

# **A Comparative Analysis of Reverse Mortgages: Evidence from Puerto Rico and the United States**

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## **ABSTRACT**

Reverse mortgages are frequently used by retired elderly consumers to raise cash during their pre and post-retirement years. In this paper, we perform a comparative analysis of reverse mortgages originated in Puerto Rico and in the United States. This study contributes to the household finance literature by examining the characteristics of the reverse mortgages generated in Puerto Rico. The results are compared with other studies on reverse mortgages in the United States. We use data obtained from the Department of Housing and Urban Development (HUD) Puerto Rico Field Office and compare the reverse mortgage loans granted in the United States and Puerto Rico during 2010 and 2011 to determine whether differences exist between both jurisdictions and the possible reasons for the latter. We also use data provided by the Office of the Commissioner of Financial Institutions and from a Puerto Rico mortgage bank for 2010 and 2011 to develop an average profile of a reverse mortgage borrower in Puerto Rico. The next stage of this investigation will incorporate data on reverse mortgages originated in Puerto Rico and in the United States during 2012 to analyze the continued use of this product by senior citizens as a financial planning tool.

**Key words:** Reverse mortgages, Home equity, Elderly consumers, Home Equity Conversion Mortgage

## **Introduction**

From 2000 to 2005 there was an increase in housing prices (housing bubble) in the United States (U.S.) and in Puerto Rico (P.R.). The financial markets in the U.S. took advantage of that bubble to aggressively promote a product known as reverse mortgage. Reverse mortgages allow elderly consumers to obtain cash using their dwelling as collateral without having to abandon the property. As a result of the increase in housing values 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 analysis of reverse mortgages in P.R. and the U.S. This study contributes to the household finance literature by examining the characteristics of the reverse mortgages generated by elderly consumers in Puerto Rico during their retirement stage. The results are compared with other studies on reverse mortgages originated in the U.S.

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. The differences are based on the way the payments are received by the borrowers. According to the Department of Housing and Urban Development (HUD) there are six payment possibilities. 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 loan (LSUM) refers to the receipt of the net equity in the borrowers' residence in one single amount. In a Tenure loan (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. A Term loan (TERM) refers to a type of reverse mortgage in which 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 mortgages 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 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 Mortgagee 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 Mortgagee 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

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 borrowers of reverse mortgages is 74 years and the average loan amount is \$159,000 in 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).

On average, 50% of reverse mortgages generated in the U.S. terminate (are cancelled) in seven years, which after considering closing and origination costs, results in a very expensive type of financing (Del Vecchio, Hopson and Hopson, 2009). 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 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 from the reverse mortgage market will allow the entry of more efficient smaller banks.

#### *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 significantly increase 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".

#### *Advantages and Disadvantages of Reverse Mortgages*

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.

A study made in Australia found that many senior citizens in Australia are unfamiliar with the implications of reverse mortgages (Reed, 2009). Although reverse mortgages do not require the repayment of the amount borrowed to the lender, a borrower must continue to pay insurance and property taxes. If a borrower does not make these payments, a default occurs on the reverse mortgage and the lender may terminate or cancel the loan. Tergesen (2013) reports a current



increase in the number of reverse loans in default in the U.S. as compared to 2011. In April 2013, approximately 10% of the almost 600,000 reverse loans were in arrears (8% in 2011).

## **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 1980s. 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, 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 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**

### **HUD Data**

Table 1 presents the data on HECM loans endorsed by HUD in the U.S. and in P.R. during fiscal years (FY) 2010 and 2011. 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). HECM loans generated in P.R. in 2010 represent 2.2% of the loans generated in the U.S and 2.3% in 2011.

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%. Therefore, the net US-PR spread increased from 2010 to 2011 by 0.59%. This increase may be attributed to a combination of perceived increase in borrowers' risk and/or related transaction costs.

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. The decrease in the average U.S. amount from 2010 to 2011 was 6.9%, whereas the decrease in the average P.R. amount for the same period was 1.9%. This difference is 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 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. during 2010 and 2011. 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 loan 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 mortgage loans 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. 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 average age of borrowers, 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.

In connection with the average monthly amount set aside for 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 mortgage loans 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 property taxes (or a very small amount) on their principal residence after considering the exemption granted by law.

## **OCIF Data**

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 funds that were loaned during the first quarter of 2010 as reverse mortgages 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 funds loaned. 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 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 mortgage loans.

The reverse mortgage loans 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**

A financial institution with operations in P.R. that offers reverse mortgages provided us with data that helped us describe the mortgagees and the loans granted during our sample period. Although the average age of the mortgagees 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 age of mortgagees in U.S. is 71.5 years.

With respect to gender, approximately 64% of mortgagees are women and 36% are men. We find that 61% of mortgagees are married and 39% are unmarried. Among the unmarried mortgagees, 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 mortgagees 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 loans' 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.

### **Conclusions**

The objective of this paper is to perform a comparative analysis of reverse mortgages generated in Puerto Rico and the United States in 2010 and 2011. The demand for reverse mortgages during the first half of the 2000-2010 decade increased in U.S. because some retirees required additional sources of cash to absorb their increased cost of living expenses and mitigate

their depleted savings and investments. Using data obtained from different sources we compare the reverse mortgage loans granted in the United States and Puerto Rico during 2010 and 2011. We identify the differences observed and provide possible explanations for them. In addition, we develop an average comparative profile for reverse mortgage borrowers in the United States and Puerto Rico.

The number of reverse mortgages reported in both jurisdictions decreased in 2011. Average interest rates differ when comparing U.S. and P.R. rates 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 most common type of HECM Loans endorsed in the U.S. and P.R. during 2010 was LOC. However, in 2011 the most frequently used in the U.S changed to LSUM, whereas in P.R there was no change. The observed change in the U.S. might be due to changes in the required cash flow needs of the mortgagees or the entry of specialized (smaller) financial institutions generating reverse mortgages with limited infrastructure capabilities.

The average age of reverse loan mortgagees decreased both in the U.S. and in P.R. in 2010 and 2011. 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.

According to the data provided by the local regulatory entity of financial institutions in P.R. (OCIF), there has been a reduction in the number of reverse mortgages closed and the average amount of reverse loans 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. that offers reverse mortgages, the average age of the mortgagees is 70, most of whom are women and unmarried, and

approximately 50% of the funds from the approved reverse mortgages represent the net cash paid to the mortgagees for their needs. The reduction in the number of reverses mortgages granted in P.R., the average age of the mortgagee and the distribution of granted funds is consistent with other studies performed in the U.S. (Elmer, 2012, Michelangeli, 2008 and Detwiler, 2008).

This study has the following limitations. The data obtained from HUD is for fiscal years ended on September 30, 2010 and 2011, respectively. 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 rate while OCIF uses weighted average interest rates. This limits our comparison between the available data sets.

Future research may address the benefits and implications of reverse mortgages on the financial health of retirees and the possible costs to society. The absence of a savings culture and the need for financial planning throughout our lifetime may impact our future financial health and quality of life.

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## Appendices

**Table 1**  
**HECM Reverse Mortgage Loans Endorsed by HUD in the U.S. and P.R. by Fiscal Year**

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

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

**Table 2**  
Types of HECM Reverse Mortgage Loans endorsed by HUD in the U.S. and P.R. during Fiscal Years 2010 and 2011

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 Sum (LSUM)	8,160	10.32	5.47	74	\$251,849.16	\$0.00
		Term (TERM)	486	0.61	2.74	79	\$303,620.58	\$0.00
		Line of Credit (LOC)	65,825	83.26	4.73	75	\$262,842.01	\$0.00
		Term and LOC (TMLC)	2,095	2.65	2.70	81	\$337,672.68	\$1.37
		Tenure (TEN)	1,136	1.44	3.30	78	\$307,551.57	\$0.00
		Tenure and LOC (TNLC)	1,361	1.72	2.73	82	\$376,612.97	\$1.34
		<b>Total</b>	<b>79,063</b>	<b>100.0</b>	<b>3.61</b>	<b>78</b>	<b>\$306,691.50</b>	<b>\$0.45</b>
	P.R.	Lump Sum (LSUM)	39	2.23	5.11	72	\$178,158.97	\$0.00
		Term (TERM)	9	0.52	3.85	76	\$231,111.11	\$0.00
		Line of Credit (LOC)	1,482	84.88	5.07	74	\$184,099.15	\$0.00
		Term and LOC (TMLC)	3	0.17	3.32	88	\$374,000.00	\$0.00
		Tenure (TEN)	212	12.14	5.64	73	\$204,133.02	\$0.00
		Tenure and LOC (TNLC)	1	0.06	3.49	70	\$226,000.00	\$0.00
	<b>Total</b>	<b>1,746</b>	<b>100.0</b>	<b>4.41</b>	<b>76</b>	<b>\$232,917.04</b>	<b>\$0.00</b>	
FY 2011	U.S.	Lump Sum (LSUM)	36,170	49.47	5.08	72	\$238,503.52	\$0.00
		Term (TERM)	424	0.58	2.45	78	\$299,424.53	\$0.00
		Line of Credit (LOC)	32,189	44.03	3.62	74	\$252,683.13	\$0.00
		Term and LOC (TMLC)	1,921	2.63	2.44	79	\$304,950.05	\$1.04
		Tenure (TEN)	1,226	1.68	3.30	76	\$268,831.47	\$0.27
		Tenure and LOC (TNLC)	1,179	1.61	2.43	80	\$347,643.88	\$0.94
		<b>Total</b>	<b>73,109</b>	<b>100.0</b>	<b>3.22</b>	<b>77</b>	<b>\$285,339.43</b>	<b>\$0.37</b>
	P.R.	Lump Sum (LSUM)	332	19.71	5.16	71	\$174,286.24	\$0.00
		Term (TERM)	3	0.18	5.19	78	\$304,166.67	\$0.00
		Line of Credit (LOC)	968	57.48	5.30	73	\$171,614.62	\$0.00
		Term and LOC (TMLC)	2	0.12	3.24	73	\$313,000.00	\$0.00
		Tenure (TEN)	378	22.45	5.26	73	\$177,850.53	\$0.00
		Tenure and LOC (TNLC)	1	0.06	3.49	74	\$230,000.00	\$0.00
		<b>Total</b>	<b>1,684</b>	<b>100.0</b>	<b>4.61</b>	<b>74</b>	<b>\$228,486.34</b>	<b>\$0.00</b>

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

LSUM - receipt of the net equity in the borrowers' residence in one single amount.

TERM - equal monthly payments for a selected or fixed number of months.

LOC - a series of unscheduled payments or installments and in an amount selected by the borrowers until the approved line of credit is exhausted.

TMLC - a combination of a line of credit plus monthly payments for a fixed period of months selected by the borrowers.

TEN - equal monthly payments for as long as at least one borrower lives and continues to occupy the property as a principal residence.

TNLC - a combination of a line of credit and scheduled monthly payments for as long as one of the borrowers remains in the home.

**Table 3****Quarterly financial activity of Reverse Mortgage Loans in P.R. from March 2010 to March 2012.**

The information presented in this table contains information provided by OCIF and amounts calculated for purposes of this investigation.

Period (Quarter)	Total number of loans	Total loans (\$)*	Number of financial institutions granting loans in P.R. during the quarter	Number of institutions that originated loans during the quarter	Average loan amount generated by institution (\$)*	Weighted average interest rate (%)	Discount (\$)*	Average Discount per loan (\$)*	Loan Origination fees (\$)*	Average origination fee per loan (\$)*	Origination fees and discount as part of loan amount (%)
March 2010	319	33,610	10	10	3,361	5.47	4	0.013	1,079	3.38	0.32
June 2010	459	49,767	12	11	4,524	5.44	32	0.070	1,491	3.25	0.34
September 2010	478	52,681	13	12	4,390	5.35	47	0.098	1,533	3.21	0.36
December 2010	492	55,133	13	11	5,012	5.27	107	0.217	1,572	3.20	0.33
March 2011	392	41,081	15	12	3,423	5.15	23	0.059	925	2.36	0.28
June 2011	362	37,457	15	10	3,746	5.14	0	-	1,149	3.17	0.31
September 2011	332	33,855	16	13	2,604	5.13	10	0.030	982	2.96	0.38
December 2011	339	34,400	17	15	2,293	5.16	17	0.050	990	2.92	0.44
March 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).



**Table 4**

**Reverse Mortgage Loans originated by a Mortgage Bank in P.R. during 2010 and 2011.**

The information presented in this table contains information provided by a mortgage bank in P.R. and amounts calculated for purposes of this investigation.

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 feesÄ	Net cash payout from the loan Ä	Balance paid of the existing mortgage lienÄ
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%

\*F = Female, M=Male; 1 and 2 =Main borrower

^ Amounts in thousands of dollars (000).

Ä 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.