insurance markets of Iowa or Kansas. So the first question we need to answer is this: Why would any company go to Mexico rather than Iowa? The answer surely lies in the growth potential.

TABLE 1
Direct Premiums (in millions of US$) 1999

NAFTA	
United States	$795,188
Canada	$41,882
Mexico	$8,099
Total	$845,169

Source: Sigma January 2001.

In terms of the density of insurance and that of market penetration, it is also very small (see Table 2). However, there are two important elements that point to explosive future growth. First, with rising incomes, the Mexican insurance market is set to expand rapidly over the next decades. Second, according to the 2000 Census of the United States, 12 percent of Americans are of Hispanic origin and at least 65 percent of them are of Mexican origin. By 2010, the United States will be the second largest Spanish speaking country in the world - with 43 million native Spanish speakers - second only to Mexico. Not surprisingly, this fact has not gone unnoticed by the Mexican financial industry. The second largest Mexican financial conglomerate, BBVA-Bancomer is planning to open 600 branches in the areas in the United States heavily populated by the persons of Hispanic origin (*Houston Chronicle,* June 17, 2000).

TABLE 2
Insurance market share, density and premiums

Item	Mexico	US	Canada	NAFTA
Share of World	0.35	34.22	1.80	36.37
Insurance Density (US$)	84.60	2921.10	1375.30	2121.10
Insurance Penetration (%)	1.52	8.65	12.09	8.11

Note: Insurance Density (premiums per capita) is the premiums written divided by total population. Insurance penetration (premiums as a share of GDP) measures the significance of the insurance industry relative to the country's entire economic production. Life Insurance penetration typically increases in line with personal income Source: Sigma, January 1999.

A Taste of the Future

The dramatic change in the Mexican insurance business can be illustrated by facts set out in Table 3. There are three clear trends:

1. The involvement of the government in the insurance sector is declining. Even though in 1990 there were three government-owned insurers, the amount of business they conducted was very high. At the end of 2001, there were two. One of them, Seguros Hidalgo, was bought by MetLife in 2002.

2. The involvement of financial groups in the insurance sector has grown dramatically. Through this channel, banks have made inroads into the insurance business in Mexico.

3. The number of companies operating in the Mexican insurance market has grown tremendously. Before 1994, there was no foreign affiliation of any insurance company operating in Mexico. Now, nearly half of them are affiliates of foreign companies.

The largest insurance company in Mexico (Seguros Comercial America which, in 2002, changed its name to ING Comercial America) is now a subsidiary of the international giant insurer ING. The fourth largest company (Monterrey) is owned by New York Life. Many smaller insurance companies operated in Mexico are also foreign-owned or controlled.

TABLE 3

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
National	3	3	3	2	2	2	2	2	2	2	2
Private	36	36	36	38	41	49	54	62	60	60	62
Mutual	2	2	2	2	3	3	3	3	3	3	3
Reinsurers	2	2	2	2	2	2	2	3	3	3	3
Total	43	43	44	44	48	56	61	70	68	68	70
Affiliates	0	0	0	0	1	13	18	23	26	28	29
Grupos	0	7	10	10	13	14	13	17	18	18	16

Affiliates affiliated with foreign owned companies. Grupos are part of financial groups. Source: CNSF.

Another way of seeing the change is to see how the composition of the insurance business in Mexico has changed. Table 4 shows that non-life insurance was the most

important component of the insurance business in Mexico in 1990. The main non-life

insurance business in Mexico was (and still is) auto insurance. The picture did not change

much by 1995. However, between 1995 and 2000, there has been a tremendous growth in

the life/pension business in Mexico. The main area of growth has been in the pensions

market. The reason behind this phenomenal change is the privatization of pensions in

Mexico.

TABLE 4
Composition of Insurance Business in Mexico

Year	*1990*	*1995*	*2000*
Life/Pension	36%	34%	55%
Accident/Health	7%	9%	9%
Non-life	57%	57%	36%

Source: Association of Mexican Insurers Yearbook (various years)

Table 5 Subsidiaries of Insurance Companies in Mexico 1995-2000

Company	Subsidiary of:	1995	1996	1997	1998	1999	2000
ACE Seguros (before Cigna)	Cigna International Holdings	-	-	*	*	*	*
AIG México, Seguros Interamericana	American International Group	-	*	*	*	*	*
Allianz México (before Cuauhtémoc)	Allianz of America Inc.	*	*	*	*	*	*
Allianz Rentas Vitalicias	Allianz of America Inc.	N.A.	N.A.	N.A.	*	*	*
American Bankers (before Reaseguradora Maya)	American Bankers Insurance Group Inc.	*	*	*	N.A.	N.A.	N.A.
American National de México	Anmex International Inc.	N.A.	N.A.	N.A.	N.A.	*	*
Colonial Penn de México	Colonial Penn Insurance Co.	N.A.	*	*	*	*	*
Combined Seguros México	Combined Insurance Market of America	*	*	*	*	*	*
Conseco Seguros (before Pioneer)	Pioneer Financial Services	*	*	*	N.A.	N.A.	N.A.
Chubb de México (before equitativa)	Federal Insurance Co.	-	*	*	*	*	*
El Águila	Windsor Insurance Co.	*	*	*	*	*	*
Generali México (before Anglomexicana de Seguros)	Transocean Holding Corporation	*	*	*	*	*	*
Geo New York Life	New York Life International Inc.	-	-	-	*	*	*
Gerling de México	Gerling American Insurance Co.	N.A.	*	*	*	*	*
ING Insurance México	Int. Nederlanden US Insurance Holdigs Inc.	*	*	*	*	*	*
Liberty México	Liberty Mutual	-	-	*	*	*	*
Monterrey New York Life	New York Life, Internatinal Inc.	-	-	-	-	-	*
Principal México (before Principal)	Principal International Inc.	-	*	*	*	*	*
Principal Pensiones	Principal International Inc.	N.A.	N.A.	N.A.	N.A.	*	*
Seguros BBV-Probursa (before Seguros Probursa)	BBV International Investment Co.	*	*	*	*	*	*
Seguros del Centro	General Electric Assurance Company	-	*	*	*	*	*
Seguros Génesis	Metropolitan Life Insuranse	-	-	*	*	*	*

	Co.						
Reliance National de México (before Protección Mutua)	Reliance National Insurance Co.	*	*	*	*	*	*
Seguros Santander Mexicano (before Inverlicoln)	Santander Investments Int. Bank	-	-	-	*	*	*
Seguros St. Paul de México	St. Paul Multination. Holdings	N.A.	N.A.	*	*	*	*
Skandia Vida	American Skandia Life Assurance Co.	*	*	*	*	*	*
Swiss Re México (before Reaseguros Alianza)	Swiss Reinsurance Co.	-	-	-	*	*	*
Tokio Marine	Tokio Marine Delaware Co.	*	*	*	*	*	*
Yasuda Kasai México	The Yasuda Fire and Marine Insurance Company of America	N.A.	N.A.	N.A.	*	*	*
Zurich Cía de Seguros (before Chapultepec)	Zurmex Canada Holding	*	*	*	*	*	*
Zurich Vida	Zurmex Canada Holding	*	*	*	*	*	*

N.A.:Not Aplicable either because the company did not exist in that year or stopped having independent existence in that year.
* Subsidiary
Source: CNSF.

Table 6: Ownership Requirement under the NAFTA

Date	Minimum % Mexican Stocks
January 1, 1994	70%
January 1, 1995	65%
January 1, 1996	60%
January 1, 1997	55%
January 1, 1998	49%
January 1, 1999	25%
January 1, 2000	0%

Source: North American Free Trade Agreement, Official Document, 1992 and subsequent revisions

Role of NAFTA

NAFTA affected Mexican insurance scene in two profound ways.

First, at the end of 1992, it set out a timetable of what was going to happen in terms of foreign ownership through the rest of the decade (see Table 6). This gave the foreign companies an iron-clad guarantee as to what was to happen.

This is a far cry from regulatory changes that take place in most other developing countries. Most developing countries tend to have policy flip flops. For example, in India, when new privatization regulations were about to be passed in the parliament, the government fell. It pushed back the reform by two years. When the reform bill was resurrected, foreign ownership limit was reduced dramatically.

Second, with respect to foreign investment in the insurance sector, NAFTA Chapter 11 allows foreign investors from one NAFTA country to sue the host government of another NAFTA country for compensation in the event of expropriation or measures equivalent to expropriation. In addition to seeking compensation, this process may be used to seek the repeal of the legislation that led to the expropriation.

However, with respect to the insurance sector and other financial services, any decisions regarding prudential exceptions must be referred to the Financial Services Committee, who will decide whether it constitutes a valid defense against the claim of the investor. Any expropriation must be for a public purpose, nondiscriminatory, follow due process of law, and pay compensation at fair market value, plus interest. The kinds of investments that are protected include tangible or intangible property, acquired in the expectation of economic benefit or other business purpose.

These rules provide NAFTA investors with the power to demand compensation whenever government measures interfere with business activities to such an extent that it prevents the use, enjoyment or disposal of the property. A mere reduction in profits does not constitute a sufficient degree of interference to constitute expropriation. However, government regulations can be applied in a way that would constitute "creeping expropriation", where they have the effect of "taking" the property in whole or in large part, outright or in stages.

Claims for compensation represent a powerful tool for insurance companies to use to dissuade NAFTA governments from implementing legislation that is harmful to their investments. Even if a claim is ultimately unsuccessful, the mere threat of a claim can be used as a bargaining tool.

NAFTA Chapter 14 incorporates a number of provisions from NAFTA Chapter 11. A broad array of investments, such as mergers, acquisitions or the establishment of foreign *subsidiaries* among Canadian, Mexican and United States insurance firms, are thus protected by the rules of Chapter 11. This is NAFTA's explicit role in risk reduction. In summary, NAFTA plays a big role in the risk reduction function through its guarantee of protection of foreign investment (see, Condon and Sinha, 2001, for a complete discussion on this issue and how it differs from other trade pacts).

An Example of Valuation Using Real Options

On June 20, 2002, MetLife completed the purchase of Ahisa (Aseguradora Hidalgo) for the price of US$926 million. With that, now more than 70% of the insurance market in Mexico is in the hand of foreign companies (see Table 5). For banking industry, more than 75% are in foreign hands. This outcome is a direct consequence of NAFTA laws put in place in 1992. It would be impossible to find another developing country in the world where there have been so many foreign acquisitions in the financial sector.

One question has raged since the sale of Ahisa: did MetLife pay too much or too little. A typical view that it was too cheap comes from Oscar Canton Zetina, a senator for the opposition Institutional Revolutionary Party (PRI). He claimed the sale signaled "the surrender of the national patrimony into private American hands". He went on to say that the deal is a "historic and economic aberration", it should be investigated "until its ultimate consequences".

The process of selling the company was through a sealed bid auction. There were a number of other bidders. In fact, at the beginning of the year, the financial press reported that the company has assets worth US$2 billion. Thus, it might seem US$924 million is a steal. Is there merit in this view?

There is another signal. The next highest bid was less than US$500 million. Why did the other company not make a higher bid? One possibility is that there is evidence of winner's curse. However, it should be noted that the valuation of the company reported did *not* follow the GAAP method.

It is possible to value the companies future stream of potential incomes under different scenarios. The first is to value the company using the standard Net Present Value method without any bells and whistles. This value (under reasonable conditions) turn out to be around US$440 million. Thus, for second highest (but unsuccessful) bidder, the valuation was a straightforward exercise. Does that imply that the winning bid was too high? The answer is negative. To see why, we need to value the strategy MetLife would like to pursue. Within a year of purchase, it would launch other life insurance products in the market (Ahisa is largely a *life* insurance company). If that goes well, it will launch pension products such as getting into market for private pension (see Sinha, 2002, for a comprehensive analysis of private pension market). Assuming the launch is a success, it will expand its business. This process is shown in Figure 1.

We can value this process as a series of nested options. Unlike financial options, they are "real" options. This implies, among other things, we cannot use the standard Black and Scholes option pricing model because we do not have estimates of volatility that the formula requires. In real options, if the underlying good is not regularly traded in the market, this is not possible. In some cases (commodities such as oil, grain) a regular market exists and therefore it is possible to estimate the volatility by proxy. In this case, given the underlying product is a financial service, no such possibility exists.

This does not mean, there is no volatility in the market. There are plenty of sources of volatility. We list some of the important ones below.

(1) Changes in general economic conditions, including the performance of financial markets and interest rates.

(2) Heightened competition, including with respect to pricing, entry of new competitors and the development of new products by new and existing competitors.

(3) Unanticipated changes in industry trends.

(4) The company's primary reliance on dividends from its subsidiaries to meet debt payment obligations and the applicable regulatory restrictions on the ability of the subsidiaries to pay such dividends.

(5) Catastrophe losses.

(6) adverse litigation or arbitration results.

(7) Regulatory, accounting or tax changes that may affect the cost of, or demand for, the company's products or services.

(8) Downgrades in the company's and its affiliates' claims paying ability, financial strength ratings or debt ratings.

I incorporated "guestimates" using market experience to consolidate all these sources of volatility and use the nested real options methods to find the value of the variance needed for the model. These values are then in turn used to calculate the risk neutral probabilities. With these estimates, we can now value the options using a binomial approach. The result of this exercise shows that the value of the company approximately doubles. In other words, we come up with an estimate of the value of the company in the range of $900 million and $950 million. This provides a justification for the price paid by MetLife.

What about the second highest bidder? Why did they not use a similar method of valuation? The answer lies in the fact that they are already selling other types of insurance

products in the market and they are a big player in the private pension market. Thus, the option of expansion that MetLife will have offer limited scope for them.

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Figure 1: A Schematic Diagram of Expansion Plan of Ahisa