The History and Evolution of the Residential Mortgage Market in Mexico:
A Look at its Future

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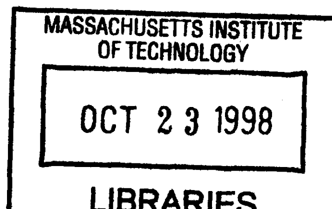

ROTCH

THE HISTORY AND EVOLUTION OF THE RESIDENTIAL MORTGAGE MARKET IN MEXICO: A LOOK AT ITS FUTURE

by

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and

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Submitted to the Department of Architecture and the Department of Urban Studies and Planning on July 31, 1998 in partial fulfillment of the requirement for the Degree of Master of Science in Real Estate Development

ABSTRACT

Research was conducted in Mexico in order to determine the size, future growth and current status of the Mexican residential mortgage market, and to assess the potential for securitization. Securitization offers good prospects of liquifying the mortgage loans enabling these funds to be reinvested into the housing market. In the long run, securitization can also attract other sources of capital, both foreign and domestic, to the housing market. The key elements of structuring these securities lie in the underwriting standards and loan origination systems that are effectuated. Poor origination and collecting practices will hinder the success of securitization. The development of an efficient primary market would facilitate the sale of loans in the secondary market, increasing capital flow efficiencies. Interviews with private and Federal authorities confirmed that securitization is being actively pursued and encouraged by the Mexican government.

Some of the important questions to be answered are; how quickly can the primary market be developed, what impact will the new foreclosure laws have on recovery rates, what demand will the domestic markets have for these securities, and how quickly can foreign investment be attracted. But at this moment, the most important question to be answered is to what degree the government should be involved in developing the secondary market. It was found that FOVI will be further developed to act as an originating agency since it is currently one of the only sources of funding for residential mortgages in Mexico.

The immediate future for securitizing mortgages rests on the precedent set by these new FOVI loans.

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INTRODUCTION

Historically, secondary mortgage markets have evolved for political, social, and economic reasons. Whether we are discussing the evolution of the secondary market in the United States, more recently the United Kingdom, the pending joint development of the secondary market in Russia, or the lack of investors in Colombia, they all share common social, economic, and political themes. Based on the convergence of world markets, there are many indications that these secondary markets as they become more linked and interdependent, will become more accepted investment vehicles, not only within the respective countries, but also between countries.

Shelter is one of the most basic human needs. Countries such as the United States spend as much as 7 to 8% of their GDPs on residential housing. In addition to this, it is interesting to note that in the early 1970's, the largest borrower in the world was the United States government, and the second largest was the Federal Home Mortgage Association, or "Fannie Mae." This statement gives the reader a perspective on how much a developed country like the United States spends on housing and makes it easier to understand why housing needs place huge demands on developing countries. The real problem for new development in Mexico is a shortage of capital coupled with high interest rates. Issues that can be addressed by a liquid mortgage market and the development of a strong secondary market. Today, only 13% of Mexican housing is financed with mortgages, as opposed to the United States, where 90% of the housing is financed

with traditional bank mortgages.[1] The development of secondary markets can alleviate some of this burden by encouraging the re-investment of funds and by attracting other sources of capital.

This thesis tries to explore the components of Mexico's housing market in an attempt to quantify its future prospects for securitization. In addition, it will familiarize the reader with the history and current state of the Mexican housing system, in an effort to help understand the future investment opportunities that may exist in the housing sector of the economy in Mexico.

The development of Mexico's residential market is hindered by many social, political, and economic issues. Socially, Mexico faces a severe housing shortage but, equally as important, Mexico lacks industries that can generate broad wage earning capabilities for the lower income population, and enable that population to afford homes. Currently, estimates place the unemployed and "extreme poverty"[2] sector of the population at 25%.[3] Since Mexico does not have a welfare system, these people must rely on extended family and the community for help. The allocation of resources for housing, especially for the low-income segment of the population, where the demand is outpacing that of all other sectors, is mainly through Federal agencies. Part of this paper will discuss what role two of the largest agencies FOVI (Fondo de Operacion y Descuento Bancario a la Vivienda, Operation and Housing Discount Bank Fund) and INFONAVIT (Instituto del Fondo Nacional de la Vivienda para los Trabajadores, National Employees Housing Fund) play in the overall development of the housing market and how they

[1] Thurburn, Lee. "Exploding the Myths about Mexican Real Estate."
http://www.flash.net/~mexis/experts/real_thurburn_01.html

[2] "extreme poverty" 24 million Mexicans live in extreme poverty. This includes people with not enough income to buy at least one canasta basica for the family (i.e. sugar, coffee, beans, oil...). They cannot even afford enough to meet the daily nutritional requirements.

[3] Interview Ricardo Brandi. Sedesol. June 13, 1998.

may impact the securitization of residential mortgages in Mexico. Politically, the government must decide what role it should play in the future to support the development of the secondary mortgage market. It must also develop consistent strategies across each newly elected government.

Fiscally, the Mexican government faces several challenges. First, it is not in a position to subsidize the housing stock heavily. The economy in general cannot commit large portions of its GDP towards housing; for this reason, the government must seek out other means of investment for these areas. Currently, Mexican Federal agencies have already committed US $21 billion to home mortgages. These funds are illiquid and, in their present state, have little chance of being securitized. These agencies do not have the organizational structure, legal means, or financial strength to package and back these mortgages for securitization.

Another reason preventing securitization is the lack of historical data regarding these loans, and the lack of standardized underwriting. As the government moves forward and continues to provide funds for mortgages, it must look toward molding the data and underwriting systems into products for the primary market that could be acceptable for securitization and traded in the secondary market. This is the only way to commit funds that can be reinvested efficiently into additional housing mortgages, instead of remaining stagnant for the entire loan term.

Economically, many obstacles must be overcome, such as reducing the volatility of interest rates and the development of long-term interest rate instruments. Legally, legislation needs to be passed and laws have to be changed to develop a stronger primary mortgage market and allow

for securitization. The creation of pension funds within the country has begun to address some of the financial issues. Estimates are that they will initially generate US $1 to $2 billion per year in demand for securities.

During 1994, FOVI started to research the American mortgage-backed security market, which was developed using Federal agency's guarantees. The late December 1994 crisis eliminated the possibility of going forward with this research and made pursuing its implementation unfeasible, yet the interest always remained.

Today the economic climate in Mexico has begun to improve. The macroeconomic stabilization program developed by the Mexican president Ernesto Zedillo has succeeded in bringing about relatively stable exchange rates, and in lowering inflation and interest rates. The country has experienced growth and this has been reflected in all major sectors of the economy for the last two years (1996-1997). However, the banking system remains a weakness within the economy. The recovery of the nation took place without an expansion of domestic lending. Private lenders are still dealing, even after all the Federal support, with high levels of non-performing loans.

The future securitization of residential mortgages is an unexplored market, despite the fact that it offers great advantages to the public and the institutional investors. The opportunities for secondary offerings in Mexico rest on the development of the appropriate financial instruments to spur demand and investment. Along with the development of these instruments, many agents that exist in the primary mortgage market, such as appraisers, credit bureaus, private mortgage insurers, etc., (agents that screen the risk in the loan process) need to be further developed. This

will help create a fertile secondary market. We need to be cognizant of all the risks and issues associated with a secondary offering. How the market reacts to a more liquid mortgage market and a subsequent infusion of capital into the construction of housing will ultimately impact the further continuance of such financial instruments. As we will see, the Mexican market provides many challenges that are not contained in previous securitizations around the world.

Securitizing the residential mortgage market in Mexico has great potential for investors, borrowers, and for the health of the entire real estate market. Some of the social gains from originating these securities include an increased liquidity of mortgages; by allowing and fostering liquidity, increases the willingness of investors to make mortgage loans, thereby increasing the size of the residential housing market. Furthermore, as seen in the United States, liquid mortgage markets contribute to a reduction in borrowing costs. Estimates place the savings at 50 basis points in the United States.[4]

Understanding the history and development of the Mexican housing market, and its current stage of growth, will allow one to assess the future investment prospects in this area of Mexico's economy. More importantly, understanding the housing market and mortgage system will enable the reader to ask the right questions when analyzing opportunities that may exist in one particular segment of the housing sector. These opportunities may exist in any area from construction to financing, or even the refinancing of a home.

[4] Riddiough, Timothy J. 11432J (Notes) Real Estate Capital Markets. Spring 1998. Pp. 84.

CHAPTER 1

OVERVIEW OF THE MEXICAN POPULATION AND FUTURE HOUSING DEMAND

The purpose of this chapter is to analyze the characteristics of Mexico's population and to give the foreign investor an overview of the population growth, the economy and the potential growth of the housing mortgage market.

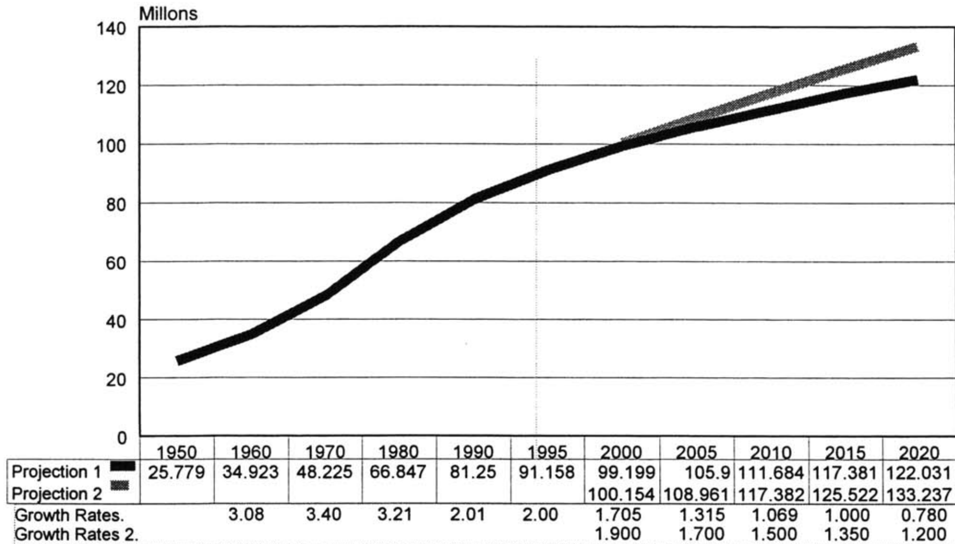
Population

In 1995 Mexico's population was 91.2 million, today unofficial estimates place it at 94.3 million. This number represents a 250% increase over the Mexico's 1950 population. Between 1950-1980, the population grew at an average rate superior to 3%. This increase placed Mexico among the countries with the highest demographic growth rates in the world. This growth was caused by a combination of factors: an increase in the birthrate and a dramatic decrease in the mortality rates. This decrease was due to medical advances and the more widespread use of preventive medicine.

In the 1980's and 1990's, a decrease in the annual average growth rate has been seen, from 3.21% in 1970-1980 to 2.01% in 1980-1990 and to 2.0% in 1990-1995. Notwithstanding this, the population has increased about 9.9 million during the last five years. It is expected that, by the year 2020, the population will be between 122.0 and 133.2 million. This represents an increase of approximately 30.9 to 42.1 million over the population in 1995 (See Graph 1.1).

Graph 1.1

Population Evolution 1950-1995. Year 2020 Projections.

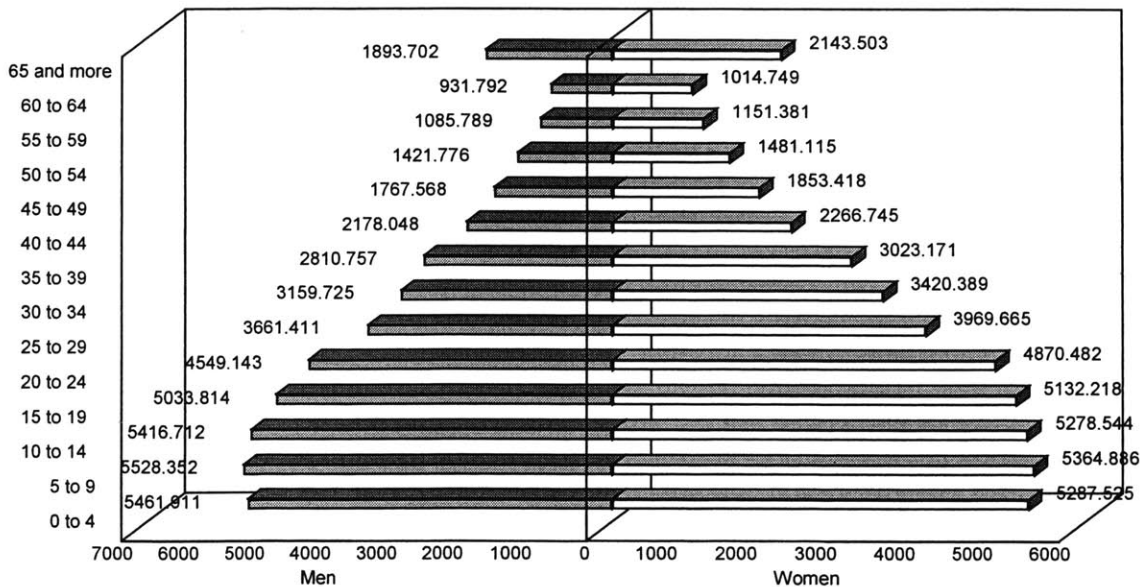


	1950	1960	1970	1980	1990	1995	2000	2005	2010	2015	2020
Projection 1	25.779	34.923	48.225	66.847	81.25	91.158	99.199	105.9	111.684	117.381	122.031
Projection 2							100.154	108.961	117.382	125.522	133.237
Growth Rates.		3.08	3.40	3.21	2.01	2.00	1.705	1.315	1.069	1.000	0.780
Growth Rates 2.							1.900	1.700	1.500	1.350	1.200

Source: 1950-1995 Census Bureau Information.

Graph 1.2

Mexico: Population Structure According to Sex and Age Group



Age Group			Total	%	Cumulative Total	Cumulative %
Totals			91,158,290			
0	-	4	10,749,436	11.79	10,749,436	11.79
5	-	9	10,893,238	11.95	21,642,674	23.74
10	-	14	10,695,256	11.73	32,337,930	35.47
15	-	19	10,166,032	11.15	42,503,962	46.63
20	-	24	9,419,625	10.33	51,923,587	56.96
25	-	29	7,631,076	8.37	59,554,663	65.33
30	-	34	6,580,114	7.22	66,134,777	72.55
35	-	39	5,833,928	6.40	71,968,705	78.95
40	-	44	4,444,793	4.88	76,413,498	83.83
45	-	49	3,620,986	3.97	80,034,484	87.80
50	-	54	2,902,891	3.18	82,937,375	90.98
55	-	59	2,237,170	2.45	85,174,545	93.44
60	-	64	1,946,541	2.14	87,121,086	95.57
65	And	More	4,037,205	4.43	91,158,291	100.00

Average Age 25.5
Median Age 21.6

Source: Based on INEGI, Conteo Nacional de Poblacion y Vivienda 1995.

The fast population increase from 1960-1980 explains why Mexico's population is skewed toward younger ages. It can be seen in Graph 1.2 that 59.5 million people (65.3%) were under the age of 30 in 1995. In the same graph it can be observed that the average age in 1995 was 25.5 and the median was 21.6. Those numbers allow us to understand why the demand for housing is dramatically increasing in Mexico. This increase in new household formations is a result of the under 30 year-old population reaching the age of marriage.

Distribution of the Population

One of the dominant characteristics of the population in Mexico is the high concentration of people in the major cities and the dispersion of the rest of the population among a large number of small towns. This distribution is the result of a long process of industrialization-urbanization

started back in the 1940's with the migration of people to the cities from the rural areas looking for better job and education opportunities. This migration process transformed the population from predominantly rural to urban. The population that lived in towns with less than 2,500 people, which are considered rural, amounted in 1940 to 64.9% and, by 1995, to only 26.5%. Meanwhile, the urban population living in towns with more than 2,500 people changed from 35.1% to 73.5% during this same period.

Table 1.1 illustrates Mexico's population distribution by town size in 1995. Around 60% of the population, representing approximately 54.6 million people, was located in 481 towns with populations of 15,000 or more; these towns represent only 0.24% of the existing towns in Mexico. This concentration towards cities should facilitate the standardization of loan services and practices.

Table 1.1
Mexico 1995
Population Distribution According to Size of Town

	Number of Towns	Percentage	Population	Percentage
Total	201,138	100.00	91,158,290	100.00
Less than 2,500	198,311	98.59	24,154,775	26.50
2,500 - 15,000	2,346	1.17	12,370,086	13.57
15,000 - 20,000	108	0.05	1,859,302	2.04
20,000 - 50,000	204	0.10	6,146,276	6.74
50,000 - 100,000	61	0.03	4,340,532	4.76
100,000 - 500,000	80	0.04	19,000,266	20.84
500,000 - 1,000,000	21	0.01	13,765,240	15.10
1,000,000 and more	7	NS.	9,521,813	10.45

NS: Not significant
Source: Based on INEGI, Conteo Nacional de Poblacion y Vivienda 1995.

Projected Housing Demand

According to INEGI, Conteo Nacional de Poblacion y Vivienda 1995, (the Mexican Census Bureau), there exists a 2-million-unit housing deficit in Mexico. There are some more recent estimates that show this deficit to be more than double the 1995 census number. Furthermore, considering the age of the population, and the estimated marriage rate, the formation of new homes will demand 690,000 additional units, annually. In addition to the current demand (690,000 units), an additional 200,000 homes would have to be added, for ten years, just to eliminate the existing housing deficit. In 1994 only about 350,000 units were built, and in 1995, this number dropped to only 150,000 units.

Housing Stock

The public sector's housing programs have shown to be insufficient to deal with the increasing demand created mainly from the predominantly young population and its need for new homes. Even with subsidized programs from housing agencies or the private sector, the financial resources allocated for new development are insufficient and the high interest rates make the loans very expensive.

In 1995 the existing housing stock was 19.4 million homes, occupied by 91.2 million people.[5] The majority of the population occupied single family housing and only .04% lived in community housing. Table 1.2 shows the number of single family housing units and its distribution according to the number of rooms and occupants. The typical house is 4-5 rooms with an average of 4 occupants.

[5] INEGI, Conteo Nacional de Poblacion y Vivienda 1995.

Table 1.2
Mexico 1995
Total Individual Housing Stock by Number of Rooms.

	Individual Housing Stock	Percentages					
		1 Room	2 Rooms	3 Rooms	4 and 5 Rooms	6 and more Rooms	No Information Rooms
Total	19,361,472	8.65	19.26	21.35	36.97	13.56	0.01
1 and 2 Occupants	3,189,083	14.45	23.28	22.06	32.03	8.16	0.02
3 Occupants	3,060,130	10.08	20.58	21.19	37.13	11.02	0.00
4 Occupants	3,949,941	8.76	18.32	20.70	39.38	12.81	0.03
5 Occupants	3,493,278	7.03	17.19	20.73	39.19	15.86	0.00
6 Occupants	2,228,733	6.88	17.84	20.85	38.64	15.78	0.01
7 and more Occupants	3,440,307	5.80	18.46	22.55	35.28	17.91	0.00

Source: Based on INEGI, Conteo Nacional de Poblacion y Vivienda 1995.

Of the 19.36 million homes, 71.9% are homes with 3 or more rooms, and 58.3% are homes with 3-5 rooms. To help us quantify the value of this stock Table 1.3 breaks down the square footage and price of each type of house. From the table we can estimate that the value of the homes, that have 3 or more rooms, is between US$ 7,500 – US$ 46,350.[6] These homes range between 500 sq.ft.- 1,100 sq.ft. Following from this 58.3% of the homes have 3-5 rooms and are valued between US$ 18,000 - US$ 46,350 .

[6] This is based on using the mean value of each category price range

Table 1.3
MARKET CLASSIFICATION

Type (classification)	Price Range	Area	Characteristics
Minimum (1 room)	< Ps. $50,000 < US $5,500	30 m2 325 sq.ft.	1-2 Rooms. Generally not tiled, electricity, possibly water, and sewage. Mostly self-built.
Social (2 rooms)	Ps. $50,000-$85,000 US $5,500-$9,400	45 m2 485 sq.ft.	Kitchen, Living-dining area, 1-2 bedrooms, 1 bathroom, 1 parking space, tiled, all services. Houses and condominium apartments.
Economic (3 rooms)	Ps. $85,000-$240,000 US $9,400-$26,600	50 m2 540 sq.ft.	Kitchen, Living-dining area, 2-3 bedrooms, 1 bathroom, 1 parking space, tiled, all utility services. Attached houses and condominium apartments.
Middle (4-5 rooms)	Ps. $240,000-$595,000 US $26,600-$66,100	100 m2 1,100 sq.ft.	Kitchen, Living room, dining room, 2-3 bedrooms, 2-3 bathrooms, 1-2 parking spaces, service quarters, tiled, all utility services. Attached houses and condominium apartments.
Residential (6+ rooms)	> Ps. $595,000 > US $ 66,100	200 m2 2,155 sq.ft.	Kitchen, family room, living room, dining room 3-4 bedrooms, 3-5 bathrooms, 2-4 parking spaces, service quarters, tiled, all utility services. Houses and condominium apartments.

Source: This classification was made with information about credits granted provided by the Housing Agencies and the Banking System and with the specifications of each one. US$1.00 is approximately Ps $9.00. [7]

To put this in perspective, Argentina, another Latin American developing country, who has developed a fairly successful secondary market, as of March 1996, had a total portfolio of outstanding residential mortgages valued at US $6.1 billion, comprised of 270,000 loans or an average residential loan of US $22,666. Comparatively speaking, Colombia who has also developed a secondary market, which is less successful (due to a lack of developed capital markets, not the product), as we will see in Chapter 5, has a residential portfolio that contains an

[7] For the purpose of this paper we assume that the exchange rate is US $1.00 equals $9.00 Pesos.

average loan of US $12,000 securitized by an average home valued at US $20,000. Based on Table 1.2, the numbers of homes that meet this securitized value of approximately US $20,000 is roughly 11.3 if we include homes of barely US $18,000 in value.

However, of the 19.4 million homes in Mexico, many are in poor condition. These houses are comprised of the following materials, Table 1.4 shows the status as of 1995. From the total number of homes, 15.40% showed deficiencies on the floors (no tile); 24.32% presented deficiencies on the walls and, 40.18% showed deficiencies with the materials used for the roof. Based on those numbers, the deficient housing stock is estimated to be close to 5 million units that, due to the bad conditions of the floor and the walls, would not even support a better roof. Essentially these homes have no long-term future, (and should be considered scrappage). These homes will cause the estimated housing deficit of two million to rapidly increase.

Table 1.4
Mexico 1995
Occupied homes by number of occupants and its percentage distribution
According to the material used in floors, walls and roofs.

	Number of Units		Occupants	
	Number	%	Number	%
Total	19,361,472	100	90,728,652	100
Floor				
Land	2,981,667	15.40	15,714,203	17.32
Concrete	10,118,305	52.26	48,303,934	53.24
Wood, Tile and others	6,247,947	32.27	26,665,151	29.39
Not specified	13,553	0.07	45,364	0.05
Walls				
Light material, natural or in bad conditions	4,706,774	24.31	23,507,794	25.91
Strong material	14,650,826	75.67	67,202,713	74.07
Not Specified	3,872	0.02	18,146	0.02
Roofs				
Light material, natural or in bad conditions	7,779,439	40.18	38,514,313	42.45
Strong material	11,578,160	59.80	52,196,193	57.53
Not specified	3,872	0.02	18,146	0.02

Source: Based on INEGI, Conteo Nacional de Población y Vivienda 1995.

The total housing demand from new home formations is estimated at 690,000 units per year. This demand is broken down by household income. In Mexico, household income is measured by how many times the minimum wage the household earns. Minimum wage rate is measured by per day income not per hour as in the United States. The following Table 1.5 shows the housing demand and deficit by income level. "M.W." stands for minimum wage, so an income category of 2.00 to 3.00 M.W., means the household earns between two and three times the minimum wage.

Table 1.5
Demand Estimation for New Homes
Derived from the Increase of New Homes Formation.

		Annual Housing Demand			
		New Homes Increase			
		National	Towns with 15,000 or more	To Cover the Deficit	Total
Doesn't perceive	Income	33,206			
Less than	1 M.W.	50,205			
From 1.00 to	2.00 M.W.	124,333			
From 2.00 to	3.00 M.W.	108,546	65,128	6,513	71,641
From 3.00 to	5.00 M.W.	142,494	85,496	8,550	94,046
More than 5.00	M.W.	231,216	138,730	13,873	152,603
		690,000	289,354	28,935	318,289

Source: Based on INEGI, Conteo Nacional de Poblacion y Vivienda 1995.

The highlighted area in Table 1.5 above shows the demand in the income level above two minimum wages. The securitization of mortgages is more feasible for those segments that earn two or more times the minimum wage since these employees have a more stable employment base (shaded areas above).

Although two times the minimum wage income level may seem low, this is the segment of the market that is serviced by government housing funds. As will be discussed later in Chapter 2,

these funds guarantee/warrant substantial portions of the loans that they grant. This will make feasible securitization of loans at this level.

Next Table 1.6 will show the loan amount that each household by wage category can qualify for. To estimate the total market we will multiply the housing demand in each category by the maximum loan amount that each household can afford. By adding the product of each category, we can see that for wage levels greater that two to five times the minimum wage, the total potential market reaches US$ 13.3 billion annually.

Table 1.6
Loan Amount Estimation

		Homes Number of Units	%	Maximum Price in US$
From 2.00	To 3.00 M.W.	71,641	22.51	9,400
From 3.00	To 5.00 M.W.	94,046	29.55	26,600
More than 5.00	M.W.	152,603	47.94	66,100
Total		318,290	100.00	

Source: Based on INEGI, Conteo Nacional de Poblacion y Vivienda 1995, Housing Agencies and the Banking System.

In addition to this US$ 13.3 billion potential annual demand created by new home formations, there currently exists a housing deficit of two million homes. As mentioned earlier if this deficit is eliminated over a 10-year period, it will add an additional 200,000 homes to this demand.

Finally, the statistics concerning the income levels of the entire population is research by the Mexican agency Sedesol. To date no accurate information concerning the income levels of the population broken down by category exists. We are hopeful that some information will be received in the near future and we will be able to provide this as a supplement.

CHAPTER 2

THE HISTORICAL BACKGROUND AND DEVELOPMENT OF MEXICAN HOUSING FUNDS

Historical Background and Development

In 1917, following years of turmoil, after weeks of intense meetings, the Congress rewrote major portions of the 1857 Mexican Constitution. The new Constitution mandated that "clean and convenient" housing should be provided for by employers.[8] At the outset, this provision was never really enforced. Between 1917 and 1972, numerous government housing funds were instituted but failed to address the growing needs of the population. In the 1940's, the accelerated urbanization (as mentioned in Chapter 1) magnified the housing problem. No longer was 80% of the population scattered in rural towns of less than 2,500. In 1940 this number was down to 64% and was quickly diminishing. The concentration of people organized the social masses, and housing demands became increasingly important.

In the 1940's, the government tried to place the housing responsibility on the social security institutions which were funded from employee wages. Despite increasing efforts, these institutions lacked the financial strength to address the problems. Up until this time, the only sources of mortgage money were either commercial banks who serviced the upper income segment of the population and required a large up-front down payment, or one of several government programs (funds) that limited capital and were constantly changing direction in search of a solution to meet demand.

In 1963, the government formed two trusts to operate and supervise the existing housing funds that remained in operation and to promote better servicing practices. These were the first efforts of the government to address the problem by providing financial protection or guarantees.

FOVI (Fondo de Operacion y Descuento Bancario a la Vivienda, Operation and Housing Discount Bank Fund) operated as follows: Banco de Mexico (Mexico's Central Bank) provided FOVI with funds at a low rate from the government and the World Bank. FOVI then lends this money at a low rate to commercial banks to be lent to the low to middle income sectors of the population. FOVI allows the banks to add a predetermined spread above the cost of these funds. To encourage the banks to lend to these segments of the population, FOVI guarantees 50% of the loan. In a limited sense, FOVI acts like the Federal Housing Administration in the United States (as we will see in Chapter 4).

During the period from 1963-1970, 76,433 new homes were completed (63.8%) with the participation of the private banking sector and another 15,572 (20.4%) through the banks with FOVI funds. The remaining 15.8% of the homes were paid by the homeowners with their personal savings.

In 1972, the next major change in the government's attempts to satisfy the country's housing needs was made. Acting directly from the intentions of the 1917 Constitution, it required employers to start making contributions to the national housing funds. This was accomplished with the creation of three funds, INFONAVIT (Instituto del Fondo Nacional de la Vivienda para los Trabajadores, National Employees Housing Fund), FOVISSSTE (Fondo de la Vivienda para

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[8] 1917 Mexican Constitution. Art. 123, A, XII. Author's Translation.

los Trabajadores del Estado, Housing Fund for the Public Employees) and, FOVIMI (Fondo de la Vivienda para los Militares, Military Housing Fund). The funds required employers to pay 5% of a workers wage to the fund. If a worker is approved for a loan, the fund grants him or her the money directly. It then requires the employer to retain an additional 25% of the workers salary. These funds also work as a pension fund. If the worker never acquires a loan, he or she, at the age of 65 is entitled to the 5% payments that were made. The above funds all work similarly, the difference between them is the workers they service. INFONAVIT receives funds from the private sector employees, FOVISSSTE receives funds from public employees, and FOVIMI services the armed forces.

FOVI and these three funds are the major sources of residential lending in Mexico other than commercial banks. It is important to keep in mind that FOVI's intent is to service and promote the low to middle income sectors of the population by providing reduced rate funds to the commercial banks to make loans to this segment and, as an added incentive to it, guarantees 50% of the loan. Traditionally funded by Banco de Mexico, FOVI is now funded by the Ministry of Finance, and to a lesser extent by the World Bank. It also uses its own funds that it generates through fees. The other three funds use capital raised by charging employers 5% of workers salaries. From 1972 forward, we are going to talk about some of the specifics of these housing funds and discuss other sources of mortgage origination that have developed.

The creation of the housing funds was the most relevant part of the housing policy. During the 1970s, 276,561 new homes were built. INFONAVIT built 213,785 (41.8% of the total) and was, by far, the largest contributor. FOVISSSTE contributed 60,811 (11.9%) and FOVIMI 1,965

(0.4%). The rest were built with private funds (i.e. commercial banks with their own resources and FOVI resources, and homeowners with their personal savings).

During the 1983-1990 period, 2,020,575 new homes were built. This represents an increase of 395.3% with respect to 1971-1979. FOVI, through the private bank sector, was responsible for 593,918 (29.4%), INFONAVIT for 575,667 (28.5%), FONHAPO for 347,408 (17.2%) and FOVISSSTE for 137,492 (6.8%).

Mexican Housing Funds and Other Participants

A house, because of its price, physical attributes and location, is a very difficult commodity to buy for a large part of the population in developing countries. This difficulty raises the need for a financing system that allows this part of the population to buy a home. Financing through commercial banks is tied to the economy of the country, and therefore represents a lot of risk. A house is seen as more than an investment; it is an asset in developing countries.

The loss of purchasing power in developing countries such as Mexico has made it, through the years, more and more difficult to afford a house (inflation grows faster than real wages). Different housing funds have been formed in the last four decades to alleviate this problem, but the housing deficit is still growing. One reason for this growing deficit has been the growth in the birthrate, but the most important one has been the low or null savings capacity of the population. Income defines how much is consumed and how much is saved and it is from these savings that money comes for housing.

There are many major players in the housing lending market, but for the purpose of this paper, we are only going to touch on four of them. We believe this will allow the reader to understand how the system works, where the inefficiencies are and where the growth potential is. The first two players, INFONAVIT and FOVI, provided 61% of the total financing for housing mortgages sold in 1996 (roughly 230,000 units). These two agencies, service the fastest growing sector of the economy. The other two player that we will discuss are commercial banks and the relatively new SOFOLs (mortgage banks). SOFOLs, has been in existence since 1994, although they comprise a small sector of the existing market, they are one of the main provider of residential mortgages going forward.

INFONAVIT (National Employees Housing Fund) was created in 1972 and it was established in order "to increase fairness and efficiency in the selection process for extending mortgage credit to the private sector employees of the country."[9] INFONAVIT manages the capital, providing a self-sustaining, financially stable system, and uses no governmental funding. INFONAVIT affiliates are able to obtain loans with preferred interest rates. Contributions to the fund are based on a percentage of a workers' salary (paid by employers) to finance construction, repairs, home improvements, additional rooms and the payment of previous mortgage liabilities; and to provide a deferred payment plan for those with individual accounts under the savings fund; this is designed for workers with insufficient funds to buy a house.

As of December 1997 the number of workers affiliated to this institution was 11.2 and, of these, only 14% had acquired a loan. The reason this number has been historically so low is that

[9] INFONAVIT: National employee's Housing Fund. http://www.infonavit.gob.mx/infing1.html

INFONAVIT had made numerous fixed rate loans at very low rates. When inflation started to rise, it eroded a large portion of their capital. In 1992, INFONAVIT linked their mortgage payments to inflation in an effort to solve the problem. As of December 31, 1997, (for the year) they collected approximately US $1.8 billion, which included the 5% they collect from employers based on the workers' salaries affiliated with them and the additional 25% they collect from the workers salary that they have made loans to for amortization. The total loans granted were US $1.4 billion, with administrative cost of US $123 million. They gave back to people over 65 years of age that had not acquired a loan a total of US $67.3 million.

Since the creation of INFONAVIT, the total mortgages granted has provided for approximately 1.6 million new homes and this allows us to say that, "on average, 8.0 million Mexicans live in an INFONAVIT house."[10]

The distribution of money in this fund is determined by an actuarial system that favors workers earning less than four times the minimum wage (approximately US $3,840 yearly). Maximum allowable credit is around US $ 15,000. The Institute grants loans for a period of up to 30 years and its portfolio has a real rate that averages 6%. An ideal applicant will be between 25-35 years old, has made all his or her contributions to INFONAVIT for at least five years, earns between 1 to 3 times the minimum wage, is married and has at least two economic dependents. No subsidies are granted to borrowers because the money is only managed by INFONAVIT; the money belongs to other workers, and it is for this reason that the agency looks for a full recuperation of each loan.[11]

[10] Interview: Javier Gurria Laviada. INFONAVIT. June 8, 1998.
[11] Interview: Javier Gurria Laviada. INFONAVIT. June 8, 1998

At the beginning, INFONAVIT was responsible for the entire development process, including project planning and management, land acquisitions, marketing and mortgage financing.[12] The fund was acting as real estate developer, general contractor, and financier. This proved to be inefficient, as natural conflicts of interest arouse, and then the checks and balances that would be inherent in a competitive process. In 1992, reforms were passed to converted INFONAVIT into a mortgage financing facility only and left the development to third parties. At this time, a strong effort was being made to implement programs to engage delinquent borrowers and offer to restructure their past due payments. INFONAVIT became a lender and as such it needed to start collecting money. In the fourth quarter of last year (1997), INFONAVIT started to use the services of the IMSS (Mexican Social Security Institute) to help them track the employee's new employment and start collecting the money. When an employee switches jobs the new employer starts paying social security for him and this is how INFONAVIT can locate the delinquent borrowers. The employer is basically the one with the fiscal obligation to deduct the 25% for this housing payment. If the employee changes jobs and fails to inform the new employer about the change, the money stops coming in. The new employer has no way of knowing the employee had taken out a past loan with INFONAVIT.

Historically, this agency contributed to about 30% to the affordable housing market but, after the crisis of December 1994, it has by far been the largest provider with a market share of 43%. As of December 1997, INFONAVIT's portfolio accounted for over US $13.1 billion. This amount covers 916,737 individual loans, and it has a program for 1998 that contemplates granting 136,000 more loans. Default rates for 1997 were estimated to be around 47%. This number is not equivalent to an American default rate. If a loan is one month delinquent, they put the entire

[12] Deutsche Morgan Grenfell. Mexican Housing. September 1997.

balance of the loan on the books. For example, if a worker losses a job, he could miss several months of work. When the employee resumes working, the employer begins contributing the 5% plus 25% to the fund again. The missed payments are added to the loan balanced and the worker will have to extent the term of his payment to compensate for this. Default rates (as thought of in the American system) are not available for this report. As we will see however, new lending practices have proved to be very successful in other agencies, which have dramatically reduced this rate in recent loans.

FOVI (Operation and Housing Discount Bank Fund) is a trust in charge of providing mortgage financing to homebuyers who earn between 3 and 10 times the minimum wage. Currently, this fund uses capital from the Ministry of Finance and to a lesser extent, from the World Bank. FOVI prices their loans at a 5% real rate of interest. FOVI is a second level bank that provides mortgage financing through commercial banks and most recently through SOFOLs (new mortgage banks). The banks and SOFOLs are responsible for loan approval and for the collection of the payments. Loans have a maximum term of 30 years and usually a fee of up to 3% can be charged by the originator. Additionally, the originator (a SOFOL or Commercial bank) is allowed to charge between .5% and 1% of the monthly payment. For example, if the inflation rate is 12% (which is expected in 1998), then FOVI supplies the funds at a real rate of 5%, then the servicing bank charges this 5% and adds the inflation to this to arrive at a rate of 17%, then calculates the monthly payment and adds between .5% - 1% of the monthly payment (their servicing fee) to the monthly payment. As stated above the originator, also, charges a 3% up front fee (which is based on the loan amount).

It should be noted that FOVI also grants money to housing developments. FOVI will lend up to 95% of the value of the construction, (not including the land). The developers must have all the permits and approvals prior to funding. There is a fixed amount of funds available each year for these residential projects. In addition, these funds are granted at a lower than market rate. In the past developers used to negotiate what they would pay for these funds. Today, a closed bid system is used and a more competitive process is encouraged. These funds when granted to the developer are made through a bank not directly from FOVI. FOVI supplies the source of funds to the bank and dictates what rate will be charged. Thus, FOVI, also promotes the supply of housing as well as subsidizes individual home mortgages.

FOVI mortgages were dual-indexed mortgages (DIM). In 1984 Banco de Mexico started to use the DIM for low to moderate-income borrowers.

> "The DIM works by adding to principal any differences in the accruing payment based on a variable market interest rate (the short-term Cete bond yield or the average cost of funds of the banking system, the CPP) and a lower payment due initially set by the lender and adjusted thereafter according to changes in wages (the minimum wage index)...The initial borrower payment is arbitrary and can be set as an interest rate, percentage of required payment (that based on the amortization index), or percentage of the initial balance (the most common method in Mexico). After the first period, the payment is adjusted by the cumulative change in an index (wage or price). The required payment (that necessary to amortize the mortgage) is determined by a margin over a market rate index. If the borrower payment is less than the payment required to amortize the loan at the lender's interest rate, the difference is capitalized (added to the principal balance) The difference constitutes negative amortization (called interest "refinancing" in Mexico)"[13]

[13] Lea, Michael J. and Bernstein, Steven A. Housing Finance in an Inflationary Economy: The Experience of Mexico. Journal of Housing Economics 5, 87-104 (1996).

The DIM ties the payment to the minimum wage index and the loan balance to the inflation index. Originally, this structure was highly recommended by the World Bank for developing countries "as a means to improve borrower affordability without sacrificing lender profitability and as a way to cap subsidies."[14] Even before the crisis of December 1994, when inflation out-paced wage increases and negative amortization accrued, commercial banks started restructuring loans indexing payments to inflation. To completely address this problem, the government designed a program to facilitate the restructuring of loans on April 1995 using the UDI (Unidades de Inversion, Investment Units or Units of Account), a new unit indexed to daily inflation. This program was implemented to assist borrowers who were unable to meet payment service due to the rise in interest rates.

FOVI's portfolio of US $3.72 billion is composed of around 350,000 individual loans. The program projects to make 70,000 new loans in 1998.

To recap, the portfolio sizes of these major agencies are rapidly increasing. As of December 1997, INFONAVIT accounted for US $13.1 billion that covers 1.6 million individual loans and has a program for 1998 that contemplates the granting of 136,000 more loans. FOVISSSTE, which works much the same as INFONAVIT but services public employees has a portfolio of US $4.2 billion and plans to grant 27,000 new loans for 1998. Finally, FOVI has a portfolio of US $3.7 billion, composed of around 350,000 individual loans. This program projects making 70,000 new loans in 1998. Just these three agencies comprise US $21 billion of loan pools that

[14] Lea, Michael J. and Bernstein, Steven A. "Housing Finance in an Inflationary Economy: The Experience of Mexico". Journal of Housing Economics 5, 87-104 (1996).

could have been securitized if underwriting and servicing procedures had been more developed. A percentage of this portfolio may still be able to be securitized in the future.

Commercial Bank approvals can take longer and be stricter than those of INFONAVIT and FOVI. Mortgage Financing by banks is more oriented to homebuyers of the middle and upper-income housing segments. As opposed to government sponsored programs, banks require the applicants to demonstrate higher earnings. Between October 1994 and September 1995, delinquencies rose from 29.85% to 42.03% in response to the high nominal interest rates resulting from the peso devaluation. In September 1995, the ADE program (Acuerdo de Apoyo Inmediato a los Deudores de la Banca, Agreement of Immediate Support for the Bank Debtors) was launched and, as a result, by October 1995, the percentage of delinquent loans declined to 29.53%.

Bank loans are typically offered at the market rate and are usually 70-80% of the value of the home. Monthly payments are adjusted to inflation and currently expressed in UDIs. Terms can vary between 20-30 years, and the loans are granted directly to homebuyers without any intermediaries.

Commercial banks also lend to the low-income housing sector, using FOVI funds. They receive a 50% guarantee of the outstanding balance from FOVI in case of borrower's default. To allocate FOVI resources, commercial banks have to follow the underwriting criteria set by FOVI.

Loans granted at a fixed rate during a period of stability became the major problem on the balance sheets of the banks during periods of high inflation. This was seen during the crisis of December 1994. Past-due loan portfolios represented about 40-50% of the commercial banks' balance sheets. As we will see, the development of the United States market was driven, in part, by this very same problem. Without liquid assets that can be sold, banks have no way of re-balancing their portfolios. After the crisis of December 1994, commercial banks stopped lending and concentrated on collecting the payments due to them. They tried in many cases to call in the borrowers and restructure the loans in UDIs. New payments on the restructured loans are indexed to inflation, and the amortization periods are 30 years. Currently, default rates are still very high and could be even higher if banks had to report their delinquent payments before the sixth month. The current laws state that banks have to report delinquencies only after the sixth month.

After the experience of December 1994, banks should be more careful about who they lend to. They need better underwriting criteria and better borrowers' information in order to grant loans. They need a better developed primary market with more agents, such as credit bureaus, better informed appraisers and better information systems so that risk can be better assessed and the loans can be priced appropriately.

SOFOLs created at the end of 1994 by the Ministry of Finance, are similar to the mortgage banks in the United States. Originally they were to act as mortgage origination entities, raising funds from private sources, lines of credit from banks, as well as from governmental sources. Because of the state of the economy, they were unable to raise funds from private investors or

get lines of credit. Today, their main source of funds is from FOVI. They are increasing their market share in the low and middle-income housing market faster than expected. Born as a requirement of NAFTA in 1993 (Chapter XIV Financial Services), they were created to service the market with finance instruments that did not exist before. Now, nearly 50% of all mortgages are originated in and serviced by, the private sector, primarily commercial banks and SOFOLs. Since the 1994 crisis, the majority of low-income loans are made by SOFOLs because of the poor financial condition that the commercial banks are in.

SOFOLs are required to have a 7.2% of capital reserve to operate (commercial banks are required to have 2.4%). The logic behind a higher capitalization rate is because they do not have other kinds of assets, just mortgage assets, and they are considered riskier.[15] SOFOLs use financing from FOVI and as such are obligated to use the same underwriting criteria.

The SOFOLs are allowed and encouraged to have offices all over the country, but they are specialized in regional markets. One requirement for a SOFOL is that it should operate in at least 3 different states. This diversification is good because diversification will be required for the future securitization of mortgages.

Currently, FOVI is almost the only source of funds for SOFOLs, since the poor economy all but eliminated the investor and banking market. This situation limits the flexibility and the market segments they can lend to. They have had interest from sources like GE Capital. However, GE Capital feels that in order for them to have an interest and to keep the cost of funds low enough

[15] Interview: Gerardo Soberon Felix. SHCP. June 9, 1998.

to be attractive, the need to grant a facility of US $500 million. The president of Su Casita Hipotecaria responds, "We are only two years old and we can't place a US $500 million facility fast enough for their requirements and our originating capacity is not mature enough."[16] This is perfectly understandable, there are only eighteen SOFOLs in the country to date and they are barely two years old. SOFOLs are growing at terrific rates, Su Casita Hipotecaria, the first SOFOL in the country, has almost doubled its profits each of the last two years, yet, their network is still limited. Currently, the Ministry of Finance is actively pursuing qualified investors to form more SOFOLs.

The Secretaria de Hacienda y Credito Publico (SHCP, Mexican Ministry of Finance) encourages other ways of financing such as bank loans, other mortgage-financing programs, the public sale of bonds and the sale of mortgages in the secondary mortgage market. This new financing will help SOFOLs start working with middle-size mortgages instead of just social mortgages.

SOFOL have proven to be very efficient at operating with very low margins. Default rates, reported after the second delinquent payment, are currently below 1%. In the future, with less regulation from Banco de Mexico, SOFOLs will be able to compete directly with commercial banks in the residential market, (if they can attract other sources of funds).

In conclusion, we can say that the government has been closely monitoring the housing programs in the last two decades. Joint efforts, together with the private sector have been all but sufficient, still Mexico experiences a high housing deficit. The governmental policy of keeping inflation low by not increasing the wages has left the workers with no savings power to afford a home. It

[16] Interview Manuel Agudo. Su Casita Hipotecaria. June 10, 1998.

is for this reason that housing funds are actively looking for other ways of raising lower costing funds to increase their lending capacity.

Other institutions like FOVI are actively thinking about securitization in an attempt to bring more capital for the low and middle-income segments of the population. The securitization of FOVI pools is going to include those loans granted through commercial banks and SOFOLs with FOVI resources.

CHAPTER 3

THE EVOLUTION OF THE ECONOMY AND THE CURRENT FINANCIAL MARKET IN MEXICO

The Historical Perspective of the Economy

At the beginning of the 1980's, the economy's future was very promising. Mexico had become an oil exporting country and its GDP was growing at more than 8% per year. The economy was moving forward and its economic policies of expansion increased the demand placed on the country's economic infrastructure. The simultaneous expansion of public expenditure and private investment constituted the main forces behind the country's economic growth.

Nevertheless, at the end of 1982, the country entered a painful crisis. The GDP decreased in real terms for the first time since the Great Depression (of 1929). The prices of consumer goods increased 98.8% over those of the previous year and the real wage rate suffered a contraction of 12.8% (See Table 3.1).

The crisis developed for many reasons, and was partially related to the international drop in oil prices and the increase in international interest rates. Both factors had a great impact on the economy. The fact that current expenditure and public investment were financed with public debt and revenues from oil exports combined with the rising level of private indebtedness, left the country in a very vulnerable state.

Table 3.1
Mexico 1995
GDP, Prices and Wages 1980-1997

Year	Annual GDP	Annual Change	GDP Index	Consumer Price Index	Percentage Annual Increase	Real Minimal Wage DF	Annual Minimal Wage Change	Minimal Wage Index
	Millions Of pesos 1993 Prices	%	1980-100	1994 = 100	Dec-Dec	1994 = 100	Real %	1980 = 100
1980	947,779		100.00	0.4429		36.80		100.00
1981	1,028,743	8.54	108.54	0.5700	28.70	36.84	0.11	100.11
1982	1,023,017	-0.56	107.94	1.1334	98.84	32.12	-12.81	87.28
1983	987,597	-3.46	104.20	2.0488	80.77	25.53	-20.52	69.38
1984	1,021,316	3.41	107.76	3.2609	59.16	25.02	-2.00	67.99
1985	1,043,818	2.20	110.13	5.3397	63.75	23.41	-6.43	63.61
1986	1,011,278	-3.12	106.70	10.9862	105.75	22.57	-3.59	61.33
1987	1,028,846	1.74	108.55	28.4729	159.17	22.72	0.66	61.74
1988	1,042,066	1.28	109.95	43.1814	51.66	18.53	-18.44	50.35
1989	1,085,815	4.20	114.56	51.6870	19.70	19.50	5.23	52.99
1990	1,140,848	5.07	120.37	67.1568	29.93	17.72	-9.13	48.15
1991	1,189,017	4.22	125.45	79.7786	18.79	16.71	-5.70	45.41
1992	1,232,162	3.63	130.01	89.3025	11.94	14.93	-10.65	40.57
1993	1,256,196	1.95	132.54	96.4550	8.01	14.79	-0.94	40.19
1994	1,312,200	4.46	138.45	103.2566	7.05	14.79	0.00	40.19
1995	1,230,722	-6.21	129.85	156.9150	51.97	13.82	-6.56	37.55
1996	1,294,152	5.15	136.55	200.3880	27.70	12.84	-7.09	34.89
1997	1,384,824	7.01	146.11	231.8860	15.72	11.51	-10.36	31.28

Source: INEGI, Sistema de Cuentas Nacionales de México.

During 1983, the GDP continued to drop and worker salaries experienced greater contraction. The crisis magnified and showed the inelasticity of the Mexican industrial structure. The economic recession continued until 1988. At that time, Mexico started to transform its economic growth model, relying less on imports and began to pursue the opening of its economy to the world market. This opening became official with its entrance, in 1986, into GATT, continued in 1994 with the consummation of NAFTA, and was further strengthened by Mexico's entry into the ODCE.

During the recovery, from 1989-1994, the vulnerability of the external sector of the economy to variations in oil prices, changes in international interest rates, and speculative movements of capital was still evident. This led to the crisis of 1994. In 1995, the trade deficit of the nation caused an abrupt devaluation of the Peso. The GDP contracted 6.2%. Notwithstanding the crisis in 1995, Mexico still ranked thirteenth in GDP among ODCE countries, with GDP levels comparable to those of Switzerland and Belgium.

In recent years Mexico has been successfully moving into the world markets and achieving a broad base for its exports. This diversity facilitated a quick recovery of the GDP after the crisis, and enabled it to grow 5.15% in 1996 and 7.01% in 1997. This demonstrates that Mexico's economy has developed to a point where its industry and human resources can respond quickly to favorable conditions.

A positive feature of the economic recovery is that it was not a result of an increase in the national deficit, but rather was based on the increased diversity and expansion of the export sector, an expansion that extended into many sectors of the economy. The public sector's debt with respect to the GDP was only 0.8% in 1997, and this included the costs the government faced due to the social security reform, the different support programs for bank debtors, and the bailout of the nation's banks and financial sector.

The dynamics of the economic rebound in 1997 exceeded all expectations and the recovery extended into almost all production sectors of the economy. Between 1996 and 1997 almost 1.2 million new jobs were created. However, the average wage did not increase. Mexico still faces

declining real wages and an explosive growth in its young population. It must continue to seek alternative ways to expand its economy and employment base.

It is noteworthy to mention that, even with the problems that the country faced back in the 1980's and more recently in 1995, the GDP has grown 46.11% since 1980. If we take into account that the population today is approximately 94.3 million, which is an increase of 41.12% over 1980, it gives Mexico a real increase in per capita GDP.

New monetary and lending policies, instituted by Banco de Mexico (Mexico's Central Bank), have been strongly enforced. New domestic lending has been scarce during 1997. Foreign capital investment has reached US $13.5 billion; interest rates have been upward sloping, keeping the interest rate spreads high. The lending rate charged to borrowers is between 600-800 basis points over the interest rate paid to depositors. This high interest rate spread increases the cost of loans and limits investments, slowing the recovery and expansion of the economy.

Besides the Central Bank's lending policies, the problem of scarce internal lending exists because of insufficient domestic savings. This domestic savings problem is a result of both the poor incentives offered by the banks to depositors, and the contraction of real wages. To encourage domestic savings, the social security system underwent many changes and pension funds were developed and modeled after other countries. The money saved by workers will be managed by private pension funds that will provide much needed capital for projects that will stimulate further economic growth. The new pension funds will also encourage the development

of longer-term interest rate instruments that will be more appropriate vehicles for banking institutions to finance long-term commitments like home mortgages.

The Financial Markets

The Financial Market in Mexico, like in other countries, is comprised of financial institutions, investment instruments and banking operations needed for financial market operations. The saving-investment activities of individuals whose money (in the form of deposits), is used by these institutions, are influenced by the economic, monetary, fiscal and financial policies of the country. These policies have an impact on the markets and, as a consequence, on the returns depositors want to receive from their investments.

The Mexican financial system is comprised of two markets: the banking system and the stock market. In the banking system two types of operations are required in order to move the capital from the deposits to investments. First, the bank must seek depositors to build a base of funds and, second it must make loans that reinvest this money back into the economy.

The second market is the denominated stock market. This market plays a major role in the Mexican economy. The stock market is a financing alternative for public and private companies, and an investment alternative for individual savers and investors. Institutions, government authorities, public companies, and private investors comprise the market participants. Transactions take place through the Bolsa Mexicana de Valores (BMV, Mexican Stock Exchange). The Mexican Stock Exchange is a legally formed private institution. It operates according to the rules concerning the securities market, issued by the Ministry of Finance. Its

shareholders are the authorized brokerage houses exclusively, and each brokerage house has only one share.

The Mexican Banking System is integrated by Banco de Mexico (Mexico's Central Bank), the Commercial Banks, the Development Banks, the Patronato del Ahorro Nacional (Patronage of the National Savings), and the Public Trusts constituted by the Federal Government for economic development, as well as those trusts constituted to perform the functions that the law commissions for the Central Bank. The Federal Government regulates the Banking System, and tries to move it in a direction that will support and promote the development and growth of the country. Banco de Mexico's purpose is to provide the economy with currency and attempt to stabilize the Nation's purchasing power.

At the moment, the Mexican Financial System has been consolidating internally and has been establishing strategic alliances with international banks, mainly from the United States and Spain. These changes have been so quick and efficient that the financial services industry has developed a high level of competitiveness. This competitiveness will lead to the creation of more diverse products and services for the consumer.

Among the other operations carried out by commercial banks, loans that are backed by real estate comprise a major portion of their investment portfolios. These loans include both construction financing to build a house and permanent financing to pay off the construction loan. As in the the United States, these loans are usually long-term loans in which the repayment of principal and interest is generally made monthly. In this segment of the market the banking system has

been supported by government agencies like FOVI. FOVI provides funds to banks with which to make residential loans. The bank adds a spread over the cost of these funds but, more importantly, FOVI guarantees a portion repayment of these loans offering a 50% guarantee. Thus, those loans financed with FOVI resources have a 50% insurance against borrower default, the bank will be able to recover 50% of the loan if it is necessary.

The Stock Market plays an important role in the Mexican economy for two reasons. First, it is a financing alternative for the private and public sectors. The financing granted to the national private sector during the first seven years of this decade was US $36 billion. Second, it is an investment alternative for people that otherwise would deposit their money with traditional banks. The Mexican Stock Exchange, together with the institutions that are part of the financial system, has contributed to the funneling of domestic savings towards productive investments. Close to 200 of the biggest companies in the country are listed on the Mexican Stock Exchange. By August 1997 the total capitalization of the stock market was greater than US $145.3 billion and, from January through August 1997, the amount traded in stocks was greater than US $31.2 billion.

The Money Market operates short-term securities which have a duration of less than one year. This market started on January 19, 1978, when the Federal Government, through Banco de Mexico, placed the first Cetes offering (Certificados de la Tesoreria, Certificates of the Treasury).

The elements that are part of the Money Market are:

1. Banco de Mexico: responsible for implementing the economic policies of the government through instruments like Cetes, Pagafes, Bondes, Bores, etc. in order to raise funds.

2. Commercial Banking: plays a very important role since it issues financial instruments to raise resources and provides the market with surpluses of money. It looks for better matching of investor and borrower needs.

3. Brokerage Houses: participate in the market by playing the role of matchmaker between the supply and demand of financial instruments in an attempt to maximize the resources of their clients.

4. Companies: on one hand companies issue securities to finance themselves and, on the other, they invest surplus cash into money markets through brokerage houses and banks.

5. Investors: invest resources in an effort to achieve greater returns than those available in traditional bank accounts.

The Capital Market:

In the capital market, securities with maturities of more than one year are traded. The government trades securities in the capital market. These securities have very little risk since they are backed by the Federal Government, and this has enabled them to be sold in a secondary market.

In the capital market, investors have the option to participate in private companies' financing through the purchase of corporate bonds that represent long-term debt. Investors also have the option to participate in the operational risk and corporate profits through the purchase of the company's stock.

In this market the following types of securities are traded:

1-Securities with a fixed interest:
- Mid-term Notes (PMPs)
- Financial Notes
- Obligations
- Bank Bonds
- Bank Bonds for Development (Bodes)
- Bank Bonds for Industrial Development (Bodis)
- Bonds for the Urban Renovation of Mexico City (Bores)
- Certificates of Non-tradable Assets (CPIS)
- Redeemable Ordinary Participation Certificates (CPOS)
- Market Bonds (Boprenda)
- Oil Bonds (Petrobonos)

2-Fixed Rent Securities:
- Stocks
- Non Redeemable Ordinary Participation Certificates (CPOS)

3-Metal Market:
- Gold and Silver (Centennial and Troy Silver ounces traded on the stock exchange)
- Silver certificates (Cplatas)

4-Derivative Instruments:
- Optional Holdings (warrants)
- Short-term Exchange Coverings
- Interest Rate Futures
- INCP Futures (Indice Nacional de Precios y Cotizaciones, Stock Exchange index)

There exist laws issued by the BMV (Mexican Stock Exchange) and the Comision Nacional de Valores (CNV, National Securities Commission) that regulate the operations of these markets. Their origin is the capital market laws promulgated in 1975.

Real Estate Capital Formation:

The CPOS are the main instruments used for the securitization of real estate in Mexico. Unfortunately, their use have been limited to the development of commercial and tourist real estate assets and traditionally have not been used in the residential market. The reason for this is

unclear. The are no legislative or regulatory reasons for such action. The best explanation offered, to date, was the lack of what was perceived as tangible collateral in residential lending. This refers to the long foreclosure times (as much as five years, before the recent law changes) and the social stigma of evicting the occupants.

The recent reforms to the pension fund system in Mexico were implemented in January 1997. Based on these reforms, the employers fee, state fee and, social fee for retirement, should be credited to an individual account opened under the name of each insured worker in the Administradoras de Fondos para el Retiro, (AFORES, Retirement Fund Managers). These funds should generate interest that should be reinvested in the same account.

The individualization and management of the resources of these accounts are under the surveillance of the AFORES, which are also in charge of the SIEFORES (Sociedades de Inversion Especializadas de Fondos para el Retiro, the Retirement Specialized Investment Funds Companies). The SIEFORES are financial institutions regulated under the law of the pension systems and have the obligation to invest the resources of the individual accounts managed by the AFORES. SIEFORES must, by law, channel the investment mainly to the following activities:

- Invest in the economic infrastructure of the country
- Increase the employment base
- Housing
- Development of Infrastructure
- Regional Development

As of May 1998, seventeen AFORES were formed with the consequent same number of SIEFORES. They account for 12.5 million of depositors and from September 1997 to May 1998, had raised US $5.4 billion.

The real average return for the AFORES in the first five months of 1998 was 0.09%. It is clear that AFORES need to look for higher return investment opportunities because they are under the obligation to pay 2% real rate per year to the individual accounts. It is for this reason that securitization of residential mortgages represents an attractive investment opportunity for the AFORES.

The main source of capital available for residential lending is only from commercial banks, who are currently lending very little, and the housing funds established by the government, as mentioned in Chapter 2. Currently, new foreclosure laws have reduced the foreclosure time to less than five months in the 24 of 31 states that have adopted them to date. This has improved recovery rates, but, to date, little information is available on this subject. The Mexican market tends to have a significantly higher default rate than the US residential market. Current estimates place default rates among the pools of low-income mortgages between 15-23%, over their life. This is currently due to the past severe economic recession and banking crisis, similar to the savings and loan crisis seen in the United States in the late 1980's and early 1990's. As Mexico recovers from this recession and banks begin to strengthen, defaults will come down and stabilize. This information concerning default rates is highly speculative, the current situation may reveal much more favorable numbers, as such, additional research needs to be done in this area.

CHAPTER 4

THE ORIGINS AND ACCOMPLISHMENTS OF THE UNITED STATES SECONDARY MORTGAGE MARKET: LESSON TO BE LEARNED

It is important to be familiar with the details of the development of the United States secondary mortgage market. Parallels that can be drawn and lessons that were learned might play an important part in developing a secondary mortgage market in Mexico. The country needs a short-term success and cannot afford to take 50 years as did the United States for the market to really flourish.

Overview

The United States housing market used to be open only to the wealthiest individuals; often, residential mortgages required a 50% down payment. In addition to social issues concerning the public's ability to qualify for such mortgages, there were many fundamental business concerns that caused problems for the banks that originated residential loans. The government's response was to actively promote the development of a national mortgage market and eventually facilitate the creation of a secondary market to trade these instruments. Its goal was to encourage better capital flow and investment in perhaps the nations' greatest asset, the national housing stock. The financial crisis of 1929 helped crystallize support for these ideas in Congress. It took from 1930 to the early 1980's for this secondary market to emerge into the efficient system the United States knows today.

During the 1920's financial crisis, the default rate on loans backed by homes and farms was extremely high. Insurance companies like John Hancock became some of the largest owners of farmland (in the United States) through foreclosure on these defaulted loans. However, home ownership was associated with social stability. It gave people a vested interest in the social, economic, and political fabric of the country. Additionally, political and social scholars believed that a strong middle class is necessary to develop a stable economy and a politically stable society. It was thought that a catalyst for the development of a strong middle class was the right of home ownership. The lack of home affordability became a concern and, as a result, the Federal Government began to take an active role in supporting the residential mortgage market.

Traditionally, local banks such as thrifts, and savings and loans, provided the majority of residential loans throughout the country. The Federal Government controlled the interest banks could pay to depositors, granting savings and loans a higher rate than traditional banks, in order to attract deposits. However, because these institutions used short-term deposits from customers to finance long-term mortgage commitments, potential disintermediation problems loomed. What appeared to be a profitable business during times of relatively stable interest rates became a trap for many institutions that were saddled with these loans during times of rising interest rates. When rates on short-term deposits rose, these banks could not adjust the returns on their long-term mortgage commitments (this is what has happened to the commercial banks in Mexico since the 1994 crisis). If a bank needed to rebalance its portfolio, it could not, since such loans had very little liquidity. Issues of this nature restricted the amount earlier institutions allotted to residential mortgages. To counter this problem a secondary market had to be developed.

The Agencies

The effects of the Great Depression on the housing market were responded to by Congress with the creation of several public purpose agencies. The first step was to shore up the nation's banks. One enactment was the Federal Reserve discount window, that allowed commercial banks access to a lower cost of funds, thus infusing the banks with much needed liquidity. The next step was to stabilize mortgage lenders and promote the granting of new home loans. An example of a legislative act targeted at this was the Federal Home Loan Banks (FHLBs). FHLBs were allowed to borrow directly from the Treasury, creating needed liquidity for these thrifts. Another creation of Congress was the Federal Housing Administration (FHA). This institution began to address the problems of the existing mortgage structures and attempted to set standard practices. For example, existing mortgage structures required a balloon note that could be called in anytime by a lender. This type of instrument, for obvious reasons, was impossible to securitize. Loans would always be at the brink of insolvency (if they were called in), and no payment pattern could be relied on from an investor's perspective. At that time, the FHA introduced what is known today as the fixed rate, level payment mortgage. The FHA also insured mortgages that qualified by meeting its underwriting criteria. Essentially, these were the first standardized underwriting mortgage instruments used in the United States. As we will see in Chapter 6, FOVI has begun to take the lead as a government agency and is re-writing new mortgage instruments. The plan is to make FOVI a master servicer of sorts, who will address many of the same problems. Subsequent to this, the Veteran's Administration (VA) also began to insure its loans to qualified borrowers (1944).[17]

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[17] Fabozzi, Frank J. and Modigliani, Franco. Mortgage and Mortgage-Backed Securities Markets. Harvard Business School Printers Pp 20.

FHA and VA loans were insured and became standardized, but they were still very illiquid assets, difficult to sell and to remove from a bank's balance sheet or portfolio. This made portfolio management in banks difficult, and limited the amount of money reinvested into housing loans. Congress addressed this problem with the creation of the Federal National Mortgage Association (FNMA). The FNMA or, as it is known today, "Fannie Mae", was created to facilitate the trading of these residential mortgages. A directive from Congress gave the FNMA the responsibility of creating a secondary market for the FHA and VA insured loans. Together with the FHA's involvement in the standardization of mortgage underwriting and the FHA's and VA's guarantees, FNMA provided a market in which these loans could be traded.[18]

The trading of FHA and VA loans in the secondary market had limited success. Even with the creation of these government agencies, many banking institutions, as recently as the late 1960's, still had trouble selling their loans. Despite efforts to standardize their non-FHA and VA loans, the loans were not homogeneous enough, and thus were very difficult to package and sell as a group. These differences involved maturity rates, interest rates, and different loan-to-value ratios. In addition, investors had difficulty valuing loans across different geographic areas because of inconsistent underwriting standards at local levels. This created large variations in default risk across loan pools that were hard to quantify, further hindering the acceptance of the secondary market.

[18] Fabozzi, Frank J. and Modigliani, Franco. Mortgage and Mortgage-Backed Securities Markets. Harvard Business School Printers Pp 19.

In 1968, Congress divided the FNMA into two agencies: the existing FNMA ('Fannie Mae") and the Government National Mortgage Association, which became known as "Ginnie Mae." The GNMA's purpose was to use the full faith and guarantee of the United States government to support the FHA and VA loans, in an effort to enhance their acceptance among investors. The government was still trying to effectively develop a national housing market and promote the sale and securitization of these loans.

> "The fundamental idea underlying the creation of the secondary market is that while housing markets are inherently local in nature, the system of finance for home buying need not be. Rather than local banks being the ultimate founder of mortgage loans, the national capital markets now can provide funds. ...Since the 1930's a major goal of the federal housing policy was to create a national mortgage market to replace the large number of independent local markets".[19]

The Financial Objective Behind the Development of the Secondary Market

The supply and demand of available mortgage money was often out of balance across different regions of the country. Regional imbalance occurred, first, because often an oversupply of capital existed in areas of moderate growth (because not many loans needed to be made), while areas of excessive growth had shortages of capital (because many loans needed to be made to accommodate such growth). A strong secondary market would make it easier for institutions with excess cash to buy loans from areas where there was a shortage of capital, which would infuse money into those areas that needed it. This would provide those institutions with capital to make additional loans. Furthermore, a secondary market would mitigate institutional mismatching of funds. It would allow institutions concentrated in originating mortgages, a larger

[19] DiPasquale, Denise and Wheaton, William C. "Urban Economics and Real Estate Markets". Prentice Hall, 1996.pp199.

market to sell those mortgages and thus easier access to capital. At the same time it would increase the efficiency and ease of investing for those institutions which were intermediaries, like insurance companies and pension funds, and which often had a need to invest cash.

Mortgage banks helped alleviate some of these problems; instead of the loans originated from deposits, like thrifts and commercial banks, the mortgage banks originated the loans to sell them. Their customers were not just the life insurance companies, but also other thrifts and banks that needed this type of investment. They became the middlemen or brokers for selling loans. This was truly the basis for a national mortgage market. They offset some of the cash imbalances across regions, which resulted in less variance in mortgage rates across different areas of the country. They set the stage for the evolution of the secondary market.

To further encourage the secondary market, Congress acted once more. In 1970, Congress empowered Fannie Mae to buy mortgage loans not insured by the FHA or VA (often referred to as conventional loans). This led to the creation of the Federal Home Loan Mortgage Corporation, or "Freddie Mac," whose primary role was to strengthen the FHA, VA, and conventional loan markets by participating in their purchase. Mexico has contemplated a similar role for their new pension funds. Currently, Mexican pension funds can only buy government paper but, as part of a mandate from the Ministry of Finance, these funds may start participating in the purchase of securities backed by mortgage pools.

The pooling of traditional fixed rate mortgages to create pass-through securities, instead of the owning of individual mortgages, was created in February of 1970 with the issuance of what

became known as "Ginnie Mae Pool #1." This made investing in the mortgage market more appealing to many investors who did not want to own the loans directly.

Mortgage-backed securities (MBS) represent an ownership interest in mortgage loans originated by financial institutions. As these securities traded and became more common place and accepted by investors, new mortgage pool forms were tested. The early MBS's were formed in structures known as mortgage pass-throughs and collateralized mortgage obligations. These structures allowed the secondary market to flourish and ultimately attract a broader range of investors.

The simplest form of MBS was the pass-through security, which represented a direct interest in a trust containing a pool of mortgages. These securities could then be pooled again to create more complex forms of securities. The most well-known is the collateralized mortgage obligation. The advantage of these is that the cash flows can be carved up and redistributed into different classes, with different rates and different maturities, thus creating different risk and investment profiles.

The most basic MBS is the "plain vanilla" pass-through. The agency issuing the pass-through will package the loans into a pool with similar characteristics. From this pool, securities will be issued such that all interest and principal payments from the mortgages are allocated on a pro-rata basis to the buyer of the security, also known as the bondholder. Mortgage-backed securities in this type of transaction are deemed to be bonds.

The collateralized mortgage obligation (CMO) form is used to separate the cash flows between pools. The CMO structure allows for better certainty of the cash flows' timing to senior bondholders. The advantage of the CMO structure over the pass-through structure is in the creation of MBS's with different maturity classes whose characteristics would attract different types of investors. By using the CMO instead of the pass-through, cash flows can be sliced, giving senior tranches a very high rated debt and tight spreads, while the junior class offers high returns by absorbing the prepayment and other risks. This allowed for different types of securities to be structured, allowing the securities to be tailored and appeal to different investors. It was this ability to able to a broad base of investors that allowed mortgage-backed securities to flourish in the United States.

Until 1977, all pass-through securities were fully backed by the Federal Government. In 1977, the Bank of America issued the first private offering of MBS's.

The ultimate goal of eliminating the differences that create the mismatching of capital supply and demand was a driving force behind the evolution of the secondary market. A secondary market supports lending institutions in the primary market (mortgage originators) such as commercial banks, savings and loans, and mortgage companies. The institution that originates the mortgages may either hold these loans in their portfolio or sell them in the secondary market. If it decides to sell them, it raises capital to make additional loans. A well-developed secondary market facilitates the flow of cash between institutions, and across geographic and economic regions.

The objective of the secondary mortgage market was to create very liquid assets that could be traded. This would increase the magnitude of funds available for residential mortgages by increasing the investor base. Also, the secondary mortgage market would reduce the cyclicallity of funds that flowed across the different regions of the country by increasing the tradability of these mortgages. Ultimately, this would lower the cost to the borrower, thus increasing the percentage of people able to afford a home.

Theory, Practice and the Financial Instrument's Evolution

The secondary mortgage market today plays a fundamental role in the United States housing market. By the 1970's the systems were in place to support a secondary market, yet they were not exploited. In 1980, only about US $5 billion had been securitized out of the multi-trillion dollar residential mortgage market. The problem was the securities structures.

Pass-through securities performed as they were supposed to, passing through loan products originated by the primary markets. The 30-year structure of loans demanded by the primary market (and the homeowner) along with other popular mortgage terms dictated the choices available to secondary market investors under the pass-through structure. Yet, investors needed a greater choice of instruments to meet the demands of their portfolios. The development of the CMO achieved this flexibility. The carving up of cash flows and payments of principal and interest, with the ability to allocate different risks to different tranches allowed for the creation of unlimited products to meet investor needs. The market has grown from roughly US $5 billion in the early 1980's to greater than US $2 trillion today. The Federal Government and its policies continue to play an important role in driving the process. The tax reform act of 1986 created tax

advantages for entities acting as conduits for passing through mortgage payments to security holders. This gave birth to a structure called a Real Estate Mortgage Investment Conduit (REMIC), a form of CMO. The CMO market grew from US $15 billion in 1985 to US $60 billion in 1987 and to an excess of US $300 billion in 1993.[20]

The Components of the Secondary Market

The mortgage market is defined by the primary market (where loans are originated) and the secondary market (where these loans are traded). The two are functionally tied together and dependent on each other. A thriving primary market is dependent upon a sound secondary market, and the secondary market is dependent upon the primary market for its product (i.e., loans to buy, sell, and trade). Both the primary and secondary mortgage markets revolve around activities carried out by different agents who perform one or several of the following functions: *mortgage origination* (creating mortgages by lending money against real property); *mortgage servicing* (collecting monthly payments from borrowers and distributing them to the mortgage holders); *mortgage brokerage* (playing matchmaker between buyers and sellers of mortgages); *mortgage dealer* (which involves purchasing mortgages and holding them in inventory until the optimal buyer can be found); *mortgage portfolio business* (raising money in the capital markets from savings accounts, bonds, and other instruments to buy and hold mortgages in a portfolio); and *mortgage conduit business* (buying mortgages, packaging them in different ways and then selling them, or securities backed by them).[21]

[20] Mortgage Backed-Securities Arbitrage -LJH Alternative Advisors INC.
[21] Downs, Anthony. Revolution in Real Estate Finance. Brookings Institution, 1995. Pp 234.

Mortgages are traded, and become part of the secondary market, from different sources and for different reasons. First, some institutions that originate mortgages want to hold fewer mortgages, so they sell them to other institutions, such as other mortgage banks or savings and loans that want to hold more mortgages in their portfolio. Second, institutions that want to hold mortgages may buy them directly from mortgage originators who book loans solely for the purpose of selling them. Third, the Ginnie Mae will buy loans from the FHA and VA, guarantee them, and then sell them. Fourth, the Fannie Mae may buy loans from mortgage banks, mortgage originators and savings and loans with the purpose of holding them in its portfolio, or of mixing and packaging them to issue securities backed by them. Then it will sell these securities to investors. The Freddie Mac may also do the same. Lastly, non-government affiliated institutions may combine their originated loans, or buy and group them into pools, to sell securities backed by these pools to investors.

The Process from the Primary to the Secondary Market

The Origination of a loan:

The major mortgage lenders are commercial banks and thrifts (which are deposit lenders), and mortgage bankers. When a lender looks at a potential borrower he or she analyzes four areas.

1. Debt to Income Ratio: Usually a lender in the US will base the borrower's ability to pay on a percentage of his gross income, typically 25%-33%.

2. Credit History: A lender will do a background check of a borrower's past credit performance.

3. Appraisal: The industry practice is to require an independent appraisal of the property. A lender will loan up to 90% of the appraised value and in some cases up to 95%.

4. Down payment: A lender usually requires a deposit of between 5%-10% and verification of the deposit's origin. It does not want a borrower to "un-officially" borrow the money for the initial down payment.

Mortgage Insurance:

Mortgage Insurance coverage in the US is from either the FHA, for low and moderate income levels, or the VA, for veterans loans. Mortgage insurance guarantees the payment to the lender. The FHA and VA reimburse the lender in one of two ways for defaulted loans that they have insured: one, they can pay the lender the insured amount and let the lender take title to the house; or two, they can reimburse the lender for the entire loan amount and take title of the house and foreclose.

For conventional loans (those that are not backed by the government), the industry relies on private mortgage insurers (PMIs), which are also called MICs. The PMIs guarantee a portion of the loan to a bank that holds a mortgage. The PMIs' revenues come from an annual fee charged to the borrower. In the 1930's the mortgage insurance industry collapsed and did not reappear until the 1950's. Since then, there have been no major problems, and eight PMI companies exist today in the US. Most of these companies insure loans that have a 90%-95% loan to value. PMIs usually insure 25% of the face amount of a 90% loan-to-value and 25%-30% of a 95% loan-to-value. A PMI also has two ways to reimburse lenders for defaulted loans. It can pay the coverage amount of the insurance, or it can pay the lender the full amount of the loan and take title to the property and proceed with foreclosure.

The Market Participants

The secondary market is defined by the sale or resale of an existing mortgage. Today a majority of loans are originated for their immediate sale to the secondary market. Typically, they are packaged into groups known as pools. Securities are issued and are supported by the cash flows of these loans. The participants in the secondary offerings are briefly discussed below.

The issuer/seller(who in many cases is the servicer):

The issuer is usually a thrift or mortgage bank. The issuer packages uniform loans and sets the details of the offering. It influences issues like the uniformity of the loans packaged, and the degree of credit enhancement alotted to sections of the pool. It sets the issue and maturity date, and regulates other terms of the offering.

The Servicer:

The servicer processes all the loan payments and administers the payments to the bond holders. It also administers any paperwork or reporting requirements required by law. The fee charged by the servicer is between 30-40 basis points of the outstanding balance of the loan pool. A special servicer is an agent called in to handle troubled loans. In the case of the residential market, the primary servicer handles this duty.

The guarantor:

If the guarantor is the Ginnie Mae, then the loans are backed by the full faith and credit of the United States Treasury. Ginnie Mae charges a fee of 6 basis points for its guarantee. If the guarantor is the Fannie Mae or Freddie Mac, it is that agency which guarantees payment, not the

Federal Government, which means the financial strength of the agency is the value of the guarantee. Fannie Mae and Freddie Mac receive between 20-25 basis points for their guarantee. If the security offering is comprised of a pool of conventional loans, then the only guarantee per se is the collateral of the mortgages (the homes and borrowers' financial strength), and the structure of the financial offering itself.

The Risk factors:

The main risk involved in holding pass-through MBS is early prepayment of principal. This prepayment can drastically affect the value of the securities, since their value is based on the projected cash flows from the mortgage payments. The two main reasons for early prepayment are refinancing and housing turnover. Housing turnover can be caused by a home sale, a default, a disaster in which the home is destroyed and the home insurance pays off the lender early, or death. When one analyzes the risk of an MBS offering, one must assess the anticipated amount of expected prepayments, the collateral behind the mortgages, and the structure and issuance of the offer itself.

The following is a short list of issues that must be studied when attempting to appraise the collateral risk.

1. The loan type (for example, are the loans fixed rate or adjustable)
2. Loan to value (how leveraged are the properties in the pool: 80% or 90%, etc.)
3. Property type (single family or condominium)
4. Loan Term (15year or 30year)
5. Geographic diversity (are the loans all from one region of the country or are they a diverse group)
6. Loan intention (is the loan originated to purchase, re-finance, or withdraw equity from the home)
7. Seasoning (past performance)

The following are issues that should be considered when analyzing the risk of the MBS offering itself:

1. The issuers' reputation and track record
2. The servicer's experience and reputation
3. The underwriting guidelines used
4. The PMI policies that back up the loans

The United States Secondary Mortgage Market Today

The definition of a true secondary mortgage market is a source of great debate among practitioners. Some scholars feel that the securitization and re-selling of mortgages is by definition a secondary market. Yet there are some who believe that, if the pools of mortgages contain loans that are backed by government guarantees, then these issues are nothing more than another form of government backed bond. They feel the risk of the loan pool is not being sold.

Traditionally, the majority of the United States residential mortgages sold or securitized have been guaranteed by the Ginnie Mae or Freddie Mac. Most people assume that this is the equivalent of a guarantee from the government itself. Technically it is not, yet the belief is that the United States government will step in if these agencies falter. If one assumes that the loans are guaranteed, then the analysis of a loan pool is based primarily on pre-payment risk and interest rate risk, and not on default risk. Conversely, if one looks at the commercial mortgage backed securities (CMBS) market in the United States, these loans are not guaranteed by any government agency. Thus, when they are packaged, and when securities are sold based on them, at some level in the issuance the default risk is sold. The investor has bought the risk and the interest rate compensates the investor for it. The originating entity is relieved from its obligation. Some CMOs today which are based on conventional mortgages accomplish this.

The United States has achieved a unique situation regarding the role of the government agencies in its residential secondary market. The loan underwriting is well standardized; the track record of loan performances is well documented; the agencies that service the loans are experienced; and the rating agencies are widely accepted. This makes for an extremely efficient market, in fact, some scholars believe that Ginnie Mae, Freddie Mac, and other government agencies are no longer needed. The issue debated today is calculating how many basis points does the efficiency created by these agencies save the consumer, not whether they are needed.

> "GAO noted that: (1) if FHA's insurance coverage is reduced and lenders become responsible for the risk associated with the uninsured portion of loans, lenders will likely make fewer and more costly loans; (2) the general consensus of a HUD-sponsored lender focus group was that the number of FHA-insured loans would fall by 28% and that interest rates would increase by one-quarter to one-half of a percent; (3) although some decrease in volume and increase in interest rates would be likely, GAO's analysis indicate that changes would likely not be as great as those that the focus group predicted;..."[22]

The study also went on to say that if such a reduction in lending did result from FHA's reduced coverage that the reduction would probably occur, disproportionately, to the high risk borrowers, affecting low income and first time home buyers, minority borrowers, and those individuals buying older homes (these are the individuals usually serviced by the FHA). This concept raises many social implications that go beyond just the financial success of a secondary market.

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[22] Homeownership: Potential Effects of Reducing FHA's Insurance Coverage for Home Mortgages (Chapter Report, 05/01/97, GAO/RCED-97-93).

The important questions concern the composite of the market and what forces led to the development of its agents. The development of the primary agents is very important to the development of a secondary market in its infancy stage. Credit bureaus, loan originators, servicers, appraisers and other agents that screen the risks of a loan in the primary market are essential to the achievement of a strong and efficient secondary market.

Mexico today must develop these agents. The housing stock is hard to quantify, the value of homes is hard to verify. They do not have national indexes or data bases on home sales, or sale prices. Often, much of this information is confidential. FOVI, which promotes the lower-income segments, much like the intent of the FHA, has been closer to piloting attempts to standarize and automate information, along with revamping the country's underwriting policies. This is a huge burden for agencies whose role is not defined by law but by political policy. Its effort must be consistent across different political regimes or it will fail to instill continuity that the markets need to price risk.

Other countries have begun to securitize mortgages using the experiences of the United States system as a backdrop. Next we briefly discuss several of these countries to see how they approach the process and how it can be applicable to the Mexican case.

CHAPTER 5

THE SECURITIZATION OF RESIDENTIAL MORTGAGES IN OTHER COUNTRIES

The development of secondary mortgage markets always emanates from the same basic needs: capital, and the balancing of the flow of capital between mortgage granting entities. Each country has its own political and economic pressures and how its secondary market evolves takes on the characteristics of the country. In the paragraphs below the composition of the secondary mortgage markets in various countries, and aspects of the markets' development, will be discussed. Each selected country will depict a different but important aspect of what makes up a healthy secondary market.

The successful securitization of a mortgage market depends on four factors: the demand for housing, insuring future volume; a good system of primary agents, facilitating consistent underwriting and assessment of risk; a legal system that supports and allows the formation of various financial products; and finally the economic infrastructure that will allow capital to flow to the system. Each country we have chosen focuses on a different one of these factors. These are the issues that need to be understood and addressed in Mexico. How they can be addressed and further developed in Mexico is paramount to the success of a secondary market.

The United Kingdom had a mature primary market for many years, yet lacked the ability to satisfy the residential markets' capital demands. In the United Kingdom, the development of the secondary market was driven by the capital demands needed to satisfy a booming housing market in the 1980's. Although the United Kingdom's secondary market was modeled after the

United States market, the real catalyst was financial engineering that allowed securities to be developed from the United Kingdom floating rate mortgages.

Unlike the United Kingdom, which had a mature housing market and a developed capital market, Colombia, although it had developed a secondary market, lacked a capital market mature enough to support the new securities. In Colombia, for example, domestic investors, like pension funds, have a current investment capacity that is still too low and, to date, foreign investors have not been attracted. The capacity to issue mortgage backed-securities is greater than the capacity of the secondary market to find investors.[23]

In Russia no primary mortgage market exists, as we know it. Yet, the roots of a secondary market are being established by a joint effort between Ginnie Mae and the Russian government. Here political agendas are obviously at the forefront. A strong privatized home market, homeownership, and the development of a strong middle class, will bring stability to Russia's new political society. All the issues to be addressed in Russia are common secondary market issues. What is unique is that it is starting at the most rudimentary level, promoting the development of a private housing market itself. The mortgage loan structure, the underwriting criteria, the banking systems, the entire mortgage process is being based primary on the United States market. The primary market is actually being designed to facilitate a future secondary market. This will save years of development when the housing market takes root.

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[23] Gomez Guillermo. "The Mortgage Business in Colombia". Housing Finance International. December 1996.

The United Kingdom

The basic underlying forces that drove the securitzation of mortgages in the United Kingdom were a strong housing market and a need for capital by the traditional (deposit-taking) lenders. The average investor in the United Kingdom had become much more sophisticated and was demanding higher yields on his or her deposits, and the market was becoming very competitive, with depositors moving money from institution to institution with greater frequency. For institutions that made loans based on deposits this was a growing problem. It was leading to cash flow mismatches. Often there were shortages of capital available for home mortgages.

What was interesting was the next stage of development. The mortgage lenders, together with Salomon Brothers International's banking affiliate, established The Mortgage Corporation in 1986. Its purpose was to link the mortgage borrower directly to the capital market and create a secondary market. The lenders originated loans for the sole purpose of securitizing them. In the United Kingdom the primary markets and the capital markets were well developed, so that all it took was the coordination of the lending institutions to start the process. In February 1987, the first offering of sterling mortgage-backed securities was issued.[24]

The major issue concerning the development of the sterling mortgage-backed security was the instruments' design. The security design was based on the United States pass-through, but the major difference was that the United Kingdom mortgage very rarely had a fixed interest rate. Thus, a product had to be designed to accommodate variable rate mortgages. The product devised floats at a fixed margin to the sterling London Interbank Rate (Libor) and was reset

[24] IFR Publishing Ltd. "Mortgage-Backed securities: a UK perspective." 1988 Pp 15-26.

quarterly. The product works very much the same way as a United States pass-through does.

> "A single purpose issuing vehicle buys a pool of endowment mortgage loans from a centralized mortgage lender like TMC or NHL, which are then financed through an issue of FRNs (floating rate notes) in the public market. The servicer, or original mortgage lender, still administers the loans, collects payments and sets the mortgage rate. A trustee, generally a commercial bank oversees the assets of the issuer and ensures compliance of the servicer with the terms of the trust deed."[25]

In the United Kingdom the obligation of payment is only guaranteed by the servicer and as such the investor must really look to the loan quality itself for a guarantee of repayment. Issues concerning prepayment, allocation of principal and other mechanical issues vary from those of the United States, but these can be financially modeled and accounted for.

At the inception of these instruments, 50% were purchased by mortgage banks, and insurance companies and money managers purchased between 14% - 18% each. Interest rate swaps and hedging strategies were employed by many investors to fix their rates of return based on their native currency. Of the offering, 34% was placed in the United States, 32% in Japan, and 30% in Continental Europe. The United Kingdom was able to attract not only domestic investors, but also foreign investors from the start.[26]

As was the case in the United States, the development of this market helped balance the mismatch of capital available for mortgage loans across the United Kingdom. The investors

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[25] Stein, Jeff. Investment opportunities using mortgage backed securities. 1988.
[26] Stein, Jeff. Investment opportunities using mortgage backed securities. 1988.

liked the fact that these instruments were more liquid than holding the mortgages themselves and, as a result, the market flourished. In the early stages, those who understood the market and the instruments took advantage of the generous spreads and they were very profitable. These spreads attracted more players, and competition drove spreads down. This growth brought capital to the housing market and, by balancing mortgage money availability across the country, the end result lowered the cost to the final consumer.

Russia

Currently the government is setting up a secondary mortgage facility similar to Fannie Mae. This new Russian Federation agency is a critical element in the housing sector reform, shifting the supply of housing from being a state responsibility to being the responsibility of a private homebuyer.

> "Housing accounted for a significant share of the economy of the former Soviet Union, yet it was often regarded as a major source of citizen dissatisfaction. Many lived in small units with unpredictable utility services in poorly maintained buildings. Severe unit shortages coexisted with a significant share of the population being over-housed."[27]

When the government originally tried to give some of the existing units to the inhabitants, many refused, fearing maintenance costs and property taxes would rise and be too costly, while in other areas of the country there were waiting lists for housing. The transition from public to private has gained momentum and is becoming increasingly more accepted. The Russian government has finally acknowledged its importance and has been working with Fannie Mae

[27] The Urban Institute. "Housing Sector Reform in the Former Soviet Bloc". 1998

since 1992. The days of housing being used as a political cushion to appease the public are waning. Although, in the short run the privatization of housing is costly to the government and the people, it is necessary in order to build a stable, free society. The United States realizes that the more mature the private housing market becomes in Russia, the greater the foothold capitalism gains. Fannie Mae and the Russian government have been working together for several years along with 30 of its mortgage banks.

> "...when the collaborative effort began in 1992, there was no legal basis for and no experience in mortgage lending in Russia. 'Today, there is a minimally adequate legal base in Russian law for long term housing lending. A draft Law on Mortgages is now before the State Duma in Moscow and 30 commercial banks have begun making long-term loans that follow accepted western underwriting and servicing practices, using a lease-purchase arrangement to address credit risk. All of these loans were originated by private commercial banks and carry no subsidies..."[28]

This agency is being created to stimulate private bank lending in an effort to address severe housing shortages. This agency will purchase qualified mortgages from the banks and issue mortgage-backed securities, which will carry the government guarantee. Initially all funding will be from the government in an effort not only to "jump start" the primary market, but also to "jump start" a secondary market simultaneously. This is to

> "...solve two problems plaguing the emerging housing market. It will reduce the liquidity and interest rate risk problems faced by Russian banks making mortgage loans; and it will bring order to the industry by setting standards for the loans it purchases."[29]

[28] The Urban Institute. "Urban Institute, Fannie Mae will advise Russian Government as it sets up secondary mortgage facility to increase home mortgage lending". 1998.
[29] The Urban Institute. "Urban Institute, Fannie Mae will advise Russian Government as it sets up secondary mortgage facility to increase home mortgage lending". 1998.

Colombia

Colombia worked through the development of several issues to create its secondary market. It developed a currency instrument for its mortgage issues. Most of the mortgages are issued in Upacs (constant purchasing power units). The Upac, an instrument indexed to inflation (like the UDI in Mexico), was created in 1972 and was only administered by the savings and mortgage corporations (CAVs). Previously to the creation of the CAVs, only the commercial banks could issue mortgages.

> "The goal assigned to the Upac system was the generation of the financial resources required to undertake a massive housing construction program."[30]

The funding for the CAVs comes mainly from the financial market but, in recent years, the secondary market has become an additional source of funds. Securitization started in Colombia in 1995, and since then six offerings totaling US$250 million have been placed. All the ratings have received a AAA rating from Duff & Phelps. Colombia has all the ingredients for a healthy secondary mortgage market. Yet, only about 2% of the mortgages have been securitized. The problem is the development stage of the capital markets.

> "So far, the Colombian stock market is still considered to be relatively small. Pension funds, which have been the major investors in mortgage-backed securities, are the most important potential clients. However, their current investment capacity is too low, as a result of their relative youth. There are other investors, but they do not have much capacity to absorb the core of the securitization process. Therefore, pension funds (with the possible addition of the foreign investors) will determine the secondary market's path."[31]

[30] Gomez Guillermo. "The Mortgage Business in Colombia" Housing Finance International. December 1996.
[31] Gomez Guillermo. "The Mortgage Business in Colombia". Housing Finance International. December 1996.

Colombia faces the hurdle of expanding its capital market base into the foreign sector to help meet the future capital demands that will be needed to finance its future housing stock. This stock is expected to be 9.5 million units by the year 2020, nearly double the 1996 number of 4.8 million homes.

The Driving Forces

Economically, the distribution and supply of capital drives the mortgage lending process. In the United Kingdom, the mortgage-backed securities market developed in response to the demand for mortgage money to fund a robust housing market. In addition, it helped to reduce and stabilize the cost and volatility of their then current funds. As the United Kingdom did, Russia and Colombia are developing secondary markets to address capital concerns.

Yet, in the United Kingdom, the housing mortgage market was established first, and the secondary market is evolving around it without governmental guarantees. In Russia, the primary market is being set up to feed the secondary market.

In stark contrast to the United Kingdom, Russia faces the political and social challenge of creating private sector housing, while attempting to model its system after the United States' secondary mortgage system. Colombia faces the problem of a shortage in long-term domestic capital, and needs to change its legislation in order to attract foreign investors.

Although, in terms of their stages of development, the United Kingdom, Russia and Colombia are very different, they have a similar goal regarding the implementation of a secondary market. Their common goal is to increase the flow and balance of capital into the housing mortgage market, and reduce the long-term cost of that capital for borrowers.

The case of the United Kingdom demonstrates that, although the primary mortgage origination market was mature, it still took the coordination of the banking system, along with the development of appropriate financial instruments, to create a secondary market. Russia has a primary market that is being designed from its outset to complement an already existing secondary market. Colombia teaches us a different lesson, one about the necessity of mature capital markets. It shows us a more realistic picture of newly developing secondary markets, and the problems faced by countries that are in more advanced stages than Russia, but less mature than the United Kingdom. As will be discussed in the conclusions, Mexico may be able to use the ideas of each one of these countries to help launch its secondary mortgage market.

CHAPTER 6

SECURITIZATION IN MEXICO

Current Climate

In the following chapter we will discuss the general status of issues concerning securitization in Mexico today. Also we will summarize several opinions and new developments that were discussed in interviews with Mexican government agencies and market participants. So far, the majority of securitization transactions in Mexico have been with future receivable transactions. In this kind of operation, there are no assets backing up the payments, just a stream of cash flows and the right to them. In residential MBS, a real asset is backing up the issuance, and valuing this asset is a major problem in the Mexican housing system.

For the primary market to develop into the secondary market, commercial banks need to improve their mortgage origination and servicing procedures. The crisis of 1994 exposed poor origination procedures, as the default rate soared on residential loans. As a result of these high default rates, origination procedures started to change after the crisis. Changes to these procedures are not complete and many issues still need to be addressed.

A large part of these underwriting problems were evident before the 1994 crisis. Back then, many banks had to restructure their residential mortgage loans several times because of the structure of the mortgage instrument used. This instrument, the dual index mortgage (DIM), was created in the mid-1980's in an attempt to create a loan both affordable to the borrower and

profitable for the lender.[32] The loan payments were based on the wage index and the loan balance was based on the inflation rate. When the wage index lagged inflation, negative amortization accrued. Then when the banks lost confidence in the economy they based the loan payment on inflation instead of the wage index and the payment relative to wages soared.

> "The default problems stem in part from a change in the design of the instrument that was implemented prior to the December 1994 devaluation. The banks substituted the inflation rate for the wage rate as the index governing payment adjustment. The reasons for this change were a lack of confidence in the government's wage index and unfavorable accounting treatment of deferred interest payments, problems common in developing countries."[33]

While new mortgage instruments are being developed by FOVI, much the same as the FHA did when it introduced the fixed-rate mortgage structure in the United States, a market for these securities must also be developed.

The new law about pension fund management in Mexico will allow these funds to be invested in the housing sector through the secondary market, creating pools of long-term funds suitable to fund long-term mortgages.[34] Currently, pension funds and existing insurance companies hold about US $10.5 billion in assets.

Today, Banco de Mexico wrestles with what the long-term role of Government should be in the promotion of a secondary market. The government believes that "FOVI can play the role of master servicer (in a securitization) in terms of being the one that collects all the information and

[32] Lea, Michael J. "Restarting Housing Finance in Mexico." Housing Finance International. December 1996.
[33] Lea, Michael J. and Bernstein, Steven A. "Housing Finance in an Inflationary Economy: The Experience of Mexico" Journal of Housing Economics 5, 87-104 (1996).
[34] Lea, Michael J. "Restarting Housing Finance in Mexico." Housing Finance International. December 1996.

cash flows and moves them from borrowers to investors."[35] Currently, FOVI is one of the few suppliers of funds for mortgages due to the weak banking sector. FOVI guarantees provide a very large existing subsidy in the overall market, today. While government officials would like to use FOVI to set the standards for mortgage lending they do not want to use this agency to guarantee loans other than those to the low-income sector.

The government's position is that any future securities should be structured as a CMO and the riskier lower rated tranches should be sold. Ideally, they want to sell the risk and not retain an portions of it. If this is the case then the market needs to be able to assess the risk. To do this, they will need better primary agents, such as appraisers, to help screen the risk for them. In order for the Mexican government to accomplish security structures like the CMBS market in the United States (where the issuer usually retains a good deal of the risk) it must develop its originating/primary agents.

As mentioned earlier, many problems experienced by the banks in the early 1990's were because of inadequate origination procedures. Information systems were not developed enough to provide adequate research about the borrower. Additionally, banks were competing in a very hot market; the number of banks increased fivefold during the period 1989-1994. As a result of this, competition eroded underwriting standards that were already weak. After the crisis, commercial bank loans dried up. This left the middle-to upper-income levels unable to access a loan to buy a house, and the only lending that continued was governmental subsidized programs for low-income housing.

[35] Interview Manuel Zepeda. FOVI. June 8, 1998

Steps to Securitization

As one moves through the entire loan process from loan origination to the resale of that loan, Mexico has begun to realize the importance of each step. To support the servicing of residential loans the government has been encouraging its states to pass new regulations. These laws directly affect recovery rates. To be able to estimate recovery rates is critical for the pricing of securities. Without new legislation, it can take up to 5 years to repossess a house in Mexico today. Currently, the Ministry of Finance has encouraged 23 of the 31 states to pass the new laws, lowering the effective time for foreclosure from 5 years to 5 months. It is expected that, shortly, the rest of the 31 states will pass the new laws as well. In addition, legislation has been passed that allows for the transfer of mortgages without having to go to the public registry. This has legally made securitization possible.

The Originators Today

The financial entities authorized to originate loans in Mexico are banks, SOFOLs, credit unions and mutual savings and loans. We are concentrating only on the first two since they originate the majority of the loans in the market today. Banks can raise money from depositors and then lend it to borrowers as opposed to SOFOLs, which cannot accept deposits. Commercial lending in banks has all but dried up during the poor market conditions. As mentioned earlier in Chapter 2, SOFOLs were created as a result of NAFTA. Originally they were to act as mortgage origination entities, raising funds from private sources, lines of credit from banks, as well as from governmental sources. Because of the state of the economy, they were unable to raise funds from private investors or get lines of credit. Today, their main source of funds is from FOVI.

FOVI is currently funding SOFOLs and commercial banks requiring them to use its standard underwriting criteria. So of the underwriting requirements are outlined below to give the reader an idea of the direction that they are moving in. First, no applicant can be over fifty years of age. Secondly, an applicant needs verifiable proof of three years of constant employment. Thirdly, they need to be registered with the IMSS (social security), this ensures that if a borrower moves from job to job the lender can better track the borrower. Additionally, they are requiring more personal information from the borrower, attempting to do a better credit check. Finally, the size of the loan that an applicant qualifies for is based on his/her salary. Notwithstanding, the value of the home must also qualify for this amount for the loan to be granted. These last two points are being strictly enforced.

SOFOLs have proven to be the more efficient lender of the two, showing delinquencies of less than 1% (most of their loans have only been originated since 1995). If SOFOLs continue to grow at their current pace, they will need other sources of funding in the near future. Future securitization will put even larger demands on these originators.

When assessing the prospects for securitization and the speed at which it may develop, it is important to understand the governing bodies that will directly affect and influence the process. The beginning of the securitzation process in Mexico is in the hands of the Ministry of Finance and its regulatory bodies like Banco de Mexico and the CNBV (Comision Nacional Bancaria y de Valores).

The Ministry of Finance (SHCP)

The Ministry of Finance assumed leadership to speed up and promote the changes in the civil codes that allowed for the transferring of the creditor without having to go to the Public Registry. The Ministry of Finance also encouraged changes to the civil procedure codes that affected the foreclosure laws. These changes have reduced foreclosure time and made it possible to repossess a house faster once a default is condemned. It is important to understand that the Ministry of Finance is in charge of collecting the taxes and planning the budget, and it defines and executes, together with the financial authorities, the monetary policy of the country.

Banco de Mexico regulates FOVI. It also feels that securitization for FOVI loans should follow the CMBS structure with subordinated tranches.

It is important to note that the Ministry of Finance presides over the board of directors of the CONSAR, which is the body that regulates the AFORES. At this moment, AFORES (Mexican pension fund managers) can only buy government paper, but that is soon to be changed. As mentioned in Chapter 3, these funds are now mandated to invest in housing. According to the Ministry of Finance, AFORES are the ideal investor for this kind of security, (therefore they have the Ministry's support).

Banco de Mexico (The Central Bank)

The philosophy of Banco de Mexico can be summarized with the following quote:

> "We see the role of the government minimized in the securitization process. The government's participation should be very small except when some special sectors must be promoted through subsidies; besides that, I do not think it should play a major role. Nevertheless, guarantees are being provided through

> subordinated debt. In the short and long run, the role of government subsidies is going to stay focused on low-income housing -otherwise nobody would be interested in working in the housing market. FOVI is already providing large guarantees (50% of the value of credits) although we think this should decrease in time. We need to let the market price the risk -right now we do not have a precise assessment of whether the subsidy is too large or too small. One thing is clear: risk is not well distributed among market participants."[1]

Banco de Mexico feels strongly that any securitization structure should closely resemble the CMBS market in the United States where you have subordination tranches. Banco de Mexico feels that the country would need to develop or invite Private Mortgage Insurance Companies (PMIs) to compensate for the lack of governmental guarantees in the securitization process. They do not feel that the government should play a large role in granting guarantees for residential mortgages.

FOVI

The Director of FOVI believes strongly that the crisis of 1994 demonstrated that if mortgages are not originated and/or serviced well, then they become a serious burden not only for the banking system but also for the society as a whole. Non-performing loans place such a strain on financial institutions that it hinders the institutions' ability to act quickly, delays the recovery, and denies consumers access to capital for a long time. He was quick to point out that even before the crisis, major portions of bank loans had to be re-written. This was a result of these residential mortgages being based on a dual index mortgage system (DIM). When these loans were granted Mexico had a history of very low interest rates, and the bankers were counting on mortgage interest rates staying low for 30 years. To counter this, FOVI is writing new loans based on a UDI system, a system that is based on keeping a real rate of interest plus a spread. These new

[1] Interview Jesus Marcos Yacaman. Banco de Mexico. June 9, 1998.

mortgage instruments will require a 1.3% fee to cover shortfalls in a borrower's payment ability, creating a mortgage payment insurance program.

> "We are planning to change the mortgage product itself, make it simpler. So we are planning to change our mortgage to a normal inflation based mortgage where payments would increase every month, one that has a fixed real rate so it would be exactly like the U.S. mortgage in real terms... But we want people to pay in terms of inflation and if the payments increase every month delinquency would shoot up, especially for the low-income people. They don't have as much saving to cushion their income through the year until the wage index increases and catches up. So we are planning to set up a government trust that would sell borrowers coverage like a futures contract. The trust would sell them a contract to cover the difference between the payments in minimum wages and the payments to the mortgage in terms of price. They would pay a commission that we estimated at 1.3% annually to cover this. Then a government run bank would open a line of credit to cover these trusts."[37]

To date FOVI has hired Coopers and Lybrand as consultants. FOVI is attempting to model several of its future underwriting practices after those of the United States. They see four major areas that need to be reformed. First, Mexico does not have credit bureaus so it has to compensate for this by requiring more information from the borrowers, in a sense the originator will become the credit screen. Then they have to work on a database for housing prices. They are working with Banamex (the largest commercial bank in the country) to set up a database for mortgages and establish a central registry system. It is also working with Bear, Stearns on molding FOVI to become a master servicer, the one that collects all the information and cash flows, channels all the flows of money from the borrower to the investor. This would facilitate foreign investment, and allow investors to have to deal only with one entity.

[37] Interview. Manuel Zepeda. FOVI. June 8, 1998.

The director believes that the system should be modeled after the non-conforming market in the United States, where you have the conduits driving the markets and not the government.

The director of FOVI estimates that, through first tier banks like the new SOFOLs, can generate between US $1 – $1.5 billion of securitizable loans per year in newly written low income and middle income loans and if other commercial banks are able to participate, they could generate another US $3 – 3.5 billion per year. It was stressed the strict underwriting standards are now required by FOVI from any originating bank that places FOVI funds. Throughout the interview, the continued use of consultants such as Bear, Stearns and Coopers and Lybrand emphasized the serious intentions of the government towards securitization. In fact, it was suggested that Bear, Stearns will be the brokerage house for the first issuance in the not too distant future.

INFONAVIT

INFONAVIT is following many of the steps that FOVI has initiated toward securitizing their pools of loans. They are also working with Bear, Sterns in re-vamping their underwriting practices. INFONAVIT is looking at a FASIT structure to securitize their loans, where they can substitute in good loans for bad ones. They feel that they already own the risk of these loans and that the quickest way to liquify their portfolio is to leave large reserves for substitution boosting the rating that they will receive. Then after they develop a track record, they will attempt to lower the reserve levels.

SOFOL (Su Casita Hipotecaria)

Su Casita Hipotecaria is one of the first established SOFOLs in the country. Its partners are well-known professionals in the real estate indutry and pioneers in the implementation of origination and service of mortgage loans. The Chairman of the Board of Su Casita Hipotecaria stated that a year ago they tried the first securitization, but Banco de Mexico did not let them do it. The reason is obvious: the funding comes from FOVI and the real value of the securitization is the 50% guarantees granted by FOVI, so FOVI should have a say in the securitization and the flow of funds that arises from that securitization.

Commercial Bank (Bancomer)

Bancomer is the second largest bank in the country. It has vast experience in the mortgage market and, in the last few months, has been preparing the first offering of residential MBS. Bancomer's offering is the first deal approved by the government, but it is not on the market yet because there has been a lot of recent volatility in the interest rates and the bank is trying to time an attractive going out rate. The pool of mortgages is denominated in UDIs (units of account). It contains loans restructured after the crisis of 1994 and loans that were first granted between 1991-1993 which have not been more than 60 days delinquent. The amount of the offering is US $150 million. One tranche of the offering received a double AAA rating, one from Standard & Poor's and one from Fitch. A 12 % subordination level was required. All levels below the AAA rating including the IO (interest only portion) are to be retained by Bancomer.

Bancomer has 40% of its assets in mortgages. This offering is a way of financing itself so it does not have to stop lending. For Bancomer, servicing and bad underwriting practices caused the majority of its loan portfolio problems.

Bancomer stated that the hardest obstacles to overcome in forming this securitization were:

Legal issues: mortgages originally could not be transferred without notification to the public registry, they worked with the government to pass legislation to solve this; additionally, foreclosure times are still long and repossessing the asset is expensive.

Operational issues: their old loans' values were not standard and there was not any information about the history of the loans. Because of the crisis, many loans had to be re-written in UDIs giving a constant rate of return in real terms. This was the key to allowing Bancomer the opportunity to standardize the loans and begin to trade them.

Long-term capital: long-term securities could be structured, but then there was not anybody to sell them to. With the reforms to the pension system and the further development of insurance companies, long-term investment demand is becoming available.

> "Bancomer's has worked for three years solving the above problems and their offer, if it is successful will be a great primer/test program for others to follow. It realizes the importance of the success of the secondary market moving forward."[38]

The Brokerage House (ARKA)

From a brokerage house point of view, the main issue is the development of long-term interest rate instruments. For ARKA, long-term rates are not longer than 7 years, and residential

[38] Interview. David Sanchez-Tembleque. Bancomer. June 9, 1998.

mortgages are structured on a 30-year basis. To add flexibility in the short run ARKA believes the government needs to allow financial institutions to ripple (similar to a Repurchase, "Repo" in the US) the bond issues. This means that if a financial institution, say a mortgage bank, buys some AAA or lower-rated bonds, then it can sell its bonds for a short period of time, say 60, 90 or 180 days, with the guarantee that it will buy them back at the end of the period. Thus, it is rippling a 30-year instrument for short periods of time, essentially using the purchase money from the sale of a ripple to invest short-term before buying back the bonds at a specific future date. This product change will attract other domestic investors by allowing them flexibility with this instrument.

From a brokerage perspective, another major concern with securitizing is how to address the default risk. Subordination can mitigate this risk, but it will not be eliminated. Yet, a brokerage house is the first to admit that an offering from FOVI will represent a AAA security because rating agencies and brokerage houses perceive FOVI's 50% guarantee on loans that it funds as a guarantee by the government, even if it is not (much like Fannie Mae is in the United States).

Duff & Phelps

Duff & Phelps believes that the first issue in securitizing is addressing all the inefficiencies of the primary markets carefully. Before securitizing, Duff & Phelps believes the primary markets need to be strengthened. There is no standardization of mortgages in Mexico and no good information regarding the performance of those mortgages. This represents a problem for the rating agencies because they cannot assess the risk properly and set the subordination levels appropriately.

Another problem is the property appraisal process. This problem has to do with loan to value ratios (LTV) when originating a loan. Residential mortgages depend on the value of the appraised asset to get a loan. LTV is one of the most important factors one should consider because of the effect it has on the default risk.

Another serious problem in assessing risk is the lack of housing data across the country.

> " ...unfortunately, there is no national house price index in Mexico, we don't know on a regional basis when a crisis like 1994 caused a downturn in the economy, ..., how much those house values lose in value and if there is a market for those houses, how long does it take to repossess a house, how long it takes to sell a house, ...[39]

Duff & Phelps is critical of the first residential MBS offering in Mexico by Bancomer. It believes that what Bancomer is doing is selecting the best loans to pool. This pool is going to perform well, but this does not mean that the mortgage market in Mexico will as well; it is misleading to investors. In the future investors will expect that other pools perform as well as Bancomer's. In Bancomer's deal, investors are dealing with the pool, not with the whole portfolio of mortgages.

Mexico has begun to address the issues associated with securitization. The government feels strongly that its guarantee should be very limited. They realize that to accomplish this and have a successful secondary market, a strong set of primary agents are needed to screen risk for mortgage originators and investors, especially in light of the fact that these loans will not be guaranteed outside of the low income sector. There are a lot of positive signs pointing towards

[39] Interview Marco Antonio Sotomayor Juvera. Duff & Phelps. June 12, 1998.

the success of securitization and the government is committed to developing FOVI to test the market. Mexico needs foreign investment, much like the United Kingdom achieved who sold over 80% of their securitized first offering abroad. It remains to be seen if FOVI can generate enough volume and interest based on its limited scale.

CONCLUSION

Mexico currently faces a severe housing shortage and with 65.3% of the population under thirty, demand for new home formations will be increasing dramatically.[40] Today, INFONAVIT, FOVISSSTE and FOVI are the largest providers of home mortgages in the country. As a result of the recent financial crisis conventional home mortgages from commercial banks has all but ceased.

Traditionally, FOVI was funded with resources from Banco de Mexico and, through a lesser extent, from the World Bank. Right now, FOVI is no longer being funded by Banco de Mexico. It is currently being funded by the Ministry of Finance. For this reason, it is very likely that FOVI will have to fund itself to meet demand by raising money in the capital markets. The government needs to securitize the mortgage loans to be able to reinvest much needed capital into housing and "FOVI is the logical candidate to develop a secondary market. It has both the reputation and experience in the sector to become a credible securities issuer."[41]

The ideal long run objective is to develop a secondary market which, in effect, regulates what happens in the primary market. When loan originations are made to meet the criteria set by secondary market investors it creates true efficiencies between markets. This objective can only be achieved in stages. It is then important to look at what drives the securitization process. The process is driven by the management of different risks associated with mortgages. The precondition to the development of securitizing mortgages is the creation of an infrastructure of

[40] INEGI Conteo Nacional de Poblacion y Vivienda 1995.
[41] Lea, Michael J. "Restarting Housing Finance in Mexico". Housing Finance International. December 1996.

services that manage the different elements of risk. These agents can be thought of as a set of "screens" that filter risk. For example, services such as underwriters, credit bureaus, collection houses, legal foreclosure laws each addresses different risks and their procedures to attempt to manage it. The different "screens" need to be developed and implemented in Mexico. These agents must be independent of the banking institutions to insure that no conflicts of interest exist which might hinder their development. How to encourage their development is of the utmost importance.

As a consequence of the crisis of late December, 1994, Mexico currently has a very fragile banking and financial system. If the Mexican government steps in to guarantee the mortgages without the necessary primary agents, the consequences could be devastating. The development of mature primary agents can reduce a great deal of financial exposure. The Mexican government is not in a position to "jump start" the secondary market by taking on a large amount of credit risk backing mortgages. It must develop the primary agents first to alleviate this problem and this can only be done at the primary level of mortgage origination.

Mexico is meeting the challenges of developing a secondary mortgage market. As we see with FOVI, the entire underwriting process is being scrutinized. First, FOVI is drawing-up standard loan documentation for all FOVI loans; second, they are outlining and demanding consistent underwriting standards for all SOFOL and commercial banks that make FOVI loans. Since FOVI currently guarantees 50% of the loan they are closely monitoring the new loan performance and attempting to set-up a country wide informational data base to track their history, knowing that this information is critical for future investors' analysis of the market.

Since the primary market agents are not that mature in Mexico, FOVI is closely supervising any securitization of FOVI guaranteed loans. Conflicts of interest may arise. For example, an unchecked SOFOL could securitize below market interest rate loans that were dedicated for low-income housing. Then with the capital raised from the offering, it could make less regulated investments, lending to other development projects that do not have near the regulatory discipline that FOVI is instituting for its loans. The importance of being so careful is to avoid making the same mistakes as the commercial banks which are in a difficult financial condition today, in part, because of poor underwriting which resulted in numerous bad loans. The country cannot afford the SOFOLs to duplicate these same mistakes.

Currently, some of the SOFOLs are showing signs of relaxed underwriting practices. In fact, some developers are members of the board of trustees of SOFOLs. This could lead to other conflicts of interest which has been recognized by the Ministry of Finance. Any abuses will be quickly addressed or the S&L crisis will hit Mexico as it did in the United States. If this happens, given the country's weak financial state, there will be no way out for the Mexican government. The government's close attention to any deviation from the intention of its financial policies is paramount. It is this type of commitment that will lead to renewed confidence by domestic and foreign investors.

The government is demonstrating its commitment to securitization with some of its recent financial directives. They are continuing to pursue legislation to efficiently develop securitization. Laws have been passed to facilitate the creation of mortgage pools that can be

securitized by allowing the transfer of registry titles without each home-owner having to go to the public registry to sign papers if his loan is sold. Additionally, the Ministry of Finance has begun to address the laws associated with foreclosure. They have made very positive strides in encouraging twenty three of thirty one states to pass new laws that facilitate mortgagor's rights, accelerate foreclosure, and thus lower subordination levels that would be required to cover such non-recoverable assets. Since the implementation of many of these new underwriting practices, FOVI loans that were made through SOFOLs, since mid 1995, had shown dramatic improvements in default rates. As a result of this underwrtiting criteria coupled with the better servicing provided by SOFOLs, these loans have a default rate of less than 1%.

A very important element that needs to be stressed is that the current administration is developing the foundation for permanent changes in the economic, political and social reforms that will enhance the chances for successful securitization of residential mortgages. These reforms should be insulated from future changes in governmental administrations. The population projections, the growth on the GDP, the income distribution and the improvement of the salary reforms in the future are all signals that there will be enough incentives to invest in the mortgage securities market in Mexico. To accomplish this, the authorities are contemplating to ease the arrival of foreign capital.

Today, the Central Bank wrestles with the long-term role of government in the promotion of a secondary security market. From a capital markets perspective, Banco de Mexico realizes the role of future long-term interest rate instruments as seen by its attitude toward the AFORES and the mandates it has set for their investments. As in Colombia, long-term pools of domestic

capital need to be developed to purchase securities and begin to promote the market. When Banco de Mexico passes new regulations which will allow AFORES to buy MBS then these pension funds will act partly like the Ginnie Mae, supporting the secondary market by purchasing some of the MBSs. Yet, as we saw in the United Kingdom a strong primary market combined with confidence in a country's economy can immediately attract foreign investment.

As the economy recovers, if some of the initial offerings succeed it may allow other loan pools to be securitized. The immediate future for securitizing mortgages rests on the precedent set by these new FOVI loans. FOVI services a substantial segment of the Mexican population, its new direction is an important step in legitimizing the future development of the secondary mortgage market in Mexico.

If we step back and look at the entire process one might take a different approach to the issue. The Mexican government is focused on its future role in the securitization process. The government views the issues as to what level they need to guarantee or financially support the process. We view the question as to what degree should the government regulate the process. We believe the entire lending process throughout the country should be addressed at one time, not just with FOVI.

As stated earlier, the volume that may be generated by FOVI is US $1 to $1.5 billion annually. If Mexico could bring other agencies as well as commercial banks into the fold this number could swell to US $5 to $6 billion annually. To attract foreign investors and successfully launch a secondary market we believe that the size of the volume is critical to spur immediate interest

from the foreign markets, (most notably its largest neighbor just north of its border). Mexico needs foreign capital desperately for the same reasons as Colombia because the inefficiencies of the capital markets. As seen in Colombia trying to create a sizable secondary market is a slow tedious process without foreign capital. The best chance to attract foreign interest is volume. Wall Street is quickly depleting its current sources of new product. Today, the CMBS market has outpaced all expectations. The growth of this market is leveling off. The CMO structure used in many of these issuances is ideal for Mexico. It enables the tranching of risk classes and the ability to sell them to different types of investors. In fact the Mexican government can participate and promote the market by buying some of the riskier class securities which, in a sense, they already hold.

Quickly creating a level of proficiency in the residential primary markets in Mexico will allow continuity in the mortgage product. To accomplish this changes must be made on a national level. This may first appear to be impractical but lets first look at the issues. In the United Kingdom the mortgage banks teamed up with Solomon Brothers International and formed an entity, solely for the purpose of originating loans for the securitization. In Russia, thirty of the leading banks are working with Ginnie Mae to develop consistent primary market practices, whether addressing origination methods or underwriting criteria. In Russia, these issues are being addressed in anticipation of the secondary market. If Mexico addresses its fragile mortgage system, as seen by the lack of national mortgage data, weak appraisal practices, poor servicers, etc., on a national scale, the by product of these new policies could be beneficial in many areas. Mexico should require banks and all lending institutions to follow the same procedures and guidelines.

There are two potential problems with this approach. Many scholars feel that the primary market agents must be developed and tested by the market, but we do not agree. Mexico has plenty of examples to learn from, studying the United States system can easily demonstrate the problems that must be addressed initially. In fact FOVI is using Wall Street advisors today from the United States. The second problem is what to do if this approach fails. What if Mexico changes all its lending practices and systems, but fails to achieve a secondary market? If Mexico regulates underwriting practices nation wide; if they promote the creation of indexes for tracking property values; if they require all the participants in the process to follow the same regulations; this can only be beneficial to their economy regardless of whether it leads to securitization. In fact, poor underwriting caused many of the financial issues faced by Mexico today. The issues that need to be addressed are as straightforward as the process itself. Lend money to an entity that has the most likely chance to repay it. Further research is needed to ascertain the current purchasing power and stability of Mexican households by income classes.

If Mexico makes sweeping national changes in a consistent manner, it can only instill confidence to investors. Government regulation should and can be viewed as a positive. In the United States, the intervention of the government with the FHA and Ginnie Mae has lead to the wealthiest middle class in the world. At the same time, in the early 1980's, the government, deregulated the banking system, encourage competition, but by guaranteeing deposits to a larger extent misplaced the liability and responsibility of the Savings and Loans. In a sense, its efforts to be less controlling over the industry, resulted in the S&L crisis and one of the largest bailouts in history.

A controlled, consistent, systematic, regulated approach can do more to instill investor confidence than promoting a recovering economy or guaranteeing a loan product. The investor wants to know exactly what he is buying. Any primary market agents and/or originating practices that achieve this should be pursued.

Concluding thought (the simple objective):

> *The theory for such a secondary market, in Mexico would be to package these loans into pools and securitize them. The money received will be rolled over into new lending. This ultimately, in a mature, efficient, secondary market would drop interest rates and make the cost of owning a house more affordable. Furthermore, a secondary market will increase the supply of capital allocated to housing.*

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