

A COMPARATIVE ANALYSIS OF REVERSE MORTGAGES: EVIDENCE FROM PUERTO RICO AND THE UNITED STATES

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ABSTRACT

This paper is a comparative and descriptive analysis of reverse mortgage loans originated in the United States and Puerto Rico from 2010 to 2012 and examines whether differences exist between both jurisdictions and the possible reasons for the latter. The study also compares the average profile of a reverse mortgage borrower in the United States and Puerto Rico. The number of new reverse mortgages generated in the United States and in Puerto Rico decreased from 2010 to 2012. However, during that same time period, the interest rate charged in Puerto Rico on reverse mortgages was higher than in the United States. There was also a reduction in the age of the average borrower. The distribution or the uses of the borrowed funds in Puerto Rico is consistent with prior studies performed in the United States.

JEL: G21, H31

KEYWORDS: Reverse Mortgages, Home Equity, Elderly Consumers, Home Equity Conversion Mortgage

INTRODUCTION

From 2000 to 2005 the individual residential market in the United States (U.S.) and in Puerto Rico (P.R.) exhibited sustained price increases (housing bubble). The financial markets in the U.S. took advantage of that bubble to aggressively promote a product known as a reverse mortgage loan (“reverse mortgage”). Reverse mortgages allow elderly consumers to obtain cash during their pre and post-retirement years using their primary home as collateral without having to abandon the property. As a result of the aforementioned housing bubble, there was a significant increase in the demand for reverse mortgages in the U.S. Although reverse mortgages were initially offered in P.R. in 1993, demand for this type of financing did not increase until 2010. The objective of this investigation is to perform a comparative and descriptive analysis of reverse mortgages originated in P.R. and the U.S. from 2010 to 2012. This study contributes to the household finance literature by studying the use of reverse mortgages by senior citizens as a financial planning tool. The results are compared with data on reverse mortgages in the United States to examine whether differences exist between both jurisdictions and the possible reasons for the latter. The rest of this paper is organized as follows. The next section presents the prior research and the institutional background, followed by the research motivation. The following section presents the research design and methodology. The last two sections present the results and conclusions.

LITERATURE REVIEW AND INSTITUTIONAL BACKGROUND

Evolution and Regulation of Reverse Mortgages in the U.S.

Shan (2011) defines a reverse mortgage as a loan granted to elderly housing owners that transforms their home equity in a source of cash that does not require the payment of interest or principal until the last of

the surviving borrowers dies (in the case of a couple), or the borrower moves permanently from the house. Michelangeli (2008) defines these instruments as private loans insured by the U.S. government designed for home owners that have their net worth tied to their homes but have little or no cash. Szymanoski, Enriquez and DiVenti (2007) state that reverse mortgages receive their name because the observed payment pattern is the opposite of a traditional mortgage (forward mortgage).

There are different types of reverse mortgages that depend on the way the borrowers receive the funds. According to the Department of Housing and Urban Development (HUD), the six possibilities are: Lump Sum, Tenure, Term, Line of Credit, Tenure and Line of Credit (also known as “Modified Tenure”), and Term and Line of Credit (also known as “Modified Term”). A Lump Sum reverse mortgage (LSUM) refers to the receipt of the net equity in the borrowers’ residence in one single amount. In a Tenure reverse mortgage (TEN), the borrowers receive equal monthly payments as long as at least one borrower lives and continues to occupy the property as a principal residence. In a Term reverse mortgage (TERM) the borrowers receive equal monthly payments for a selected or fixed number of months. A Line of Credit loan (LOC) consists of a financing arrangement where the borrowers receive a series of unscheduled payments or installments and in an amount of their choosing until the approved line of credit is exhausted. Tenure and Line of Credit (TNLC) is a combination of a line of credit and scheduled monthly payments for as long as one of the borrowers remains in the home. Term and Line of Credit (TMLC) refers to a combination of a line of credit plus monthly payments for a fixed period of months selected by the borrowers. The first known case of a reverse mortgage in the U.S. is from 1961, but it was not until 1989 when the first mortgage of this type was insured by the federal government (Donohue, 2011). From 2000 to 2007 there was a significant increase in the number of reverse mortgages generated in the U.S. (Bishop and Shan, 2008; Shan, 2011 and Nakajima, 2012). Reverse mortgages have also gained popularity in non-U.S. countries such as Australia (Reed, 2009).

Bishop and Shan (2008) suggest that the increase in reverse mortgages in the U.S. from 2000 to 2005 could have occurred due to several reasons: the housing bubble, low interest rates, owners' confidence in using their homes as collateral for obtaining loans and a growing awareness of the availability of reverse mortgages. Helm (2008) also identifies demographic factors such as the increased average life expectancy and the number of persons entering retirement age that belong to the segment of the population known as “baby boomers”. McGarity (2007) states that unlike the Depression-era generation that was much more conservative and felt the need to leave a legacy to their heirs, baby boomers do not have the same priorities and understand that they can use their home equity to meet their economic needs.

According to Bishop and Shan (2008) 90% of the reverse mortgages originated in the U.S. are classified as Home Equity Conversion Mortgages (HECM), which are loans insured by the Federal Housing Administration (FHA), which is part of HUD. The remaining non-FHA insured reverse mortgage loans are known as proprietary reverse mortgages, which are offered by private sector banks and mortgage companies. To qualify for an HECM loan, the borrower must be at least 62 years old, live in the residence and the property must either not have a mortgage lien or the amount of the loan must be low (Bishop and Shan, 2008). In addition, the borrower must not be delinquent on any federal debt. The borrower’s income level or credit score does not affect the eligibility for a reverse mortgage. The amount borrowed depends on the appraised value of the residence, the age of the youngest residence owner (in the case of a couple) and the expected interest rates. Del Vecchio, Hopson and Hopson (2009) also find that as a general rule, the cash received from a reverse mortgage rarely exceeds 50% of the home equity. Age is important because the older a borrower is, the life expectancy is lower, and there is less time for the loan balance to increase. Lower interest rates also allow a prospective borrower to borrow a larger amount because there will be a lower balance of accrued interest when the loan termination occurs (Godfrey and Malmgren, 2006).

Pursuant to HUD Mortgage Letter No. 00-10 dated March 8, 2000, HUD requires all interested borrowers in obtaining a HECM loan to attend a financial counseling session. On September 28, 2006, HUD added the requirement that an applicant's heirs (children or relatives) must also attend a financial counseling session (HUD Mortgage Letter No. 06-25) prior to the approval of the HECM loan requested by the applicants. The regulations do not require that the applicants and their children attend the financial counseling sessions at the same time.

According to Rose (2009) the interest rate on these mortgages in the U.S. increased because of their use as a mechanism to supplement the income of retirees. In the U.S. and P.R. retirees depend on their savings and Social Security benefits (and pension plans if they have them) to pay their personal expenses, including their medical costs. Many retirees have seen the balance of their savings and the value of their investment portfolios shrink due to lower interest rates and bear markets. However, since 2006 the demand for this product has stabilized. According to Nakajima and Telyukova (2013), reverse mortgages were used by only 2.1% of the eligible elderly consumers in 2011. The observed reduction in demand for reverse mortgages seems to be due to several factors. Sinai and Souleles (2007) note that retirees have increased their aversion to the risk of having to move from their residence and if they do move, they do not want to move to a smaller house. Michelangeli (2008) finds that retirees value their houses over consumption and they perceive reverse mortgages as a very risky and specialized product. Nakajima and Telyukova (2013) suggest that the costs imposed by lenders make reverse mortgages a very expensive alternative to raise cash in case of an emergency.

In 2006, HUD's Office of Policy Development and Research disclosed that the average age for a borrower of a reverse mortgage is 74 years and the average loan amount is \$159,000 on a house valued at \$289,000, which represents 55% of the appraised value (Detwiler, 2008). A survey made by Reverse Market Insight, Inc. in 2009 revealed that 75% of reverse mortgage borrowers used 75% of the borrowed funds to pay other debts (Yeary, 2009). In March 2012 the MetLife Mature Market Institute found that the average age of reverse mortgage borrowers decreased from 76 in 2000 (77 years in 1990) to 71.5 years. This reduction is partially attributed to the reduction in housing prices, low interest rates paid on savings and fluctuations in stock markets. The study also revealed that 66% of loan applicants initiated the process to reduce their debts and to meet their precarious financial situation (Elmer, 2012).

The typical fees and charges in a HECM loan include a mortgage insurance premium (initial and annual), third party charges, origination fee, interest, and servicing fees. The initial mortgage insurance premium (MIP) charged at closing can be 2% (Standard HECM) or .01% (HECM Saver) of the lesser of the appraised value of the home, the FHA HECM mortgage limit of \$625,500, or the sales price. The annual MIP will be 1.25% of the mortgage balance. Third party charges are the loan's closing costs that include the appraisal fee, title search and insurance, surveys, inspections, recording fees, mortgage taxes, credit checks and other fees. The origination fee will be based on the appraised value of the residence. If the value of the home is less than \$125,000, the fee is capped at \$2,500.

If the value of the property exceeds \$125,000, the first \$200,000 of the value will be assessed a fee of 2%, and 1% for the excess over \$200,000, with a maximum fee of \$6,000. The servicing fee imposed by financial institutions is a monthly charge added to the loan's balance (\$30 to \$35) depending on the frequency of the adjustment of the loan's interest rate. On June 17, 2011, Bank of America and Wells Fargo & Co., two of the leading banks in the generation of reverse mortgages, decided to abandon this market (Bernard, 2011). On May 2, 2012, MetLife Bank, a subsidiary of MetLife Insurance Company and the third largest bank in this type of financing, announced its decision to withdraw from this segment (Carrns, 2012). Among the reasons provided by these banks to withdraw from the reverse mortgage market are the generalized reduction in housing prices in the U.S. and the difficulties in evaluating the financial situation of the applicants for these types of loans (Nakajima, 2012). Carrns (2012) suggests

that the exit of these three banks market will allow the entry of more efficient smaller banks specialized in this type of financing.

Advantages and Disadvantages of Reverse Mortgages

A study made in Australia found that many senior citizens are unfamiliar with all of the implications of reverse mortgages (Reed, 2009). Reverse mortgages present advantages and disadvantages. On the one hand, borrowers may obtain cash by using their residence as collateral and, by paying an insurance premium, also obtain protection against the possible reduction in the value of the property (Nakajima, 2012). On the other hand, reverse mortgages could discourage savings among senior citizens. In addition, property owners are exposed to the risk of having to move from their house after having obtained the loan and paid the loan's closing and origination costs. Nakajima (2012) also indicates that moral hazard problems could increase if property owners fail to carry out the periodic repair work necessary to maintain or protect their home.

Although reverse mortgages do not require the repayment of the amount borrowed to the lender, a borrower must continue to pay real property taxes and hazard insurance on the property used as the collateral for the reverse mortgage. If a borrower does not make these payments, a default occurs on the reverse mortgage and the lender may terminate or cancel the loan. On average, 50% of reverse mortgages generated in the U.S. are terminated (cancelled) in seven years, which after considering the closing and origination costs, results in a very expensive type of financing (Del Vecchio, Hopson and Hopson, 2009). Tergesen (2013) reports a current increase in the number of reverse mortgages in default in the U.S. as compared to 2011. In April 2013, approximately 10% of the almost 600,000 reverse mortgage loans were in arrears (8% in 2011).

Development and Regulation of the Reverse Mortgage Market in P.R.

As a territory of the U.S., P.R. is subject to federal laws and regulations. Commercial banks doing business in P.R. are subject to federal laws and are insured by the Federal Deposit Insurance Corporation (FDIC). The Office of the Commissioner of Financial Institutions of Puerto Rico (OCIF, by its acronym in Spanish) is the local financial regulatory entity and works closely with the FDIC and other financial institutions such as mortgage banks and credit unions. Reverse mortgages were initially offered in P.R. in 1993, but demand for this type of financing did not increase significantly until 2010. OCIF started to compile statistical data for this type of loan during the first quarter of 2010. Law Number 164 dated July 29, 2011 (Consumer Protection Law of Reverse Mortgages) established the regulatory framework for financial institutions that grant this type of loans. On January 4, 2012, OCIF issued Regulation 8132 (Regulation of the Consumer Protection Law of Reverse Mortgages) to establish the rules that must be followed by all financial institutions that "provide, manage, originate, process or grant reverse mortgage loans".

Research Motivation

OCIF started to compile data on reverse mortgages granted in P.R. during the first quarter of 2010, whereas the starting point for the literature in the U.S. is towards the end of the 1980's. An exploratory study by Cardona and Castro (2012) noted that, from 2010 to 2012, there has been an increase in the number of financial institutions in Puerto Rico offering reverse mortgages accompanied by a reduction in the number of loans granted and in the average loan amount during that same period. The expected contribution from this investigation is to develop a profile of reverse mortgages, borrowers, and volume tendencies in P.R. and compare it with similar data for reverse mortgages generated in U.S. The next section presents the data and the research methodology.

METHODOLOGY

Data

We use data from different sources. The HUD Puerto Rico Field Office provided us with information related to the endorsed HECM loans in the U.S. and P.R. during the fiscal years ended on September 30, 2012, 2011 and 2010, respectively. OCIF provided us with aggregate information for the reverse mortgage loans originated by financial institutions in P.R. from the first quarter of 2010 to the first quarter of 2012. A mortgage bank in P.R. provided us with information from a sample of reverse mortgages originated during the same period as the information provided by OCIF. The information provided by the mortgage bank includes age, gender, marital status (married or unmarried) and geographical location of the property, origination date and loan amount, weighted average interest rate, closing and origination costs, amount paid to cancel the existing lien on the property (if applicable) and the net remaining cash. In addition, Consumer Credit Counseling Services of P.R. (CCCS) provided us with the number of financial counseling sessions offered to consumers interested in obtaining reverse mortgages from the first quarter of 2010 to the first quarter of 2012, which was used to measure the interest in this product and how it has changed during the aforementioned period.

Shan (2011) uses U.S. zip codes to identify to identify the concentration of loans by geographic area. Since we did not have available information for the properties' zip codes, we used the senatorial district of the municipality where the home is located using the classification criteria used by the P.R. State Elections Board. We were unable to obtain information about the motivations or reasons for the applicants to apply for the reverse mortgages or their indebtedness before applying for the loans. We use the data and the information obtained to develop an average profile of the reverse mortgage borrower, the approved loan type, and any relationships between the data, such as interest rates. We assign a different number to each financial institution to protect their identity. The name of each borrower is also protected because each loan is only identified by a random number assigned by the mortgage bank.

RESULTS

Comparisons between Puerto Rico and U.S. Averages

Table 1 presents HECM loans endorsed by HUD in the U.S. and in P.R. during fiscal years (FY) 2010, 2011 and 2012. For FY 2010 (2010) there were 79,063 HECM endorsements in the U.S. and 1,746 in P.R. For FY 2011 (2011) the number of cases in U.S. decreased to 73,109, (a 7.5% decrease), and to 1,684 in P.R. (a 3.6% decrease). For FY 2012 (2012) the number of cases in U.S. decreased to 54,591 and 1,522 in P.R. HECM loans generated in P.R. in 2010 represent 2.2% of the loans generated in the U.S., 2.3% in 2011 and 2.8% in 2012. The average interest rate in U.S. and P.R. for 2010 was 3.61% and 4.41%, respectively, which represents a net US-PR spread of 0.80%. For 2011, the average interest rate decreased in U.S. to 3.22%, whereas in P.R., the average rate increased to 4.61%, which represents a net US-PR spread of 1.39%. In 2012, the average interest rate in U.S. increased slightly to 3.30%, whereas in P.R. the interest increased to 4.63%. Therefore, the net US-PR spread increased from 2010 to 2011 by 0.59% and decreased by 0.06% from 2011 to 2012. The fluctuations between fiscal years may be attributed to a combination of perceived slight increase in borrowers' risk and/or related transaction costs.

Table 1: HECM Reverse Mortgage Loans Endorsed By HUD in the U.S. and P.R. from Fiscal Years 2010 to 2012

Period	Region	Cases Endorsed by HUD	Average Interest Rate (%)	Average Maximum Claim Amount	Avg. Monthly Set Aside for Taxes and Insurance	Average Borrower's Current Age
FY2010	U.S.	79,063	3.61	\$306,691.50	\$0.45	78
	P.R.	1,746	4.41	\$232,917.04	\$0.00	76
FY2011	U.S.	73,109	3.22	\$285,339.43	\$0.37	77
	P.R.	1,684	4.61	\$228,486.34	\$0.00	73
FY2012	U.S.	54,591	3.30	\$271,154.96	\$0.00	76
	P.R.	1,522	4.63	\$191,347.90	\$0.00	76

Source: Data was provided by the Single Family Data Warehouse (SFDW) of the Puerto Rico HUD Field Office.

During 2010 the average maximum claim (loan) amount in U.S. was \$306,691 and \$232,917 in P.R. During 2011 the average maximum claim (loan) amount decreased to \$285,339 and \$228,486 in U.S. and P.R., respectively. During 2012 the average maximum claim (loan) amount decreased to \$271,155 and \$191,348, in U.S. and P.R., respectively. The decreases in the average U.S. and P.R. amounts from 2010 to 2012 are possibly attributed to a larger decrease in real estate values in the U.S. compared to P.R. The average total loan amount in the U.S. includes an average monthly reserve of \$0.45 for real property taxes and insurance, whereas in P.R. it is \$0.00. Property taxes on real estate located in P.R. are usually lower than the U.S. because of a \$15,000 property tax exemption on the assessed value of a home owner's principal residence. Veterans from the U.S. Armed Forces may also qualify for an additional \$4,000 exemption. Assessed property values in P.R. are determined based on real estate values as of January 1, 1957. As a result, many homes pay either no taxes or very small property taxes after considering the aforementioned exemption granted by law.

The average borrowers' age for 2010 in the U.S. is 78 years and in P.R. is 76 years. In 2011 the average age decreased in both U.S. and in P.R. to 77 and 73, respectively. The average age decreased in the U.S. by one year, whereas in P.R. it decreased by three years. Table 2 presents the different types of HECM Reverse Mortgage loans endorsed by HUD in the U.S. and P.R. from 2010 to 2012. In 2010, the LOC was the most commonly granted reverse mortgage in the U.S., followed by LSUM. LOC loans account for 83.3% of the loans granted that year, while LSUM loans are 10.3%, which implies that together, they represent approximately 94% of the HECM loans granted in the U.S. that year. During 2010, in P.R., approximately 85% of the loans granted were of the LOC type, followed by TEN loans (12%). The combination of LOC and TEN loans represent 97% of the reverse mortgage loans granted in P.R. that year. The demand for the other HECM loan types was negligible. In 2010, most of the approved HECM loans both in the U.S. and in P.R. were of the LOC type. Possible explanations for this behavior may include the possibility that the borrower wants to have a pre-approved line of credit in case of an emergency without having to request an additional loan or to obtain cash ("net cash payout") from a property that is debt-free.

During 2011 the reverse mortgage market in the U.S. experienced a significant change. LSUM became the loan type with the highest percentage of loans granted accounting for almost 50% of the total. LOC lagged behind with a drastic reduction from 83.3% in 2010 to 44% in 2011. In P.R., LOC remained as the reverse mortgage type with the highest amount of cases, but decreased from approximately 85% in 2010 to 57% in 2011. The observed reduction in the number of cases of the LOC type was due to an increase in the number of cases of the LSUM and TEN types. The TEN category accounts for 22.4% of the loans while LSUM represents almost 20%. The observed shift in the U.S. from LOC to LSUM during 2011 was not as dramatic in P.R., where the documented preference is for LSUM and TEN. This shift to LSUM, both in P.R. and in the U.S., might be attributed to the need for borrowers to generate cash from their properties ("net cash payout") to pay for medical or living expenses, repay other loans, or to enjoy

life as soon as possible. Another possible explanation for the shift in U.S. to LSUM has to do with the entry of specialized (smaller) financial institutions in the reverse mortgage market. These specialized entities do not have the same manpower or infrastructure to handle the monitoring complexities required to manage reverse mortgages other than LSUM. Interest rates on reverse mortgages are the highest in the loan types with highest demand. During 2010, the average interest rate charged in a LOC in the U.S. was 4.73%, while for a LSUM it was 5.47%. The same pattern is observed during 2011.

Table 2: Types of HECM Reverse Mortgage Loans Endorsed by HUD in the U.S. and P.R. from Fiscal Years 2010 to 2012

Period	Region	Loan Type	Cases Endorsed By HUD	Cases As A Percentage Of FY Total Loans (%)	Average Interest Rate (%)	Average Borrower's Current Age	Average Maximum Claim Amount	Average Monthly Set Aside For Taxes And Insurance
FY 2010	U.S.	Lump	8,160	10.32	5.47	74	\$251,849.16	\$0.00
		Term	486	0.61	2.74	79	\$303,620.58	\$0.00
		Line of	65,825	83.26	4.73	75	\$262,842.01	\$0.00
		Term	2,095	2.65	2.70	81	\$337,672.68	\$1.37
		Tenure	1,136	1.44	3.30	78	\$307,551.57	\$0.00
		Tenure	1,361	1.72	2.73	82	\$376,612.97	\$1.34
		Total	79,063	100.0	3.61	78	\$306,691.50	\$0.45
	P.R.	Lump	39	2.23	5.11	72	\$178,158.97	\$0.00
		Term	9	0.52	3.85	76	\$231,111.11	\$0.00
		Line of	1,482	84.88	5.07	74	\$184,099.15	\$0.00
		Term	3	0.17	3.32	88	\$374,000.00	\$0.00
		Tenure	212	12.14	5.64	73	\$204,133.02	\$0.00
		Tenure	1	0.06	3.49	70	\$226,000.00	\$0.00
		Total	1,746	100.0	4.41	76	\$232,917.04	\$0.00
FY 2011	U.S.	Lump	36,170	49.47	5.08	72	\$238,503.52	\$0.00
		Term	424	0.58	2.45	78	\$299,424.53	\$0.00
		Line of	32,189	44.03	3.62	74	\$252,683.13	\$0.00
		Term	1,921	2.63	2.44	79	\$304,950.05	\$1.04
		Tenure	1,226	1.68	3.30	76	\$268,831.47	\$0.27
		Tenure	1,179	1.61	2.43	80	\$347,643.88	\$0.94
		Total	73,109	100.0	3.22	77	\$285,339.43	\$0.37
	P.R.	Lump	332	19.71	5.16	71	\$174,286.24	\$0.00
		Term	3	0.18	5.19	78	\$304,166.67	\$0.00
		Line of	968	57.48	5.30	73	\$171,614.62	\$0.00
		Term	2	0.12	3.24	73	\$313,000.00	\$0.00
		Tenure	378	22.45	5.26	73	\$177,850.53	\$0.00
		Tenure	1	0.06	3.49	74	\$230,000.00	\$0.00
		Total	1,684	100.0	4.61	74	\$228,486.34	\$0.00
FY 2012	U.S.	Lump	33,784	61.89	4.92	72	\$230,564.06	\$0.00
		Term	290	0.53	2.77	77	\$253,574.14	\$0.00
		Line of	17,584	32.21	3.39	74	\$248,750.78	\$0.00
		Term	1,282	2.35	2.79	79	\$299,789.39	\$0.09
		Tenure	816	1.49	3.12	76	\$270,021.29	\$0.00
		Tenure	835	1.53	2.79	79	\$324,230.08	\$0.00
		Total	54,591	100.0	3.30	76	\$271,154.96	\$0.00
	P.R.	Lump	1,120	73.59	5.07	72	\$157,383.68	\$0.00
		Term	3	0.20	5.06	75	\$157,333.33	\$0.00
		Line of	276	18.13	5.15	74	\$154,761.81	\$0.00
		Term	1	0.07	2.75	86	\$330,000.00	\$0.00
		Tenure	122	8.02	5.14	73	\$157,260.66	\$0.00
		Tenure	0	-	-	-	-	-
		Total	1,522	100.0	4.63	76	\$191,347.90	\$0.00

Source: Data was provided by the Single Family Data Warehouse (SFDW) of the Puerto Rico HUD Field Office

The LSUM loans continue to have the highest interest rates with 5.08% and LOC have the second highest interest rate with 3.62%. In P.R. the interest rate situation during 2010 was different. The TEN loan category has the highest average interest rate (5.64%), among all types; while LOC has the third highest

rate at 5.07%. Similar to the U.S. in 2010, LSUM in P.R. has a high average interest rate of 5.11%. In 2011, both TEN and LOC remain as the loans that charge the highest interest rates of 5.30% and 5.26%, respectively. When it comes to the age of the average borrower, the observed trend is that younger borrowers select the most commonly granted types of reverse mortgages and also the most expensive alternatives, which suggests a negative correlation between the average age of borrowers and risk. The results seem to suggest that financial institutions might be charging higher amounts to borrowers they expect to live longer. LOC borrowers in 2010 and 2011 in U.S. have an average age of 75 and 74 years, respectively, whereas LSUM borrowers in 2010 and 2011 have an average age of 74 and 72 years, respectively. In P.R. the borrower tends to be younger. LOC borrowers in 2010 and 2011 have an average age of 74 and 73 years, respectively, while TEN borrowers in both 2010 and 2011, respectively, have an average age of 73 years. Table 2 also presents the average maximum claim amount by type of reverse mortgages loans generated in the U.S. and P.R. during 2010 and 2011. The data presents the following patterns. The HECM loans most commonly granted in the U.S. during 2010 and 2011 (LOC and LSUM), represent the loans with the lowest average claim. During the same period, one of the least granted types of loan (TNLC) has the highest claim amount with \$376,612 and \$347,643, in 2010 and 2011, respectively. During 2010 in P.R., the average claim for the LOC reverse mortgage loans amounted to \$184,099, one of the lowest average claim amounts for 2010. During 2011, the LOC and LSUM categories represent the HECM loans with the lowest average claim. TMLC, one of the categories with the smaller number of cases, has the highest maximum claim in P.R. for 2010 and 2011.

However, in 2011 and 2012, the most frequently generated HECM loan in the U.S changed to LSUM, whereas in P.R. there was a change from 2011 to 2012, with the LSUM type replacing the LOC type as the most common reverse mortgage. The observed changes in the U.S. and P.R. might be due to increased cash flow needs of the borrowers or the entry of specialized (smaller) financial institutions generating reverse mortgages. In connection with the average monthly amount set aside for real property taxes and insurance, properties with higher values, on average, tend to have higher amounts set aside for these purposes. In the U.S., TMLC and TNLC tend to have higher amounts set aside for 2010 and 2011. In addition, these loan types tend to have the lowest interest rates. This may be due to the fact that reverse mortgages with higher interest rates have property taxes and insurance fees included in the average interest rate charged or as part of the amounts to be financed. In P.R. there are no charges for this purpose for any of the loans, although they might be included as part of the amounts financed or as an additional financing cost. As previously mentioned, many borrowers pay either no real property taxes (or a very small amount) on their principal residence after considering the exemption granted by law.

The 50 States versus Puerto Rico

To better understand the reverse mortgage market in the U.S., we compare the available data by state. We include 52 jurisdictions: the 50 states, Washington, D.C. and Puerto Rico. The U.S. Virgin Islands were excluded because of missing data. Table 3, Panel A, presents the number of reverse mortgages granted by state for fiscal years 2010 to 2012, population and the ratio of loans as a percentage of each state's population. We observed that the most populated state during the three fiscal years (California) is the state with the highest number of reverse mortgages granted each year from 2010 to 2012. In 2010, Florida had the second highest number of loans granted, followed by Texas, New York and Maryland. P.R. had the 14th highest number of loans among states and territories and occupied the 28th position in terms of population. In 2011, Texas had the second highest number of reverse mortgages granted, followed by Florida, New York and Pennsylvania. P.R. had the 13th highest number of loans among states and territories and occupied the 27th position in terms of population. In 2012, Texas continued to be the state with the second highest number of reverse mortgages granted; New York, Florida and Pennsylvania followed, respectively.

Table 3: HECM Reverse Mortgage Loans Granted by Jurisdiction in the U.S. and P.R. from Fiscal Years 2010 to 2012

Panel a: Reverse Mortgages Per Capita Form										
State	Number of Reverse Loans Granted			Population			Reverse Loans Per Capita (%)			Trendd
	2010	2011	2012	2010	2011	2012	2010	2011	2012	
AK	91	95	52	714,146	722,718	731,449	0.013	0.013	0.007	↓
AL	1,128	1,216	924	4,785,401	4,802,740	4,822,023	0.024	0.025	0.019	↓
AR	653	728	531	2,921,588	2,937,979	2,949,131	0.022	0.025	0.018	↓
AZ	1,679	1,448	961	6,413,158	6,482,505	6,553,255	0.026	0.022	0.015	↓
CA	11,058	9,849	6,949	37,338,198	37,691,912	38,041,430	0.030	0.026	0.018	↓
CO	1,412	1,375	1,075	5,047,692	5,116,796	5,187,582	0.028	0.027	0.021	↓
CT	1,198	1,062	766	3,575,498	3,580,709	3,590,347	0.034	0.030	0.021	↓
DC	614	585	390	604,912	617,996	632,323	0.102	0.095	0.062	↓
DE	459	393	274	899,792	907,135	917,092	0.051	0.043	0.030	↓
FL	7,109	4,969	3,355	18,838,613	19,057,542	19,317,568	0.038	0.026	0.017	↓
GA	1,954	1,746	1,114	9,712,157	9,815,210	9,919,945	0.020	0.018	0.011	↓
HI	425	325	231	1,363,359	1,374,810	1,392,313	0.031	0.024	0.017	↓
IA	282	361	271	3,050,202	3,062,309	3,074,186	0.009	0.012	0.009	↓
ID	536	498	303	1,571,102	1,584,985	1,595,728	0.034	0.031	0.019	↓
IL	2,650	1,877	1,428	12,841,980	12,869,257	12,875,255	0.021	0.015	0.011	↓
IN	790	790	670	6,490,622	6,516,922	6,537,334	0.012	0.012	0.010	↓
KS	295	352	274	2,859,143	2,871,238	2,885,905	0.010	0.012	0.009	↔
KY	382	451	414	4,347,223	4,369,356	4,380,415	0.009	0.010	0.009	↔
LA	1,141	1,228	1,099	4,545,343	4,574,836	4,601,893	0.025	0.027	0.024	↓
MA	1,766	1,532	1,115	6,555,466	6,587,536	6,646,144	0.027	0.023	0.017	↓
MD	3,228	2,488	1,551	5,785,681	5,828,289	5,884,563	0.056	0.043	0.026	↓
ME	367	378	299	1,327,379	1,328,188	1,329,192	0.028	0.028	0.022	↓
MI	1,064	794	637	9,877,143	9,876,187	9,883,360	0.011	0.008	0.006	↓
MN	823	1,037	534	5,310,658	5,344,861	5,379,139	0.015	0.019	0.010	↓
MO	1,025	942	756	5,995,715	6,010,688	6,021,988	0.017	0.016	0.013	↓
MS	397	528	496	2,970,072	2,978,512	2,984,926	0.013	0.018	0.017	↑
MT	326	335	207	990,958	998,199	1,005,141	0.033	0.034	0.021	↓
NC	1,550	1,885	1,523	9,560,234	9,656,401	9,752,073	0.016	0.020	0.016	↔
ND	41	53	25	674,629	683,932	699,628	0.006	0.008	0.004	↓
NE	218	237	141	1,830,141	1,842,641	1,855,525	0.012	0.013	0.008	↓
NH	387	336	254	1,316,807	1,318,194	1,320,718	0.029	0.025	0.019	↓
NJ	3,093	3,016	2,212	8,799,593	8,821,155	8,864,590	0.035	0.034	0.025	↓
NM	725	625	432	2,065,913	2,082,224	2,085,538	0.035	0.030	0.021	↓
NV	435	403	287	2,704,283	2,723,322	2,758,931	0.016	0.015	0.010	↓
NY	4,624	4,341	3,923	19,395,206	19,465,197	19,570,261	0.024	0.022	0.020	↓
OH	1,145	1,216	978	11,537,968	11,544,951	11,544,225	0.010	0.011	0.008	↓
OK	650	642	610	3,760,184	3,791,508	3,814,820	0.017	0.017	0.016	↓
OR	1,804	1,344	899	3,838,332	3,871,859	3,899,353	0.047	0.035	0.023	↓
PA	2,886	3,295	2,634	12,717,722	12,742,886	12,763,536	0.023	0.026	0.021	↓
PR	1,746	1,684	1,522	3,722,000	3,694,000	3,667,000	0.047	0.046	0.042	↓
RI	248	232	187	1,052,528	1,051,302	1,050,292	0.024	0.022	0.018	↓
SC	1,258	1,287	900	4,637,106	4,679,230	4,723,723	0.027	0.028	0.019	↓
SD	71	93	53	816,598	824,082	833,354	0.009	0.011	0.006	↓
TN	1,203	1,338	1,321	6,357,436	6,403,353	6,456,243	0.019	0.021	0.020	↔
TX	6,307	6,671	4,865	25,253,466	25,674,681	26,059,203	0.025	0.026	0.019	↓
UT	1,059	998	987	2,775,479	2,817,222	2,855,287	0.038	0.035	0.035	↓
VA	3,125	2,811	1,907	8,023,953	8,096,604	8,185,867	0.039	0.035	0.023	↓
VT	131	138	100	625,909	626,431	626,011	0.021	0.022	0.016	↓
WA	2,378	1,829	1,272	6,742,950	6,830,038	6,897,012	0.035	0.027	0.018	↓
WI	795	889	577	5,691,659	5,711,767	5,726,398	0.014	0.016	0.010	↓
WV	176	181	166	1,854,368	1,855,364	1,855,413	0.009	0.010	0.009	↔
WY	141	175	138	564,554	568,158	576,412	0.025	0.031	0.024	↔
Panel B: Descriptive Statistics for All Jurisdictions Excluding P.R.										
Average	1,516	1,400	1,041	6,065,298	6,109,645	6,155,177	0.025	0.024	0.017	
Std.Dev...	2,011	1,780	1,296	6,839,909	6,907,158	6,974,698	0.016	0.013	0.009	
N	51	51	51	51	51	51	51	51	51	
Panel C: Descriptive Statistics for P.R.										
Average	1,746	1,684	1,0522	3,722,000	3,694,000	3,667,000	0.047	0.046	0.42	
N	1	1	1	1	1	1	1	1	1	

Source: Data was provided by the Single Family Data Warehouse (SFDW) of the Puerto Rico HUD Field Office.

In 2012, P.R. became the jurisdiction that had the 10th highest number of loans among states and territories and occupied the 27th position in terms of population. The evidence suggests there is an increase in the use of this financial instrument in P.R. in comparison with other states and territories.

We calculated the ratio of reverse mortgages to the jurisdiction's population to compare the number of reverse mortgage loans per state (*reverse loans per capita*). As a percentage of its population, Washington, D.C. had the highest percentage of reverse loans per capita each year for the 2010 to 2012 period. In 2010, Maryland holds the second position with 0.056% of loans to population ratio. However, in 2011 and 2012, P.R. became the jurisdiction with the second highest proportions of loans to population with 0.046% and 0.042%, respectively. North Dakota is the jurisdiction with the lowest number of reverse loans granted for the three-year period. This statement holds even when compared to other jurisdictions while using the reverse loans per capita ratio.

Table 3, Panel B, presents the aggregate descriptive statistics for 51 jurisdictions (excluding P.R.) for fiscal years 2010 to 2012. Panel C presents descriptive statistics for P.R. On average, P.R. has 13% more reverse loans granted than the other U.S. jurisdictions in the sample. The average number of reverse mortgages granted in the U.S. jurisdictions has decreased from 2010 to 2012. This change represents almost a 31% decrease in the average number of loans granted. The average number of loans granted in P.R. decreased by 13%. This change is lower than the observed on average in other jurisdictions. The evidence seems to suggest that the Puerto Rican market for reverse loans has contracted, but not at the same pace than in other jurisdictions. The average population increased by 1% in the U.S. jurisdictions and in P.R. In the U.S. jurisdictions, the average reverse loans per capita decreased by 31% from 2010 to 2012. In P.R. the average number of reverse loans per capita decreased by 11% in the same period.

Table 4, Panel A, presents the average interest rate, average borrower's age and the maximum claim amount by jurisdiction. P.R. has the highest average interest rates each year from 2010 to 2012. North Dakota and South Dakota have the second and third highest average interest rates in 2010. However, these two states are positioned as two of the jurisdictions with the lowest number of loans granted in 2010. In terms of borrower's age, in 2010, North Dakota has, on average, the youngest borrowers, followed by Montana, South Dakota, Arkansas and Puerto Rico. In 2011, North Dakota is still the jurisdiction that has the youngest borrowers and P.R. drops to the 7th position. In 2012, Wyoming is the jurisdiction with the youngest average borrowers, while P.R. drops to 33rd position. In other words, the average borrower in P.R. is older in comparison with other states. Finally, the average maximum claim amount is higher in the state of Hawaii from 2010 to 2012. From 2010 to 2012, California, Delaware, Washington, D.C. and New York are the four states that follow Hawaii. In 2010, P.R. occupied the 28th position. In 2011 and 2012, it occupied positions 39th and 35th, respectively.

Table 4, Panel B, presents the aggregate descriptive statistics for average interest rate, borrower's age and the maximum claim amount. The information reflects data for 51 jurisdictions (excluding P.R.) for fiscal years 2010 to 2012. Panel C shows the descriptive statistics for P.R. On average, interest rates in the U.S. jurisdictions decreased by about 9%, while in P.R. they increased by 5% from 2010 to 2012. The average borrower's age decreased in P.R. and in the rest of the U.S. jurisdictions. In P.R. the average age decreased by 1%, while in other U.S. jurisdictions it decreased by 4%. The same trends can be observed for the average maximum claim amount. For the U.S. jurisdictions, the average claim amount decreased by 8%. The change in P.R. is more dramatic, where the average claim amount decreased by 18%. The different (higher) interest rates charged in P.R. in comparison with U.S. banks and the reduction in the average maximum claim amount in P.R. during the 2010-2012 period could be related but requires further analysis.

Table 4: Average Interest Rate, Borrower's Age and the Maximum Claim Amount of HECM Reverse Mortgage Loans by State from Fiscal Years 2010 to 2012

Panel a: Average Interest Rate, Borrower's Age and the Maximum Claim Amount For All Jurisdictions									
	Average Interest Rate (%)			Average Borrowers' Age (Years)			Average Maximum Claim Amount (\$)		
State	2010	2011	2012	2010	2011	2012	2010	2011	2012
AK	3.40	1.77	1.82	78	72	71	299,612	295,207	256,321
AL	3.76	3.25	3.16	81	75	76	184,752	180,979	141,545
AR	3.78	3.82	3.29	75	76	74	219,467	156,678	206,462
AZ	3.51	3.01	3.19	78	75	75	255,618	237,110	210,528
CA	3.48	3.01	3.16	79	78	77	461,681	426,615	402,102
CO	3.52	3.01	3.16	78	76	73	246,976	294,328	240,199
CT	3.45	2.93	3.20	79	80	77	310,613	299,746	288,382
DC	3.74	3.35	3.39	80	78	72	407,645	398,582	405,238
DE	3.60	3.12	3.28	79	74	74	413,450	260,720	344,062
FL	3.60	3.09	3.25	79	77	76	245,173	221,230	230,363
GA	3.54	3.14	3.20	78	77	74	217,385	220,398	209,272
HI	3.51	2.88	2.95	78	75	75	486,421	508,293	471,296
IA	3.41	2.97	3.40	76	77	74	159,578	134,873	131,387
ID	3.56	3.18	3.30	77	74	75	250,578	224,074	175,610
IL	3.47	3.05	3.11	80	79	77	219,220	212,646	193,713
IN	3.42	3.12	3.32	79	75	75	133,224	163,843	157,654
KS	3.78	3.21	3.28	78	78	73	195,512	169,837	136,750
KY	3.51	3.15	3.30	78	76	76	193,829	171,636	134,821
LA	3.63	3.24	3.29	78	76	74	184,465	286,124	184,725
MA	3.43	2.93	3.15	77	76	74	340,920	338,681	308,585
MD	3.55	3.13	3.22	78	76	75	306,208	303,161	311,436
ME	3.44	2.98	3.23	77	73	75	259,750	227,266	256,768
MI	3.61	3.03	3.19	79	77	75	173,760	162,475	187,263
MN	3.41	2.93	3.19	78	76	76	229,752	216,874	216,345
MO	3.57	3.18	3.31	77	77	74	179,556	164,009	185,819
MS	3.79	3.20	3.67	77	78	73	143,686	172,239	191,883
MT	3.48	3.05	2.98	74	73	75	268,261	275,164	266,917
NC	3.40	3.05	3.25	78	77	74	242,049	225,765	209,881
ND	4.06	3.45	3.53	72	71	74	117,078	148,507	150,742
NE	3.42	3.01	3.27	78	76	77	157,099	201,807	165,250
NH	3.46	2.84	3.22	77	76	74	246,295	236,435	235,109
NJ	3.39	2.98	3.18	79	78	78	318,382	304,220	290,773
NM	3.66	3.00	3.35	76	75	75	292,505	259,874	266,701
NV	3.41	3.13	3.07	78	76	74	243,822	235,793	200,371
NY	3.44	3.06	3.25	79	78	77	399,672	383,249	371,490
OH	3.63	3.12	3.20	80	79	76	174,329	131,451	124,172
OK	3.61	3.31	3.31	81	74	74	168,676	133,407	157,764
OR	3.50	3.07	3.18	76	75	74	277,644	248,779	222,755
PA	3.48	3.15	3.33	78	78	75	212,508	209,232	194,088
RI	3.43	2.87	3.16	77	77	79	260,988	291,884	266,919
SC	3.57	3.08	3.29	77	75	74	228,368	241,690	222,463
SD	3.89	3.26	3.29	75	72	75	158,830	210,166	143,083
TN	3.70	3.19	3.36	78	75	75	216,989	221,294	150,985
TX	3.62	3.17	3.34	79	77	74	187,825	187,709	181,614
UT	3.58	3.03	3.29	76	75	75	234,217	212,808	221,163
VA	3.48	3.07	3.22	78	76	77	278,715	274,252	264,283
VT	3.45	3.01	3.25	76	76	73	299,015	319,534	240,386
WA	3.51	3.00	3.25	77	75	75	333,775	309,571	310,320
WI	3.64	3.06	3.19	78	76	76	206,019	211,843	182,858
WV	3.57	3.16	3.43	77	79	73	138,623	150,364	159,137
WY	3.86	3.09	3.58	77	77	71	230,818	234,682	207,819
Panel B: Descriptive Statistics For All Jurisdictions Excluding P.R.									
Average	3.56	3.08	3.23	78	76	75	247,281.04	241,315.76	227,168.08
Std. Dev.	0.15	0.24	0.24	1.64	1.88	1.60	82,551.08	77,784.82	76,367.21
N	51	51	51	51	51	51	51	51	51
Panel C: Descriptive Statistics For P.R.									
Average	4.41	4.59	4.63	76	74	75	232,901	196,606	191,348
N	1	1	1	1	1	1	1	1	1

Source: Data was provided by the Single Family Data Warehouse (SFDW) of the Puerto Rico HUD Field Office.

OCIF Data

Table 5 presents data provided by OCIF with respect to reverse mortgages originated in P.R. We observed an increase in the total number of reverse mortgages granted on a quarterly basis by financial institutions in P.R. during 2010, with the highest level in the fourth quarter of 2010. When we compare the first quarter of 2010 with the first quarter of 2011, we observe that there is a reduction in the number of cases closed of approximately 20%. This tendency continues throughout the first quarter of 2012 and may be attributed to the generalized reduction in residential real estate market prices. The average amount of reverse mortgages originated during the first quarter of 2010 amounted to \$33.61 million. We observed continued increases in the following quarters, reaching the highest point in the fourth quarter of 2010 with \$55.13 million in loans. During 2011 and the first quarter of 2012, we observed a tendency of contraction each quarter until it reaches similar levels to those of the first quarter of 2010. This tendency may also be explained by the generalized price reduction in the residential housing market.

The first quarter of 2010 reflects the start of a 70% percent increase in the number of financial institutions offering reverse mortgages in P.R. However, the number of cases closed did not increase but instead remains stable. This suggests that although there is more competition in this market, demand has not increased. According to Carrns (2012) after the exit of the three largest reverse mortgage lenders in U.S., it is expected that smaller institutions will target this niche market. During 2011, several U.S. financial institutions (Generation Mortgage and Sun West Mortgage) started operating in P.R. as non-depository financial institutions specializing in reverse mortgages.

Table 5: Quarterly Financial Activity of Reverse Mortgage Loans in P.R. from March 2010 to March 2012

Period (Quarter)	Total number of loans	Total loans (\$)*	No. of Inst. granting loans during the quarter	No. of Inst. orig. loans during the quarter	Avg. loan amount generated by instit. (\$)*	Wt. avg. interest rate (%)	Disc. (\$)*	Average Discount per loan (\$)*	Loan Orig. fees (\$)*	Avg. orig. fee per loan (\$)*	Orig. fees and discount as % of loan amount
3-2010	319	33,610	10	10	3,361	5.47	4	0.013	1,079	3.38	0.32
6-2010	459	49,767	12	11	4,524	5.44	32	0.070	1,491	3.25	0.34
9-2010	478	52,681	13	12	4,390	5.35	47	0.098	1,533	3.21	0.36
12-2010	492	55,133	13	11	5,012	5.27	107	0.217	1,572	3.20	0.33
3-2011	392	41,081	15	12	3,423	5.15	23	0.059	925	2.36	0.28
6-2011	362	37,457	15	10	3,746	5.14	0	-	1,149	3.17	0.31
9-2011	332	33,855	16	13	2,604	5.13	10	0.030	982	2.96	0.38
12-2011	339	34,400	17	15	2,293	5.16	17	0.050	990	2.92	0.44
3-2012	335	34,217	17	13	2,632	5.07	10	0.030	1,053	3.14	0.40

*Amounts in thousands of dollars (000). Source: The information presented in this table contains information provided by OCIF and amounts calculated for purposes of this investigation.

Reverse mortgages originated each quarter by institution from 2010 to 2012 reflects that 2010 was the year with the highest dollar volume. During the fourth quarter of 2010, the average funds granted were \$5.012 million, the highest amount in the sample period. In 2011, we observed a reduction in the volume. This might be due to a reduction in the number of cases closed and an increase in the number of financial institutions offering these loans. The average amount of funds granted per case during the sample period is \$106,100. Detwiler (2008) finds that the average amount granted in the U.S. during 2006 was \$159,000. We also observe a reduction in the weighted average interest rate. This is consistent with interest rates on U.S. 30-year mortgage loans from 2006 to 2011, as published by the Federal Home Loan Mortgage Corporation (Freddie Mac). Prior studies document that reverse mortgages have high origination and discount costs. We find that the average origination and discount costs related to these

loans are 3.2% for the first quarter of 2010 and decreased to 2.3% for the first quarter of 2011. Then for the same quarter in 2012 it increased again to 3.1%. These results concur with other U.S. studies (Shan, 2011).

P.R. Mortgage Bank Data

Table 6 presents data provided by a P.R. financial institution with descriptive information from a sample of reverse mortgages granted from 2010 to 2012. Although the average age of the borrowers is 70 years, 68% are between the ages of 62 to 70 years, and approximately 36% of them are between 71 and 81 years old. These findings are consistent with a study performed by MetLife in 2012 that finds that the average borrower's age in the U.S. is 71.5 years. With respect to gender, approximately 64% of borrowers are women and 36% are men. We find that 61% of borrowers are married and 39% are unmarried. Among the unmarried borrowers, 82% are women and 18% are men. The sample of reverse mortgage loans examined reflects that about 22% of the funds granted were used to cover closing and origination costs, another 22% was used to cancel existing mortgages and 56% of the funds were paid out to the mortgagees. These findings are similar to the empirical evidence obtained by Del Vecchio, Hopson and Hopson (2009) that the net amount received by the borrowers represents approximately 50% of the total loan amount.

CCCS Data

CCCS is the principal entity offering financial counseling services in P.R. During 2010 and 2011, CCCS offered financial counseling to 3,535 and 3,174 consumers, respectively, interested in obtaining reverse mortgage loans. In addition, they offered counseling services to 863 and 750 applicants during the first quarter of 2011 and 2012, respectively. This change represents a reduction in counseling sessions of 13%. We also calculated the ratio of loans granted to the number of sessions offered by CCCS. The results reveal that about 50% of applicants that received counseling services do not complete the loan process. The first quarter of 2012 reflects the same proportion. However, a lag may exist between the date of the counseling sessions and the loan's closing date. The evidence obtained from CCCS represents a limitation in this study because we do not have the data related to the number of financial counseling sessions offered by other authorized counseling entities in P.R. The next stage of this investigation will examine the strength of the relationship between the origination of reverse mortgages and other economic and demographic variables through regression and correlation analyses. The investigation intends to develop the public policy implications of the use of this instrument.

CONCLUSIONS

The objective of this paper is to perform a comparative and descriptive analysis of reverse mortgages originated in Puerto Rico and the United States from 2010 to 2012. The demand for reverse mortgages during the first half of the 2000-2010 decade increased in the U.S. due to several reasons, one of which was to generate additional sources of cash to absorb the increased cost of living expenses and mitigate the depleted savings and investments of senior citizens. Using data obtained from different sources we compare the reverse mortgage loans granted in the U.S. and P.R. from 2010 to 2012. We identify the differences observed and provide possible explanations. In addition, we develop an average comparative profile for reverse mortgage borrowers in the U.S. and P.R.

The number of reverse mortgages reported in the U.S. and in P.R. decreased from 2010 to 2012. The average interest rate also differs when comparing U.S. and P.R. reverse mortgages, and the average loan amount differs by almost 25%, with U.S. loans having higher amounts. This gap decreases in 2011 to approximately 20%. The different (higher) interest rates charged in P.R. in comparison with U.S. banks and the reduction in the average maximum claim amount in P.R. during the 2010-2012 period could be

related but requires further analysis. The average age of reverse mortgage borrowers decreased both in the U.S. and in P.R. from 2010 to 2012. This reduction seems to be associated with the fact that younger retirees are recurring to the use of reverse mortgages to offset the impact of several factors such as inflation, increased cost of living, depleted savings and investment portfolio accounts.

Table 6: Reverse Mortgage Loans Originated by a Mortgage Bank in P.R. During 2010 and 2011

Year	Marital Status	Gender 1*	Gender 2*	Age 1*	Age 2*	District	Approved Mortgage Amount (\$) ^	Amount paid to pay off existing mortgage lien (\$) ^	Closing costs and origination fees (\$) ^	Cash pay-out to Borrower (Cash paid by borrower) (\$) ^	Closing costs and Origination fees †	Net cash payout from the loan †	Balance paid of the existing mortgage lien †
2010	Not Married	F		65		Arecibo	43,200	25,287.25	11,436.26	6,476.49	26%	15%	59%
2010	Not Married	F		63		Carolina	24,076		11,317.15	12,758.85	47%	53%	0%
2010	Not Married	F		81		Humacao	77,640	383.40	12,858.77	64,397.83	17%	83%	0%
2010	Not Married	F		64		Arecibo	365,292	374,420.84	N/D**	(51,656.18)	N/D**	-	102%
2010	Not Married	M		79		Bayamón	73,830	7,376.71	14,270.57	52,182.72	19%	71%	10%
2010	Not Married	F		64		Bayamón	73,000		15,253.08	57,746.92	21%	79%	0%
2010	Married	M	F	78	69	Mayagüez	118,572		21,124.19	97,447.81	18%	82%	0%
2010	Married	M	F	70	68	Bayamón	62,040		14,069.64	47,970.36	23%	77%	0%
2010	Married	M	F	70	72	Carolina	60,516	28,952.14	15,174.99	16,388.87	25%	27%	48%
2010	Married	M	F	77	68	Bayamón	51,555	20,208.65	13,942.22	17,404.13	27%	34%	39%
2010	Married	M	F	69	70	Arecibo	121,176		21,811.96	99,364.04	18%	82%	0%
2010	Married	M	F	74	63	Bayamón	72,000		15,271.06	56,728.94	21%	79%	0%
2011	Not Married	F		68		Arecibo	59,185	36,456.77	13,920.26	8,807.97	24%	15%	62%
2011	Not Married	F		62		San Juan	162,322	1,303.17	24,512.37	136,506.46	15%	84%	1%
2011	Not Married	M		72		Bayamón	94,780	53,014.99	19,271.66	22,493.35	20%	24%	56%
2011	Not Married	F		73		San Juan	84,888	63,465.91	15,615.94	5,806.15	18%	7%	75%
2011	Not Married	F		70		Guayama	83,096		14,964.45	68,131.55	18%	82%	0%
2011	Married	M	F	66	66	Humacao	78,520	66,671.70	10,206.79	N/A**	N/A**	-	85%

Source: The information presented in this table contains information provided by a mortgage bank in P.R. and amounts calculated for purposes of this investigation. *F = Female, M=Male; 1 and 2 =Main borrower; ^ Amounts in thousands of dollars (000); † Represent closing costs and origination fees, net cash payout to the borrower and the balance of an existing mortgage lien with respect to the approved amount of the reverse mortgage loan; **N/A = Not available.

According to the data provided by OCIF, there has been a reduction in the number and the average amount of reverse mortgages originated in P.R. during 2011 and the first quarter of 2012. At the same time, the number of financial institutions offering this product in P.R. has increased. According to the sample data obtained from a financial institution in P.R., the average age of the borrowers is 70, most of whom are women and unmarried, and approximately 50% of the funds from the approved loans represent the net cash paid to the borrowers for their economic needs. The reduction in the number of loans granted in P.R., the borrower’s average age and the distribution or the uses of the borrowed funds is consistent with other studies performed in the U.S. (Elmer, 2012, Michelangeli, 2008 and Detwiler, 2008). This study has certain limitations. The data obtained from HUD is for fiscal years ended on September 30, 2010 through 2012. The data obtained from OCIF, CCCS and a mortgage bank in P.R. was for natural years 2010 and 2011 and for the first quarter of 2012. Another limitation is that we do not have the data related to the number of financial counseling sessions offered by authorized counseling entities in P.R. other than CCCS. In addition, certain data is defined differently by each institution, for example HUD

uses average interest rates while OCIF uses weighted average interest rates. This limits our comparison between the available data sets.

According to Del Vecchio, Hopson and Hopson (2009), in the U.S., on average, 50% of reverse mortgages are terminated (cancelled) in seven years. In addition, the *Wall Street Journal* reported increasing default rates on reverse mortgages in 2013 as compared to 2011 (Tergesen, 2013). This area represents future research possibilities. Since the statistical data compiled by OCIF for reverse mortgages in P.R. starts in the first quarter of 2010, and assuming the same seven-year termination rate from the U.S. is observed in P.R., the questions for future research are:

What happens when senior citizens deplete the funds received from the reverse mortgages and have no means to pay real property taxes and hazard insurance on their homes?

What would be the policy implications of this situation?

How would (or should) financial institutions and state governments handle this situation?

How would the results in P.R. compare with the U.S.?

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