FINANCING DEVELOPMENT OF MULTIFAMILY LOW INCOME RENTAL HOUSING IN BOGOTÁ, COLOMBIA

by

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ABSTRACT

One of the most important social problems in Colombia is the shortage of adequate affordable housing for the low income households. By the year 2000, Bogotá alone had a housing shortage of about 540 thousand houses concentrated mainly on the three lower socioeconomic levels which represented 86% of the population of the city. As a response to the problem, the central government has traditionally supported the ownership of affordable housing through direct subsidies granted to qualifying low income households. However, given the constraints in the resources of capital available in the country, and the magnitude of the problem, the government support has only been able to solve part of the housing needs of low income families. The promotion of low income rental housing is an alternative that combined with the traditional support for home ownership will better serve the housing needs of the low income households in the country. This thesis aims to analyze the financial feasibility of the development of low income rental housing in the country by analyzing the case of Bogotá.

Based on an analysis of the American affordable rental housing policy, the thesis suggests a mechanism of government subsidies for the development of low income rental housing in the country. Through innovations in the capital markets in the United States, the government has been able to attract private equity for the promotion of affordable rental housing. Based on the Low Income Housing Tax Credit program in the United States, the thesis develops a financial model in order to assess the level of support that the central government in Colombia would have to provide to turn the development of affordable rental housing attractive to private investors.

The thesis concludes that by leveraging private capital, the Colombian government could promote the development of low income rental housing in the country. It finally recommends a new scheme for low income housing subsidies that will attract private equity for the promotion of both ownership and rental low income housing.

Thesis Supervisor: Fred Moavenzadeh
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INTRODUCTION

Given the shortage of affordable housing in Colombia, the central government has supported the ownership of low income housing through subsidies given to qualifying low income households. However, there are many low income families that even with the subsidy of the government are not able to acquire a house and are forced to live in rental housing. For instance, in Bogotá 61% of the low income families live in rental housing.[1] Nevertheless, the Colombian government doesn't have a policy to promote the development of low income rental housing in the country. This thesis aims to analyze the feasibility of a program that would promote the development of affordable housing in Colombia. Specifically, it analyzes the case of Bogotá and its main objective is to find out the government's level of support needed in order to turn this activity attractive for private investors. Based on the results of the analyses, it will assess the viability of the development of low income rental housing in Colombia. It will propose a program that combined with the current government support for affordable housing ownership would better serve the housing needs of low income households and it would constitute a more comprehensive housing policy in the country.

The first chapter of the thesis presents the current condition of the low income housing industry in Bogotá. It explains the magnitude of the problem and the efforts of the government in order to alleviate it. It describes the scheme used by MetroVivienda, a state owned industrial and commercial company created in Bogotá in order to promote the development of low income housing. The current scheme of the central government housing subsidies is also portrayed. Finally, it presents the development of low income rental housing as an alternative to serve the housing needs of the low income families in the country.

Chapter two looks at the financial innovations in the real estate industry in the United States. Low income multifamily rental housing properties are part of the real estate

[1] Economistas Urbanos Asociados Ltda., 2002, Bogotá.

industry. Hence, it is important to understand and review the financial mechanisms that have allowed the real estate industry to access greater and more efficient sources of capital. In the debt markets it reviews the development of the commercial mortgage backed securities market and in the equity market it analyzes the development of the real estate investment trusts.

Chapter three presents an analysis of the Low Income Housing Tax Credit (LIHTC) program used in the United Stated to promote the development of affordable rental housing. The LIHTC program has been the most successful policy for the promotion of affordable housing in the United States. Since the beginning of the program in 1986, it has promoted more that 1.2 million low income rental housing units. The program has been able to successfully bring together private equity investors, lenders, private developers and state agencies in order to produce affordable rental housing.

Based on the main concepts of the LIHTC program employed in the United States, chapter four evaluates the government's level of support needed in order to turn the development of low income rental housing attractive for private investors in Colombia. The analysis is focused in the current conditions of Bogotá.

Although this thesis is about financing low income rental housing, after the analysis of the LIHTC program, it is evident that with some alterations the program could also be used to subsidy the ownership of low income housing in Colombia. Chapter five will lay out those basic adjustments to the LIHTC program and will propose a new scheme of subsidies in the country.

The thesis concludes that by leveraging private capital, the Colombian government could promote both the ownership and the rental of low income housing in the country.

CHAPTER ONE – LOW INCOME HOUSING INDUSTRY IN BOGOTA

1.1 Review of the Present Condition

Housing is one of the most critical social problems in Bogotá, the capital of the Colombia. In the year 2000, Bogotá was a city of approximately 6.5 million inhabitants. It had 1.68 million homes, 3.85 persons per home, and only 1.14 million housing units[2]. Thus, there was a housing shortage of about 540 thousand houses. The deficit can be also expressed using an index of 1.48 homes per house. Furthermore, this shortage is focused in the low income population of the city. 96% of the deficit is on the three lower socioeconomic levels which represent 86% of the population.

Table 1.1
Socioeconomic Characterization of Bogotá (Figures in thousands – Year 2000)

SOCIO ECONOMIC LEVEL	INCOME	POPULATION		HOUSING UNITS		HOMES		SHORTAGE		
	Monthly Minimum Wage	No.	%	No.	%	No	%	No	%	Relative
1	< 1	423	6.5%	76	6.7%	94	5.6%	18	3.3%	19.4%
2	1 - 3	2,318	35.7%	366	32.2%	630	37.4%	264	48.6%	41.9%
3	3 - 5	2,854	44.0%	469	41.2%	708	42.1%	240	44.0%	33.8%
4	5 - 8	488	7.5%	129	11.3%	141	8.4%	13	2.2%	8.9%
5	8 - 16	194	3.0%	42	3.7%	49	2.9%	7	1.2%	14.1%
6	>16	140	2.2%	43	3.8%	42	2.5%	(0)	-0.1%	-1.1%
		68	1.0%	14	1.2%	18	1.1%	4	0.8%	23.0%
TOTAL		6,484	100.0%	1,138	100.0%	1,683	100.0%	545	100.0%	32.4%

Source: DAPD. Economic Sub direction. Bogotá.

The Administrative Department of Planning of Bogotá (DAPD in Spanish) established in 2000 the goal of reducing the housing shortage from a deficit of 1.48 to 1.37 homes per house by the year 2010. According to DAPD projections, the city will have a population of approximately 8.1 million by 2010. Meanwhile, homes will increase more than proportionally to population since it is expected that the average size of homes will decrease from 3.85 to 3.74 persons per home (Table 1.2). Hence, in order to achieve this goal, the city needs to build 44,000 units per year during the current decade. Given the

[2] Projections DAPD, Technical Document support to POT 2000.

income distribution of the city, approximately 38,000 units should correspond to low income housing.

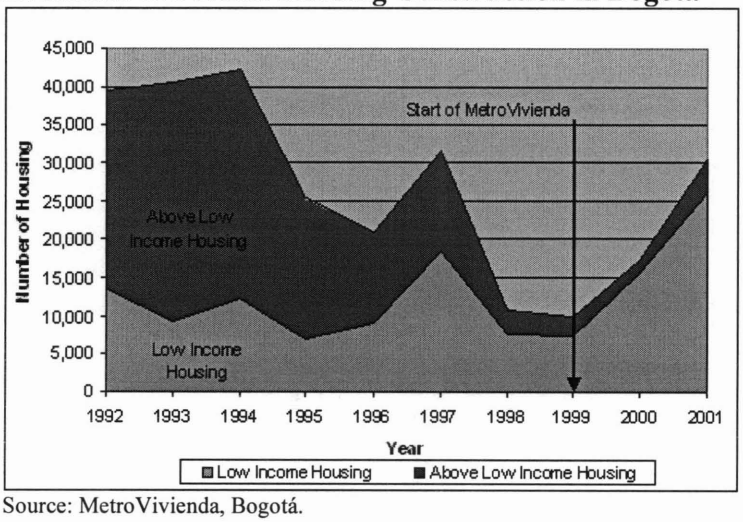
Table1.2
Projections of Population, Homes and Housing for Bogotá

Year	Population	Homes	Pesons per Home	Houses	Persons per House	Homes per House (Deficit)	Absolute Deficit (Houses)
2000	6,484,967	1,683,267	3.85	1,138,465	5.70	1.48	544,802
2001	6,637,212	1,729,507	3.84	1,182,545	5.61	1.46	546,962
2002	6,793,032	1,777,017	3.82	1,226,625	5.54	1.45	550,392
2003	6,952,510	1,825,832	3.81	1,270,705	5.47	1.44	555,127
2004	7,115,731	1,875,988	3.79	1,314,784	5.41	1.43	561,204
2005	7,282,785	1,927,522	3.78	1,358,864	5.36	1.42	568,658
2006	7,437,431	1,972,579	3.77	1,402,944	5.30	1.41	569,635
2007	7,595,362	2,018,690	3.76	1,447,024	5.25	1.40	571,666
2008	7,756,645	2,065,879	3.75	1,491,104	5.20	1.39	574,775
2009	7,921,354	2,114,170	3.75	1,535,184	5.16	1.38	578,986
2010	8,089,560	2,163,591	3.74	1,579,264	5.12	1.37	584,327

Source: DAPD, Technical Document support to POT 2000.

However, historically the formal construction sector in the city hasn't matched this requirement. During the 90s, the construction of low income housing by the formal sector average 10,600 units per year. This figure was well below the required goal of 38,000. Since 2000, a new trend in the formal construction in Bogotá has emerged; As seen in figure 1.1 below the construction on low income housing has risen considerably but still misses the city's administration goal by more that 12,000 units.

Figure 1.1
Evolution of Formal Housing Construction in Bogotá



Source: MetroVivienda, Bogotá.

There are several constraints that limit the supply of low income housing in Bogotá by the formal sector making it impossible to keep up with the demand. The main issues are related to low profit margins in the development of affordable housing and the complicated and long bureaucratic processes before actual construction. In Bogotá, it could take up to fours years between the beginning of a new project and its final sale making developments very costly and risky. During this time, not only costs were incurred, but also urbanism norms could change altering, and in some cases, ending the viability of a project.[3]

1.2 MetroVivienda

On December of 1998, the city council of Bogotá created MetroVivienda, a state owned industrial and commercial company, in order to promote the development of low income housing in the city. It would aim to reduce the problems describe above among others. Part of the new trend in the construction of formal housing in Bogotá towards affordable units since the year 2000 as seen in figure 1.1 can be attributable to the work of MetroVivienda.

The company is an example of a local government initiative to support the supply of affordable housing in Bogotá. MetroVivienda promotes large scale low income housing developments with an average size of 100 hectares and 10.000 houses per project. The company acts as a second floor real estate developer under a structure with several advantages. Essentially, it acquires large pieces of undeveloped land, builds the main infrastructure and high quality secondary urbanism, and sells urbanized land to private developers that in turn build low income housing units at a determined maximum price. The price of urbanized land doesn't include the added value that a private developer would include due to the process of urbanization. As a consequence, the final buyer of a house obtains an implicit subsidy of the city.

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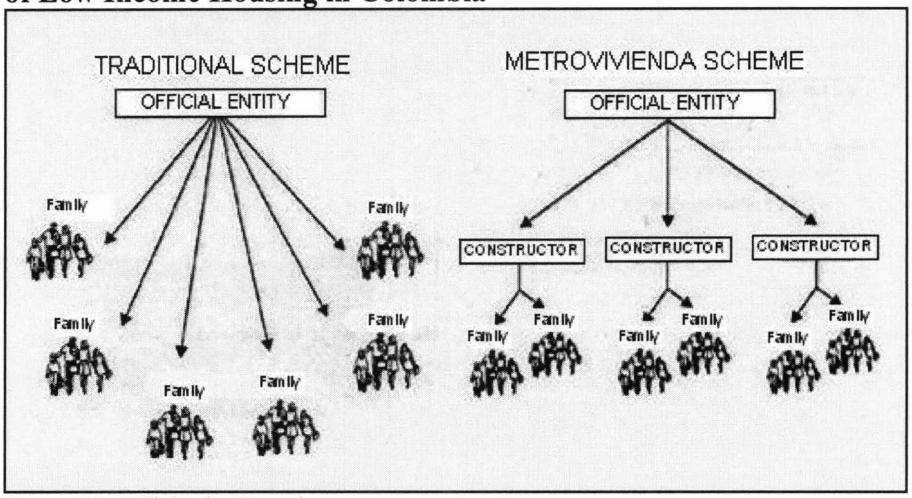
[3] MetroVivienda, Alcaldía Mayor de Bogotá, D.C. "Ciudadela El Recreo, Memorial del modelo de gestión de MetroVivienda", Bogotá, 2002.

Figure 1.2
Schemes of Government Support to the Supply of Low Income Housing in Colombia



Source: MetroVivienda , Bogotá.

Figure 1.2 presents the structure of the traditional scheme of government support to the supply of affordable housing in Colombia and the scheme used by MetroVivienda. The second floor real estate developer structure used by MetroVivienda has several advantages over the traditional scheme:

- Investment per unit: Under the traditional scheme the government would finance the construction of each housing unit, while in MetroVivienda's scheme government resources finance only the acquisition and the urbanization of land. The investment per unit under the new scheme is five times less than in the traditional scheme.
- Capital rotation: In MetroVivienda's scheme the average time to recover the government investment is four times faster that in the traditional system. The duration of one of MetroVivienda's project is around five years and the average time to recover the capital invested is 2-2.5 years while in the traditional scheme this time is in average 8-10 years. This means that in a given period of time MetroVivienda can promote four times more houses that the traditional system.
- Credit Recovery: Historically, in Colombia, residential mortgages issued directly by the government to low income families only have recovered approximately 40% of the capital. Under MetroVivienda's scheme, the urbanized land is sold directly to private developers whose payments have bank guarantees. Because of this,

MetroVivienda's credit recovery risk is substantially limited. In this case the new system is 2.5 times more efficient.

Other advantages of the scheme of MetroVivienda include:

- The company is financially self sustainable. Beside its initial capitalization, it doesn't require transfer of additional government resources.
- Captures the added value of urbanism and transfers it to low income families.
- Generates economies of scale in the use of infrastructure.
- It has low operating expenses equivalent to approximately 1.2% of investment.
- It prevents the development of illegal housing and saves to the city $2,850 dollars per house in costs related to the upgrade of illegal settlements.
- Overcomes the judicial division of rural land as determinant of the urban form.
- Decreases the risk and time of the construction of low income housing for private developers.
- Prevents corruption related to housing awards by public officials.

MetroVivienda has been a success in public low income housing policy in Bogotá. Since its creation it has initiated projects with a potential for approximately 35,000 new houses. In its first project, Ciudadela El Recreo, there are already 4,320 houses sold benefiting more than 21,000 persons directly.[4]

Table 1.3
Characteristics of MetroVivienda's Projects

Project	Area	Low Income Housing Units	Benefited Population
Ciudadela El Recreo	115	10,500	40,950
Ciudadela El Porvenir	132	12,500	48,750
Ciudadela Usme	65	6,000	23,400
Ciudadela Campo Verde	65	6,000	23,400
Total	377	35,000	136,500

Source: MetroVivienda, 2003.

[4] MetroVivienda, Seminario de Oportunidades de Inversión en la Ciudad y en los Proyectos de MetroVivienda, January 2003, Bogotá.

1.3 Government Subsidies

The success in the promotion of affordable housing of MetroVivienda and the new trend of private developers towards the construction of low income housing since 2000 has increased the pressure in other constraints in the construction of this type of developments. Particularly, there has been a shortage of government direct subsidies to the demand. In Colombia, the central government grants subsidies to buyers of affordable housing of a certain amount of money that can be used to buy housing of a specified maximum price. The main factor in order to qualify to obtain a subsidy is the level of income of the beneficiary. Table1.4 shows the value of the subsidies per each category according to the price of the housing unit.

Table 1.4
Direct Subsidies to Low Income Housing in Colombia[5]

House Price		Subsidy	
Colombian Pesos	US Dollars	Colombian Pesos	US Dollars
Up to $16,600,000	Up to $5,672	$7,636,000	$2,609
From $16'600.000 to $33'200.000	From $5,672 to $11,345	$5,312,000	$1,815
From $33,200,000 to $44,820,000	From $11,345 to $15,315	$3,320,000	$1,134

Source: MetroVivienda, Bogotá.

The country has two different sources of capital for subsidies. Each one covers two different sectors of the economy. The formal sector employees are covered by subsidies from social security funds. These funds finance themselves to contributions from employers and withholdings from payroll of employees in the formal economy. The second source of capital for low income housing subsidies aims to cover families in the informal sector of the economy. The central government sets a budget annually for low income housing subsidies. This budget is allocated to the different regions of the country based on several factors. Table 1.5 shows the annual availability of subsidies from the central government and the social security funds for Bogotá for the last couple of years. It is projected that 16,600 subsidies will be available for 2003. This number is insufficient if we take into account that the goal of the city is to build 38,000 low income

[5] Colombian peso exchange rate: 2,926.46 pesos per dollar, January 2003.

housing units in order to reduce the housing deficit. In the future, the availability of subsidies will be one of the major constraints in the development of low income housing in Bogotá if supply by the formal sector continues the trend of the last three years. Hence, it is necessary to implement new and more efficient mechanisms for the use of the limited resources that the government has for subsidies of low income housing.

Table 1.5
Low Income Housing Subsidies for Bogotá

	2000	2001	2002	2003p
Social Security Funds				
Subsidies Available for approval	15,300	17,700	19,600	15,000
Subsidies Assigned	14,900	24,200	21,700	
Subsidies not Used	2,232	3,779	4,250	
Approximate Central Government Allocation	1,600	1,600	1,600	1,600
Total Subsidies Available	**16,900**	**19,300**	**21,200**	**16,600**

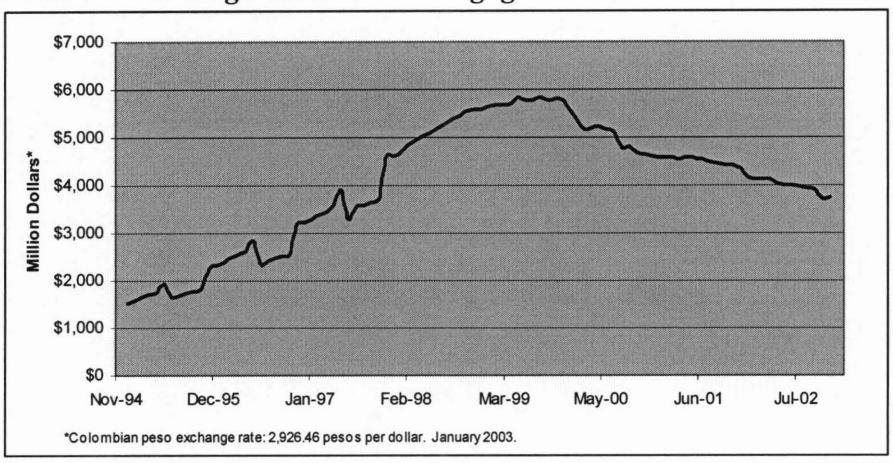
Source: CAMACOL, MetroVivienda, 2003.

1.4 Access to Credit of the Low Income Population

One of the big concerns that housing policy makers face nowadays in Colombia is the limited access to credit by the informal sector of the low income population of the country. In Colombia there is a well establish residential mortgage market with a history of more that 30 years. The current outstanding residential mortgages are valued over $3.7 billon dollars representing 22% of the total credit in the Colombian economy.[6] In the last couple years the development of the secondary residential mortgage market has emerged in the country and it is expected that the economy will experience in the near future the benefits that other economies have had with the emergence of such markets. In 2002, La Titularizadora Colombiana, a private company, issued approximately $364 million dollars of residential mortgage backed securities. Out of this value, approximately $101 million dollars, equivalent to 28% of the issuance, were backed by low income housing mortgages.[7]

[6] Superintendencia Bancaria, Bogotá, 2003.
[7] Titularizadora Colombiana S.A., Bogotá, 2003.

Figure 1.3
Total Outstanding Residential Mortgages in Colombia



Source: Superintendencia Bancaria, Bogotá, 2003.

However, access to credit is limited in general to the formal sector of the economy. Families in the informal sector find it difficult to find financing to acquire affordable housing. For instance, in the projects of MetroVivienda, only 8% of the buyers of new houses belonged to the informal sector.[8] Ironically, the income of these families, in many cases, is higher than that of formal sector low income comparable families. However, they rarely have credit history or a formal employer that will guarantee the stability required by financial institutions to give out residential mortgages. This is an important issue that has to be dealt with in order to improve the access of low income families to housing.

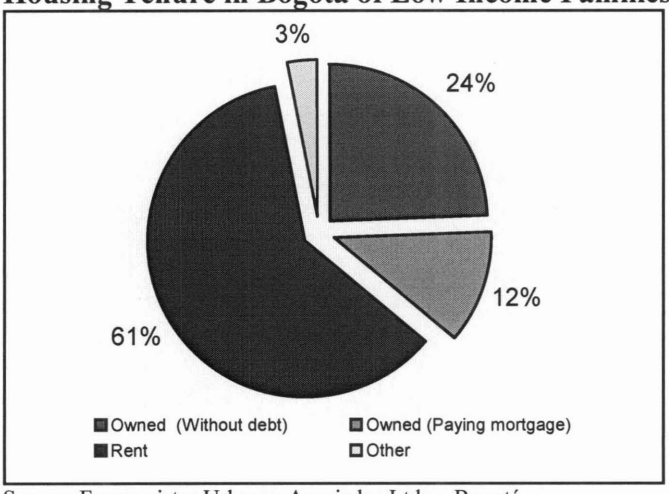
1.5 Multifamily Low Income Rental Housing in Colombia

The previous analysis presents the magnitude of the housing problem in Colombia and makes it evident that new approaches have to be considered to work in conjunction with the ones that are already under way. The traditional approach to solve the housing problem in Colombia has been to promote ownership. However, another viable alternative, which hasn't yet been encouraged by the government, is the promotion of multifamily low income rental housing. As seen in figure 1.4, in Bogotá 61% of the low income families live in rental housing. This constitutes an important portion of the

[8] MetroVivienda Staff, Bogotá, 2003.

population and as such, a policy that endeavors to promote and regulate this form of tenure in large scale should also be addressed in the country.

Figure1.4
Housing Tenure in Bogotá of Low Income Families



Source: Economistas Urbanos Asociados Ltda. , Bogotá.

The promotion of multifamily low income rental housing has several advantages over the traditional ownership approach and combined would constitute a better and more efficient housing policy for the country.

- As analyzed in chapter four, by supporting the development of low income multifamily rental housing, the government can promote a greater number of affordable housing units using the same amount of money on subsidies per year based on the new subsidies scheme proposed to implement in Colombia in this document.
- Low income families need to save a down payment of at least 10% of the value of the house in order to be eligible to buy a new home. These families spent years to be able to save for the down payment of a house while still paying rent and in many cases prevents them form acquiring a home. In a low income multifamily rental development families would not need the down payment and still solve their housing needs.
- Furthermore, in a well structured multifamily low income rental housing program, families in the informal sector of the economy, could built their credit history while

paying their rent so that in the future they could apply for a mortgage if they decided to choose to buy a house.

Encouraging the development of multifamily low income rental housing as a new alternative to reduce the housing problem in Colombia, would help to diminish this big social problem and spur economic development through an increased in the construction activity and the establishment of the income producing real estate as an industry in the country.

CHAPTER TWO - INNOVATION IN THE FINANCING OF REAL ESTATE IN THE UNITED STATES

Low income multifamily rental housing properties are part of the real estate industry in the United States. Hence, it is important to understand and review the financial mechanisms that have allowed the real estate industry to access greater and more efficient sources of capital. The real estate industry in the United States is very mature and nowadays relies on the capital markets for its financing needs. This has allowed for innovation in the financing of multifamily housing and has brought several benefits to the real estate industry. This chapter will review the major innovations in the traditional financing needs of an income producing real estate property. In the debt markets it will review the development of the commercial mortgage backed securities market and in the equity market will analyze the development of the real estate investment trusts.

2.1 Commercial Mortgage Backed Securities

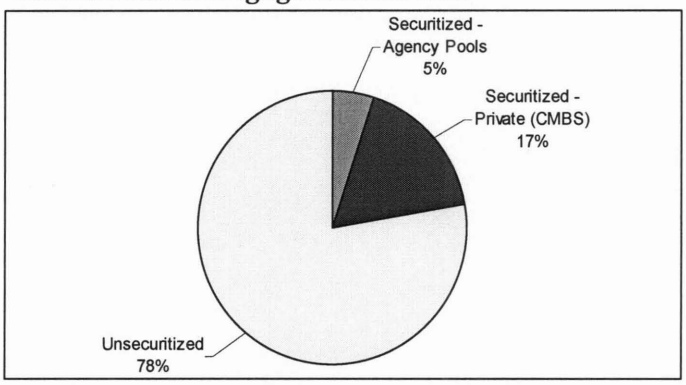
A typical real estate project funds its development phase through a construction loan and then converts it into a commercial mortgage for its stabilized phase. Traditional lenders of commercial mortgages include commercial banks, insurance companies, thrifts and pension funds. One of the most interesting developments in the real estate industry in the last decade has been the appearance of a secondary market for commercial mortgages through a process called securitization. Commercial Mortgage Backed Securities (CMBS) are issued against commercial mortgages by investment banks and other major financial institutions. "CMBS provide a new and in some respects more efficient source of capital for commercial real estate, and they offer investors in the bond market a variety of new securities that can serve different types of investment needs and concerns"[9]

The total outstanding commercial mortgages as of the first quarter of 2002 totaled $1.8 trillion. Private CMBS account for $298 billion equivalent to 17% of the market.

[9] Geltner David, Miller Norman. "Commercial real estate analysis and investments", University of Cincinnati, South-Western Thomson Learning, 2001.

Additionally, there were $84 billion, equivalent to 5% of the market, held by government sponsored agencies (GSEs), Federal National Mortgage Association (Fannie Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac). In 2002, CMBS accounted for 58% of new permanent debt issued ($66 billion of an estimated $114 billion).[10]

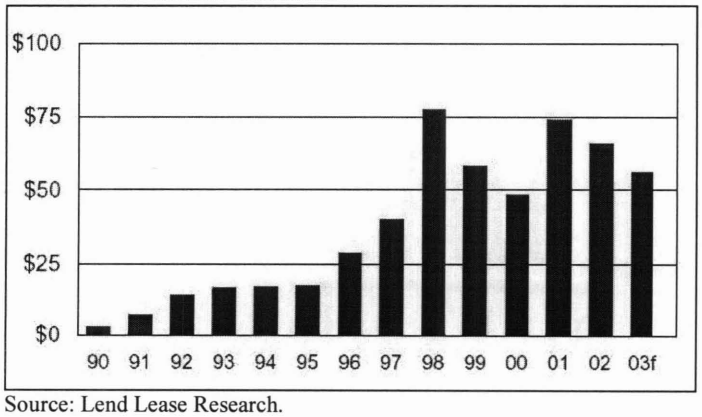
Figure 2.1
Commercial Mortgage Market Size



Source: Federal Reserve System for 1Q02. Includes multi-family mortgages.

The CMBS issuance has grown greatly over the last decade and has gained an important role in the commercial mortgage industry. In 1990 the private CMBS annual issuance totaled $5 billion and accounted for only 1% of the total commercial mortgage outstanding. In 1998 CMBS annual issuance peaked and reached over 20% of the total debt outstanding.

Figure 2.2
Historical CMBS Issuance



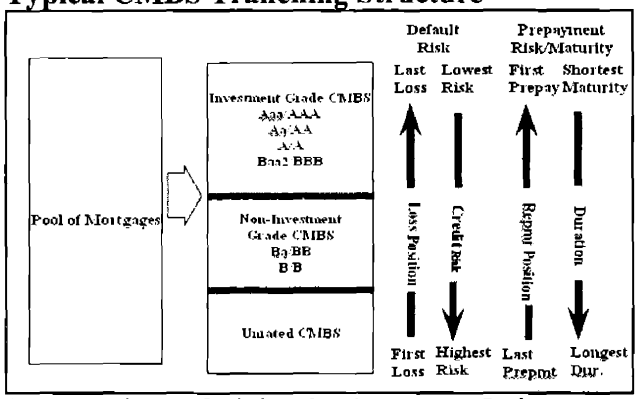
Source: Lend Lease Research.

[10] Source: Commercial Mortgage Alert.

"Based on the history of mortgage securitization in the residential sector nearly two decades earlier, it seems likely that the role of the CMBS in the commercial mortgage industry will continue to increase in the 21st century".[11] Nowadays, CMBS is a major source of debt financing for multifamily developments. Between 1997 and 2002 multifamily commercial mortgages have averaged 20% of the annual private CMBS issuance.[12] Furthermore, government sponsored agencies, whose mission is to provide funding for residential housing, have issued multifamily loan securitizations since 1985 and currently continue to be heavily involved.

CMBS securities provide claims to the cash flows of the underlying mortgages in real estate income producing properties. Issuers of CMBS group several commercial mortgages and create different classes of securities, known as tranches, by dividing the loan pool and assigning each tranche different characteristics. Each tranche is assigned a certain priority of claim of the cash flows produced by the loan pool. The claim priority takes into account the prepayment risk and the default risk of the securities. Commercial mortgages have prepayment protections, so the prepayment risk of CMBS securities is mitigated by the protection of the underlying mortgages. Default risk is reduced to certain tranches by assigning credit losses sequentially to the different tranches. These risks are assigned to the different tranches as shown in figure 2.3.

Figure 2.3
Typical CMBS Tranching Structure

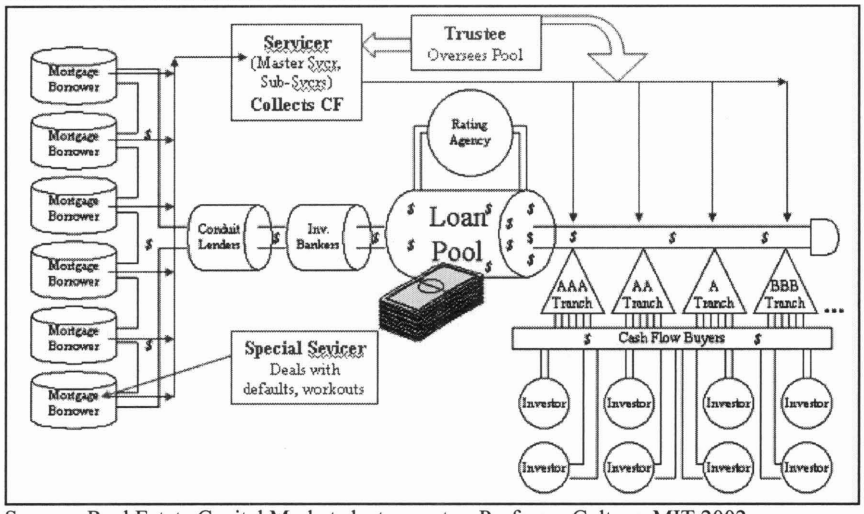


Source: Real Estate Capital Markets lecture notes, Professor Geltner, MIT 2002.

[11] Geltner David, Miller Norman.
[12] Lend Lease Research. 2003.

After the tranching is been established by the issuer, the whole loan, and specifically each tranche, is rated by the rating agencies. Investors in the bond market acquired securities in the different tranches of the pool with different risk and return characteristics. In essence, the capital flows from the capital markets to the real estate investors; in return investors in the capital markets obtain coupon payments on their securities backed by the cash flows of the underlying income producing properties. In the middle, there are different agents such as investment banks, rating agencies, trustees, and master and special servicers among others, that link the capital markets to the real estate investors.

Figure 2.4
CMBS Securitization Process



Source: Real Estate Capital Markets lecture notes, Professor Geltner, MIT 2002

The bottom line is that by securitizing the loan pool using the tranching system described above the issuer creates value out of the pool of mortgages. The value of the CMBS issuance is greater than the market value of the underlying mortgages. Part of the reason why this occurs "is that the greater variety of securities in the CMBS tranches may be more useful to investors of different types than the undifferentiated whole loans".[13]

CMBS securities trade in an active secondary market that has emerged bringing greater security and liquidity to buyers of new issuance. Table 2.1 compares the current spreads of CMBS and corporate bonds over 10 year treasuries. The gap between CMBS and

[13] Geltner David, Miller Norman.

corporate bonds has narrowed over the past few years as a result of CMBS market maturation, more liquidity in CMBS and higher default risk in the corporate bond market. Higher-rated corporate bonds still trade at tighter spreads than CMBS. However, BBBs and BBs are very comparable today. Most industry experts believe that spreads are more likely to widen modestly in the near term than tighten.

Table 2.1
CMBS and Corporate Spreads

	CMBS Over 10-Yr Treasuries	CMBS Over Swaps	Corp. Industrials 10-Yr Over Treasuries	Corp. Industrials 10-Year Over Libor
AAA	84	43	83	42
AA	94	53	89	48
A	104	63	106	65
BBB	173	132	160	119
BB	450	409	461	420
B	950	909	840	799

Source: Morgan Stanley Dean Witter. Spreads as of 02/28/03.

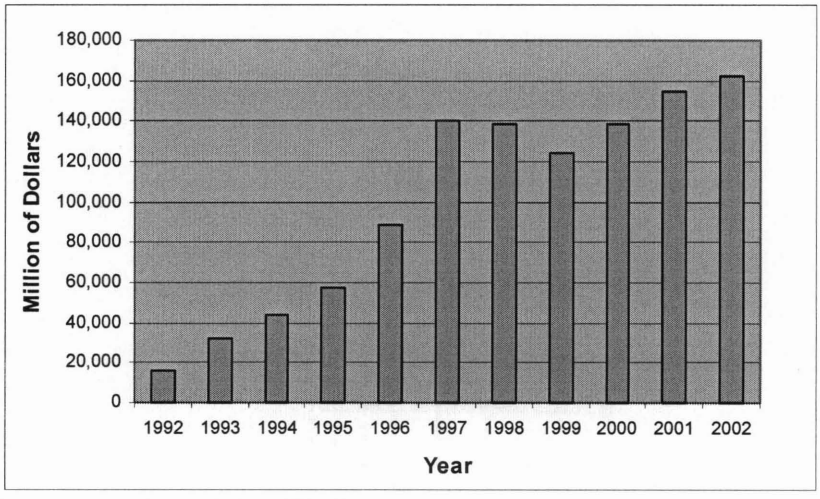
CMBS represent a major innovation in the capital markets that benefits real estate investors among others by reducing the costs of financing and by increasing the sources of debt financing for real estate income producing properties.

2.2 Real Estate Investment Trusts

The equity markets for real estate have also experimented great changes and advances in the last decade. Real Estate Investment Trusts (REITs) represent the access of the real estate industry to the equity capital markets. A REIT is a publicly traded company that owns and in most cases operates income producing real estate properties such as offices, multifamily developments, shopping centers, hotels and industrial properties. REITs are allowed to deduct dividends paid to its shareholders from their corporate income tax. Consequently, most REITs transfer 100% of their taxable income to their shareholders and therefore don't owe corporate tax. Shareholders pay taxes on the dividends they receive and on capital gains on their stock. As a regulation, REITs must distribute at least 90% of their taxable income to their shareholders.

REITs were created in 1960 by the US Congress in order to make investments in large scale income producing real estate properties accessible to small investors. Historically, real estate investments had been limited to pension funds, insurance companies and wealthy individuals. In principle, small investors could invest in commercial real estate through the stock markets by investing in REITs, very similar to the way that mutual funds allow small investors to hold diversified portfolios of individual stocks. Although REITs were created in 1960, it was not until the last decade that the REITs market place grew substantially. There were several factors that promoted the growth of REITs during the nineties. The real estate industry endured a depression during the early nineties as a combined consequence of overbuilding during the eighties, the Tax Reform Act of 1986, and the savings and loan crisis. As a result, capital sources for the real estate industry became largely unavailable. By the time the fundamentals of the real estate industry had recovered and that investors were again ready to invest in new properties, many private real estate companies decided that the best and most efficient way to access capital was through the public marketplace using REITs. As seen in figure 2.5, equity market capitalization of publicly held REITs have increased by more than ten times from 1992 to 2002.

Figure 2.5
Equity Market Capitalization of Publicly Held REITS



Source: National Association of Real Estate Investment Trusts.

"The REIT story is an economic success story. ... They have made accessibility to income-producing commercial real estate a reality for all investors. And their liquidity enables investors to buy or sell shares of diversified portfolios of properties from shopping malls to apartment complexes."[14]

Currently, there are nearly 300 REITs operating in the United States. About two thirds of the REITs are publicly held and trade on the national stock exchanges:

- New York Stock Exchange - 149 REITs
- American Stock Exchange - 27 REITs
- NASDAQ National Market System - 12 REITs

Table 2.2
Constituent Companies NAREIT Index (January 1, 2003)

Number of REITs	Company	Equity Market Capitalization Millions of dollars	Percent of Total
	Summary by Property Sector and Subsector		
35	**Industrial/Office**	**46,677**	**28.7%**
20	Office	27,567	17.0%
8	Industrial	10,078	6.2%
7	Mixed	9,032	5.6%
39	**Retail**	**39,520**	**24.3%**
24	Shopping Centers	18,701	11.5%
9	Regional Malls	17,960	11.1%
6	Free Standing	2,859	1.8%
25	**Residential**	**29,439**	**18.1%**
20	Apartments	27,266	16.8%
5	Manufactured Homes	2,173	1.3%
19	Diversified	12,972	8.0%
16	Lodging/Resorts	7,643	4.7%
3	Self Storage	5,234	3.2%
13	Health Care	7,926	4.9%
7	Specialty	5,776	3.6%
20	Mortgage	7,199	4.4%
13	Home Financing	5,171	3.2%
7	Commercial Financing	2,027	1.2%
177	**Industry Totals**	162,386	100.0%

Source: National Association of Real Estate Investment Trusts.

Table 2.2 presents the constituent companies of the NAREIT index as of January 2003. NAREIT is the national trade association for real estate companies. REITs can be

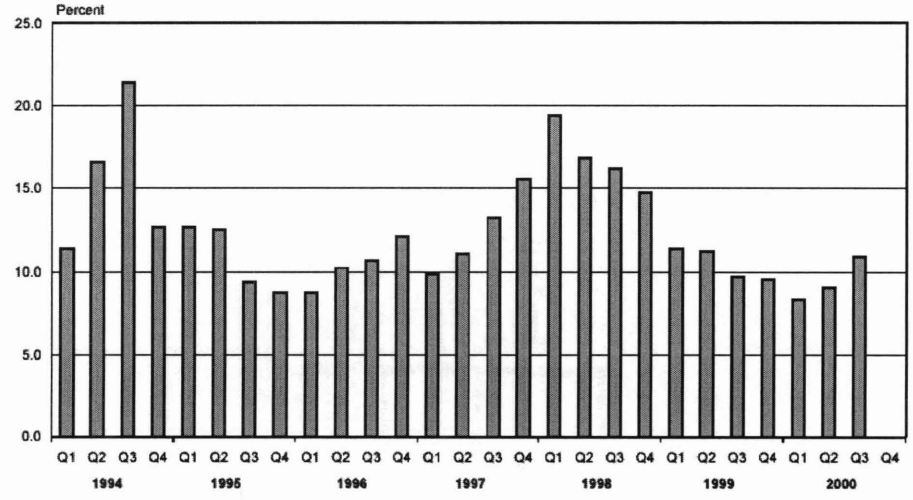
[14] U.S. Representative Ben Cardin (D-MD).

classified by the property type in which they invest. REITs investing in multifamily developments are an important portion of the REITs market. Residential REITs represent 18.1% of the equity market capitalization of the NAREIT index.

Investing in REITs

As in any other publicly held company, a measure of earnings and the projection of their future behavior is very important to estimate a value for the company. REITs report their financial results including net income and earnings per share like any other public company using general accepted accounting principles (GAAP). Under GAAP requirements, commercial property owners must depreciate the cost of their properties to zero even though well maintained properties continue have a high value even after 20, 30 or 40 years. Thus, EPS which is the traditional GAAP measure of net income is considered by most REITs analyst to be inappropriate to value real estate companies since large depreciation charges tend to overstate expenses and understate earnings. In 1991, NAREIT adopted an alternative measure of earnings for REITs that does not have this drawback. Funds from Operation (FFO) is equal to a REIT's net income, excluding gains or losses from sales of property, and adding back real estate depreciation.

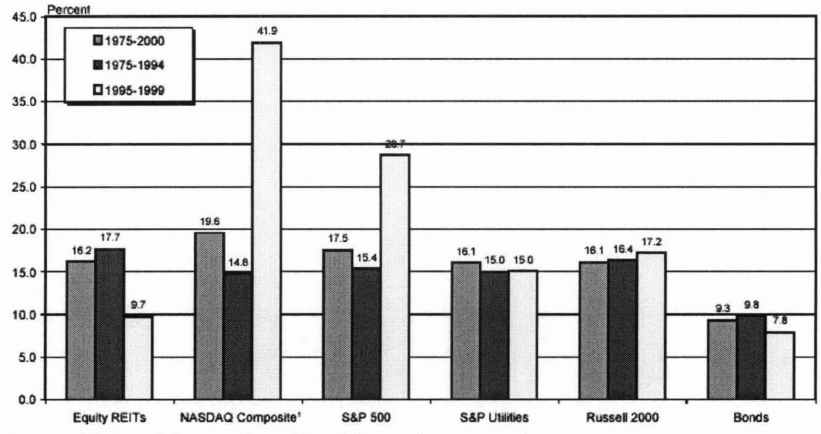
Figure 2.6
REIT FFO per Share Growth (Year over year growth by quarter)



Source: National Association of Real Estate Investment Trusts.

REITs have had an impressive record of growth in FFO over the last several years. Figure 2.6 presents REIT's FFO per share growth year over year by quarter. Stable growth over the years has attracted more investors into REITs. Since REITs are required to payout 90% of its taxable income to their shareholders, returns to investors in REITs come principally from the high dividends yields plus a moderate capital appreciation over the long term. Figure 2.7 compares the annual returns of different investors sectors for the period of 1975 to 2000. Over the whole period the NASDAQ Composite index had the greatest returns. The returns during the period from 1995 to 1999 correspond to the "internet bubble" with extraordinary and unsustainable high returns of the technology stocks and other large cap stocks. Looking at the period from 1975 to 1994, in order to isolate the performance over the years 1995 to 1999, it is clear that the returns on REITs have been on average higher than other investment sectors including the large and small stocks and the utilities sector.

Figure 2.7
Historical Performance of REITs



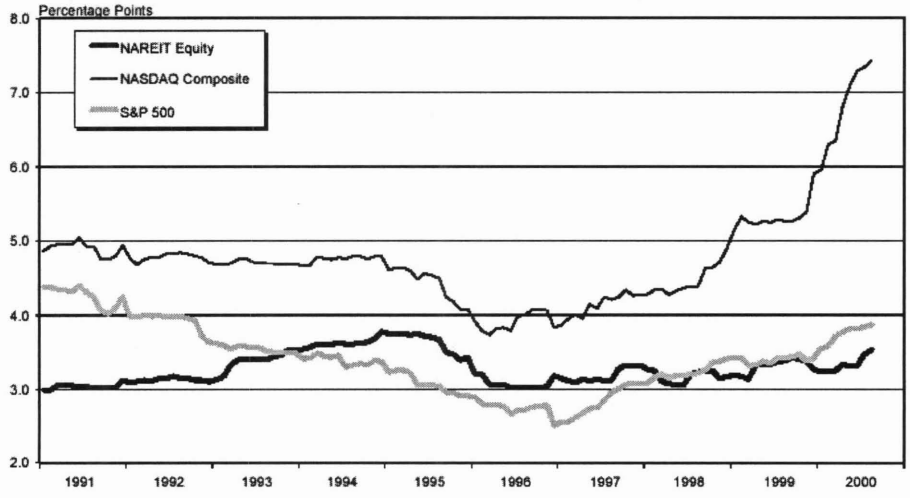
Source: National Association of Real Estate Investment Trusts

However, it is important to observe that in the most recent period from 1995 to 1999 the returns on REITs have been considerable low in comparison with all other investment sectors but the debt market. There are several reasons why this is the case, and why in general analysts expect that REITs will be continue to have returns between the returns of the equity and debt markets. During this period is when the REIT market had a great transformation from private to public ownership. This allowed the industry to gain transparency since the decision making process of the commercial property owners and

developers have been increasingly under the scrutiny of financial analysts, investors and financial regulators. However, with the increase of transparency and public information in the industry, the market has become more efficient and hence the returns that took advantages of inefficiencies in the market had declined in recent years.

In figure 2.8, risk is presented as the standard deviation of the monthly price returns for different investment sectors. As anticipated, investors would require a higher return on investments with higher risks. Since the end of 1996 to 2000 the price volatility of the NASDAQ Composite index has increased by 94%, including a 26% increase in just the first eight months of 2000. During the same period the price volatility of the S&P 500 increased by 54%. In the meantime, the NAREIT Equity index increased just 11%. The low price volatility increase of REITs was due in part to the stability of the cash flows of the properties that they owned at the time, as a consequence of the good economic conditions of the period. "The turmoil in the equity markets has reminded investors of the importance of including in their portfolios share of companies with predictable cash flows, high dividends and lower multiples."[15] Since REITs offer to their shareholders these characteristics, investors increased their participation in the REIT market.

Figure 2.8
Five Year Rolling Standard Deviation of Monthly Price Returns



Source: National Association of Real Estate Investment Trusts

[15] Investing in Real Estate Investment Trusts. NAREIT.

Furthermore, investors benefit from diversification when investing in REITs since the correlation of the return of REIT with the returns of other investment sectors is considerably low. Figure 2.3 shows the correlation of monthly returns of equity REITs with the returns of other market indexes. During the period of 1972 to 2000 the data show that the REITs were less correlated with the NASDAQ 100 and most correlated with the Russell 200 index.

Table 2.3
Correlation of Equity REIT Returns with other Investment Sectors

	Time Periods					
Market Sector Index	1972-2000	1972-1979	1980-1989	1990-2000	1990-1994	1995-2000
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Russell 2000	0.63	0.83	0.74	0.50	0.67	0.36
S&P 500	0.56	0.64	0.65	0.39	0.53	0.28
NASDAQ Composite	0.54	0.73	0.71	0.29	0.64	0.09
S&P Utilities	0.38	0.65	0.38	0.33	0.29	0.37
NASDAQ 100	0.34	NA	0.66	0.23	0.57	0.01
Merrill Lynch Govt/Corp	0.23	0.47	0.17	0.25	0.39	0.10

Source: Ibbotson Associates National Association of Real Estate Investment Trusts.

There is also a trend in which the correlation between the return of equity REITs and almost all other sectors decline over time (columns 3 to 5). Besides, as shown in columns 6 and 7, the correlation even decreased in most cases during the nineties. According to classic portfolio allocation theory, the optimal real estate share in a portfolio should be rather large (around 40%) and stable for a broad range of relatively conservative return targets.[16] However, actual portfolio allocations are not even close. As an example, US pension funds allocation in real estate in the nineties averaged 4%.[17] Over the last two decades there has been an uncertainty why this is the case. But probably the actual circumstances of the US market will help increase the real estate allocation of institutional investors who seek the diversification benefits of REITs.

[16] Geltner David, Miller Norman.
[17] Geltner David, Miller Norman.

CHAPTER THREE – FINANCING MULTIFAMILY LOW INCOME HOUSING IN THE US

Financing multifamily rental housing is a complex process involving several stakeholders and numerous sources of capital during the different phases of a project. Besides the traditional debt and equity financing components of a multifamily rental project, affordable rental housing needs the subsidy of the government in order to be financially feasible. The federal government has supported the development of multifamily low income rental housing through a variety of tax incentives since the 1970s. The current scheme is referred as the Low Income Housing Tax credit (LIHTC) program. This program will be the analysis of this chapter.

3.1 The Low Income Housing Tax Credit Program

The LIHTC program was created by Congress through the Tax Reform Act of 1986. It is the only active federal program that subsidizes the development of affordable rental housing in the United States. Since 1993 the program has been granted permanent status by Congress. It has been the major effort of the federal government to promote the development of affordable rental housing. Under the LIHTC program, the federal government gives an incentive for private investors to provide equity for the development of low income housing by granting them tax credits. Thus, it is a supply side subsidy; rather that giving subsidies directly to the demand, the government supports the supply of affordable rental housing. Investors receive a dollar for dollar reduction in their federal tax liability for a period of ten years as a result of their investment in qualified low income rental housing projects. Projects must meet certain characteristics and must be rented by moderate or low income families for a determined affordability lock-in period. The program is administered by the states who receive tax credit allocations by the federal government. The Internal Revenue Service (IRS) oversees the program to ensure that states or the investors don't use more tax credits than authorized.

The program has been considered as the most successful policy for the promotion of low income rental housing in the United States. It has promoted more than 1.2 million housing units for low income families since 1987 with an average of 82,000 units per year. The government has allocated $5.2 billion dollars worth of tax credits since the inception of the program with an average investment per housing unit of approximately $4,300 dollars.

Table 3.1
Allocation of Low Income Housing Tax Credits

Year	Total Allocated (Dollars)	Total Units	Tax Credit Dollars Allocated Per Unit
1987	$62,885,954	34,491	$1,823
1988	$209,779,916	81,408	$2,577
1989	$307,182,516	126,200	$2,434
1990	$213,148,840	74,029	$2,879
1991	$400,420,875	111,970	$3,576
1992	$337,032,273	91,300	$3,691
1993	$424,701,977	103,756	$4,093
1994	$494,914,237	117,099	$4,226
1995	$420,922,941	86,343	$4,875
1996	$378,920,852	77,003	$4,921
1997	$382,894,328	70,453	$5,435
1998	$368,077,833	67,822	$5,427
1999	$374,670,775	62,240	$6,020
2000	$378,749,319	59,601	$6,355
2001	$462,426,235	67,261	$6,875
Total	**$5,216,728,871**	**1,230,976**	**$4,238**
Average	**$347,781,925**	**82,065**	**$4,347**

Source: Danter Company.

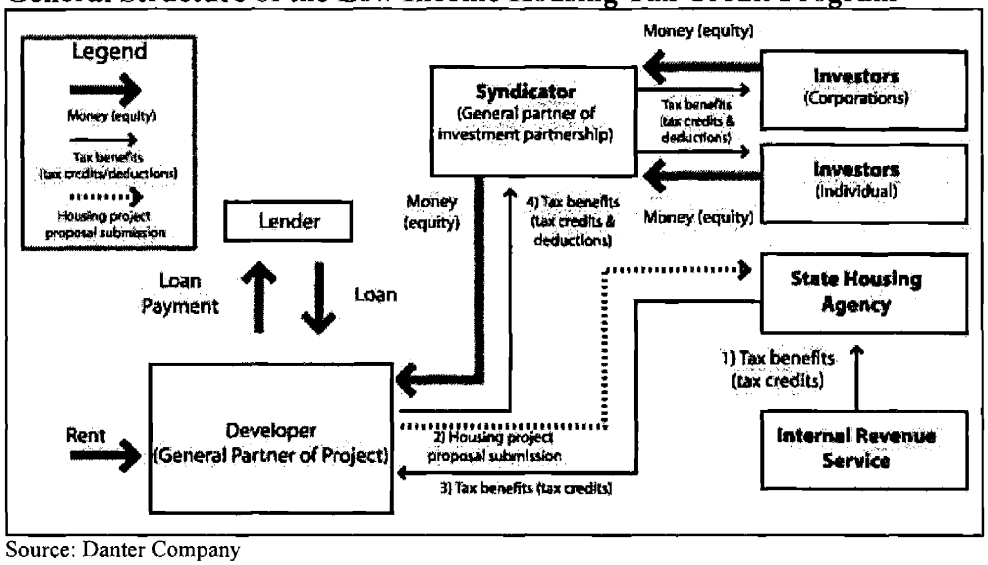
The program has had major improvements since it began: "More cost effective use of the tax credit, longer affordability lock-in periods, more housing units produced per credit dollar, more low income households been served, greater involvement of non profit organizations, and more effective due diligence and compliance monitoring."[18]

There are several participants involved in the process of developing low income housing projects under the LIHTC scheme. Figure 3.1 presents the main participants, their relationships and the flow of the process which follows the following steps:

[18] E&Y Kenneth Leventhal Real Estate Group. "The low-income housing tax credit: the first decade", published for the National Council of State Housing Agencies, 1997

1. The IRS allocates a certain amount of tax credits to State Housing Agencies per year.
2. Developers submit low income housing rental projects for consideration of the State Housing Agencies.
3. Qualified projects are assigned a certain amount of tax credits depending on the characteristics of the projects.
4. Once a project has been allocated a specific amount of tax credits, developers seek equity financing through syndicators.
5. Syndicators provide equity in exchange of future annual benefits obtained from the housing tax credits. Syndicators are financial intermediaries that pool equity investments from corporations or individuals and in turn transfer them the tax benefits of diversified portfolios of several low income rental housing projects.

Figure 3.1
General Structure of the Low Income Housing Tax Credit Program



Source: Danter Company

3.2 The Tax Credit Allocation Process

Until 2000, each year the federal government allocated tax credits equivalent to $1.25 dollars per resident to each state. This allocation was increased in 2001 to $1.50 dollars

per person and it was expected to be adjusted for inflation in 2003.[19] States have the freedom to set the allocation criteria that best fit their affordable rental housing policies within the general guidelines established by the IRS. Each state must give priority to projects that will offer housing for the lowest income tenants and that will have the longer affordability period. The affordability period refers to the minimum time that a project must remain providing low income rental units. This period must be a minimum of 30 years although it is possible to convert to market rents after 15 years under certain conditions. At the end of this period the projects remain under the control of the property owners who have the freedom to manage them in the way they choose.

Tax credits are available to the development of new low income rental housing projects as well as to the rehabilitation of existing projects. In order to qualify for LIHTC the project must set aside a minimum number of low income units according to one of the following guidelines:

- At least 20% of the housing units in the project must be restricted to families whose income is 50% or less of the area median gross income.
- At least 40% of the housing units in the project must be restricted to families whose income is 60% or less of the area median gross income.

Furthermore, the rents to low income families should not be more that 30% of a qualified person gross income. During the affordability period, projects must be in compliance with the percentage of low income housing approved at the beginning of the project, and the maximum rents charged to low income households in those units. Projects that don't meet their affordability requirements are subject to credit recapture. In this case, investors in the property lose their tax benefit and are also subject to a penalty depending upon the infraction.

The value of the housing credits allocated to a project depends on its development costs and the percentage of low income housing units in the project. For new developments,

[19] Danter Company, 2001.

the *eligible basis* for tax credit allocation is equal to the total development costs minus land, working capital and other intangible costs. For rehabilitation of existing projects the *eligible basis* is equal to the sum of the acquisition costs, additions, and improvements. The eligible basis is then multiplied by the percentage of low income housing units in the project. This amount is known as the *qualified basis* of the development and it may change over the years as the qualified occupancy varies with the number of qualified tenants.

Finally, the qualified basis is multiplied by the applicable tax credit rate to arrive at the annual low income housing tax credit. There are two different tax credit rates that depend on the financing of the project:

- The 4% tax credit rate is granted to projects that have additional federal subsidies in their financing such as tax exempt bonds or loans from the US Department of Housing and Urban Development (HUD).
- The 9% tax credit rate is granted to projects that are financed without additional federal subsidies.

Table 3.2
Allocation of Tax Credits to a Project

Total Development Costs	$4,200,000
Less land, working capital and other intangible costs	$380,000
Eligible Basis	$3,820,000
% of Affordable Housing Units	70%
Qualified Basis	$2,674,000
Annual Tax Credit Rate	9%
Annual Tax Credits	**$240,660**
Period of the Credits (years)	10
Total Low Income Housing Credits	**$2,406,600**

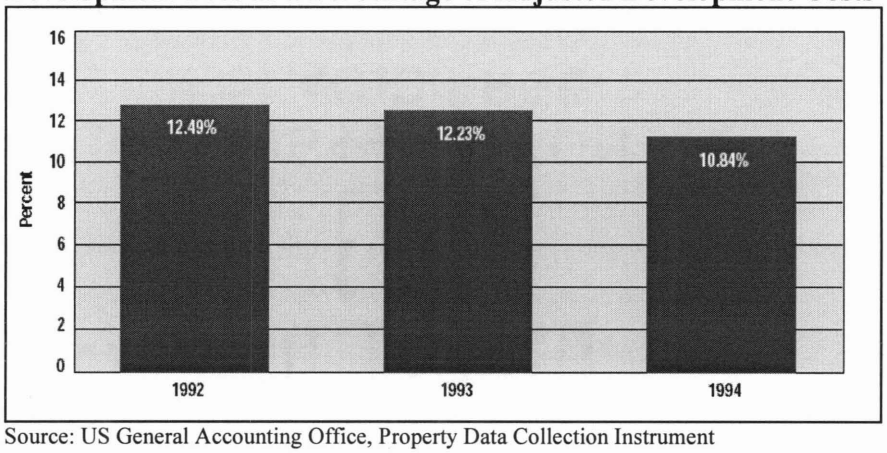
The exact credit rates are calculated by the Treasury Department and change each month with the movements of the interest rates. The housing tax credits calculated this way are available to claim by equity investors for a period of 10 years beginning at the moment that a low income household occupies a unit in the project. Table 3.2 illustrates the

process of tax credit allocation for a project with 70% of affordable housing units and a tax credit rate of 9%.

3.3 The Developer's Perspective

The development of projects under the LIHTC program is very different from market rate rental housing developments. Developers of affordable rental housing projects must be willing to take additional risks due to the increased complexity in the process. Developers have to look for multiple and unconventional sources of funding, ensure the compliance of the requirements of the LIHTC program, and obtain several approvals during a process that could take several years. The role of the developer has been very important in the success of a program. During the initial years, there was a lack understanding of the rules and procedures from developers that led to a low allocation of available tax credits funds. However, once the process became more familiar to the developers and all the participants in the system, the situation changed dramatically. In 1995 only 35% of the applicants were awarded tax credits for a value of $420.9 million dollars.[20] The increased demand for credits have brought new efficiencies and increased the competition among developers for the allocation of tax credits. This has meant, among others, a decrease in the development fees as seen in figure 3.2

Figure 3.2
Development Fees as a Percentage of Adjusted Development Costs



Source: US General Accounting Office, Property Data Collection Instrument

[20] Source: NCSHA State Factbook 1995.

In 1992 the development fees were 12.5% of the adjusted development costs (total development cost minus land, working capital and other intangible costs). By 1994, development fees have come down to 10.8% as a result of increased competition among developers and the presence of more sophisticated equity capital investors from the capital markets that required the process to become more efficient.

The first step in the development process is the assessment of the feasibility of a particular site for low income rental housing. During this process the developer estimates the construction budget, analyses possible financing alternatives and different project configurations of affordable and rental unit mixes, and estimates the probability of government approval and tax credit allocation. Once the developer decides to continue with a project, the second step is to gain control of the site through the purchase of an option or an outright purchase of the land. The Developer then applies to the State Housing Agency for a reservation of housing credits based on the estimated developments costs. The developer must also obtain all the necessary government approvals for the project including access to utilities, environmental reviews, building permits, zoning rights, etc. Simultaneously, developers must find commitments for the construction loan and for the permanent mortgage. Once the state has granted the project tax credits, the developer then must find equity investors. This process is done normally through syndicators that pool equity investments in funds designed to invest in low income housing projects. Finally, when the equity is secured, developers are able to close the construction loan and begin construction. Once the project is completed, states agencies ensure that the project meets the program requirements and based on the final development cost the allocation of tax credits is adjusted and the period of ten years of tax credits to the equity investor begins.

3.4 The Syndication Process

Syndicators are financial intermediaries that pool several low income rental housing projects into one tax credit equity fund and then securitize the tax credits for sale to investors. In doing so, syndicators add value to the system by taking advantage of economies of scale reducing transaction costs per project, offering developers a wider

base of equity investors, and by offering investors with a diversified portfolio of projects that in turn reduce the risk of investing in low income rental housing properties. The typical services of a syndicator of housing tax credits include:

- Organization of the investment vehicle including the structure of the financial arrangements and the legal documents.
- Underwriting and selection of the low income rental housing projects that will constitute the fund.
- Education of the possible equity investor in relation with the benefits and the possible risks of investing in the low income housing tax credits.
- Negotiation of the price of the credits with the developers. Due to the increased competition for the tax credits, syndicators have to compete in the price they offer to developers introducing efficiency in the market.
- Negotiation of performance guarantees from the sponsor reducing the risk for the investors.
- Monitoring of the development in the construction phase.
- During the operation of the property they provide asset management.

Recently, large syndicators have been able to provide liquidity to investors due to the large volume of business. Although housing credits can't be traded as commodities in the open market, syndicators have been able to create a secondary market in which investors sale their participations in the tax credit equity funds. Even though these secondary markets are very thin, there is a possible exit for an investor.

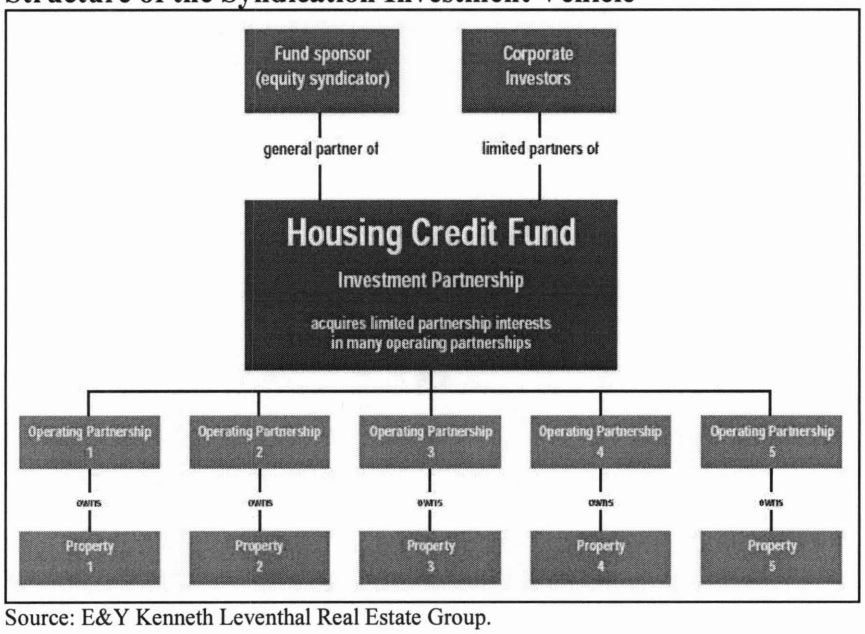
There are three categories of syndicators:

- For-profit syndicators: Companies established to sponsor large tax credit equity funds that invest in diversified portfolios throughout the country.
- Non-profit syndicators: States have developed non-profit funds that invest exclusively in that state's low income projects. There are also national non-profit funds that diversified their portfolios with properties around the country.

- Direct Corporate investors: Direct corporate investors have been led by institutions like Fannie Mae and Freddie Mac. Due to the large requirements of housing tax credits of these institutions, they can eliminate the intermediaries by investing directly in low income rental housing properties.

The compensation of for-profit syndicators has been in the form of an upfront load to the equity investors. This load is used to cover for syndicator expenses, fees, and to fund the reserves of the housing tax credit funds. The value of the loads have tightened due to the increase competition for housing tax credits and recent values have been around 15% of the equity raised by investors.

Figure 3.3
Structure of the Syndication Investment Vehicle



Source: E&Y Kenneth Leventhal Real Estate Group.

The structure of a typical syndication investment vehicle is shown in figure 3.3. It has the configuration of a two-tier entity. Usually, a syndicator forms a limited investment partnership and becomes its general partner. Then, it sells participations on this partnership, known as the housing credit fund, to tax credit equity investors that usually are large corporations. This partnership then becomes a limited partner in several limited

operating partnerships that own low income rental housing properties. The developer of each property is the general partner of the operating partnerships.

This structure has several benefits which limit the exposure of investors to the construction and operational risks of individual properties since it diversifies among several projects. Additionally it has positive incentives in the performance of the different parties involved in the process. Since the structure places large institutional investors directly in the line of accountability for the property's financial results, it leads them to enforce good performance on developers and syndicators. Investors choose syndicators by the long term rate of returns of their funds, and syndicators select properties and developers for their ability to carry out successful projects than in turn will deliver stable housing tax credits over the life or the project.

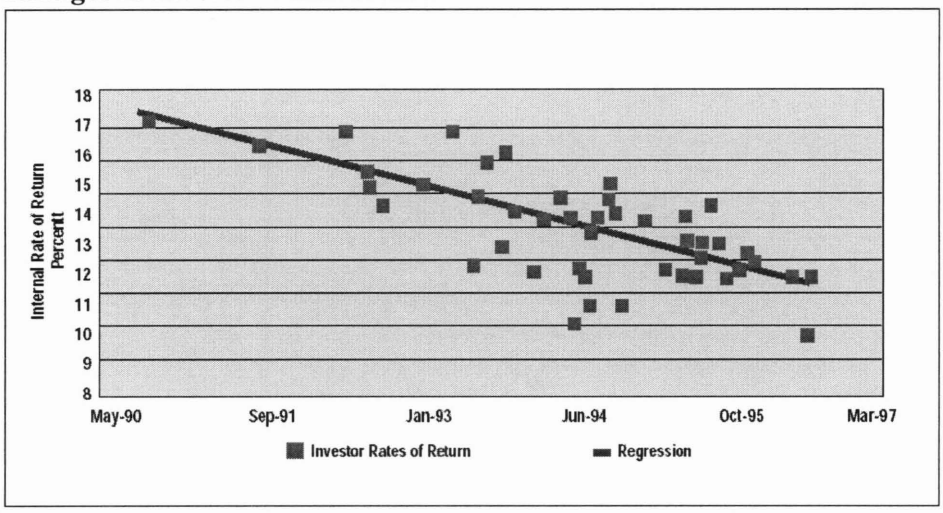
3.5 The Equity Market for LIHTC

Since the beginning of the LIHTC program in 1986, the type of equity investors has changed over the years. During the first years, individual investors were the main source of equity. Since 1990, corporate investors have increased their participation in the LIHTC program and nowadays they dominate the market. Types of corporations involved in the LIHTC equity market represent a wide variety of sectors in the economy: banks and financial services companies, insurance companies, manufacturers, utilities, consumer services companies, and quasi governmental companies such as Fannie Mae and Freddie Mac.

The entrance of sophisticated institutional investors to the market has increased the competition for housing tax credits and improved the overall efficiency of the program. The amount of equity that can be generated through the LIHTC program is directly related to the rate of return that investors demand. In turn, these rates are a function mainly of the level of risk that the investors perceive in the LIHTC investment and their particular condition as tax payers (individuals versus corporations). The stream of tax benefits over the 10 year period is discounted at the investor's required rate of return in

order to calculate the net present value of equity raised by the housing tax credits. While in 1987, one dollar of housing tax credit raised $0.42 dollars of equity; in 1997 the same dollar of housing tax credits generated $0.71 dollars of equity, and by 2001 this amount had risen to approximately $0.80 dollars.[21] This has meant that the returns that investors perceive have decrease accordingly. Figure 3.4 presents the evolution of the rate of returns for investors in the housing credit program.

Figure 3.4
Changes in Investor Rates of Return



Source: E&Y Kenneth Leventhal Real Estate Group.

While in 1990 investors were expecting rates of return around 17%, by 1997 their required rates of returns have decreased to around 11%. Nowadays, these returns have dropped even further to approximately 7.5%. While recent yields are a reflection of the current low interest rates in the United States, over the existence of the LIHTC program, there has been a clear trend of reduced required rate of returns by investors in low income housing tax credits. This trend is attributable to the following factors among others:

- The initial years of the program were characterized by a lack of understanding by the investors, uncertainty in the stability of the program, and lack of a reliable history of performance in housing tax credit investments. This situation led investors to apply a

[21] Millenial Housing Commission, Tax Policy Focus Meeting May, 2001.

premium on the rates of return they were expecting from this type of investments in order to account for the perceived additional risk.

- In 1993, with the permanent status granted to the program by the Congress, investors realized that they could rely in the LIHTC program for their long term planning. Hence, their perception of risk from the stability of the program was reduced.
- The success in the performance of the first investments in tax credits attracted several new investors. Increased competition for the limited amount of credits per year, led to a decrease in the required rate of return by investors.

3.6 Risks

Equity investors in the LIHTC program are essentially investing in real estate income producing properties. As such, the risk in these investments should be comparable to investing in REITs which carry considerable risk as described in chapter two. However, the syndication process allows to diversify the traditional real estate risks among several properties with different developers and managers, which in turn reduces the overall risk. On the other hand, there are specific risks associated to this type of investments mainly in relation to the compliance with the affordability requirements of the program. In general, the risks of an investment in the LIHTC program can be divided in the following categories:

Development Risk

The most significant risks of a real estate project are in the phase of the construction and the lease up periods of the property. During the construction period it is essential to build the project on budget and on time. Any cost overruns or delays would go against the profitability of the investment. The lease up period is also very important since the faster the property begins to generate revenue, the better the returns on the investment. Furthermore, in the case of the low income rental housing properties, the tax benefits can't be claimed until the affordable units are occupied by qualified residents.

Investors in low income housing tax credits are protected to a certain extent from these risks through several mechanism used by the syndicators. Syndicators carefully select developers with a track record of success, strong construction expertise, and financial strength. Developers are required to obtain completion guarantees that cover termination upon budget and schedule. Furthermore, syndicators offer investors diversification between several projects with different developers.

Market Risk

The commercial success of a project depends on the acceptance of the product by the future tenants of the housing units. Local markets determine the characteristics of a specific project and vary widely depending on the location of the project. Developers are supposed to have local expertise and understand the needs of the local markets. Their appreciations are checked several times in the LIHTC process: during the underwriting of the project by State Housing Agencies for allocation of housing tax credits, during the mortgage lender underwriting, and finally during the syndicator's underwriting. The projects commercial success will determine its ability to generate revenue over the years and be able to pay its debt obligations and recover the costs of its development.

Management Risk

Every real estate project has management risks associated with the day to day operations of the property. Property managers have the responsibility of collecting the rents on time, keeping the expenses under budget, and ensure that the maintenance of the property is not deferred. Affordable housing poses more pressures under management since they serve special populations that require additional social services. Syndicators place an additional layer of control on properties to ensure that they are well maintained so that the tax benefits will flow to housing tax credit investors over time.

Compliance Risk

Affordable housing developed under the LIHTC program also has the risk associated with the compliance of the regulations of the program. Specifically, properties must keep the proportion of low income tenants that was agreed upon the allocation of the tax credits during the affordability period. Investors bear the risk of recapture of tax credits in case properties don't meet the minimum requirements at any point in time.

3.7 Findings

- The low Income Housing Tax Credit program has been a success affordable housing policy serving the target population and the originally intended by legislators.
- The LIHTC program has become more cost effective over the years.
- The program has been able to successfully bring together private equity investors, lenders, private developers and state agencies in order to produce affordable rental housing.
- This cooperation has allowed the government to leverage its subsidies in order to promote a greater number of low income rental housing units.

CHAPTER FOUR – ASSESSING THE FINANCIAL FEASIBILITY OF MULTIFAMILY RENTAL HOUSING IN BOGOTA, COLOMBIA

Currently, the government of Colombia doesn't subsidize the development of affordable rental housing. Consequently, there is no formal offer of low income rental housing in developments of considerable size, and low income households have met their rental housing needs through small landlords many cases under improper conditions. Taking into account that the development of low income rental housing properties is not economically viable without government subsidies, this chapter evaluates the government's level of support needed in order to turn this activity attractive for private investors. The analysis is focused in the current conditions of Bogotá. The model applied is an adaptation of the main concepts of the LIHTC program used in the United States to support the development of affordable rental housing.

The analysis finds that with the current budget allocated to ownership housing subsidies in the country, the government could promote around 2.4 more rental housing units. A combination of rental and ownership subsidies is viable; it would better serve the housing needs of low income households and it would constitute a more comprehensive housing policy in the country.

4.1 Target Households and Maximum Rent

The target households constitute 80% of the population of Bogotá with monthly average income between two and four monthly minimum wages. As seen in table 4.1, these households' current average rent payments range between $180 and $260 thousand pesos per month.[22] This expense is equivalent to a very high percentage of their monthly income ranging from 23% to 36%. Accordingly, a target of $180 thousand pesos per month in rent payments per household has been set for the base scenario of this analysis.

[22] Average rent payments range between $62 and $89 dollars per month. All conversions to dollars in this chapter will be calculated using the following exchange rate: 2,926.46 pesos per dollar, January 2003.

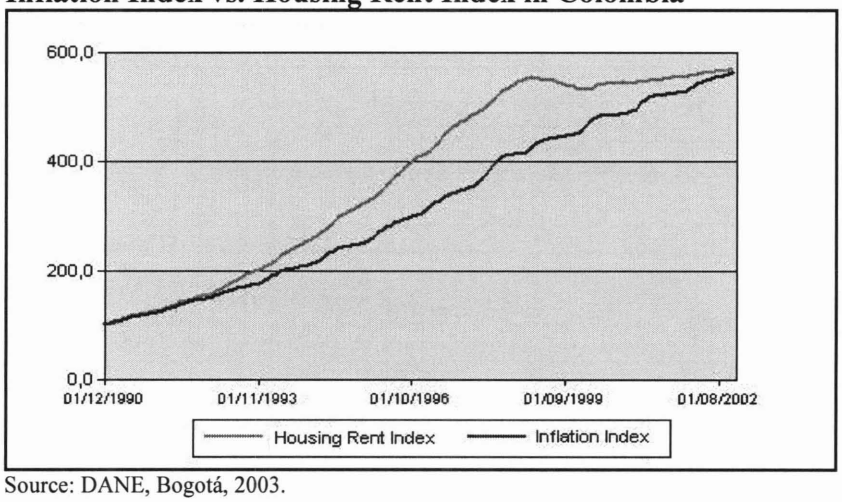
Table 4.1
Housing Expense as a Proportion of Income (Figures in Thousands of pesos)

	Monthly Minumun Wage per Home			
	1	2	3	4
Monthly Average Income	286	500.8	766	1070
Monthly Rent Expense	149	178	206	256
% of Income	52.2%	35.5%	26.9%	23.9%
Monthly Mortgage Payment	143	191	225	347
% of Income	50.0%	38.1%	29.3%	32.4%

Source: Economistas Urbanos Asociados Ltda. , Bogotá.

The financial models described below, assume that the owners of low income rental housing in Bogotá will be able to increase the rents per year according to inflation. This is a reasonable assumption based on the data observed in the increase of rents in the country. Figure 4.1 compares the inflation index with the housing rent index in Colombia. In average, during the last decade rents have kept pace with inflation.

Figure 4.1
Inflation Index vs. Housing Rent Index in Colombia



Source: DANE, Bogotá, 2003.

4.2 Characteristics and Costs of a Typical Affordable Housing Development

Even though there are several types of low income housing units with different prices offered in the market in Bogotá, this analysis is focused on housing units under approximately $21 million pesos ($7,175 dollars). This is the current price limit imposed by the city government to housing units in projects developed by MetroVivienda, which aim to serve the lowest income households in the city. Six low income housing projects with over 1,400 units were analyzed in order to obtain the typical characteristics and

costs in the current market for this type of development in Bogotá. Table 4.2 presents the area per house and the number of housing units per project. According to these figures, an average of 40 square meters of built area per house, and 240 units per project is used in this analysis.

Table 4.2
Ciudadela El Recreo, MetroVivienda, Bogotá
Typical Areas and Densities of Affordable Housing

Developer	Area per Housing Unit [m^2]	No. of Units per Development
Parques de Potosi	37.0	244
Fundacion Compartir	44.7	224
Cusezar	46.6	246
Marval	44.8	238
Diseño Urbano	38.9	240
UT Cerezos	32.0	250
Average	**40.7**	**240**

Source: MetroVivienda, Bogotá, 2003.

The costs of a typical low income housing development in Bogotá were derived from figures supplied by MetroVivienda. These figures are based on the six projects analyzed in the sample and on the pricing techniques that MetroVivienda employs for the sale of the urbanized land designated to the development of low income housing units in its first project, Ciudadela El Recreo. Table 4.3 presents the current typical costs of a development of affordable housing in Bogotá. Urbanized land represents 20.4% of sales, Construction Cost 58.4%, and indirect costs 13.2%. Indirect costs include design and technical studies, utility connection, developer's fee, construction fee, sale expenses, taxes, legal expenses, post-sale repairs, and finance costs. The profit margin for the developer is usually around 8%, which combined with the management fee of 2.6% adds to a total of 10.6% of the project sales.

Table 4.3
Ciudadela El Recreo, MetroVivienda, Bogotá
Typical Affordable Housing Project Development Costs

ITEM	COSTS				%
	Total Development		Costs Per Unit		
	Millions of Pesos 2003	US Dollars	Millions of Pesos 2003	US Dollars	
SALES	*4,994*	*1,706,455*	*20.8*	*7,110*	*100.0%*
COSTS					
Urbanized Land	**1,021**	*348,886*	*4.25*	*1,454*	**20.4%**
Direct Costs	**2,914**	*995,770*	*12.14*	*4,149*	**58.4%**
Interior Urbanism	*154*	*52,651*	*0.64*	*219*	*3.1%*
Construction	*2,760*	*943,119*	*11.50*	*3,930*	*55.3%*
Indirect Costs	**661**	*225,846*	*2.75*	*941*	**13.2%**
Design and Technical Studies	*41*	*14,040*	*0.17*	*59*	*0.8%*
Utility connection	*36*	*12,285*	*0.15*	*51*	*0.7%*
Developers Fee (Project Management)	*128*	*43,876*	*0.54*	*183*	*2.6%*
Construction fee	*204*	*69,704*	*0.85*	*290*	*4.1%*
Sales	*48*	*16,504*	*0.20*	*69*	*1.0%*
Taxes	*22*	*7,427*	*0.09*	*31*	*0.4%*
Legal expenses	*36*	*12,378*	*0.15*	*52*	*0.7%*
Postsale repairs	*26*	*8,775*	*0.11*	*37*	*0.5%*
Finance Costs	*120*	*40,857*	*0.50*	*170*	*2.4%*
TOTAL COSTS	**4,596**	**1,570,501**	**19.15**	**6,544**	**92.0%**
PROFIT MARGIN	**398**	**135,953**	**1.66**	**566**	**8.0%**

Source: MetroVivienda, Bogotá, 2003.

4.3 Description of the Process

There are several variables and alternatives involved in the process in order to determine the subsidy required to turn the development of low income rental housing attractive to private investors. The process followed in this analysis can be described in the following steps:

1. Determine the total rental income per year that a property can generate given the maximum rent that the target low income households can afford, and the number of housing units that a typical affordable housing development has.
2. Calculate the value of the income producing property. This value is a function of the rent it produces, the typical expenses and maintenance of an income producing property, and the required rate of the return for the real estate investor.
3. Determine the amount of tax credit equity required to cover the difference between the market value of the property and the value determined in the step above. The market value is equivalent to the price obtained as if the housing units

were sold in the market instead of rented. It should cover the construction costs and the required profit margins for the developer during the construction phase.

4. Estimate the value of the annual subsidy per unit given the required rate of return of the equity investors and an estimation of the syndication costs.
5. Once a value for the subsidy has been established the model must be tested under several scenarios. A sensitivity analysis of several variables must be performed in order to better understand the results obtained with the model.

4.4 Financial Model

Stabilized Phase

Exhibit 4.1 presents the base scenario of the projected net operating income and cash flow to equity for the real estate investor in the stabilized phase of the project. In this section there is a description of the each of the assumptions and the results obtained in the projected cash flows. Typically, the cash flows of an income producing property are projected for 10 years which is a reasonable long period of time. This is because most properties are expected to have long lives and most investors hold properties for long periods of time. Figures in the financial model are in constant pesos of 2003.

Rental Income: It has been estimated that the rental income of a typical low income rental housing property will be $518 million pesos ($177,005 dollars) per year with an average rent per house of $180 thousand pesos ($62 dollars) per month and a total of 240 units per development. The rents are supposed to keep the pace of inflation during the period of analysis.

General Vacancy: It is not realistic to expect that a property will be fully occupied during the whole year. Hence, it will not be able to generate all of its income potential. To account for this, a vacancy factor of 5% per year has been applied in order to compute the effective gross income of the property. For the first year, a factor of 30% has been applied in order to account for the lease up period of the property. As a result, the

effective gross income of a typical low income rental housing property in Bogotá is expected to be $363 million pesos ($124,041 dollars) for the first year and $492 million pesos ($168,121 dollars) thereafter.

Operating Expenses: This category of expenses refers to a number of regular costs related to the ongoing operation of the property. The typical major expenses of an income producing property considered in this analysis were property management fees, real estate taxes, operation and maintenance, and leasing commissions. As it is customary in the rental market in Bogotá, the utilities expense is covered directly by the tenant. Management fees account for the administration of the property and were calculated as 7% of the effective gross income. Real Estate taxes were calculated as 0.7% of the value of the property. Operation and maintenance costs represent periodic minor expenses related to the preservation of the asset in good condition. They were calculated as 5% of the operating gross income. The expense of leasing commissions was estimated based on a period per lease of one year and a 2% commission on new leases. Operating expenses account in total to $87 million pesos ($29,729 dollars) per year equivalent to 18% of the effective gross income of the property.

Net Operating Income (NOI): It results from the subtraction of the operating expenses from the effective gross income. NOI is the most widely indicator of the profit generation ability of a property in the real estate industry. According to the results of the base scenario of this analysis, the NOI of a typical affordable housing property in Bogotá would be $405 million pesos ($138,392 dollars).

Capital Expenditures: This item refers to major expenditures providing long term improvements to the physical quality of the property required to maintain its value. Examples include replacing a roof, painting of facades, repaving a parking lot, etc. Capital expenditures were estimated as 20% of the effective gross income per year for an equivalent of $100 million pesos ($34,171 dollars).

Building Disposition: For the purpose of the analysis, it is supposed that the property is sold in year ten. The disposition value was estimated by using a constant perpetuity on the NOI of the building minus capital expenditures, and a discount rate of 12%. Transaction costs of 2% of the sale value were estimated at the time of the sale.

Discount Rate: "The discount rate is meant to be the opportunity cost of capital for the subject investment. It is the return investors could typically expect to earn (on average) in other investments of similar risk to the subject investment."[23] Since the income producing real estate industry is practically non existent in the country; there aren't good comparable investments to low income rental housing developments in Colombia. Hence it is difficult to establish an appropriate value for the discount rate required for future real estate investors in this type of properties. According to interviews with developers of low income housing in Bogotá, it was established that for long term real estate investments, a required discount rate would be around 12%. As seen in the sensitivity analysis section below, this variable has a great impact on the value of the subsidy required to turn the development of low income housing attractive to private investors.

Value of the Stabilized Property: Applying a discount rate of 12% to the property before tax cash flow of exhibit 4.1, a net present value of $2,415 million pesos ($825,211 dollars) is found for the stabilized property.

Debt Service Payment: The amount of the permanent mortgage in the stabilized property was estimated as 70% of the value of the property calculated above, with a value of $1,690 million pesos ($577,490 dollars). The permanent loan interest rate was estimated as 10% considering interest rates in current residential low income housing mortgages.

Levered Equity Cash Flow: The internal rate of return on the levered equity is found to be 16.2% due to the positive leverage in the financing of a typical project. There will be a description of the sensitivity of this variable to changes in the interest rate of the permanent mortgage of the property in the sensitivity analysis section below.

[23] Geltner David, Miller Norman.

Construction Phase

Exhibit 4.2 presents the cash flow for a developer of a typical affordable rental housing project during the construction phase. This portion of the project has an average duration of 12 months. Usually, a developer finances it with a construction loan of about 70% of the direct costs. Current interest rates for this type of loans in Colombia are around 12%; hence, the financing costs during this period amount to $120 million pesos ($41,005 dollars). Commonly, once the project is finished, the construction loan is paid and a permanent loan with lower interest rates is obtained. Higher interest rates during the construction phase reflect that it is the most risky period of a development.

The commercial value of the typical affordable housing project in this analysis is $4,994 million pesos ($1,706,455 dollars). This value allows the developer to cover for construction costs and perceive a profit margin of 8%. Since the value of the stabilized property is only $2,415 million pesos ($825,211 dollars), the difference of $2,579 million pesos ($881,244 dollars) is equal to the required tax credit equity.

Low Income Housing Tax Credits Investment

Once the tax credit equity necessary to support a low income rental housing development has been established, the next step is to determine the required annual subsidy in order to raise it in the capital markets. Exhibit 4.3 presents the cash flow to the equity investor in low income housing tax credits. The syndication load is assumed to be 15% of the equity raised as it has been in the United States during the last years. In order to transfer $2,579 million pesos ($881,244 dollars) of tax credit equity to an affordable rental housing development, $3,034 million pesos ($1,036,758 dollars) need to be raised in the capital markets. The difference, $455 million pesos ($155,514 dollars) is equivalent to the syndication load representing the financial intermediary costs.

Several required rates of return to equity investors ranging from 12% to 14% have been analyzed. As seen in the sensitivity analysis below, this variable is very important in determining the necessary annual subsidy per house.

The tax credit equity investment will be amortized with constant annual tax credits offered to an investor over a period of ten years. As an example, with a 12% required rate of return the annual tax credit offered to an investor must equal to $537 million pesos ($183,498 dollars) per year. This is equivalent to an annual subsidy per house of $2.24 million pesos ($765 dollars). If we compare this subsidy to the one offered currently to the ownership of housing of similar characteristics, we find that the government could promote around 2.4 more rental housing units with the same amount of money per year. However, the total investment per house will be greater over the ten year period. In a sense the government is leveraging itself with the private equity raised through the offering of tax credits. As discussed before a combination of rental and ownership subsidies is viable and would better serve the housing needs of low income households in the country.

As seen in exhibit 4.3, the annual subsidy per house ranges from $2.24 million pesos ($765 dollars) to $2.42 million pesos ($827 dollars) according to the required rate of return of the equity investor (12% and 14% respectively).

Exhibit 4.1

TYPICAL LOW INCOME HOUSING DEVELOPMENT
PROJECTED NET OPERATING INCOME AND CASH FLOW TO EQUITY
STABILIZED PHASE

(Figures in Millions of Pesos 2003)

Number of Units	240
Monthly Rent per unit	0.180
Vacancy Rate	5%

Debt	1,690
Loan to Value ratio	70%
Debt Service Coverage Ratio	1.81
Permanent Financing Interest Rate	10.0%

			Year									
	IRR		1	2	3	4	5	6	7	8	9	10
Income												
Rental Income			518	518	518	518	518	518	518	518	518	518
General Vacancy			(156)	(26)	(26)	(26)	(26)	(26)	(26)	(26)	(26)	(26)
Effective Gross Income			363	492	492	492	492	492	492	492	492	492
Operating Expenses												
Management Fees			(36)	(36)	(36)	(36)	(36)	(36)	(36)	(36)	(36)	(36)
Real Estate Tax			(17)	(17)	(17)	(17)	(17)	(17)	(17)	(17)	(17)	(17)
Operation and Maintenance			(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)
Leasing Commissions			(7)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
Total Operating Expenses			(84)	(87)	(87)	(87)	(87)	(87)	(87)	(87)	(87)	(87)
Net Operating Income			279	405	405	405	405	405	405	405	405	405
Capital Expenditures			(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
Building Disposition												2,544
Transaction Costs												(51)
Property Before Tax Cash Flow			179	305	305	305	305	305	305	305	305	2,799
Discount Rate	12%											
NPV (2004 - 2013)	2,415											
Debt Service (Permanent Loan)			(169)	(169)	(169)	(169)	(169)	(169)	(169)	(169)	(169)	(169)
												(1,690)
Debt Cash Flow (Permanent Loan)	10.0%	1,690	(169)	(169)	(169)	(169)	(169)	(169)	(169)	(169)	(169)	(1,860)
Levered Equity Cash Flow	16.2%	(724)	10	136	136	136	136	136	136	136	136	939

Exhibit 4.2

CASH FLOW FOR A TYPICAL LOW INCOME HOUSING DEVELOPMENT
CONSTRUCTION PHASE

Market price per House	21.4
Plot Area [m2]	9280
Number of housing units	240

Area per house [m2]	40
Direct Cost [Thousands/m2]	288
Construction Loan Interest (APR)	12%

Construction Loan	2,040
Tax Credit Equity	2,579

Figures in Million of Pesos 2003

	TOTAL	Month 1	2	3	4	5	6	7	8	9	10	11	12
COSTS													
Urbanized Land	*(1,021)*	*(1,021)*											
Direct Costs													
Interior urbanism	(154)			(17)	(17)	(17)	(17)	(17)	(17)	(17)	(17)	(17)	
Construction	(2,760)			(307)	(307)	(307)	(307)	(307)	(307)	(307)	(307)	(307)	
Total Direct Costs	*(2,914)*			*(324)*	*(324)*	*(324)*	*(324)*	*(324)*	*(324)*	*(324)*	*(324)*	*(324)*	
Indirect Costs													
Design and Technical Studies	(41)	(41)											
Utility connection	(36)												(36)
Construction management	(128)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)
Construction fee	(204)			(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	
Sale	(48)												(48)
Taxes	(22)												(22)
Legal expenses	(36)												(36)
Postsale repairs	(26)												(26)
Total Indirect Costs	*(541)*	*(52)*	*(11)*	*(33)*	*(33)*	*(33)*	*(33)*	*(33)*	*(33)*	*(33)*	*(33)*	*(33)*	*(179)*
TOTAL COSTS	*(4,476)*	*(1,073)*	*(11)*	*(357)*	*(357)*	*(357)*	*(357)*	*(357)*	*(357)*	*(357)*	*(357)*	*(357)*	*(179)*
Cumulative		*(1,073)*	*(1,083)*	*(1,441)*	*(1,798)*	*(2,155)*	*(2,512)*	*(2,869)*	*(3,226)*	*(3,584)*	*(3,941)*	*(4,298)*	*(4,476)*
FINANCING													
Construction Loan	2,040			227	227	227	227	227	227	227	227	227	
Loan Repayment (Includes Interest)	(2,159)												(2,159)
Property Sale	2,415												2,415
Tax Credit Equity	2,579					368	368	368	368	368	368	368	
Development Phase Cash Flow	398	(1,073)	(11)	(131)	(131)	238	238	238	238	238	238	238	77
Cumulative		(1,073)	(1,083)	(1,214)	(1,344)	(1,107)	(869)	(631)	(393)	(155)	83	321	398
Annual IRR	60.0%												
Profit Margin	8.0%												

Exhibit 4.3

LOW INCOME HOUSING TAX CREDITS INVESTMENT
CASH FLOW TO EQUITY INVESTOR

Figures in Million of Pesos 2003

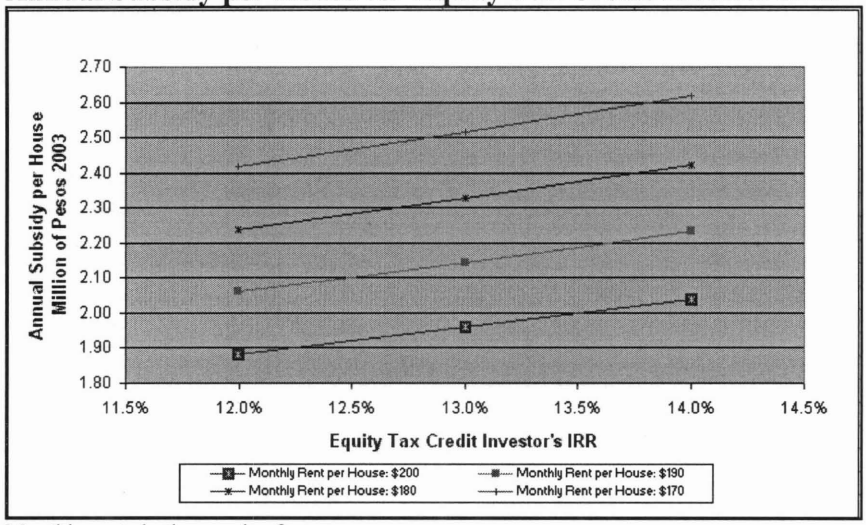
	TOTAL	Year 0	1	2	3	4	5	6	7	8	9	10
Tax Credit Equity	-2,579	-2,579										
Syndication Load	-455	-455										
Tax Credit	5,370		537	537	537	537	537	537	537	537	537	537
Cash Flow to Equity Investor	2,336	-3,034	537	537	537	537	537	537	537	537	537	537
Cumulative		-3,034	-2,497	-1,960	-1,423	-886	-349	188	725	1,262	1,799	2,336
IRR		12%										
Annual Subsidy per house	2.24											
Subsidy Multiplier	2.37											
Tax Credit	5,591		559	559	559	559	559	559	559	559	559	559
Cash Flow to Equity Investor	2,557	-3,034	559	559	559	559	559	559	559	559	559	559
Cumulative		-3,034	-2,475	-1,916	-1,357	-797	-238	321	880	1,439	1,998	2,557
IRR		13%										
Annual Subsidy per house	2.33											
Subsidy Multiplier	2.28											
Tax Credit	5,817		582	582	582	582	582	582	582	582	582	582
Cash Flow to Equity Investor	2,783	-3,034	582	582	582	582	582	582	582	582	582	582
Cumulative		-3,034	-2,452	-1,871	-1,289	-707	-126	456	1,038	1,619	2,201	2,783
IRR		14%										
Annual Subsidy per house	2.42											
Subsidy Multiplier	2.19											

4.5 Sensitivity Analysis

The purpose of the sensitivity analysis is to understand the variability in the outcome of the model to changes in key input variables. While there are several variables that will change the results of the model, it is important to select the most relevant inputs that influence the determination of the required subsidy to turn the development of low income rental housing attractive to private investors. Four variables have been identified for the sensitivity analysis: the monthly rent per household, the required rate of return of the tax credit equity investor, the long term required rate of return of the real estate investor in the income producing property, and the interest rate of the permanent mortgage of the property.

Several scenarios with monthly rent per household varying from $170 thousand pesos ($58 dollars) to $200 thousand pesos ($68 dollars) have been run. Figure 4.2 shows the sensitivity of the annual subsidy per house to the required rate of return of the tax credit equity investor for four different levels of monthly rent. For a same level of rent, an increase of 100 basis points in the required rate of return by the tax equity investor will increase the annual subsidy per house by $90 thousand pesos ($31 dollars) in average.

Figure 4.2
Sensitivity Analysis
Annual Subsidy per House vs. Equity Tax Credit Investor IRR

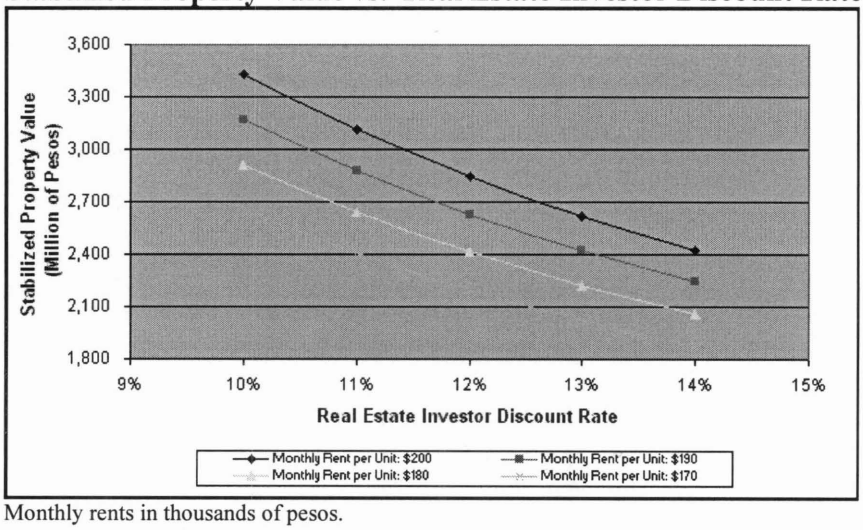


Monthly rents in thousands of pesos.

For a same required rate of return by the tax equity investor, a decrease in $10 thousand pesos ($3.4 dollars) in the monthly rent per house would increase the annual subsidy per house by $185 thousand pesos ($63 dollars) in average. Subsidies (Tax credit allocations to projects) could vary depending on the level of rent that a project offers to qualified low income tenants. Probably, the return offered to equity investors should be higher during the first years of the program as an incentive to the first investors. Over time, once the program has been proven and a track record of the performance of housing tax credit investments have been obtained, investors will require lower rates of return reducing the required government subsidy.

The long term required rate of return of the real estate investor in the income producing property has first an effect on the value of the stabilized property and then an incidence in the annual subsidy per house required to turn profitable the investment in such property. Figure 4.3 presents the sensitivity of the value of the underlying stabilized property to changes in the required rate of return of the real estate investor for four levels of monthly rent per household. For a same level of rent, an increase in the required rate of return of the real estate investor of 100 basis points will decrease the value of the property by 8% in average.

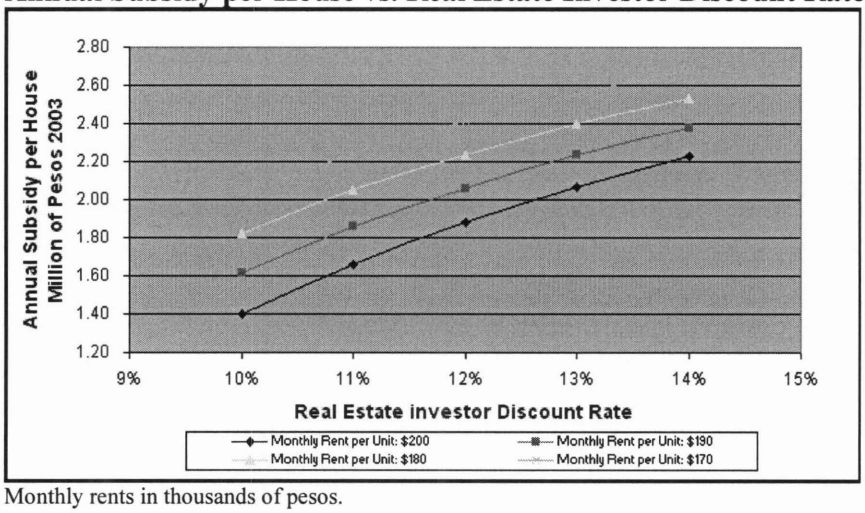
Figure 4.3
Sensitivity Analysis
Stabilized Property Value vs. Real Estate Investor Discount Rate



Monthly rents in thousands of pesos.

The decrease in the value of the stabilized property will increase the need for tax credit equity, which in turn will increase the need for a larger subsidy per house. Figure 4.4 presents the incidence of a change in the required rate of return of the real estate investor on the annual subsidy per household for a constant 12% internal rate of return in the tax credit equity investment. For a same level of rent, an increase of 100 basis points in the required rate of return of the real estate investor will increase the annual subsidy per house by $185 thousand pesos ($63 dollars) on average. This change is twice as much as the same change in the required rate of return of the tax credit equity investor. For the base scenario, with a rent per month of $180 pesos per house ($62 dollars), the subsidies range from $1.83 million pesos ($625 dollars) to $2.53 million pesos ($865 dollars) per house according to the required rate of return of the real estate investor (10% and 14% respectively).

Figure 4.4
Sensitivity Analysis
Annual Subsidy per House vs. Real Estate Investor Discount Rate

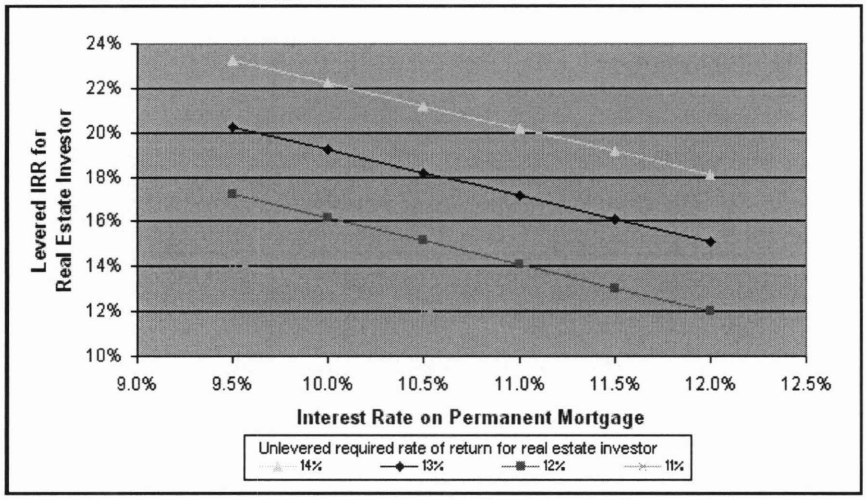


Monthly rents in thousands of pesos.

Real estate investors often focus on the levered Internal Rate of Return (IRR) on investment, which depends on the amount of positive leverage in the financing of the project. The greater the difference between the unlevered rate of return of a property and the interest rate in the permanent mortgage, the greater the positive leverage in a project. Figure 4.5 presents the sensitivity of the levered IRR for the real estate investor to changes in the interest rate on the permanent mortgage, for four unlevered required rates

of return for the real estate investor. In average, given the leverage ratio of 70% on a typical project, the unlevered IRR increases by 105 basis points when the interest rate on the permanent mortgage decreases by 50 basis points. For the base scenario in this analysis, the unlevered return on equity to the real estate investor is expected to be 16.2%.

Figure 4.5
Sensitivity Analysis
Levered IRR for Real Estate Investor vs. Interest on Permanent Mortgage



CHAPTER FIVE – LOW INCOME HOUSING TAX CREDITS FOR OWNERSHIP HOUSING IN COLOMBIA

Although this thesis is about financing low income rental housing, it is evident that with some alterations, the LIHTC program could also be used to subsidy the ownership of low income housing in Colombia. Therefore, this chapter will lay out those basic adjustments to the LIHTC program. It proposes a new scheme of subsidies in the country. There are many advantages of using a tax credit program in order to subsidize the ownership of low income housing:

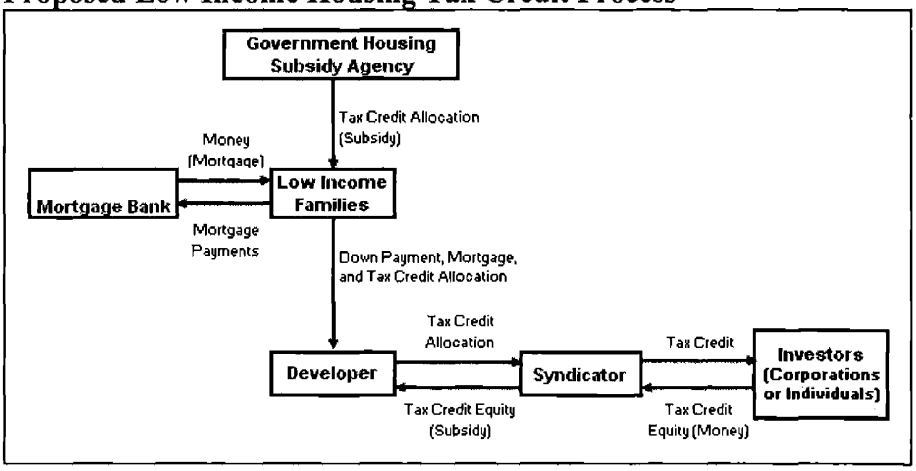
- With the same amount of money per year, the government could promote around five times more low income housing units in the country per year.
- Government would lever private capital to develop low income housing.
- Despite the need for more subsidies in the country, there has been very little support for additional direct spending in the past.
- It will have additional effects in the community by raising the social awareness and the involvement of the corporations in the problem of low income housing in the country. It will stimulate philanthropic activity.

5.1 Description of the Proposed Scheme

Under the proposed scheme, the government will give an incentive for private investors to provide upfront equity for the development of low income housing by granting them tax credits over a period of ten years. The value of those annual tax credits will be calculated in proportion to the subsidies already established by the government relative to the price of the affordable housing unit (see table 1.4). Figure 5.1 presents a general diagram of the proposed process. The allocation mechanism of subsidies to low income families will remain very similar to the current process. However, the change will occur mainly in the sources of capital available for the subsidies. The process is described in the following steps:

1. A government housing agency will still allocate a subsidy to each qualified low income family. However, this subsidy will be in the form of an annual tax credit allocation.
2. Low income households will buy affordable housing units offered in the market by developers. The sources for the purchase will include the traditional down payment, a residential mortgage secured with a housing and savings corporation, and an allocation of annual tax credits.
3. The developer will be able to obtain a subsidy equivalent in value to the ones in table 1.4 for the exchange of the annual allocation of tax credits per house sold through a syndicator.
4. Syndicators will create investment funds with the equity provided by corporations and individuals interested in reducing their tax liabilities. Investors will receive the right to claim tax credits for a period of 10 years according to their investment.

Figure 5.1
Proposed Low Income Housing Tax Credit Process



5.2 Benefits of the Scheme

Currently the government allocates, from its national annual budget, a certain amount of funds in order to subsidize the ownership of low income housing. Under the proposed scheme the government will no longer allocate from its annual budget resources for low

income housing subsidies, but rather will give grant the same value of annual tax credits to tax credit equity investors. By doing so the government is actually leveraging itself indirectly with private capital and hence will be able to promote around five times more housing units with the same amount of money per year. Of course, there is a cost associated to this, which is mainly the required rate of return of the tax credit equity investors. In this case, the risk associated to this type of investment is very low since the tax credit equity will be provided to the developer only when a property has been sold and then, the flow of tax credits is guaranteed over a ten year period. The main risk for an investor will be not to have enough tax liabilities to offset with the tax credits in a given year during the ten year period. Given that the perceived risk by private investors is less than in the case of tax credit equity for low income rental housing, the required rate of return will also be lower. Figure 5.2 shows the annual subsidy per house required for different required rates of return of the equity investor and for different prices of low income housing units represented by their respective current subsidy.

Figure 5.2
Annual Subsidy per House vs. Equity Tax Credit Investor's IRR

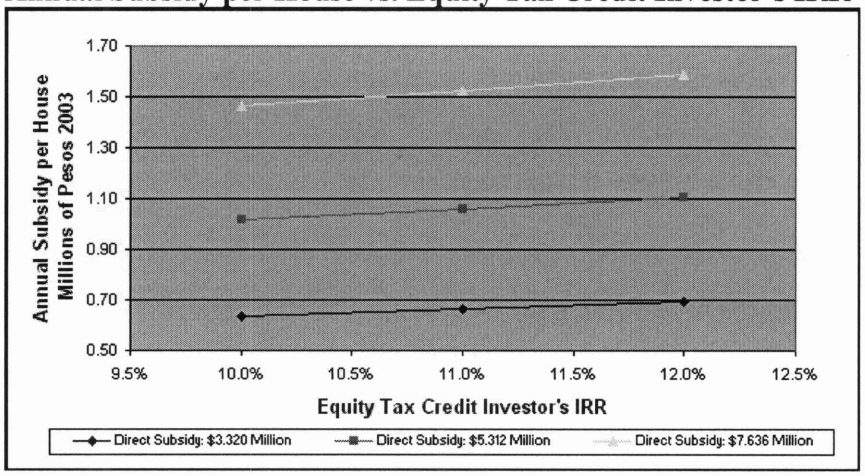


Exhibit 5.1 presents the cash flow to the equity investor associated with the investment necessary to promote one low income house that currently receives a subsidy of $5.312 million pesos ($1,815 dollars)[24]. To promote this type of house will required an annual subsidy of $1.06 million pesos ($362 dollars) per year for a period of ten years providing

[24] Exchange rate: 2,926.46 pesos per dollar, January 2003

the investor with an IRR of 11%. It will also allow the government to promote five times more housing units with the same amount of money per year.

For example, in the case of Bogotá there could be 8,000 subsidies available per year under the new scheme of subsidies proposed in comparison to the 1,600 subsidies available today under the subsidy scheme in place.

Even though, there are benefits to the establishment of the new scheme of subsidies proposed, there are also several difficulties for the implementation of a program like this one in Colombia:

- The biggest difficulty will be to attract private investors to the program. Colombian corporations could be hesitant to invest since the return to investors will depend from the ability to shelter tax liabilities during a period of ten years after the investment. They could worry about their ability to have enough taxable income to shelter with the tax credits provided with the program for the whole ten year period. If this is the case, a greater return could be required by investors, and the cost of the program could increase considerably.
- Investors could also be worried for the permanence of the program. They could be concerned about changes in the central government policy that could jeopardize their return on the tax credit investment. Once more, they will require a greater return that could increase the costs of the program considerably.
- Obtaining political support for the program could be also hard since currently the government has a policy to decrease to a minimum all the tax benefits in order to increase the government's revenue. Besides, to a certain extend some parties might think that private investors and intermediaries are benefiting in excess from their investment.

Exhibit 5.1

LOW INCOME HOUSING TAX CREDITS INVESTMENT
CASH FLOW TO EQUITY INVESTOR
DIRECT SUBSIDY PER HOUSE : $5.312 Million

Figures in Million of Pesos 2003

	TOTAL	Year 0	1	2	3	4	5	6	7	8	9	10
Tax Credit Equity	-5.312	-5.312										
Syndication Load	-0.937	-0.937										
Tax Credit	10.171		1.017	1.017	1.017	1.017	1.017	1.017	1.017	1.017	1.017	1.017
Cash Flow to Equity Investor	3.921	-6.249	1.017	1.017	1.017	1.017	1.017	1.017	1.017	1.017	1.017	1.017
Cumulative		-6.249	-5.232	-4.215	-3.198	-2.181	-1.164	-0.147	0.870	1.887	2.904	3.921
IRR		10%										
Annual Subsidy per house	1.02											
Subsidy Multiplier	5.22											
Tax Credit	10.612		1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
Cash Flow to Equity Investor	4.362	-6.249	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
Cumulative		-6.249	-5.188	-4.127	-3.066	-2.005	-0.944	0.118	1.179	2.240	3.301	4.362
IRR		11%										
Annual Subsidy per house	1.06											
Subsidy Multiplier	5.01											
Tax Credit	11.060		1.106	1.106	1.106	1.106	1.106	1.106	1.106	1.106	1.106	1.106
Cash Flow to Equity Investor	4.811	-6.249	1.106	1.106	1.106	1.106	1.106	1.106	1.106	1.106	1.106	1.106
Cumulative		-6.249	-5.143	-4.037	-2.931	-1.825	-0.719	0.387	1.493	2.599	3.705	4.811
IRR		12%										
Annual Subsidy per house	1.11											
Subsidy Multiplier	4.80											

CHAPTER SIX – CONCLUSION

Given the large low income housing shortage in the Colombia, there is a need for the study of new alternatives to promote the development of affordable housing. Low income rental hosing is presented as an alternative to solve the housing needs of the more needed households in the country. It has been shown, during the development of this thesis, how an affordable housing policy that supports both ownership and rental of low income housing is possible to implement in Colombia. Furthermore, by establishing a subsidy scheme based on tax credits to attract private capital to the development of low income housing, it is possible to promote several times more housing units with the same government resources per year.

The development of the capital markets of a country is a key factor for its economic expansion. Innovative financial mechanisms present in the capital markets facilitate the growth in all the sectors of an economy by providing access to larger amounts and more efficient sources of capital. The financing of low income housing is not an exception to this fact. New financial mechanisms, such as the Low Income Housing Tax Credit program, will increase the impact of the current government resources of capital available for housing subsidies in the country.

The final proposal of the thesis is to change the current scheme of subsidies for low income housing by a new system based on tax credit incentives to private equity investors in order to leverage the financial resources of the government with private capital. If 30% of the current capital resources per year were allocated to the promotion of low income rental housing, and 70% to the promotion of affordable housing ownership, the government could promote up to four times more low income housing units per year with the proposed tax credit scheme of subsidies. The annual subsidy per low income rental house could be around $2.24 million pesos ($765 dollars)[25] and the annual subsidy for

[25] Colombian peso exchange rate: 2,926.46 pesos per dollar, January 2003

ownership of low income housing could be around $1.06 million pesos ($362 dollars). (See sensitivity analysis section chapter 4).

There are several positive externalities to the promotion of low income rental housing and the establishment of a scheme of subsidies based on tax credit incentives. New economic activities will be stimulated as a result of the change to the proposed subsidy scheme. The income producing real estate industry will be established in the country, opening the possibility to the creation in the future of economic activities that will support it, such as the commercial mortgage backed securities (CMBS) and the real estate investment trust (REIT) industries. There will also be direct benefits to the tax credit equity syndicators and finally to the tax credit equity investors. Furthermore, the increase in the construction of affordable housing, supported by the government, will help to decrease the unemployment in the country.

Low income households in the informal sector of the economy have limited access to credit mainly due to the lack of credit history. These families could build their credit history while living in a multifamily low income rental housing development subsidized by the government. The real estate investor could be required to report the monthly rent payments of tenants, so that financial institutions could assess the financial capability of low income families in the informal sector.

Due to all the benefits described above, it is clear that the proposed change in the scheme of subsidies in the country will bring several benefits directly to the low income families and to the country in general.

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