TUSCAN CLUB
UNIVERSITY

APPENDIX A

PRICING REVIEW PROCEDURES

Tuscan Club University
Fair Lending School

APPENDIX A

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PRICING REVIEW PROCEDURES

STEP 1)
GENERATING YOUR LOAN DOWNLOAD

The first step to conducting the pricing analysis is to generate your loan download. The loan download should include all loans **originated** within your time period chosen. You will want to ensure that any duplicates are removed or not included as they will affect your analysis. Sometimes loans can end up on your download more than once. You can sort by loan number to delete any loans on there more than once.

You will also want to make sure that short-term loans that originated and subsequently paid off during your review period are included, if possible. Such loans are typically short-term, often unsecured loans. This entire review is focused on analyzing **pricing decisions** at the time of origination. Just because a loan was made and paid off during the timeframe does not mean it is excluded. All **originated** loans in the timeframe should be included.

Additionally, you will want to **exclude** loans that were renewed or extended during the review period because those loans were likely originally priced outside of your review period.

Another key step is to ensure that only the interest rate at origination is included. Some institutions may later apply a penalty rate if a customer missed a payment, for example. We've seen downloads that generate the current rate on the loan, not necessarily the original rate. You will want to make sure that the interest rate at origination is what ends up on your download, not a penalty rate or any other rate.

Your loan download will need to include these fields, at a minimum:

a. Loan origination amount

b. Origination date

c. Interest rate (at origination)

d. Loan officer (some type of identifier)

e. Branch code or branch name

f. Market name (if you track this info)

g. Loan description

h. Collateral codes, loan codes, or any other identifying code

i. Borrower first and last name

j. Coborrower first and last name

k. Full address or census tract number if your system geocodes loans

You can put more fields than what is listed. The more information you include within your loan download, the more analysis you can do. Here are some examples of additional information you may include:

- Credit score
- LTV
- DTI
- Loan Term
- APR

It won't hurt anything to have extra data and columns in your loan download. If you don't end up using the data, you can simply ignore it.

STEP 2)
MAKE COPIES BEFORE YOU START

We actually like to make two copies before we start. You will want to store or save an untouched copy of your loan download on a separate spreadsheet that you leave alone. Save this in its own file and store it somewhere where it won't get touched. This will ensure that if you make a mistake, you have an untouched version to reference or go back to so you can start over.

We then like to keep an original version on the spreadsheet we're working on. You can do this by creating a new tab and making a copy. We label the first tab as the original and the new tab as our working tab.

To make a copy of the tab you are working on, follow these simple steps:

1. Right click on the tab name
2. Select "Move or Copy…"
3. Make sure the sheet you want to make a copy of is selected
4. Click the "Create a copy" box
5. Click "Ok"
6. Rename your new tab – right click on the tab name and select "rename." Double clicking on the tab will also let you rename it
7. Label the new tab – We usually call ours "Edited"

Now that you have a copy of your original download, you are ready to get started. Leave the original tab alone unless you need to go back for some reason. We will be working on the "Edited" tab going forward.

STEP 3)
FILTER YOUR DOWNLOAD

There are several ways you can do this. You will need to get the loan codes that correspond with your loan download. Your lenders or loan processing staff are identifying each loan through a possible variety of different methods. These could include:

- Loan Purpose
- Loan Type
- Collateral Type
- G/L Code (general ledger)
- Or any other type of codes

The purpose of these codes is to help determine what type of loan it is (loan purpose) and what is securing the loan (the collateral). You may need to ask people on the loan staff how they code the loans. Once you find out how to properly identify the loans, you can start sorting them by type or purpose and finding the groups you are going to review. Make sure you document and save your methodology to help explain to anyone who looks at your review. Most organizations have all of the loan codes somewhere on a list.

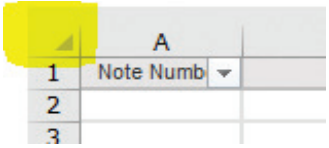
HOW TO SORT LOANS

The first thing you will want to do is apply filters to your spreadsheet. This will allow you to sort and find data easier, and it will also allow you to be able to create the pivot tables later on. It's quite simple.

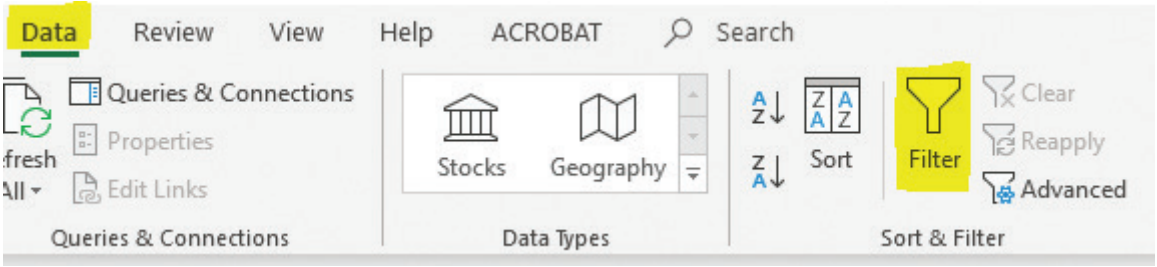
Before you start, you will want to make sure that the top line is your column labels. Sometimes when you generate your loan download there will be an additional line (or several) at the top AND/OR at the bottom. It could be the date the loan download was created or a label. Ensure you delete those rows from your spreadsheet, otherwise you won't be able to filter it. Your column labels should be things like "Borrower Name."

HOW TO APPLY A FILTER

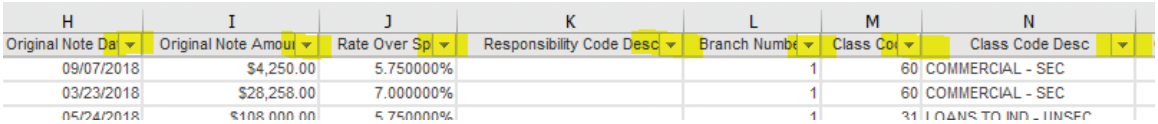
You will want to apply a filter to the whole spreadsheet. First, you need to highlight the entire spreadsheet. This can simply be done by clicking the little triangle in the upper left-hand corner of the spreadsheet. ***Every time you apply a filter or sort any data, always select the entire spreadsheet first***



After you highlighted the entire spreadsheet, filter it by going to "Data" tab at the top of the spreadsheet, then click "Filter"



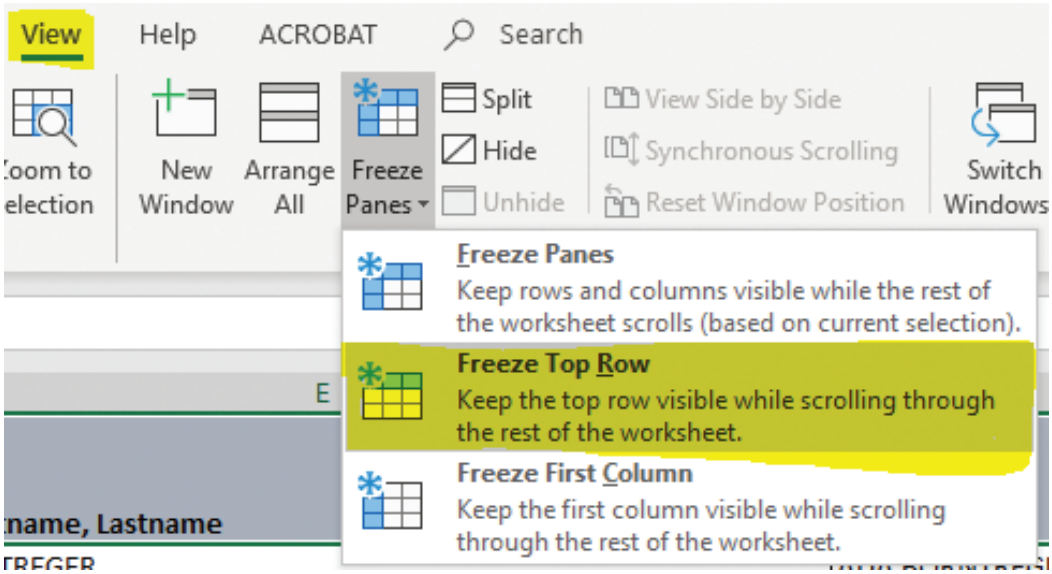
This should create little down arrows at the top of each column. If you click the arrows, it will list all of the data choices in that column.



H	I	J	K	L	M	N
Original Note Da	Original Note Amou	Rate Over Sp	Responsibility Code Desc	Branch Numbe	Class Co	Class Code Desc
09/07/2018	$4,250.00	5.750000%		1	60	COMMERCIAL - SEC
03/23/2018	$28,258.00	7.000000%		1	60	COMMERCIAL - SEC
05/24/2018	$108,000.00	5.750000%		1	31	LOANS TO IND - UNSEC

HOW TO FREEZE PANES

The next thing you will want to do is freeze the top row. This will allow you to scroll down the spreadsheet, but still know what the column label is. Freeze the top pane by going to View, then click the drop down for "Freeze Panes", click "Freeze Top Row"



Now you are ready to start cutting up the download.

STEP 4)
ISOLATE CONSUMER LOANS

Our next step is to remove all of the loans that are not part of the analysis. Typically, you will be removing any commercial purpose loans, agriculture purpose loans, and any loans that were not made to a consumer. To do this step, you will use whatever loan codes your institution uses to identify the type of loan and its purpose.

In some instances, we are going to use a real-world example of an institution's download. Throughout these procedures, you will see instances of names and addresses within the data. All names used within this school are fictitious names, and any names generated that could be tied to a real person is purely coincidental.

Your data will look different than ours, but that's okay. Decide which column is best to determine loan types, and that is the column (or columns) you will use to sort your data. There may be multiple columns you will use to sort your data. That's okay too. Your goal is to identify consumer purpose loans and be able to group them together based on how your lenders price loans. For this example, we are going to start with "Class Codes." Here is what our download column headers look like:

L	M	N	O	P	Q
Branch Numbe	Class Co	Class Code Desc	Collateral Cod	Collateral Code Desc	
1	60	COMMERCIAL - SEC	20	USED COMMERCIAL VEHICLE	
1	60	COMMERCIAL - SEC	23	TRAILER	
1	31	LOANS TO IND - UNSEC			
1	28	RE SECONDARY MKT	100	UNSECURED	
1	30	LOANS TO IND - SEC	22	USED CONSUMER VEHICLE	
1	60	COMMERCIAL - SEC			
1	60	COMMERCIAL - SEC	23	TRAILER	
1	60	COMMERCIAL - SEC	13	BUSINESS EQUIPMENT - UCC FILED	
1	30	LOANS TO IND - SEC	22	USED CONSUMER VEHICLE	
1	22	CONSUMER RE	1	1-4 FAMILY RESIDENCE 1ST LIEN	

This download has 4 different columns of data that can help sort our loans. These are simply what your loan officers are choosing when they code a loan at origination. This institution uses these options:

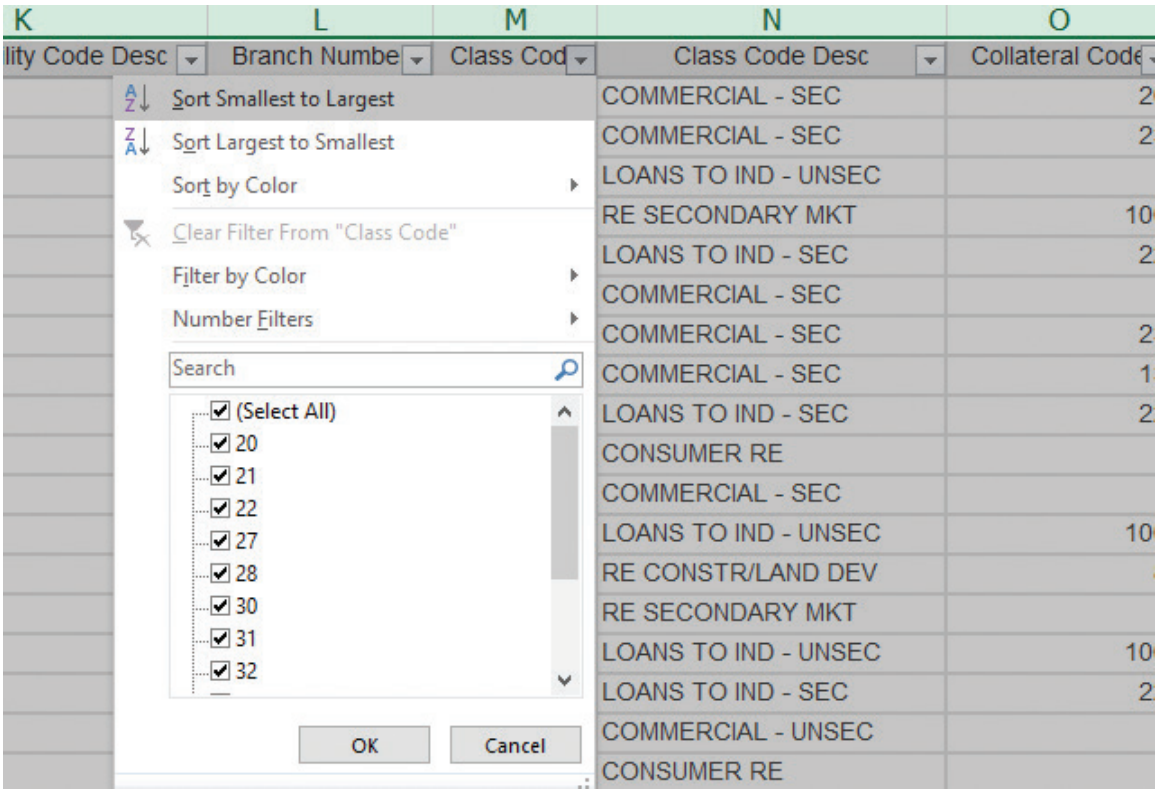
A. Class Code
B. Class Code Description
C. Collateral Code
D. Collateral Code Description

Be sure to highlight the entire spreadsheet every time you sort a column** The reason you want to highlight the entire spreadsheet when you sort a column is to ensure you are not sorting one column at a time. If you highlight only one column, the sort function may only sort the one column. That means your data will not match up and you will have the wrong names with the wrong loans.

Based on those 4 columns, we should be able to sort our data and find the different types of loans for our review. This will allow us to remove any non-consumer purpose loans or any other type of loans we don't want to include in our review.

We need to pick a column to start our sorting. For this example, we will start with "Class Code." Here's how we sort by this particular piece of data:

1) Highlight the entire spreadsheet
2) Click the little down arrow next to the column you want to sort
3) In the dropdown menu, select "Sort smallest to largest"
4) If you are using an alphabet character column instead of a numerical character column, you would want to select "Sort A to Z"



You should now have your data in a nice format to help you determine which loans you want to eliminate.

You will now want to decide which loans to eliminate for the pricing portion of the review. Loans that are labeled "commercial" or "agricultural" or any variation of that are likely candidates to eliminate. You will also want to look for loans that are secured by something like a 1-4 family home or a car title that are made to a business. You may have to sort through the borrower name to identify those.

In the end, we will want to only have consumer purpose loans made to consumers.

Here are some examples of what you will likely end up with:

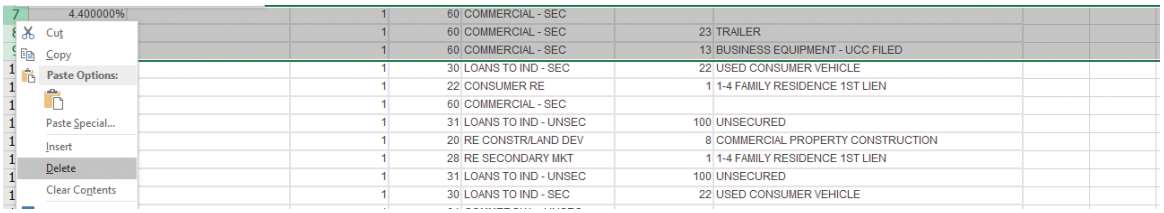
1. **1-4 Family Purchase**
2. **1-4 Family Refinance** (if they are priced the same as purchase, leave them all together
3. **Secondary Market Loans** (if you sell home loans on the secondary market, you will want to separate them as they are likely priced differently)
4. **Home Equity** – Closed End

5. **Home Equity Lines of Credit** (HELOCs)
6. **Vehicle Title Secured** (typically car loans)
    a) If you price car loans differently based on whether it is purchase money or not, you will want to create two separate groups. Otherwise you can leave these in one group.
7. **Other Title Secured** (some institutions price other vehicle title loans differently – If you price them the same as vehicle titled, group them with vehicle titled loans)
    a) ATVs
    b) Boats
    c) Campers/RVs
    d) Snowmobiles
    e) Any other title-secured vehicles
8. **Unsecured** (closed-end unsecured loans)
9. **Personal Lines of Credit**
10. **Overdraft Lines of Credit** (these are often all at the same rate – if that is the case at your institution, you won't need to analyze them, but you will want to verify they are all the same rate)
11. **Credit Cards** (if your credit cards all get the same rate, you don't need to do an analysis on these either. Simply make sure they all received the same rate)

This list should cover the loan types at most organizations. If you have any other credit products not included in this list, create separate groups for each based on how they are priced.

At this point you will want to delete all loans that will not be analyzed. To properly delete loans, you **do not** highlight the boxes and click the delete key. You need to **delete the entire row**. To do that, you will want to follow these steps:

a. Highlight the row numbers you want to delete by left clicking
b. Right Click
c. Select Delete
d. If you try and use the delete key on your keyboard, it will only delete the data in the row. Only right clicking will delete the entire row itself.

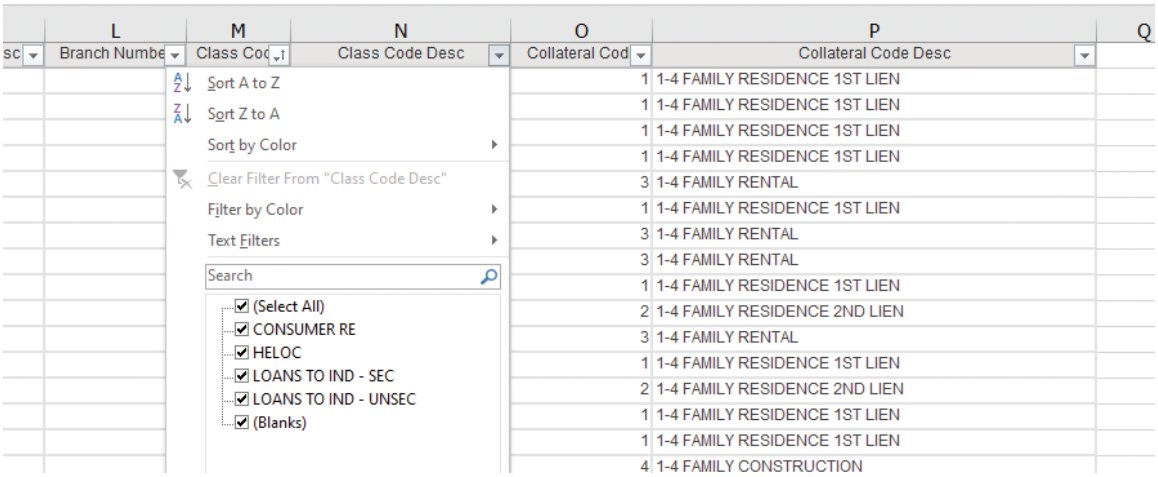


Using this method to delete loans will ensure that you don't leave rows in your spreadsheet that are blank. This will delete the entire row. You may want to save commercial loans on a separate spreadsheet instead of deleting for redlining reviews later. If you're a big commercial lender, move them to a new sheet for now.

STEP 5)
GROUPING LOANS BY LOAN TYPE

Now that we are down to only consumer purpose loans, we need to decide which loans we are going to review and sort them into their own groups by loan type. This is where we find out which loan types will be included within our analysis. The biggest driving factor on determining which loans to include within the review is the number of loans we have of each type.

Once you have only consumer purpose loans left on your spreadsheet, sort them into like categories or types of loans. You will then be easily able to see how many loans you have in each group (your loan universe for each loan type). Let's look at our example download. If we click on the "Class Code Description" down arrow, it will show the different loan types. See the example below.



This organization prices the loans based on the security. We know that by simply looking at their pricing model. Their lenders use a rate sheet, and based off of the rate sheet, lenders price loans off of the collateral.

This organization has four different categories of loan types to choose from:

1) Consumer Real Estate
2) HELOCs
3) Loans to individuals – secured
4) Loans to individuals – unsecured

All consumer real estate loans are priced off of one model. All HELOCs get the same rate. All secured consumer loans are priced the same, and all unsecured are priced using the same model.

Based on that information, we can start making the decision on what to review.
Consumer real estate – this is always a good candidate for review. This is often a consumer's largest purchase, and regulators **ALWAYS** consider home loans as a product to review. Since this institution doesn't price differently based on whether it's a purchase or refinance, we put them all together. This organization does not sell on the secondary market – but if they did, those loans would be put into their own group.

On our download, there were 38 loans in this group, so we will include this as part of our review. That's not a high number of loans, but we can see if we get any good data from it. We can always throw it out later.

HELOCs – Some organizations price all HELOCs the same. If this is the case for you, all you need to do is verify that everyone got the same rate. If so, you are done. Be sure though that you double check the rates with the rate sheet that was in effect at the time of loan origination. Since you may be looking at a full year worth of HELOCs, you might see many different rates on there, so you will have to pull old rate sheets from the time period of your review to verify the customer got the rate they were supposed to.

In our case, everyone gets the same rate, so we are going to exclude HELOCs from our review. We would want to delete all of the HELOCs from our spreadsheet.

Loans to Individuals – Secured – This is typically the largest category for most organizations, but there are organizations who do very little consumer lending. Remember, if you price loans differently based on whether they are purchase money or based on if they are auto secured (typical car loans) or other vehicle secured

(boat, RV, trailer, etc.), then you will want to either group these together or create separate groups. We will show you how to create those separate groups later.

In our case, this organization groups all vehicle titled loans together and prices them similarly. So, we will create one large group. We have 30 loans in our group, so we would analyze them. Again, that is a small number of loans, so we may or may not get useful data from it. Several hundred loans are a good starting point for useful data. Several thousand loans and you will get a great picture of your pricing model. More than that, your universe size may need to be reduced. That philosophy can be applied to all loan types.

Loans to Individuals – Unsecured – This is usually a smaller group. These are all other consumer purpose loans without collateral securing them. These could be for a variety of reasons, but they are typically priced using the same pricing structure. In our case, they are all priced the same. Our universe size is 19, so we will include them in our review.

STEP 6)
SORTING NAMES

By this point, you may have a few groups of consumer loan types that you are including within your review. You will now want to decide which prohibited bases you are using to analyze the loans. With the tools and data that we have available, you have two options for prohibited basis to choose from:

Sex

Ethnicity

We typically recommend using Sex as a prohibited basis group for your first analysis. Since all organizations have roughly equal numbers of males and females, everyone can do this analysis. Ethnicity is only valuable when you have higher populations of Hispanics in your area. With the results you will get from this analysis, you will be able to gauge pretty quickly if your pricing practices are strong or if you have potential weaknesses.

The US Census Bureau has a tool that was created to help identify the Sex of a person and their Ethnicity based on their first and last name. What the Census Bureau did is collected data on millions of individuals and created a list of first and

last names. Then they assigned the likelihood of first names being a "male" or "female" and the last name being "Hispanic" or "Non-Hispanic."

Here are some important bullet items to understand about this tool we will be using:

- It's not perfect
  - There will be mistakes
  - Misspelled names can affect results
- Not all names will match
  - Gender neutral names will not assign a sex
  - In those cases, you will reach out to your lenders to get the sex of the borrowers
- It makes assumptions
  - Gender and Sex may not be as clear cut as it was in the past – this is just a tool to help you determine if your pricing practices are fair and consistent. Use it as a tool and nothing more.
- The data may not be up-to-date
  - Newer first names may not be included
- While a female's surname may change with marriage, obviously her ethnicity does not. A Hispanic female may marry a non-Hispanic male; thus, her surname changes and she would be coded as non-Hispanic. The same can happen with a non-Hispanic female marrying a Hispanic male. This is a limitation of the tool, but these instances are rare, and the tool can still be quite valuable.

Before we can determine the Sex of each of the applicants and co-applicants, we will likely need to do a little work to our spreadsheet. If your spreadsheet already has first names and last names separated into different columns, you can skip this step. Here is an example:

Type	Borrower First Name	Borrower Last Name	CoBorrower First Name	CoBorrower Last Name
Loans fo Individuals - Secured	Brian	Vinke	Dawn	Vinke
Loans fo Individuals - Secured	Caleb	Reiss	Anthony	Reiss
Loans fo Individuals - Secured	Charles	Nattress	Debra	Nattress

It's likely that you have the full borrower name in one cell/column. That is okay, but we will need to separate those out. You can certainly go through your spreadsheet manually and type them out, but there is a much quicker way. Let's see how you can

separate those out much faster. First of all, your spreadsheet probably looks more like this:

B	C	D	E
Type	Borrower	CoBorrower	Original Int Rat
.oans fo Individuals - Secured	Brian Vinke	Dawn Vinke	6.25
.oans fo Individuals - Secured	Caleb Reiss Jr.	Anthony Reiss	4.25
.oans fo Individuals - Secured	Charles Nattress	Debra Nattress	4.5
.oans fo Individuals - Secured	Stephen Keesling		4.1

The picture above shows first and last names in the same cell. Sometimes you may even have middle initials, middle names, hyphenated last names, and a suffix (Jr, Sr, III). The end goal here is to get only the first name in one cell and only the last name in the cell to the right of the first name.

To do this, we are going to use the "Text to Columns" function within Excel. Don't be alarmed if you haven't used this before. It's not difficult. What this function essentially does is separates out the data in a cell and moves them to the right into new cells. We will need to create room for the data to move to so we don't overwrite important data. As you look through your name column, each time there is a space between characters, it will create a new column for you. Stay with me here. Let's look at an example:

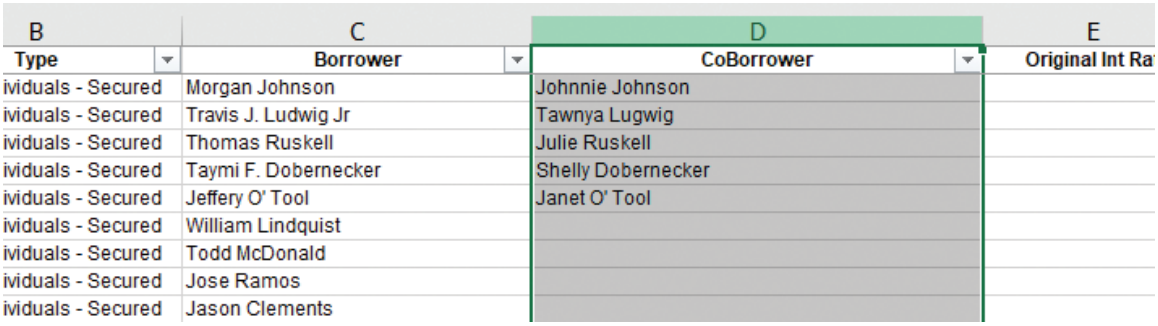
B	C	D	E
Type	Borrower	CoBorrower	Original Int Rat
fo Individuals - Secured	Morgan Johnson	Johnnie Johnson	8.25
fo Individuals - Secured	Travis J. Ludwig Jr	Tawnya Lugwig	4.3
fo Individuals - Secured	Thomas Ruskell	Julie Ruskell	4.25
fo Individuals - Secured	Taymi F. Dobernecker	Shelly Dobernecker	6.5
fo Individuals - Secured	Jeffery O' Tool	Janet O' Tool	6.75

Let's focus on the Borrower column first. Morgan Johnson has two separate names – "Morgan" and "Johnson", and those names are separated with a space. When we complete these steps, it will move "Johnson" over a column because there is only one "space" in the cell.

Look down to the 4th row and find Taymi F. Dobernecker. Taymi has a total of three separate names – "Taymi", "F.", and "Dobernecker." After we separate her name, we will have data in three separate columns.

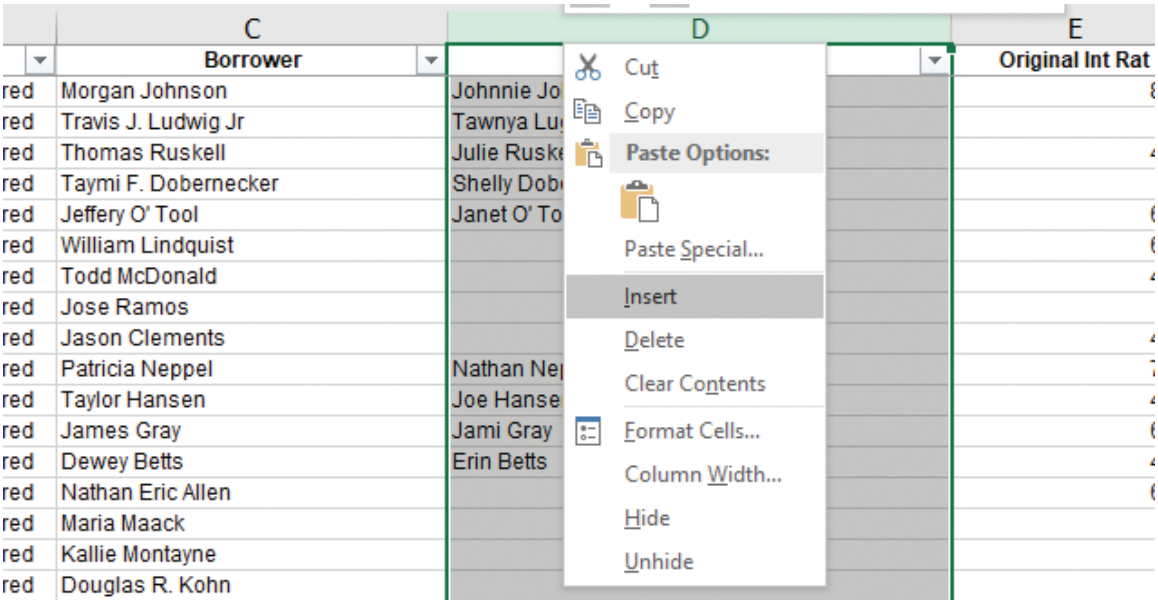
Now look at the 2nd row and find Travis J. Ludwig Jr. Travis has a first name, middle initial, last name, and a suffix (Jr). Since Travis has 4 names listed in the column, his name will require four separate columns in the end.

Since we know we are going to need at least three new columns, we will simply insert new columns after the "Borrower" column. That is simple to do. Since we want to add a column to the right of the Borrower column, you will want to left click to highlight all of the column to the right like this:

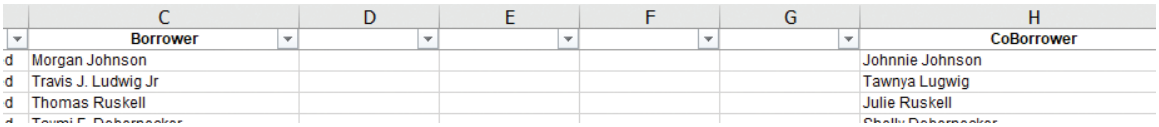


B	C	D	E
Type	Borrower	CoBorrower	Original Int Ra
ividuals - Secured	Morgan Johnson	Johnnie Johnson	
ividuals - Secured	Travis J. Ludwig Jr	Tawnya Lugwig	
ividuals - Secured	Thomas Ruskell	Julie Ruskell	
ividuals - Secured	Taymi F. Dobernecker	Shelly Dobernecker	
ividuals - Secured	Jeffery O' Tool	Janet O' Tool	
ividuals - Secured	William Lindquist		
ividuals - Secured	Todd McDonald		
ividuals - Secured	Jose Ramos		
ividuals - Secured	Jason Clements		

Then you right click and choose "Insert":



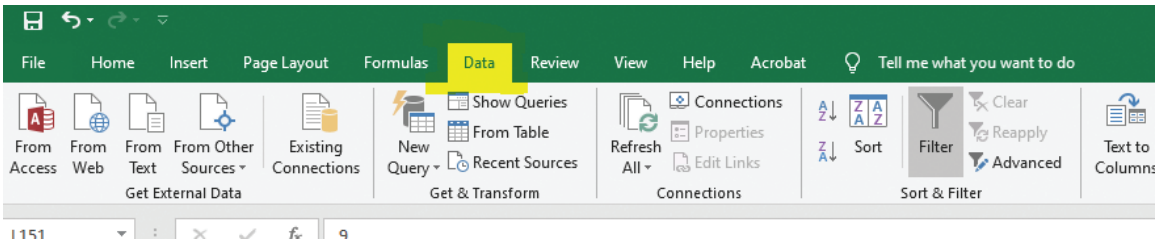
That should open a new column to the right of the borrower name and move all of the other columns to the right. Since we know we have AT LEAST four names in our borrower column, we will want to make sure we have room. We typically just add 4 or 5 new columns to the right to ensure we have enough room. So, let's repeat the last step three more times so we now have 4 empty columns to the right of our name column. Yours should now look something like this:



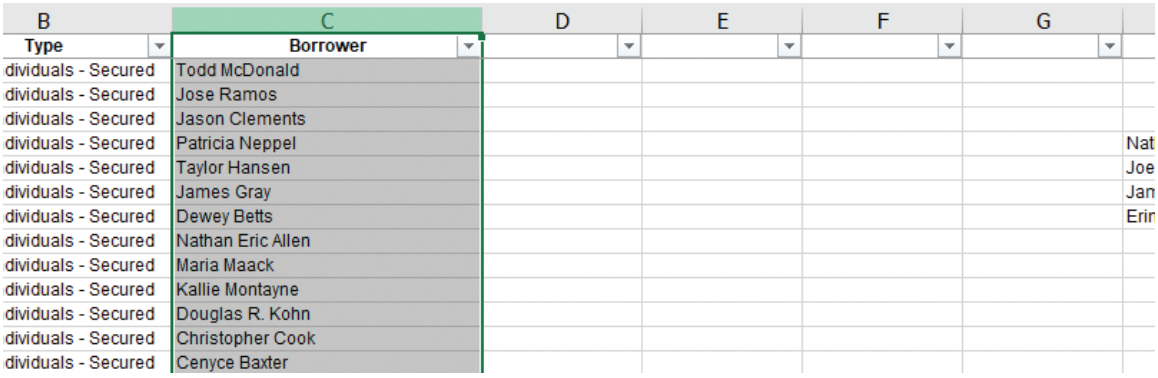
C	D	E	F	G	H
Borrower					CoBorrower
Morgan Johnson					Johnnie Johnson
Travis J. Ludwig Jr					Tawnya Lugwig
Thomas Ruskell					Julie Ruskell

You will see why we need that room in a minute. Once we complete the next step, Excel will move data out of our Borrower Name column and move that data to the right. If you do not add extra columns to your spreadsheet for that data to go to, you will write over important data. Let's do that step now.

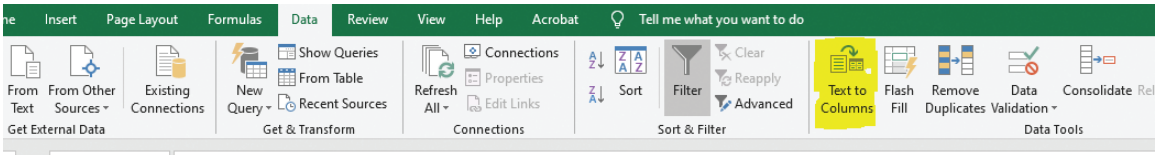
To separate out our names, we will first want to find the "Data" tab at the top of our spreadsheet. If you are using a different version of Microsoft Office, it may look slightly different.



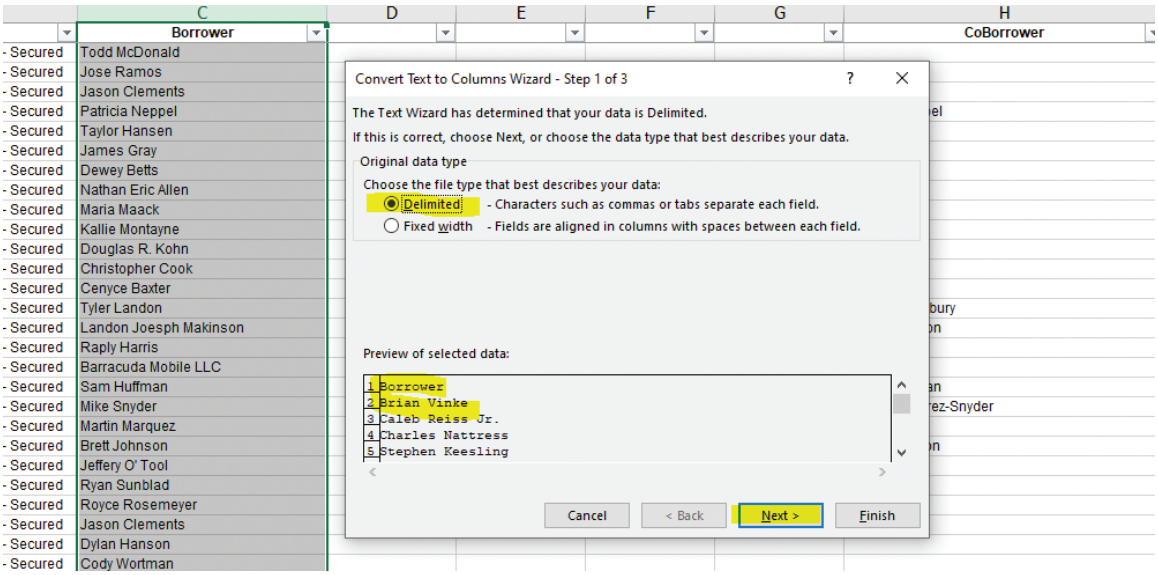
Next, you will want to click above your Borrower Name column to highlight the entire column. This is the column that we will be altering. It should look like this:



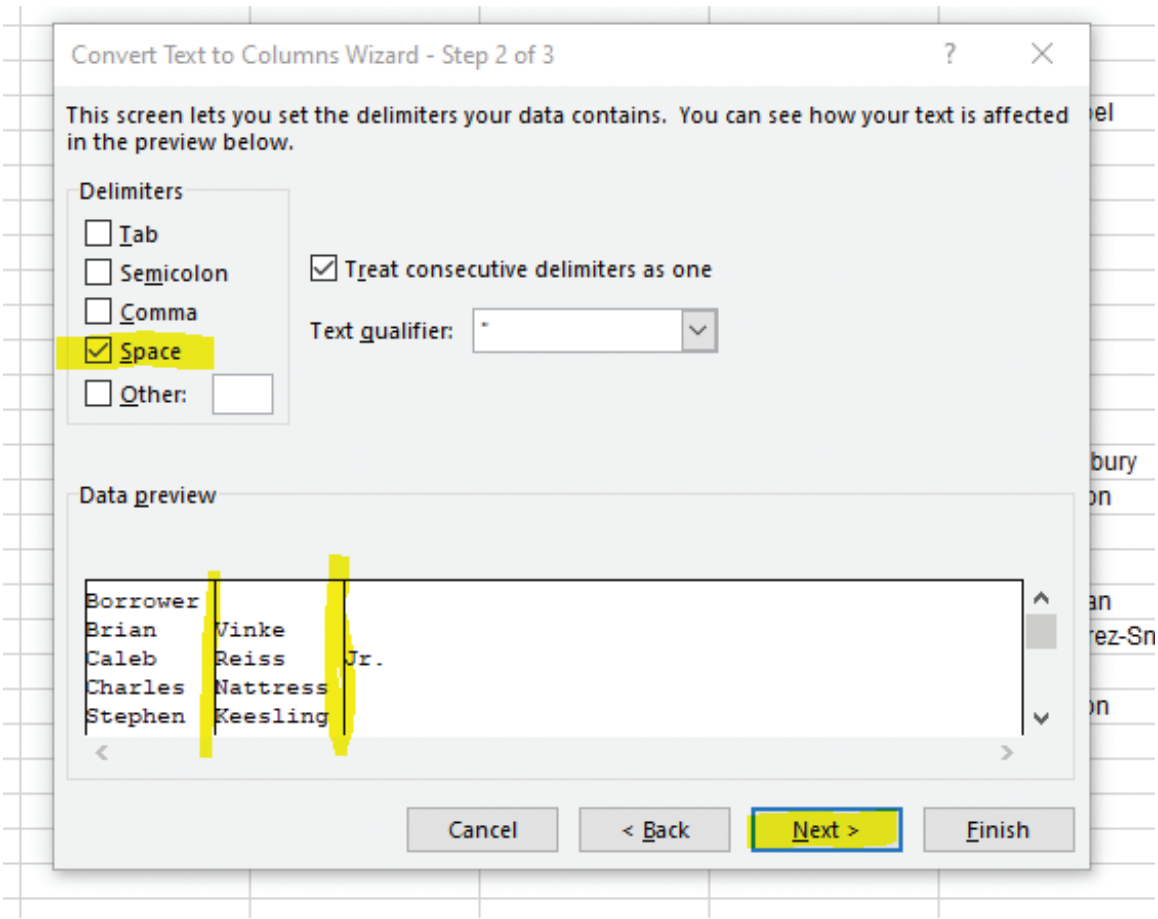
Within the data tab you will find a "Text to Columns" option. Again, yours might look slightly different.



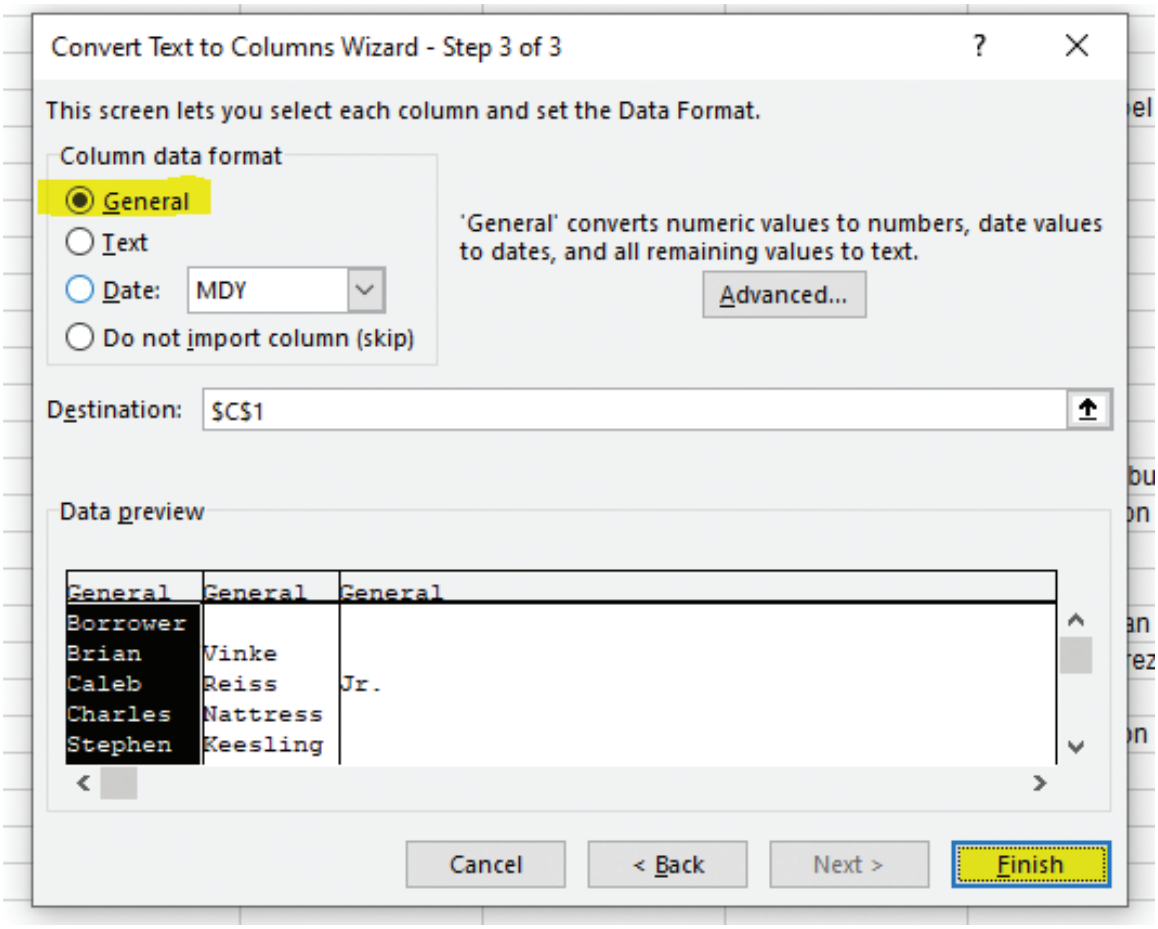
When you click on "Text to Columns" you should get a pop window. You will want to choose the "Delimited" option and click "Next." You should see the Borrower column and data within the preview window. If you don't see that data, you may have not highlighted the column. When you are ready, click Next.



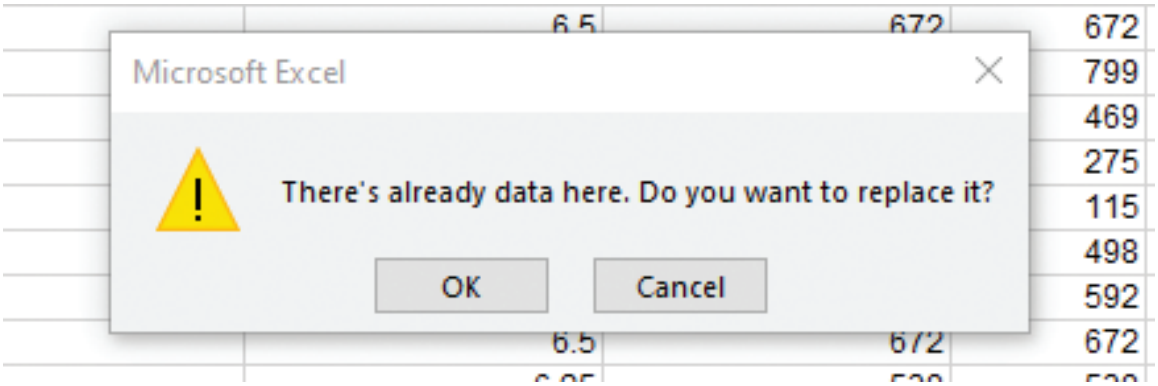
You now get to select how you want to separate out your data. Since we have spaces between our data, we will want to choose the "Space" option. Unselect everything else. Once you click the "Space" box, you should see lines show up in the preview box that will show you how your data will look. Click "Next."



The final step it will ask you what format you want the data in. If "General" is not already selected, you will want to click that circle. Then click "Finish."



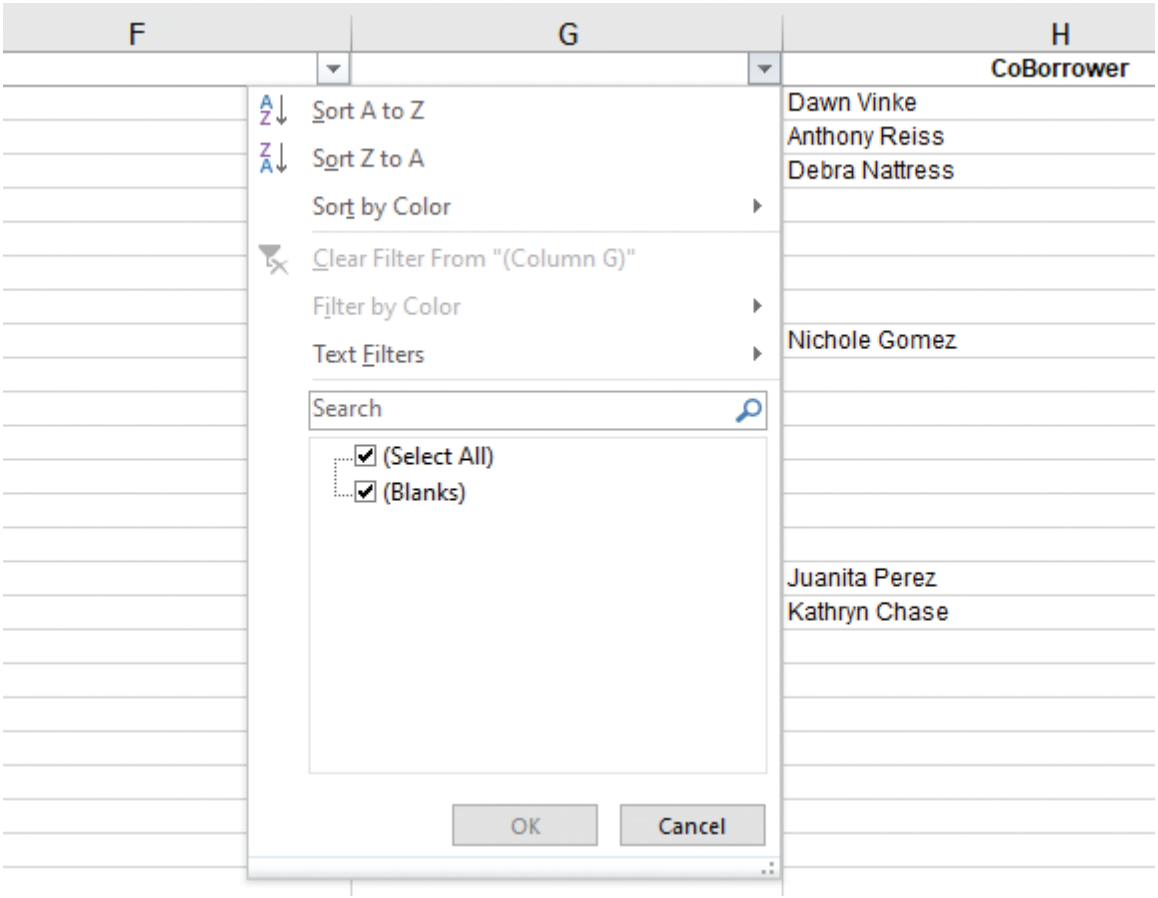
It's possible you will get a pop-up notification box that says you already have data there. Be sure that you added enough empty columns to the right of your name column. If you select okay, scroll down through your names just to make sure you didn't overwrite any important column data.



Once you click okay, you should see all of your data separate out into the new blank columns you created. Your spreadsheet should look something like this:

B	C	D	E	F	G	H
Type	Borrower					CoBorrower
ndividuals - Secured	Brian	Vinke				Dawn Vinke
ndividuals - Secured	Caleb	Reiss	Jr.			Anthony Reiss
ndividuals - Secured	Charles	Nattress				Debra Nattress
ndividuals - Secured	Stephen	Keesling				
ndividuals - Secured	Randy	J	Richardson			
ndividuals - Secured	Jay	Nollen	Sr.			
ndividuals - Secured	Craig	Burbank				
ndividuals - Secured	Robert	Gomez				Nichole Gomez
ndividuals - Secured	Kathryn	Crawford				
ndividuals - Secured	Robert	T.	Blanco			
ndividuals - Secured	Robert	Joseph	Hageman	Jr.		
ndividuals - Secured	Patrick	Brennan				
ndividuals - Secured	Kayla	Watson				
ndividuals - Secured	Jake	Hoppe				
ndividuals - Secured	Max	Lee				Juanita Perez
ndividuals - Secured	Martin	John	Chase			Kathryn Chase
ndividuals - Secured	Mark	Cretsinger	III			
ndividuals - Secured	Leah	Carstensen				
ndividuals - Secured	Joshua	Hamman				

We now have first names only in our borrower column. The second column has a combination of first names and middle names. The next column over has a combination of last names and suffixes. In the end, you will want your borrower first names to be in one column and your borrower last names to be next to it. There is a quick and easy way to do this. The first thing you will want to do is click the little down arrow into the last new column you made. So, in the picture above, we would click the down arrow in Column G.



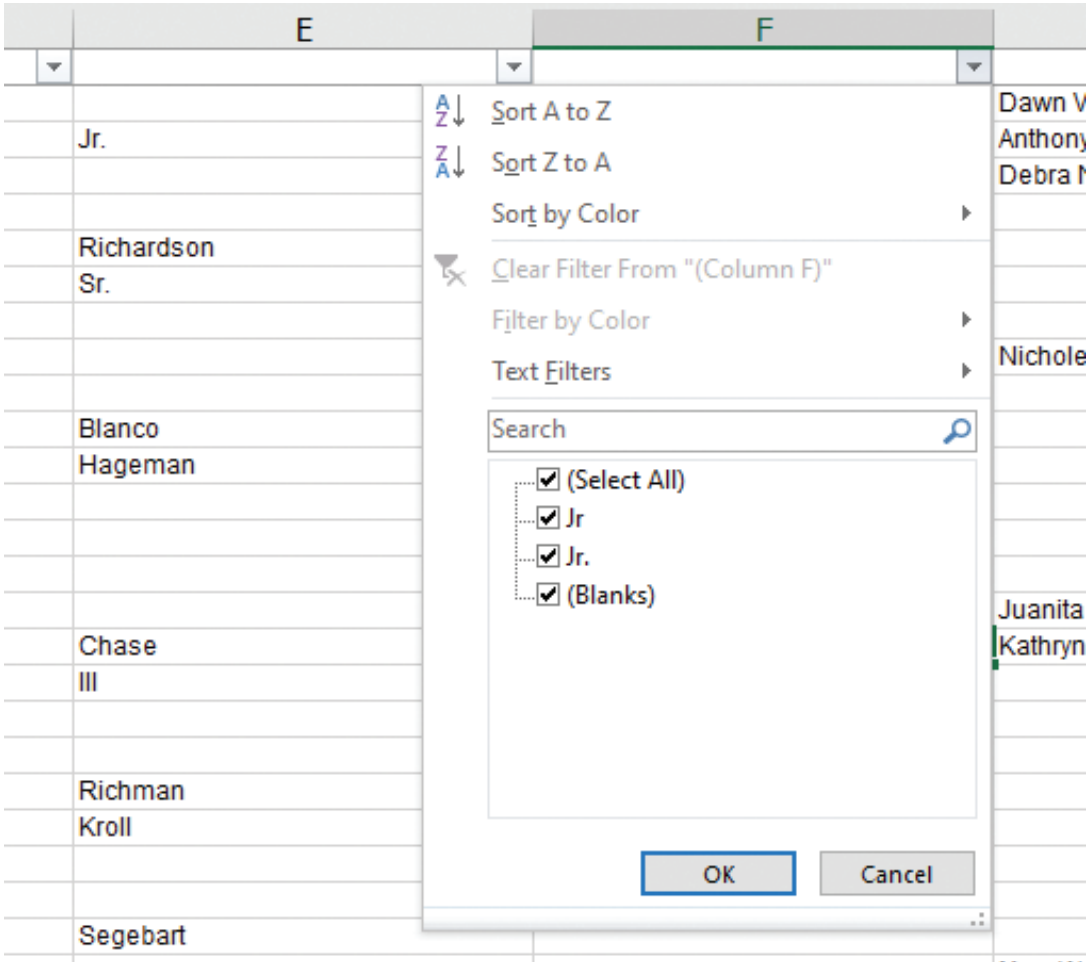
If there is no data in that column, you will only see the two options above:

1. (Select All)
2. (Blanks)

That means there is no data in that column. You can delete the column by left clicking at the top of the column to highlight it, then simply right click and choose "delete."

Now you move over to the left to the next column we created earlier. You will follow the same steps as above. Click the down arrow and see if there is any data in the column. Yours may be blank. If that is the case, delete that column and move over to the next one. Once you get to a column that has data, you will want to sort the spreadsheet to bring all of the data to the top.

In our example, our Column F has data in it as seen below:

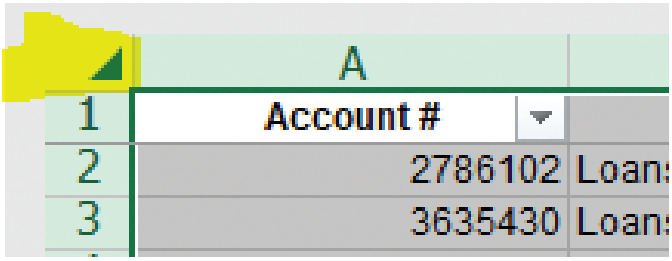


We have two pieces of data in our Column F

1. Jr
2. Jr.

Since we only care about first and last names, and our column doesn't have any first or last names, we will delete this column. If you have last names in it, don't do anything just yet. Read the next step on how to sort these columns and get the name information.

We continue to move left on the spreadsheet. Now we're working in our Column E. We have an assortment of last names and suffixes. We will want to sort this column so we can easily manipulate the data. To do this, we will want to highlight the **ENTIRE** spreadsheet by clicking on the little triangle at the top left:



PRO TIP

Any time you sort data, you want to highlight the entire spreadsheet so you don't accidently only sort one column at a time. This will mix up your data and you will have to start over. That's why it is so important to keep the original data in a separate tab and document.

After you highlight the entire spreadsheet, click on the little down arrow in the filter for the column you want to sort. In our case, we are sorting Column E. You will want to click the down arrow and then choose "Sort A to Z" in the drop-down menu. Then click "Ok" and it will sort all of the data in that column. This is a quick and easy way to bring all of your data in that column to the top of your spreadsheet.

At this point, we can start moving data from Column E to Column D. Remember, the goal is to have all first names in one column and all last names just to the right of it. You want to get rid of any middle names, initials, or suffixes. In this case, we see that we have a business name that slipped through the cracks from earlier sorting. Since we are only doing consumer loans, you will want to find any business names and delete those loans from your universe. We only want loans made to consumers.

	A	B	C	D	E	F	
1	Account #	Type	Borrower			CoBorrower	O
2	74743308	Loans fo Individuals - Secured	Nathan	Eric	Allen		
3	10041401	Loans fo Individuals - Secured	Robert	T.	Blanco		
4	47795201	Loans fo Individuals - Secured	Ricky	Bobby	Burns		
5	86401501	Loans fo Individuals - Secured	Ricky	Bobby	Burns		
6	11252401	Loans fo Individuals - Secured	Martin	John	Chase	Kathryn Chase	
7	49744409	Loans fo Individuals - Secured	Andrew	Dice	Clay	Brenda Clay	
8	91307701	Loans fo Individuals - Secured	Andrew	Dice	Clay		
9	67932404	Loans fo Individuals - Secured	Colton	T.	Clouse		
10	85954204	Loans fo Individuals - Secured	Colton	T.	Clouse		
11	72613615	Loans fo Individuals - Secured	Taymi	F.	Dobernecker	Shelly Dobernecker	
12	10116903	Loans fo Individuals - Secured	Robert	Joseph	Hageman		
13	11899616	Loans fo Individuals - Secured	Mark	Cretsinger	III		
14	60836301	Loans fo Individuals - Secured	Gilberto	Restaurants	Inc		
15	50556025	Loans fo Individuals - Secured	Jarren	Joe	Johnson		
16	3635430	Loans fo Individuals - Secured	Caleb	Reiss	Jr.	Anthony Reiss	
17	24439210	Loans fo Individuals - Secured	Micheal	Sitting	Jr.		
18	80431910	Loans fo Individuals - Secured	Tristan	Johnson	Jr.	Tristan Johnson Sr.	
19	86414101	Loans fo Individuals - Secured	Micheal	Sitting	Jr.		
20	87055202	Loans fo Individuals - Secured	Melvin	Palmer	Jr.		
21	74932612	Loans fo Individuals - Secured	Douglas	R.	Kohn		
22	14582704	Loans fo Individuals - Secured	Ethan	K.	Kroll		
23	37262522	Loans fo Individuals - Secured	Fred	Marcus	Lappe	Hiedi Lappe	
24	76959415	Loans fo Individuals - Secured	Barracuda	Mobile	LLC		
25	89864701	Loans fo Individuals - Secured	Barracuda	Mobile	LLC		
26	72111411	Loans fo Individuals - Secured	Travis	J.	Ludwig	Tawnya Lugwig	
27	76467703	Loans fo Individuals - Secured	Landon	Joesph	Makinson	Julie Makinson	
28	34900312	Loans fo Individuals - Secured	First	Bank	Realators		
29	6945818	Loans fo Individuals - Secured	Randy	J	Richardson		
30	13581104	Loans fo Individuals - Secured	Josh	Mark	Richman		
31	25340510	Loans fo Individuals - Secured	Nick	Eric	Ryen		
32	16989802	Loans fo Individuals - Secured	Charles	John	Segebart		
33	7249617	Loans fo Individuals - Secured	Jay	Nollen	Sr.		
34	34390046	Loans fo Individuals - Secured	James	Moss	Sr.		
35	86127903	Loans fo Individuals - Secured	Brett	Roberts	Sr.		
36	95320101	Loans fo Individuals - Secured	Brett	Roberts	Sr.		
37	45666701	Loans fo Individuals - Secured	Michael	Joesph	Stone	Kylie Stone	
38	72708404	Loans fo Individuals - Secured	Jeffery	O'	Tool	Janet O' Tool	
39	77919701	Loans fo Individuals - Secured	Jeffery	O'	Tool		
40	66928102	Loans fo Individuals - Secured	Harley	Luke	Yoder		

As we look down our Column E, we see last names all the way down to row 12. In row 13, our data has a suffix. What we will want to do is copy the data from column E into Column D, all the way down to row 12. Anytime we see a last name in Column E, we want to move that data into Column D. Anytime we see a suffix, we will skip that row because that means we already have our last names in Column D. After we have moved all of our last names from Column E to Column D, we can delete Column E. We should now have only first names and last names for our borrower.

Watch out for names with an apostrophe in them. If you look at our rows 35 and 36, you will see Jeffery O'Tool. When the data was originally entered into your loan software, someone erroneously put a space after the apostrophe. Make sure you correct that in your spreadsheet.

35	72708404	Loans fo Individuals - Secured	Jeffery	O'	Tool	Janet O' Tool
36	77919701	Loans fo Individuals - Secured	Jeffery	O'	Tool	
37	66928102	Loans fo Individuals - Secured	Harley	Luke	Yoder	

Once you have all of your first names and last names in separate columns and deleted everything else, rename your column headers. We like to use "Borrower First Name" and "Borrower Last Name" to help keep things straight. Now our spreadsheet should look something like this:

	A	B	C	D	E	F
1	Account #	Type	Borrower First Name	Borrower Last Name	CoBorrower	Original Int Rat
2	74743308	Loans fo Individuals - Secured	Nathan	Allen		6.25
3	10041401	Loans fo Individuals - Secured	Robert	Blanco		6.5
4	47795201	Loans fo Individuals - Secured	Ricky	Burns		6.25
5	86401501	Loans fo Individuals - Secured	Ricky	Burns		4.1
6	11252401	Loans fo Individuals - Secured	Martin	Chase	Kathryn Chase	6.75
7	49744409	Loans fo Individuals - Secured	Andrew	Clay	Brenda Clay	4.1
8	91307701	Loans fo Individuals - Secured	Andrew	Clay		4.3

Our Column C has only first names in it, and our Column D has only last names. You might have your names in different columns, so don't get confused if your column letters don't match up with the examples.

You will want to repeat that exercise with the co-borrower names. We need to know if there are co-borrowers on each of these loans because that will help us determine what groups these loans go into.

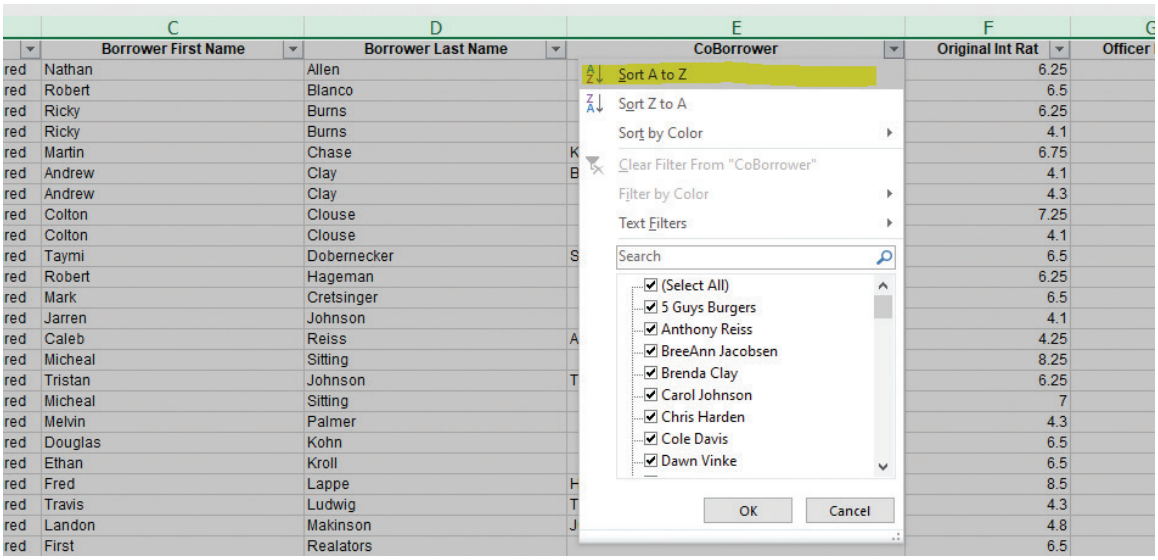
Your coborrower info might not be right behind your borrower column. Sometimes that data is all the way in the last column. That's just fine. Insert a new column right after your borrower last name column. Now copy the coborrower info from wherever it is kept on the spreadsheet, and then paste it in behind your borrower column. This will help you keep your data together and better organized.

Before you start organizing your coborrower info any further, we like to sort the CoBorrower column A to Z. There are likely a lot of blank rows of data within your CoBorrower column, and sorting A to Z will bring all of your data to the top.

Reminder: To sort data:

1. Highlight entire spreadsheet
2. Left click the down arrow in the filter button at the top of the column you want to sort
3. Now right click
4. Choose "Sort A to Z"

That will bring all of your data to the top of your spreadsheet.



Now you will want to add columns to the right of your CoBorrower name column just like you did with the borrower column. Remember, you need to add at least as many columns as your longest name in that column. Each time there is a space between names, the data will need another column. We typically just add 4 or 5 columns every single time to make sure we don't overwrite important data. You can always delete empty columns later.

If you find a business name in your co-borrower column, make sure to delete that row out of your universe. For example, we found a "5 Guys Burgers" as a co-borrower. Since that loan is to a business, we want to delete it. Now you should have a column for borrower first name, borrower last name, co-borrower first name, and co-borrower last name like this:

	A	B	C	D	E	F
1	Account #	Type	Borrower First Name	Borrower Last Name	CoBorrower	Original Int Rat
2	74743308	Loans fo Individuals - Secured	Nathan	Allen		6.25
3	10041401	Loans fo Individuals - Secured	Robert	Blanco		6.5
4	47795201	Loans fo Individuals - Secured	Ricky	Burns		6.25
5	86401501	Loans fo Individuals - Secured	Ricky	Burns		4.1
6	11252401	Loans fo Individuals - Secured	Martin	Chase	Kathryn Chase	6.75
7	49744409	Loans fo Individuals - Secured	Andrew	Clay	Brenda Clay	4.1
8	91307701	Loans fo Individuals - Secured	Andrew	Clay		4.3

	A	B	C	D	E	F	G
1	Account #	Type	Borrower First Name	Borrower Last Name	CoBorrower First Name	CoBorrower Last Name	Original
34	72052604	Loans fo Individuals - Secured	Morgan	Johnson	Johnnie	Johnson	
35	18501103	Loans fo Individuals - Secured	Rachel	Peters-Johnson	Robert	Johnson	
36	37262522	Loans fo Individuals - Secured	Fred	Lappe	Hiedi	Lappe	
37	72111411	Loans fo Individuals - Secured	Travis	Ludwig	Tawnya	Lugwig	
38	76467703	Loans fo Individuals - Secured	Landon	Makinson	Julie	Makinson	
39	44621105	Loans fo Individuals - Secured	Taylor	Marple	Sarah	Marple	
40	5546104	Loans fo Individuals - Secured	Charles	Nattress	Debra	Nattress	
41	73312610	Loans fo Individuals - Secured	Patricia	Neppel	Nathan	Neppel	
42	65357305	Loans fo Individuals - Secured	Kyle	Orr	Kyle	Orr	
43	72708404	Loans fo Individuals - Secured	Jeffery	O'Tool	Janet	O'Tool	
44	48506901	Loans fo Individuals - Secured	Yordanis	Padilla	Maria	Padilla	
45	10737972	Loans fo Individuals - Secured	Max	Lee	Juanita	Perez	
46	30463806	Loans fo Individuals - Secured	Jose	Perez	Juanita	Perez	
47	77282503	Loans fo Individuals - Secured	Mike	Snyder	Marcia	Ramirez-Snyder	
48	3635430	Loans fo Individuals - Secured	Caleb	Reiss	Anthony	Reiss	

If you look in our row 35, we have a borrower with a hyphenated last name as "Peters-Johnson." For the Surname tool to work, we need to only have one last name. If you use the tool with a hyphenated last name, it will not be able to code it as Hispanic, even if both parts of the hyphenated last name are Hispanic. Since neither of these last names are Hispanic, we can just delete the "Peters" portion of the last name.

PRO TIP

If you are going to use the Hispanic Surname tool, you will want to remove any hyphenated last names.

In Row 47, however, one of the last names is Hispanic. Anytime you have multiple names and one of them is Hispanic, you want to make sure you keep the Hispanic surname. In this case, we would delete the "Snyder." You will see why that is important when we use the surname tool.

PRO TIP

Save the document as you go! We cannot stress enough how frustrating it is to get far in this process only to lose your data or have your computer freeze up. It's hard enough doing this once, but much worse doing it twice!

STEP 7) FINDING PROHIBITED BASES

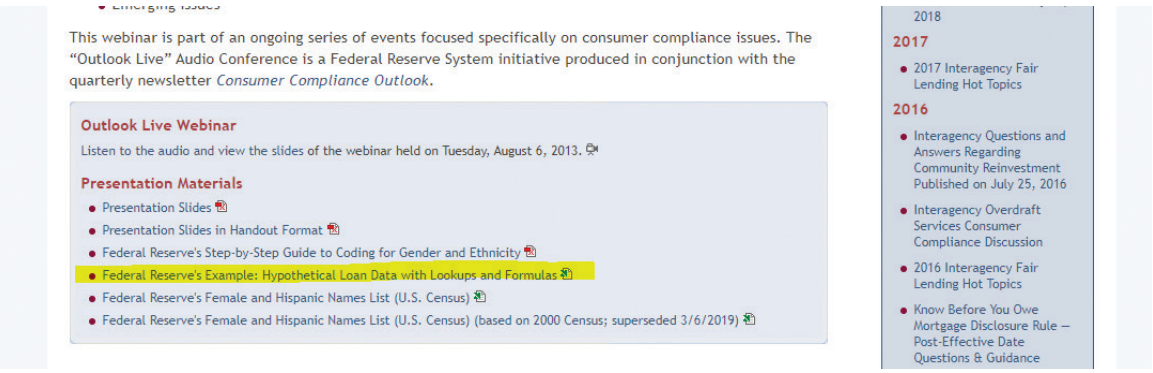
Now that we have the names in their own columns, we can use the Gender and Surname tool to find each of the borrower and coborrower's Sex and Ethnicity. We typically recommend doing the analysis based on Sex for all financial institutions. Using the Ethnicity tool is only helpful if you have large pockets of Hispanics in your area. If you live in an area with a very low Hispanic population, the Surname tool likely won't give you much for usable data.

Let's find the Sex of each of our borrowers first. If you haven't already, make sure you download the US Census Bureau's spreadsheet for finding Sex and Ethnicity.

Make sure you let your IT department know that you are going to be downloading and using this spreadsheet. The link and the spreadsheet are from the Federal Reserve, but IT usually wants to check things out before you download anything to a financial institution-owned computer or to your network.

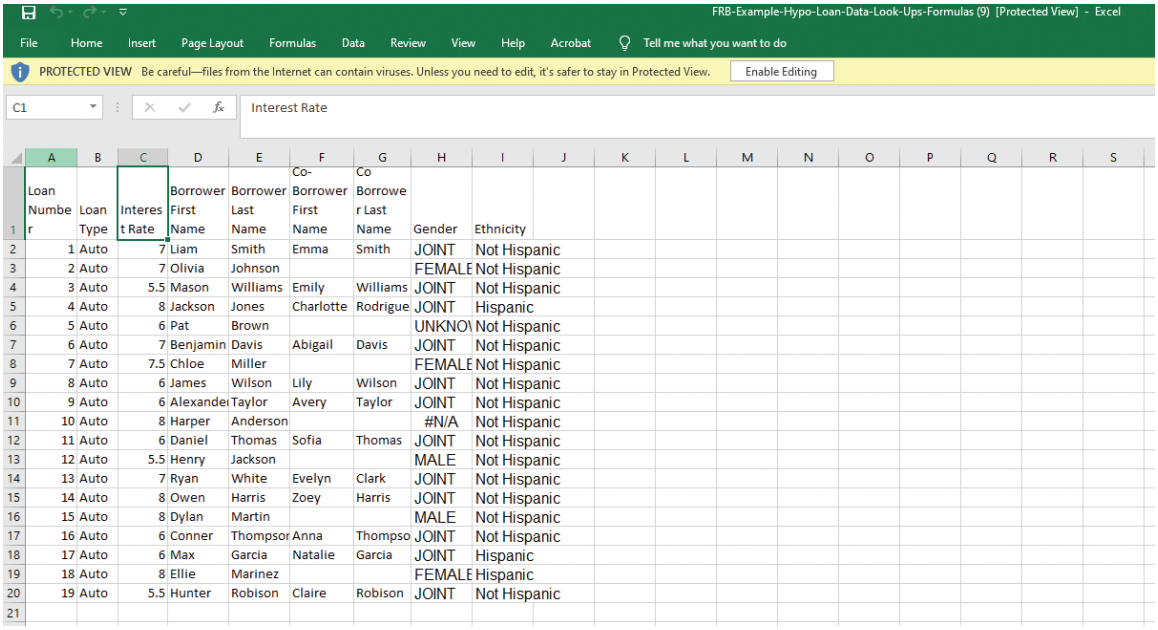
You can download the tool directly from the Federal Reserve via this link:
https://consumercomplianceoutlook.org/outlook-live/2013/indirect-auto-lending/
You can also download the tool from the school resources page.

At the bottom of the page you will want to open and save the first spreadsheet labeled "Hypothetical Loan Data with Lookups and Formulas."



Save this spreadsheet somewhere on your computer or your network. You will be able to use this spreadsheet each time you do this review.
This spreadsheet is also available for download in your course materials.

Once you open the spreadsheet, it should look something like this:



FRB-Example-Hypo-Loan-Data-Look-Ups-Formulas (9) [Protected View] - Excel

File Home Insert Page Layout Formulas Data Review View Help Acrobat Tell me what you want to do

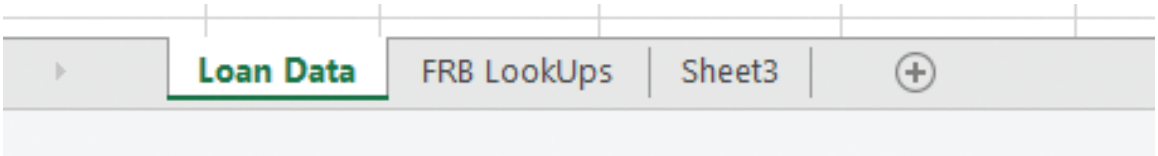
PROTECTED VIEW Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View. Enable Editing

C1 Interest Rate

	A	B	C	D	E	F	G	H	I
1	Loan Number	Loan Type	Interest Rate	Borrower First Name	Borrower Last Name	Co-Borrower First Name	Co Borrower Last Name	Gender	Ethnicity
2	1	Auto	7	Liam	Smith	Emma	Smith	JOINT	Not Hispanic
3	2	Auto	7	Olivia	Johnson			FEMALE	Not Hispanic
4	3	Auto	5.5	Mason	Williams	Emily	Williams	JOINT	Not Hispanic
5	4	Auto	8	Jackson	Jones	Charlotte	Rodrigue	JOINT	Hispanic
6	5	Auto	6	Pat	Brown			UNKNO	Not Hispanic
7	6	Auto	7	Benjamin	Davis	Abigail	Davis	JOINT	Not Hispanic
8	7	Auto	7.5	Chloe	Miller			FEMALE	Not Hispanic
9	8	Auto	6	James	Wilson	Lily	Wilson	JOINT	Not Hispanic
10	9	Auto	6	Alexande	Taylor	Avery	Taylor	JOINT	Not Hispanic
11	10	Auto	8	Harper	Anderson			#N/A	Not Hispanic
12	11	Auto	6	Daniel	Thomas	Sofia	Thomas	JOINT	Not Hispanic
13	12	Auto	5.5	Henry	Jackson			MALE	Not Hispanic
14	13	Auto	7	Ryan	White	Evelyn	Clark	JOINT	Not Hispanic
15	14	Auto	8	Owen	Harris	Zoey	Harris	JOINT	Not Hispanic
16	15	Auto	8	Dylan	Martin			MALE	Not Hispanic
17	16	Auto	6	Conner	Thompsor	Anna	Thompso	JOINT	Not Hispanic
18	17	Auto	6	Max	Garcia	Natalie	Garcia	JOINT	Hispanic
19	18	Auto	8	Ellie	Marinez			FEMALE	Hispanic
20	19	Auto	5.5	Hunter	Robison	Claire	Robison	JOINT	Not Hispanic
21									

Make sure to click the "Enable Editing" box at the top so you can edit the worksheet. Before we use this sheet, we will want to clean it up a bit and then save a nice copy for future use.

You will notice that there are a couple tabs at the bottom. We will be working in the "Loan Data" tab. The FRB LookUps tab has all of the first names and last names we are looking for. DO NOT alter any data on that tab.



We really only care about 4 of the columns on this spreadsheet:

1. Column D – Borrower First Name
2. Column E – Borrower Last Name
3. Column H – Gender
4. Column I – Ethnicity

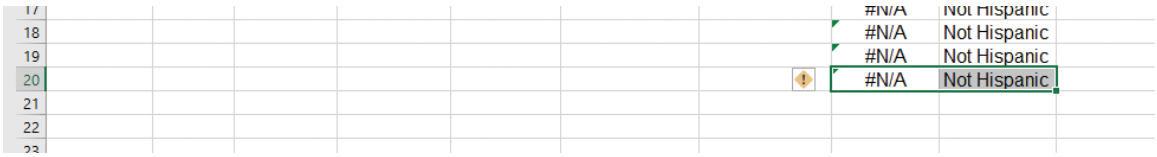
The most important columns are the Gender and Ethnicity columns. They have the formulas in them that look up names we will post into the spreadsheet. At that point, you can delete all of the data within Columns A through G. Don't delete the columns themselves or the headers, just the data. Your spreadsheet should now look like this:

	A	B	C	D	E	F	G	H	I
1	Loan Number	Loan Type	Interest Rate	Borrower First Name	Borrower Last Name	Co-Borrower First Name	Co Borrower Last Name	Gender	Ethnicity
2								#N/A	Not Hispanic
3								#N/A	Not Hispanic
4								#N/A	Not Hispanic
5								#N/A	Not Hispanic
6								#N/A	Not Hispanic
7								#N/A	Not Hispanic
8								#N/A	Not Hispanic
9								#N/A	Not Hispanic
10								#N/A	Not Hispanic
11								#N/A	Not Hispanic
12								#N/A	Not Hispanic
13								#N/A	Not Hispanic
14								#N/A	Not Hispanic
15								#N/A	Not Hispanic
16								#N/A	Not Hispanic
17								#N/A	Not Hispanic
18								#N/A	Not Hispanic
19								#N/A	Not Hispanic
20								#N/A	Not Hispanic
21									

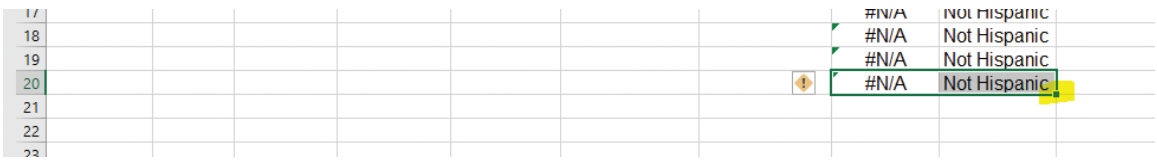
These next steps are a bit different than discussed in the video, but either way will work.

The next step is to copy the formulas in Columns H and I. We suggest copying the formulas down to about row 500 or so. That way, when we go and past first and last names into this spreadsheet, it will find Sex and Ethnicity for up to 500 names. If you have more names than 500 that you are pasting in, you just copy down the formula further down the spreadsheet. There is a real easy way to copy down the formula:

Highlight the two cells we want to copy:



Click on the little green box in the lower right-hand corner of what you just highlighted:



Then drag down the formula to row 500 and simply let go of the left click button. That will copy your formula down so you can do 500 names at one time. If your sample is larger than that, simply copy down the formula as far as you need to.

At this point, we suggest saving this workbook as your Gender and Surname Tool somewhere on your computer. Each time you use this workbook, make a copy and use the copy. That way you always have a fresh version of this workbook for future use.

We are ready to find the Sex of our borrowers and coborrowers.

Let's go back to our loan download from your institution and find our Borrower Name Columns. What you want to do first is add a column after the Borrower Last Name Column. This new column is where we will paste in the Sex of each borrower that we will find. Your spreadsheet should look something like this:

	B	C	D	E	F	G
	Type	Borrower First Name	Borrower Last Name		CoBorrower First Name	CoBorrower Last Name
1	Loans fo Individuals - Secured	Nancy	Abshire		Keagan	Abshire
1	Loans fo Individuals - Secured	Austin	Baker		Joe	Baker
2	Loans fo Individuals - Secured	Sarah	Barret		Elizabeth	Barret
0	Loans fo Individuals - Secured	Tammy	Baxter		Sara	Baxter
0	Loans fo Individuals - Secured	Dewey	Betts		Erin	Betts

Our next step is to highlight our Borrower First Name entire column and copy all of the data in that column. We can copy by right clicking the column and choosing "Copy," or after we highlighted the column, we can use the keyboard by holding down the "Ctrl" key and pressing the "c" button for copy. You will want everything in the column, including the column header.

Next, we go to our Gender and Surname Tool and paste the data we just copied into Column D – "Borrower First Name." Once you paste that in there, Column H – "Gender" should change. It should look something like this:

	A	B	C	D	E	F	G	H	I	J
1	Loan Number	Loan Type	Interest Rate	Borrower First Name	Borrower Last Name	Co-Borrower First Name	Co Borrower Last Name	Gender	Ethnicity	
2				Nancy				FEMALE	Not Hispanic	
3				Austin				MALE	Not Hispanic	
4				Sarah				FEMALE	Not Hispanic	
5				Tammy				FEMALE	Not Hispanic	
6				Dewey				MALE	Not Hispanic	
7				Chris				UNKNOWN	Not Hispanic	
8				Martin				MALE	Not Hispanic	
9				Martin				MALE	Not Hispanic	
10				Andrew				MALE	Not Hispanic	
11				Jason				MALE	Not Hispanic	
12				Sky				#N/A	Not Hispanic	
13				Georjenna				#N/A	Not Hispanic	
14				Donald				MALE	Not Hispanic	
15				Taymi				#N/A	Not Hispanic	
16				Morrison				#N/A	Not Hispanic	
17				Thomas				MALE	Not Hispanic	
18				Rebecca				FEMALE	Not Hispanic	
19				Erica				FEMALE	Not Hispanic	
20				Kyle				MALE	Not Hispanic	

You should now get one of 4 options within your Gender Column:

1. MALE
2. FEMALE
3. UNKNOWN
4. #N/A

Here's how this tool works. Based on millions of population surveys collected through the years, the Census Bureau calculates the likelihood of a first name being male or female. If there is a high likelihood of the name being male, this tool will assign that name as male. If there is a high likelihood of the first name being a female, the tool assigns the name as female. If the name is a gender-neutral name like Chris, it will code the name as UNKNOWN. If the name is an unusual name or an unusual spelling, it will code the sex as #N/A.

Don't be worried that you don't get a Sex assigned to all of your names. We will fix that later.

READ THIS WHOLE NEXT SECTION BEFORE CONTINUING - Now you will copy the data from Column H – Gender from the Gender and Surname tool and paste that back into your loan spreadsheet. In this instance, you don't want to simply highlight the entire column and copy. If you do that, you will have extra data that you don't need. You should click on the top row of the column you want to copy and then scroll down to highlight only far enough down to capture the last name. Remember – we have 500 formulas on our page. Our sample, for example, has only 197 names.

	A	B	C	D	E	F	G	H	I	J
175				Tyler				MALE	Not Hispanic	
176				Dustin				MALE	Not Hispanic	
177				Delaine				FEMALE	Not Hispanic	
178				Cinty				#N/A	Not Hispanic	
179				Britnee				#N/A	Not Hispanic	
180				Helen				FEMALE	Not Hispanic	
181				Keaton				#N/A	Not Hispanic	
182				Joseph				MALE	Not Hispanic	
183				Jane				FEMALE	Not Hispanic	
184				David				MALE	Not Hispanic	
185				Max				MALE	Not Hispanic	
186				Allen				MALE	Not Hispanic	
187				Ben				MALE	Not Hispanic	
188				Erica				FEMALE	Not Hispanic	
189				Erica				FEMALE	Not Hispanic	
190				Alex				MALE	Not Hispanic	
191				Alex				MALE	Not Hispanic	
192				Barbie				FEMALE	Not Hispanic	
193				Allison				FEMALE	Not Hispanic	
194				Amy				FEMALE	Not Hispanic	
195				Bonnie				FEMALE	Not Hispanic	
196				Alexandra				FEMALE	Not Hispanic	
197				Erin				FEMALE	Not Hispanic	
198								#N/A	Not Hispanic	

Once you highlighted down to the last line that had a name, right click and select "Copy."

You will paste your copied data into the new column that we built in our loan download, right after the borrower first and last name. **However, we have to tweak how we paste it back in just a bit.**

When you go to paste the gender data from our tool into the spreadsheet, first click into the very top row of the column we want to paste the data into:

	C	D	E	F	G
	Borrower First Name	Borrower Last Name		CoBorrower First Name	CoBorrower Last Na
ed	Nancy	Abshire		Keagan	Abshire
ed	Austin	Baker		Joe	Baker
ed	Sarah	Barret		Elizabeth	Barret
ed	Tammy	Baxter		Sara	Baxter

Then you will right click, find your "Paste" options, and select the paste options for "Values." If you simply just paste the data in, it won't paste in the genders, it will likely just say "JOINT." If you paste in the "Values," it will paste the data you need.

	C	D	E	F
	Borrower First Name	Borrower Last Name	Gender	CoBorrower First Name
ired	Nancy	Abshire	FEMALE	Keagan
ired	Austin	Baker	MALE	Joe
ired	Sarah	Barret	FEMALE	
ired	Tammy	Baxter	FEMALE	
ired	Dewey	Betts	MALE	
ired	Chris	Bohnen	UNKNOWN	Donita
ired	Martin	Chase	MALE	
ired	Martin	Chase	MALE	
ired	Andrew	Clay	MALE	Brenda
ired	Jason	Clements	MALE	Louise
ired	Sky	Lounge	#N/A	Sandra
ired	Georjenna	Davis	#N/A	Cole
ired	Donald	Davis	MALE	Georjeanna
ired	Taymi	Dobernecker	#N/A	Shelly
ired	Morrison	Ellis	#N/A	Maria

Paste Options:

Values (V)

You should now have your 4 choices of data into your new column. At this point, we would re-label the column header to "Borrower Sex."

You will follow the exact same procedures for the co-borrower genders.

1. Create a new column after the Co-Borrower Column in your loan download spreadsheet
2. Copy the first names from your sample
3. Paste the names into Column D of the Gender and Surname Tool – Make sure to delete the data from Column D that you just used from the

borrowers. **Do not use the coborrower column of the Gender and Surname Tool. Only ever use the Borrower Column.**

4. Copy the results from Column H of the tool
5. Paste them back into your spreadsheet new column after the Co-Borrower column. Make sure you chose "Paste Special – Values"
6. Rename your new column "Co-Borrower Sex"

What about the UNKNOWNS and #N/As?

You likely will have to pause your analysis at this point. The best way to go about collecting data for the names that didn't come up with a Sex is to reach out to the specific lenders. This may take a bit of time. Once you have all of the applicants assigned Male or Female, then we can create our Target and Control Groups.

STEP 8)
TARGET AND CONTROL GROUPS

After you talk with the lenders and get the sexes of those not coded by the gender tool, you will be ready to group them together into one of two groups: target group or a control group. When we use the prohibited basis of Sex, males are the control group and females are the target group. That's easy to figure out when there not a co-borrower. When you have more than one borrower, if either borrower is a Male, that loan goes into the Control group. If both the borrower and co-borrowers are Females, it goes into the target group.

Control Group – All loans with a Male presence

Target Group – Any loans with Females only, including two females borrowing jointly

Always remember to highlight the whole spreadsheet before sorting by a column.

One of the quickest ways to find your target and control group loans is to start with sorting. We like to start by sorting the "Borrower Sex" column by A to Z.

You will now want to add another new column in after the CoBorrower Sex column and label the column header Target/Control. As we sort through our data, we will assign each row (each loan) as either a Target or Control group loan, depending on the Sex of the borrower and co-borrower.

	C	D	E	F	G	H	I	J
	Borrower First Name	Borrower Last Name	Borrower Sex	CoBorrower First Name	CoBorrower Last Name	CoBorrower Sex	Target/Control	Original Int Rat
red	Sarah	Barret	FEMALE	Elizabeth	Barret	FEMALE		4.75
red	Madalyn	Thompson	FEMALE	Jill	Thompson	FEMALE		4.75
red	Melissa	Hernandez	FEMALE	Lisa	Smith	FEMALE		7
red	Erica	Flynn	FEMALE	Meghann	Flynn	FEMALE		6.5
red	Sky	Lounge	FEMALE	Sandra	Corbin	FEMALE		7.25
red	Tammy	Baxter	FEMALE	Sara	Baxter	FEMALE		6.25
red	Taylor	Marple	FEMALE	Sarah	Marple	FEMALE		4.3

Now we simply go down our spreadsheet. If there is a Male in either the Borrower Sex or CoBorrower Sex columns, that will be a "Control" group loan. If there is only Females in either or both columns, it will be a "Target" group loan.

You are going to have many more Control group loans than Target group loans. That is okay and expected.

STEP 9)
GROUP LOANS BY PRODUCT

Now that we have our Target and Control groups assigned, we will want to make a new tab in our spreadsheet for each of the loan types. There are several different ways you can do this, but in the end, you will want to have each of your different loan types on its own tab within your spreadsheet. Once you have new tabs in your spreadsheet that only contain the loans for the product you are working on, we will be able to run pivot tables on those products. Ensure you watch the video as we show the ways that you can group your loans.

PRO TIP

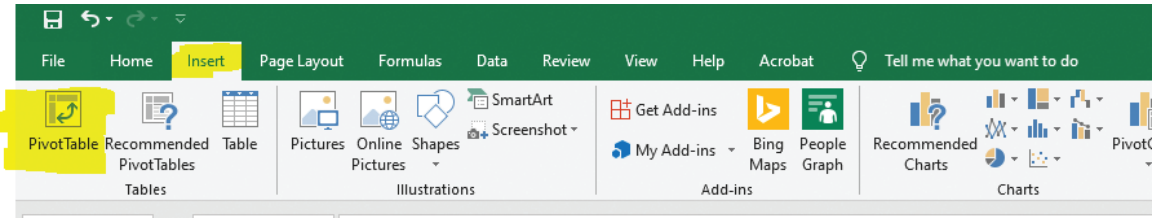
Organization is key in this process, so take a few moments to set your spreadsheet up in a way that works for you, is well-organized, and easy to follow. Spending a few extra minutes organizing your data now will make the process much easier when we build the pivot tables. Check out the videos for one option on how to organize your data.

STEP 10)
CREATING PIVOT TABLES – PRICING BASED ON SEX

Finally, we get to the fun part! Here is where we actually get to run the numbers and see how fairly and consistently your institution is pricing loans. We will create pivot tables for each of our loan product types. Pivot tables are just a quick and fancy way of doing a lot of math, but it also gives us a nice formatted table that we can use for our report. Don't be scared of pivot tables. They are simple to use when you get the hang of it. Let's get started.

Pick a product tab within your spreadsheet to start your pivot table creation. You will be building a new pivot table for each product you are reviewing. Our example is vehicle purchase loans, and we have a total of 194 loans within our universe. You could have less loans or many times more. Remember that every column must have a header name; otherwise, the pivot table will not work.

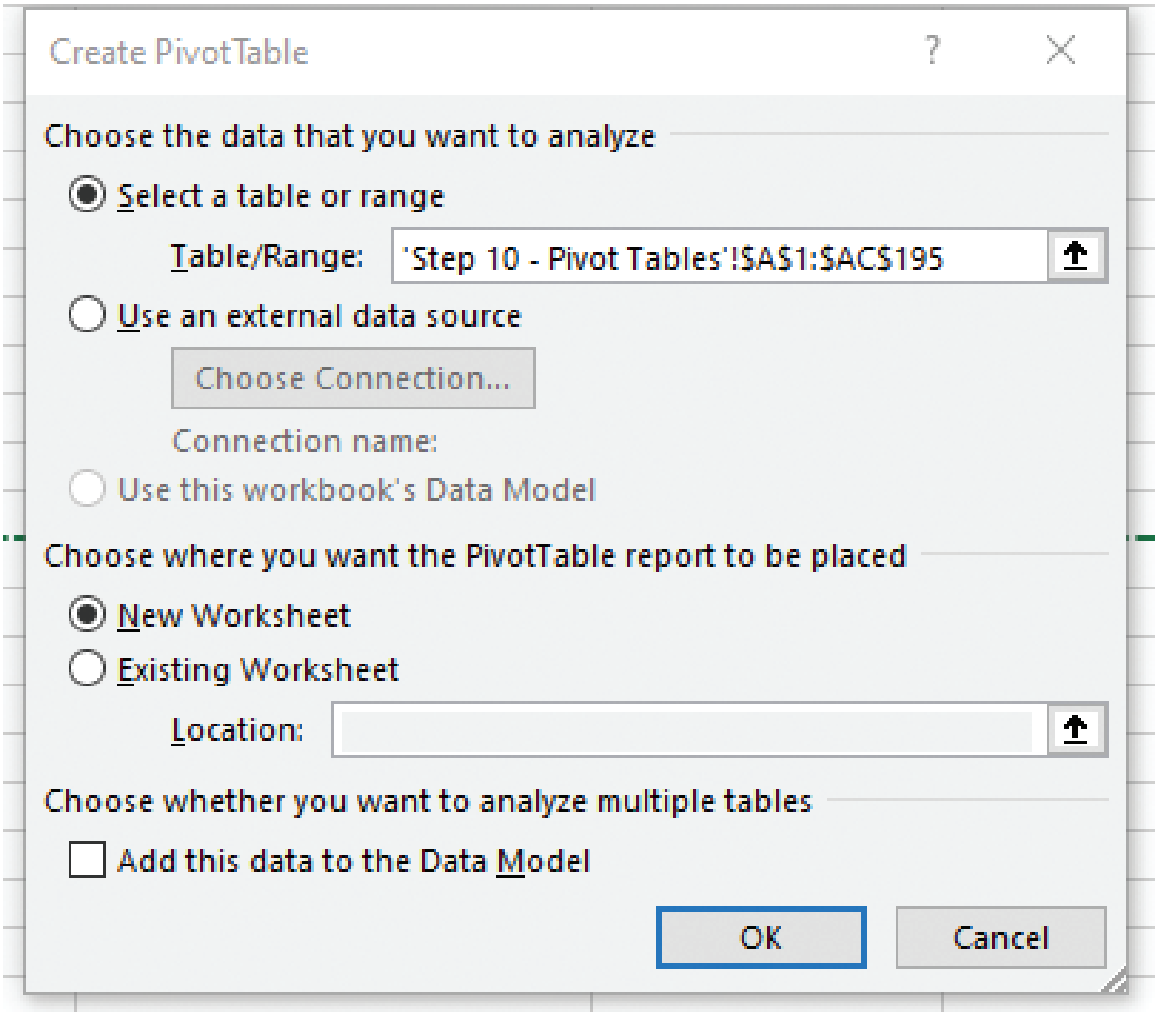
1. Start with highlighting your entire spreadsheet – Remember: click on the little triangle in the upper left-hand corner of the spreadsheet.
2. Click on the "Insert" tab near the top of the spreadsheet and click on "Pivot Table".



3. You will need to select the table range. To do this, first left click into cell A1 – then scroll all the way to the bottom right hand corner of your data, hold down the shift key, and then left click the bottom right corner of your spreadsheet. This should create a green dotted line around all of your data. The goal here is to include all of the loan download data.

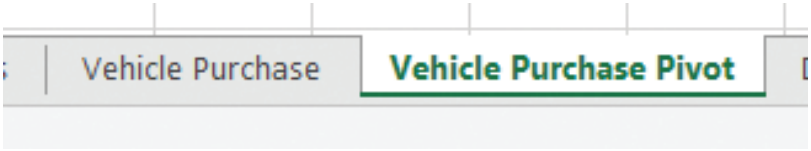
	U	V	W	X	Y	Z	AA	AB	AC	AD
1	CT Minority Level	In/Out	Class Co	Class Code Description	Collateral Co	Type	Current Balance	Original Loan Am	Date Openec	
182	10	Out	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ 6,143.93	$ 7,362.02	7/30/2018	
183	9	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ 1,937.33	$ 3,264.80	3/22/2018	
184	12	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ 11,541.14	$ 13,435.04	6/21/2018	
185	9	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ -	$ 11,030.48	3/8/2018	
186	15	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ 1,043.14	$ 2,048.06	6/21/2018	
187	6	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ -	$ 12,000.00	6/14/2018	
188	6	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ -	$ 9,464.07	2/23/2018	
189	18	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ 3,046.37	$ 4,000.00	5/4/2018	
190	9	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ 2,193.95	$ 2,881.11	4/23/2018	
191	18	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ 1,981.54	$ 2,594.03	7/23/2018	
192	7	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ 17,331.81	$ 19,383.62	7/5/2018	
193	8	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ 2,381.93	$ 3,122.96	8/3/2018	
194	8	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ 9,415.86	$ 11,800.00	6/12/2018	
195	6	In	30	Loans fo Individuals - Secured	22	Vehicle Purchase	$ 23,872.20	$ 25,000.00	10/29/2018	
196										
197										

4. In the bottom half of your "Create PivotTable" box, you will want to select "New Worksheet." It's usually already selected.

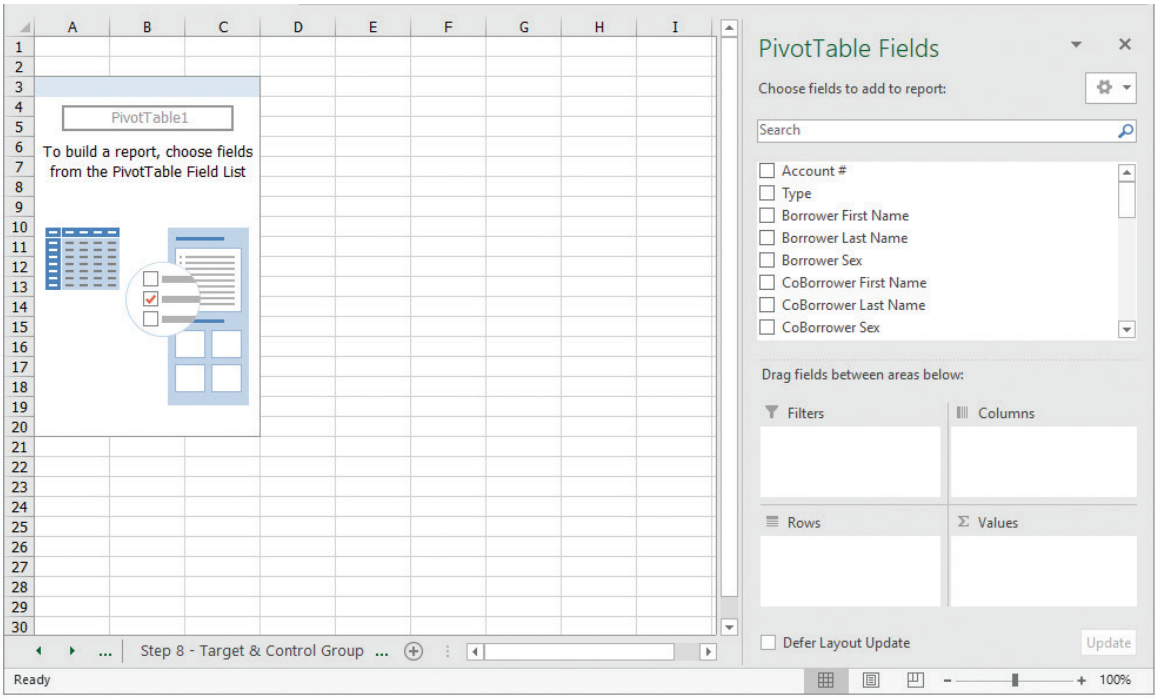


5. Then click "Ok."

You should have a new tab in your workbook. It would be a good idea to rename this tab right away. For example – If you are working on Vehicle Purchase loans, you could name the tab "Vehicle Purchase Pivot." You may also want to move the new pivot table tab to right behind the product you are working on. Since we will be creating a lot of new tabs, it's a good idea to stay organized and label everything as you build it.



Your new pivot table tab should look something like this:



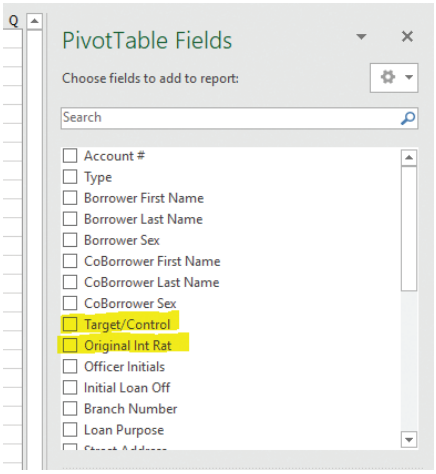
PRO TIP

The box you see on the left of the spreadsheet is your actual pivot table. We will start manipulating this in just a moment. If you ever click outside of that box, the PivotTable Fields box on the right will disappear. Don't panic. Simply left click one time anywhere inside the pivot table and all of the pivot table fields will return.

Now we want to start manipulating the pivot table to see what our pricing looks like for this product.

IMPORTANT NOTE: All of the boxes/options in the PivotTable Fields on the right side of our spreadsheet are simply the column headers from our spreadsheet. If you are having trouble locating a certain piece of data, you can go back to the spreadsheet for the product you are working on and find the column header name.

Example:

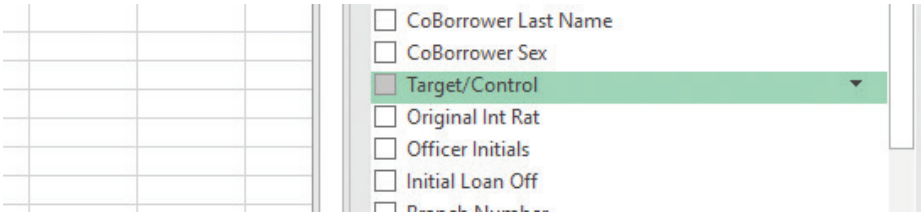


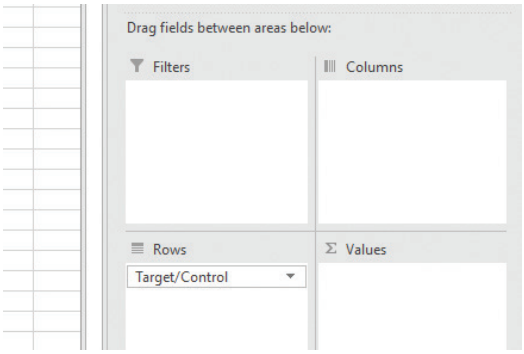
See the "Target/Control" and "Original Int Rat" in our PivotTable Fields box? That comes right from our spreadsheet that we used to create the pivot table:

H	I	J	K	L	M	
CoBorrower Sex	Target/Control	Original Int Rat	Officer Initials	nitial Loan	Branch Number	
FEMALE	Target	4.75	779	729	9	2015 M
FEMALE	Target	4.75	779	729	9	'15 Chr
FEMALE	Target	7	143	143	14	PP '04
FEMALE	Target	6.5	89	89	1	PP 02 D

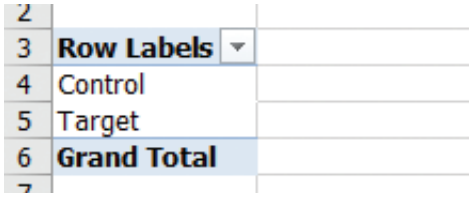
Let's start adding data to our pivot tables.

1. Find the Target/Control box inside the PivotTable Fields.
2. Left Click and drag it down into the "Rows" box below.

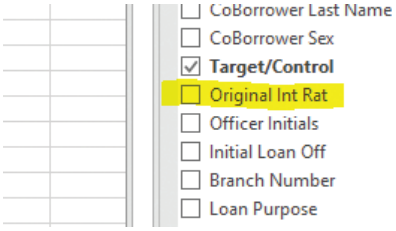




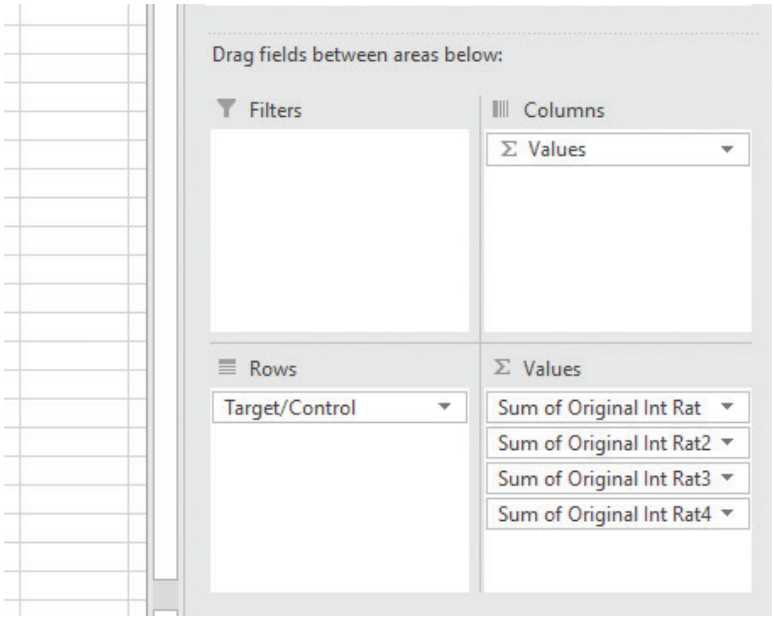
This will be the start of your Pivot Table



3. Now you will find the column header that has your interest rate. If you are having problems figuring out which box is interest rate, go back to your spreadsheet and locate which column header it is. For our example, this institution labeled it "Original Int Rat."



4. Left click and drag down your interest rate into the "Values" box below a total of 4 times. We are going to use the interest rate to calculate 4 separate values. Now your boxes should look something like this (although the values may say "count" rather than "sum"):



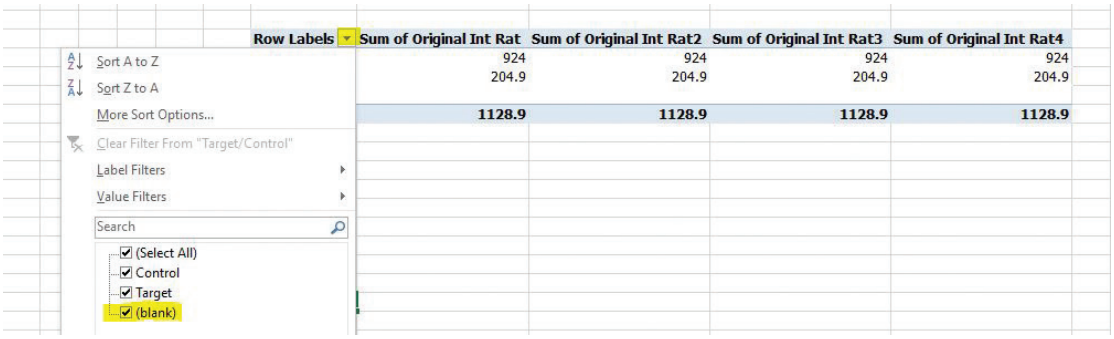
Your Pivot table should look something like this (the actual numbers and titles will be different of course):

3	Row Labels	Sum of Original Int Rat	Sum of Original Int Rat2	Sum of Original Int Rat3	Sum of Original Int Rat4
4	Control	924	924	924	924
5	Target	204.9	204.9	204.9	204.9
6	**Grand Total**	**1128.9**	**1128.9**	**1128.9**	**1128.9**
7					

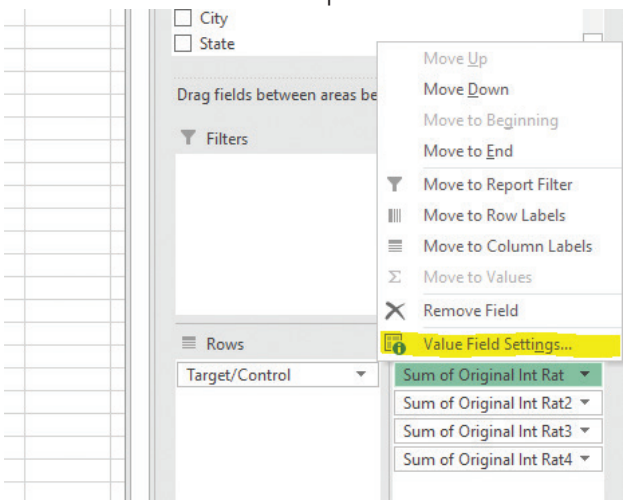
If your pivot table looks like ours (except for the numbers), you are on the right track. However, you may see a (blank) under the row labels as seen below.

Row Labels	Sum of Original Int Rat	Sum of Original Int Rat2	Sum of Original Int Rat3	Sum of Original Int Rat4
Control	924	924	924	924
Target	204.9	204.9	204.9	204.9
(blank)				
Grand Total	**1128.9**	**1128.9**	**1128.9**	**1128.9**

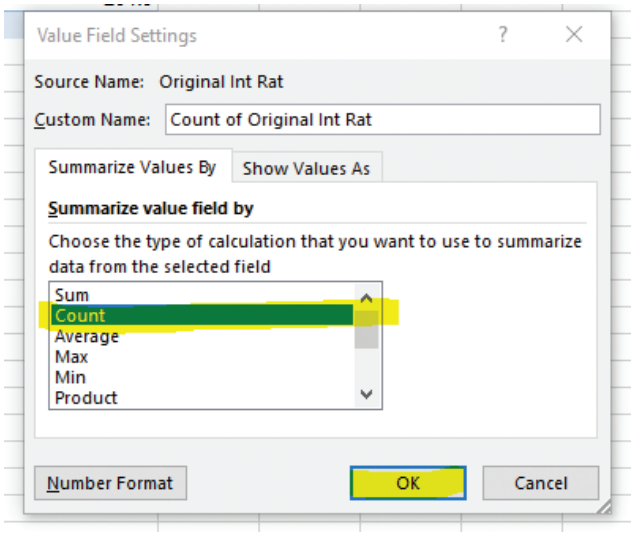
This is not a big issue. It just means that when you were choosing your data for the pivot table that you selected some empty rows. You can either go back and redo the pivot table and only ensure you select rows with data in them, or you can simply click on the drop-down arrow next to Row Labels and unselect the "blank" option. That will remove the blanks from your table.



5. The next step is to change how the data is calculated for each of the interest rates we just dragged down into the "Values" box. To do that, click the little down arrow in the top Values box and select "Value Field Settings…"



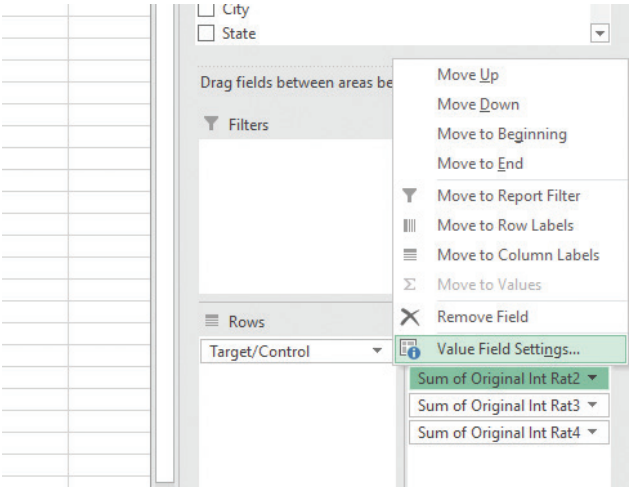
6. For the first value, we want to change how the field is summarized. We want the first value to be "Count." This will simply count the number of loans in each category. Then select "Ok".



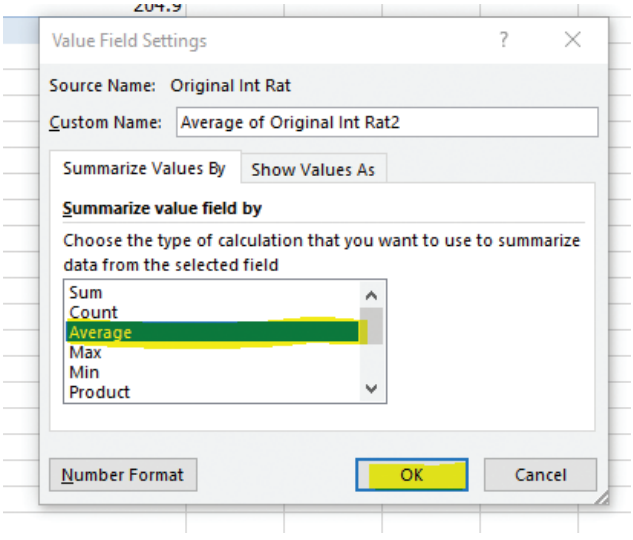
Now the second column of the pivot table will show how many loans are in the Control group, Target group, and total loans for this loan product.

Row Labels	Count of Original Int Rat	Sum of Original Int Rat2	Sum of Original Int Rat3	Sum of Original Int Rat4
Control	159	924	924	924
Target	35	204.9	204.9	204.9
Grand Total	**194**	**1128.9**	**1128.9**	**1128.9**

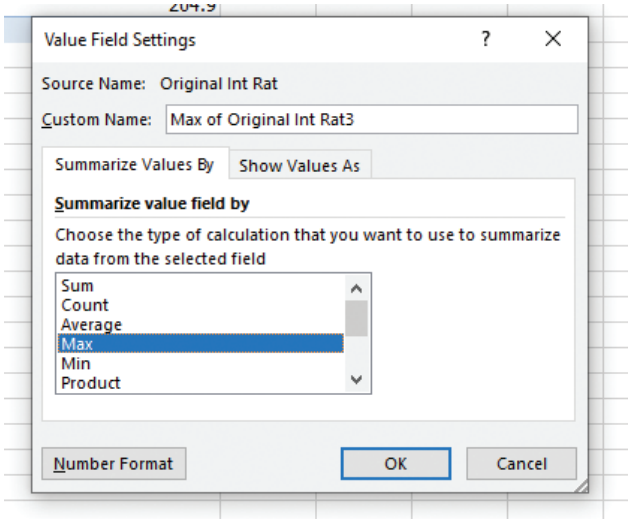
7. Go back and click on the down arrow for the second value within our PivotTable Fields and again select "Value Field Settings…"



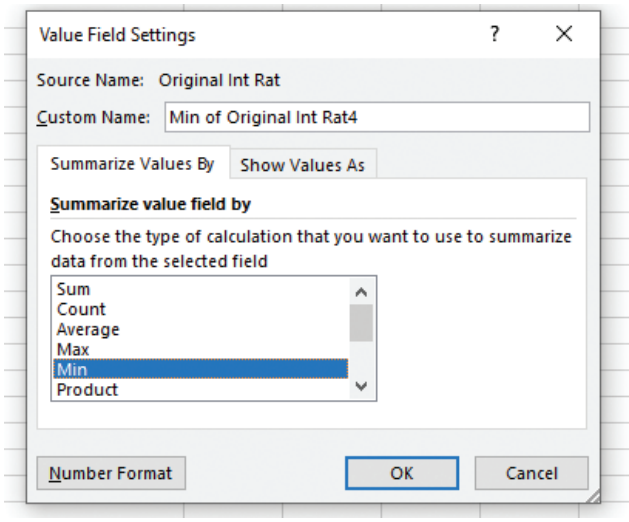
This time you will want to select "Average." This will average out the interest rates for the Control group and the Target group. Then click "Ok."



8. Now click on the third option in the "Values" box and follow the steps above. For the third value we want to select "Max." This will show us the highest rate anyone got within each group.



9. Click on the fourth option in the "Values" box and follow the same steps above. This time you will choose "Min." This will show us the lowest rate anyone in the group received. We will discuss the importance of the max and min in just a moment.



Now our pivot table should look something like this (remember: your numbers will be different)

Row Labels	Count of Original Int Rat	Average of Original Int Rat2	Max of Original Int Rat3	Min of Original Int Rat4
Control	159	5.811320755	8.5	3.75
Target	35	5.854285714	8.5	4
Grand Total	**194**	**5.819072165**	**8.5**	**3.75**

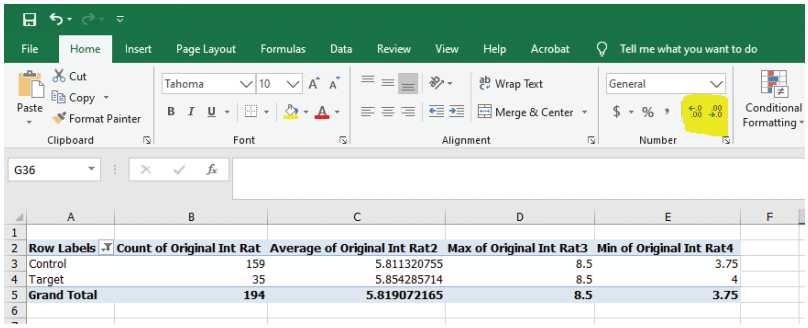
You will want to go through and clean up the pivot table. This will make it easier to read. You can rename the column headers by simply clicking in the box and naming it whatever you like. You can also reduce the number of decimal places to a more presentable format. To do that, simply highlight the 9 boxes that have interest rates in them:

Row Labels	Count of Original Int Rat	Average of Original Int Rat2	Max of Original Int Rat3	Min of Original Int Rat4
Control	159	5.811320755	8.5	3.75
Target	35	5.854285714	8.5	4
Grand Total	**194**	**5.819072165**	**8.5**	**3.75**

Then use the decimal arrows to increase or decrease the number of decimal places. We like to do all of our pivot tables to 2 decimal places, the second decimal point equals 1 basis point. One basis point is equal to 100 hundredth of 1 percent.

PRO TIP

How your interest rates are exported from your loan download into the spreadsheet may determine if you want to use numbers or percentages in this step. In our example, our rates were listed as whole numbers (e.g. 5.25). If your rates are listed as decimals (e.g. 0.0525), you might want to change the number to a percentage. It doesn't matter what format your numbers are in the end, as long as it can be easily understood.

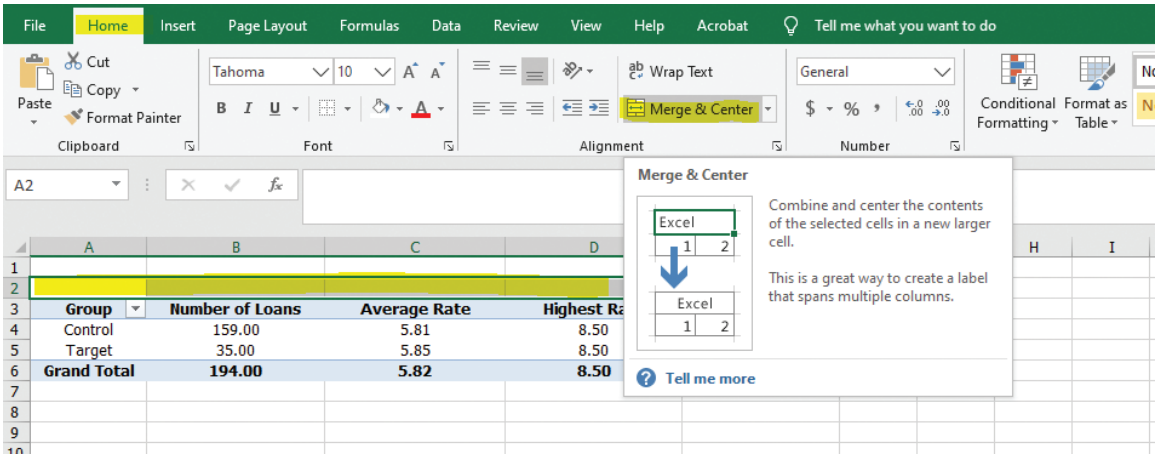


	A	B	C	D	E	F
1						
2	Row Labels	Count of Original Int Rat	Average of Original Int Rat2	Max of Original Int Rat3	Min of Original Int Rat4	
3	Control	159	5.811320755	8.5	3.75	
4	Target	35	5.854285714	8.5	4	
5	**Grand Total**	**194**	**5.819072165**	**8.5**	**3.75**	
6						

As mentioned before, we always rename our column headers to something a reader would understand. You can also center up all of the data to make it more presentable.

Group	Number of Loans	Average Rate	Highest Rate	Lowest Rate
Control	159	5.81	8.50	3.75
Target	35	5.85	8.50	4.00
Grand Total	**194**	**5.82**	**8.50**	**3.75**

We even like to Merge and Center the row above our pivot table and give it the title of the loan category we're working on. To do that, make sure you are on the "Home" tab. Highlight the cells above your table and click on "Merge & Center."



Then you can give it a table number if you would like and name it whatever the product type you are working on. We even like to put a border around it. Here's an example:

Table 1 - Vehicle Purchase Loans				
Group	Number of Loans	Average Rate	Highest Rate	Lowest Rate
Control	159	5.81	8.50	3.75
Target	35	5.85	8.50	4.00
Grand Total	**194**	**5.82**	**8.50**	**3.75**

Now you can take that table, copy the cells, and paste it right into a word document like this:

Table 1 - Vehicle Purchase Loans				
Group	Number of Loans	Average Rate	Highest Rate	Lowest Rate
Control	159	5.81	8.50	3.75
Target	35	5.85	8.50	4.00
Grand Total	**194**	**5.82**	**8.50**	**3.75**

Repeat these steps for however many categories of loans you are reviewing for. Let's break down what everything in this table means.

Group: This is simply the target or control group. Remember – the control group is any loan with a Male presence. Target group loans are Female only, including loans with two female borrowers.

Number of Loans: This is how many loans were made to each group. It is common to have many more loans in the Control group than the Target group because each

time you have a male and female married couple (which is a lot of your loans), they will end up in the Control group.

Average Rate: This is the average interest rate that each group received. This is the most important part of your analysis. You will see in this example that the Target group rate was only 4 basis points above the Control group rate. We will talk about that more in a moment.

Highest Rate and Lowest Rate: These are important for one major reason: it helps you find outliers. If somehow 18% is showing up as your highest rate or 0% is your lowest rate, you may have a loan in your sample that doesn't belong there. If it is an error, simply go back to your tab with the data on it, locate that loan, and delete the row from your spreadsheet. Then go back to your pivot table, right click inside it, and choose refresh. It should update and take that loan out of there. Usually when you find a 0 percent loan, it means the interest rate did not get recorded. You should be able to easily search in your software, collect that data, and enter it in. Make sure you right click inside your pivot table and chose the "Refresh" option anytime you change data in your loan download. Pivot tables do not automatically refresh.

It also can show you if loan officers are pricing outside of the rate sheet. If the lowest rate you ever give on a vehicle purchase loan is supposed to be 4% (per your rate sheet), but the lowest on your pivot table is 2%, you may want to investigate.

The Big Question – What is an acceptable rate spread?

There are really two answers to this question

1. It depends
2. Management Discretion

It depends – As your loan universe grows, so the number of loans you made to each group increases, a smaller spread could have a more negative impact. As the number in the universe gets smaller, you need a larger spread to have a more negative impact.

Let's say you only have 13 loans to the control group and 3 loans to the target group. Let's also say your interest rate spread shows that the target group got 0.32 percent (or 32 basis points) higher loan pricing, on average. Since you only have 3 loans in your target group, these results won't be statistically significant, so it's really

hard to say there is price discrimination from only 3 in our sample.
Now let's say we now have 13,000 loans in our control group and 3,000 loans in our target group. That rate spread really becomes a big deal.

Management Discretion – You will want to find your rate spreads for each of your loan products. You will likely always have some type of spread, one way or the other. Sometimes the control group will have a lower average and sometimes it will be the target group. As your universe size increases, you will want to see narrower spreads. It's not your job to determine an acceptable rate spread; that's for management to do. Your job is to identify these trends and report your findings. Remember: if the average rate for the target group is 50 basis points higher than the control group, that literally means that a woman is likely to a loan at half of a percentage higher than a man.

Your Role – It is your job and role to identify these pricing trends and show management what the spreads are. Management then will decide if the level of risk is acceptable or not. If it is not acceptable, you will need to start digging through your data and find out why you have such large spreads. Here's a hint – It's likely from loan officers not following the rate sheet! You can comb thru your data to help find trends and the root cause of the rate spreads.

Joint Pricing Models

Some organizations will set up their pricing models a bit differently if you have more than one borrower. For example, the loan might be priced using the highest credit score of any applicant on the loan. This can have an effect on your rate spreads when doing a prohibited basis pricing analysis based on Sex.

While your model may be some variation of this pricing practice, the premise is basically the same: **If you have more than one applicant apply for a consumer loan, you use the highest credit score to determine the rate charged on the loan.** While it is not wrong to do this, it can lead to higher rate spreads. Let's use an example to illustrate.

In Module 14 - Comparative File Analysis, we're going to talk about Second National Bank (SNB). SNB is a real-world example of a comparative file analysis we conducted that resulted in large pricing disparities. Here is a brief summary of SNB.

SNB was an institution with assets under $1 billion and more than 10 branches. The branches were spread out among about 9 different markets, with a market president leading each separate market. However, the institution had a solid pricing structure

for all consumer loans and rate sheets to guide loan officers when pricing loans, and the process and rates did not differ among the markets.

During the first pricing analysis, it was discovered that there were rate spreads of about 70-basis points on some consumer loan categories. Basically, what this means is that the target group, on average, were getting consumer loans at SNB that were 70-basis points higher than the control group.

Remember – control group loans had a male presence and target groups were female only. It's important to note that many of the borrowers in the Control group were also female. But if they applied for a loan with a male, they were put into the Control group. This is the way that regulators generally conduct a pricing review. However, this method of grouping borrowers can lead to some faulty results when you price loans based on a higher credit score.

The way SNB's pricing model was set up is when you have more than one borrower, lenders are supposed use the higher of the two credit scores to set the rate. The problem that this raises though, is that many of the applicants in the Control group (males) had a co-borrower (usually female). The law of averages would say that in half of those instances, the female co-borrower had a higher credit score. So that means that there were many instances that a male borrower had the benefit of a female co-borrower who had a better credit score – leading to a better rate.

In a large majority of the Target Group loans, there was not a co-borrower. Most of your target group loans will be female applicant without a co-borrower. There will be some where you had two females apply. This leads to a disproportionate amount of Control group loans with an extra score to affect pricing than you would have in the Target group. That's not necessarily wrong, and it's not necessarily disparate treatment – it's just how the regulators break up your Control and Target groups.

This is **one factor** that would lead to a higher rate disparity in pricing between the two groups. SNB had another factor that greatly increased the rate spreads. SNB's pricing model broke down into 4 buckets:

Credit Score		**775+**	**774-720**	**719-680**	**679-640**
Pricing Bucket		*1*	*2*	*3*	*4*
New Models - 3 years old or less	**Loan Term**				
	0 - 36 Months	*4.15%*	*4.30%*	*5.85%*	*9.60%*

This is an example of a pricing model that many organizations use, and it is similar to SNB's pricing model. It follows prudent and acceptable pricing practices. As the credit score decreases, risk goes up, so the interest rate goes up. As the loan term gets longer, risk goes up – price goes up. As collateral gets older – you get the idea.

We want to point out the 4 different pricing buckets in the table. You will notice that the rate jump from Bucket 1 to Bucket 2 is not a huge difference. Let's look at a new model vehicle with a term of 36 months or less. The jump in rate from Pricing Bucket 1 to 2 is 4.15% to 4.30%. This represents a 4% increase in the rate. When you go from Bucket 2 (4.3%) to Bucket 3 (5.85%), that represents a larger increase – a 36% increase in the rate. However, when you go from Bucket 3 (5.85%) to Bucket 4 (9.60%), the rate of increase is 64%.

What we can take away from this is that if you are in pricing buckets 1 or 2, the rates are low and there is a relatively low increase in the rate as you move to a lower credit score bucket. But when you jump to pricing Buckets 3 & 4, there are significant jumps in the rates. Therefore, if you have most of your Control group loans that have a second credit score to help you get in a lower pricing bucket, your rate could be significantly lower on average. Most borrowers in the Target Group did not have the benefit of a co-borrower, so when they ended up in Pricing Buckets 3 or 4, the rate was significantly higher. This was the second contributing factor to the rate disparities of 70 basis points between the Target Group and Control Group.

Conducting a Review Without Co-Borrowers

There is a way to correct for this pricing bias, and that is to conduct an additional review. To do this, make an additional copy of the spreadsheet for the product you are reviewing. You will want to sort through the spreadsheet and delete all loans that have co-borrowers, no matter the Sex of each individual. When you do this, you will truly have loans to a sole male to compare to loans to a sole female. At this point, you can do a new pivot table to see what your rate disparity is without the addition of co-borrowers.

Note: when you do this, your new control group loan universe should go down quite a bit. Your target loan group will not drop near as much because fewer of your target group loans likely have co-borrowers.

If you still have large disparities after removing all co-borrowers, then you likely have pricing issues that need to be addressed.

It is suggested that you include both reviews within your fair lending report. The first review with your normal Control and Target Groups along with your second analysis with co-borrowers removed (only needed if you follow the joint pricing model described above). The regulators may or may not consider your second analysis without co-borrowers, as that is not part of their procedures, but it will help you prove that you do not have pricing discrimination.

STEP 11)
CREATING PIVOT TABLES BASED ON ETHNICITY

Doing a pricing review based on Ethnicity is only beneficial if you have higher populations of Hispanics in your area. The US Census Bureau tool only has data for Hispanic surnames, so if you have very low levels of Hispanic borrowers in your area, going through this process will not yield useful results. If you are not conducting the Ethnicity steps, you can skip this step.

Sex is not the only way we can perform a pricing analysis of our loan download. You may have noticed on the US Census Bureau spreadsheet that there was more than one column of information. In addition to having over 5,000 first names, there is also more than 6,000 surnames (last/family names). Which means if you have high Hispanic populations in your area, you can also do the same analysis based on Ethnicity. Here's how you do it.

If you have already performed the pricing analysis based on sex, you have already separated out the first and last names of your borrower and co-borrowers. If you have not done that yet, you will want to go back to Step 10 and follow the directions.

The next step is to simply break down each one of our loans into a control group or target group loan. If you remember from the analysis based on sex, anytime we had a male presence, it was considered a control group loan. For the Ethnicity analysis, it's a bit different. Control group loans for Ethnicity is anytime you DO NOT have a Hispanic surname. The easiest way to say it is if you ever have a Hispanic surname in the borrower or co-borrower column, those are TARGET GROUP loans. Everything else is a control group loan. Let's start by creating new columns in the spreadsheet we want to analyze.

We simply added a new column and named it "Borrower Ethnicity" right after our "Borrower Sex" column.

B	C	D	E	F	G
Type	Borrower First Name	Borrower Last Name	Borrower Sex	Borrower Ethnicity	CoBorrower First Name
o Individuals - Secured	Sarah	Barret	FEMALE		Elizabeth
o Individuals - Secured	Madalyn	Thompson	FEMALE		Jill
o Individuals - Secured	Melissa	Hernandez	FEMALE		Lisa
o Individuals - Secured	Erica	Flynn	FEMALE		Meghann
o Individuals - Secured	Sky	Lounge	FEMALE		Sandra
o Individuals - Secured	Tammy	Baxter	FEMALE		Sara

We will do the same for our Co-Borrower Column.

E	F	G	H	I	J	K
Borrower Sex	Borrower Ethnicity	CoBorrower First Name	CoBorrower Last Name	CoBorrower Sex	CoBorrower Ethnicit	Sex Target/Control
FEMALE		Elizabeth	Barret	FEMALE		Target
FEMALE		Jill	Thompson	FEMALE		Target
FEMALE		Lisa	Smith	FEMALE		Target
FEMALE		Meghann	Flynn	FEMALE		Target
FEMALE		Sandra	Corbin	FEMALE		Target

Finally, we want to create a new "Ethnicity – Target/Control" column. This will be the column where we determine whether or not each loan is a Target Group or Control Group loan.

Sex	F	G	H	I	J	K	L	M
	Borrower Ethnicity	CoBorrower First Name	CoBorrower Last Name	CoBorrower Sex	CoBorrower Ethnicit	Sex Target/Control	Ethnicity Target/Control	Original Int Rat
		Elizabeth	Barret	FEMALE		Target		4
		Jill	Thompson	FEMALE		Target		4
		Lisa	Smith	FEMALE		Target		
		Meghann	Flynn	FEMALE		Target		
		Sandra	Corbin	FEMALE		Target		7

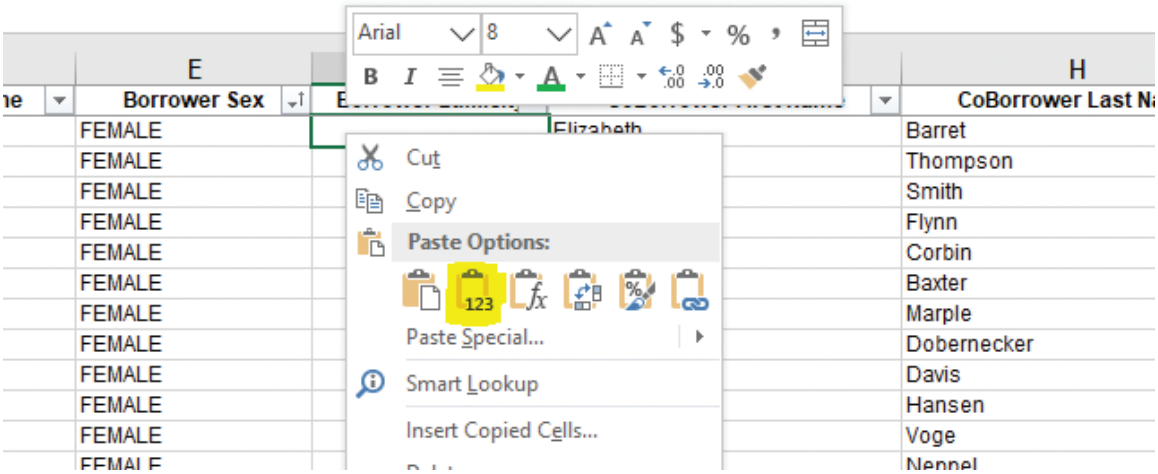
It's time to go back to our Census Bureau Tool.

	A	B	C	D	E	F	G	H	I	J
1	Loan Number	Loan Type	Interest Rate	Borrower First Name	Borrower Last Name	Co-Borrower First Name	Co Borrower Last Name	Gender	Ethnicity	
2								#N/A	Not Hispanic	
3								#N/A	Not Hispanic	
4								#N/A	Not Hispanic	
5								#N/A	Not Hispanic	
6								#N/A	Not Hispanic	
7								#N/A	Not Hispanic	
8								#N/A	Not Hispanic	
9								#N/A	Not Hispanic	
10								#N/A	Not Hispanic	

When we found the sex of our borrowers, we copied and pasted FIRST NAMES into Column D. That gave us the genders in Column H. This time we are going go copy LAST NAMES from our spreadsheet and paste them into Column E. The ethnicity data will then populate into Column I. We simply copied our borrower last name column and pasted it into the Census Bureau Tool. You never need to use the "Co Borrower Last Name" column. Our spreadsheet now looks like this:

	A	B	C	D	E	F	G	H	I	J
1	Loan Number	Loan Type	Interest Rate	Borrower First Name	Borrower Last Name	(Ctrl) ver First Name	Co Borrower Last Name	Gender	Ethnicity	
2					Barret			#N/A	Not Hispanic	
3					Thompson			#N/A	Not Hispanic	
4					Hernandez			#N/A	Hispanic	
5					Flynn			#N/A	Not Hispanic	
6					Lounge			#N/A	Not Hispanic	
7					Baxter			#N/A	Not Hispanic	
8					Marple			#N/A	Not Hispanic	
9					Dobernecker			#N/A	Not Hispanic	
10					Davis			#N/A	Not Hispanic	
11					Hansen			#N/A	Not Hispanic	

Now we simply copy Column I and paste it back into our spreadsheet/working download.



Now our spreadsheet looks like this:

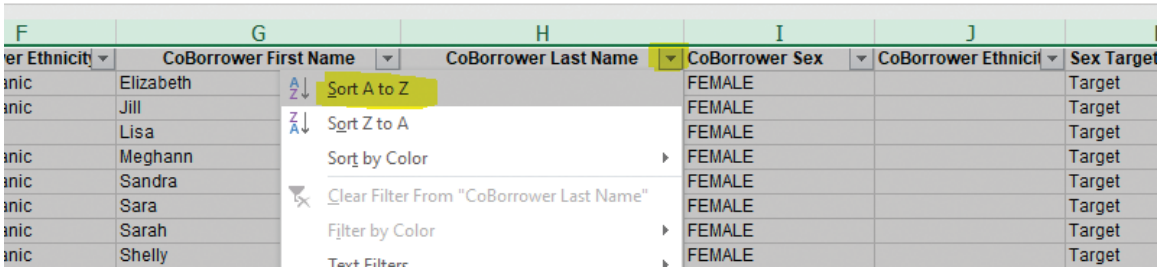
	C	D	E	F	G
	Borrower First Name	Borrower Last Name	Borrower Sex	Borrower Ethnicity	CoBorrower First Name
cured	Sarah	Barret	FEMALE	Not Hispanic	Elizabeth
cured	Madalyn	Thompson	FEMALE	Not Hispanic	Jill
cured	Melissa	Hernandez	FEMALE	Hispanic	Lisa
cured	Erica	Flynn	FEMALE	Not Hispanic	Meghann
cured	Sky	Lounge	FEMALE	Not Hispanic	Sandra
cured	Tammy	Baxter	FEMALE	Not Hispanic	Sara

When you are copying from the Census Bureau Tool and pasting into your download you must right click and choose "Paste Special." You will want to choose the "Values" option so it pastes in the value and not the formula.

You will need to repeat the step above for the co-borrower column.

Hint: An easy step to get all of your co-borrower last names to the top of your spreadsheet is to filter by the coborrower last name column.

1. Highlight the entire spreadsheet
2. Click the down arrow at the top of your Co-Borrower Last Name Column
3. Select "Sort A to Z"



Now you can copy the co-borrower last name column into the Census Bureau Tool. Once you get your results, copy them back into your download. Now it should look like this:

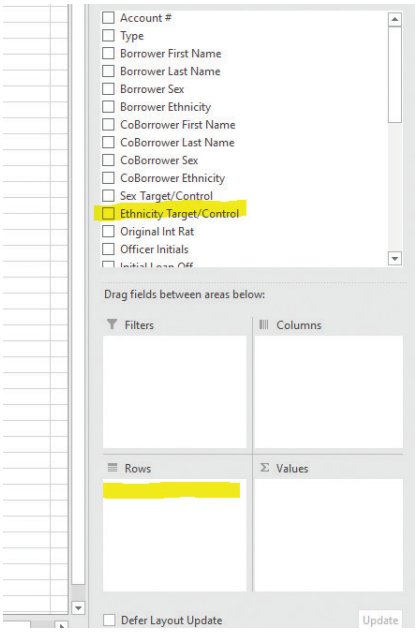
D	E	F	G	H	I	J	K	L
Borrower Last Name	Borrower Sex	Borrower Ethnicit	CoBorrower First Name	CoBorrower Last Name	CoBorrower Sex	CoBorrower Ethnicit	Sex Target/Control	Ethnicity Target/Control
Abshire	FEMALE	Not Hispanic	Keagan	Abshire	MALE	Not Hispanic	Control	
Baker	MALE	Not Hispanic	Joe	Baker	MALE	Not Hispanic	Control	
Barret	FEMALE	Not Hispanic	Elizabeth	Barret	FEMALE	Not Hispanic	Target	
Baxter	FEMALE	Not Hispanic	Sara	Baxter	FEMALE	Not Hispanic	Target	
Betts	MALE	Not Hispanic	Erin	Betts	FEMALE	Not Hispanic	Control	
Bohnen	MALE	Not Hispanic	Donita	Bohnen	FEMALE	Not Hispanic	Control	
Chase	MALE	Not Hispanic	Kathryn	Chase	FEMALE	Not Hispanic	Control	

Our next step is to sort by the borrower and co-borrower ethnicity columns. Anytime we see "Hispanic" in either of those columns, that will be a "Target Group" loan. If both columns are "Not Hispanic", it is a "Control Group" loan.

Hint: Sort first by the Co-Borrower Ethnicity column. That will make it easier to quickly identify Hispanic and non-Hispanic borrowers. Then simply type in your Ethnicity Target/Control group column whether or not each row is a Control Group or Target Group loan. Then sort by the Borrower Ethnicity column and do the same. Your spreadsheet should now look something like this:

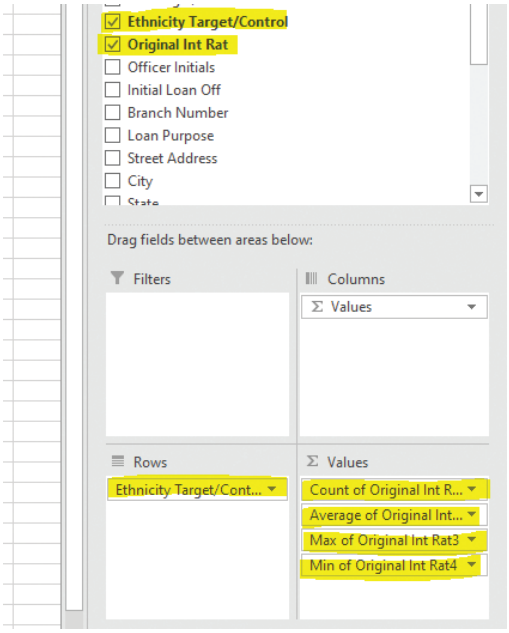
E	F	G	H	I	J	K	L
Borrower Sex	Borrower Ethnicit	CoBorrower First Name	CoBorrower Last Name	CoBorrower Sex	CoBorrower Ethnicit	Sex Target/Control	Ethnicity Target/Control
MALE	Hispanic	Nichole	Gomez	FEMALE	Hispanic	Control	Target
MALE	Hispanic	Roxanne	Hernandez	FEMALE	Hispanic	Control	Target
MALE	Hispanic	Maria	Padilla	FEMALE	Hispanic	Control	Target
MALE	Hispanic	Juanita	Perez	FEMALE	Hispanic	Control	Target
MALE	Hispanic	Kari	Yanes	FEMALE	Hispanic	Control	Target
MALE	Not Hispanic	Sara	Gonzalez	FEMALE	Hispanic	Control	Target
MALE	Not Hispanic	Juanita	Perez	FEMALE	Hispanic	Control	Target
FEMALE	Hispanic	Lisa	Smith	FEMALE	Not Hispanic	Target	Target
FEMALE	Not Hispanic	Keagan	Abshire	MALE	Not Hispanic	Control	Control
MALE	Not Hispanic	Joe	Baker	MALE	Not Hispanic	Control	Control
FEMALE	Not Hispanic	Elizabeth	Barret	FEMALE	Not Hispanic	Target	Control

We are now ready to make pivot tables based on Ethnicity. We will follow the exact same steps as we did for the analysis based on Sex in Step 10.



The biggest difference now is INSTEAD of dragging down the "Sex Target/Control" into the "Rows" box, we will want to drag down the Ethnicity Target/Control" into the Rows box. All of the other steps remain unchanged.

You will want to drag down your interest rate column into the Values box four times, just like in the analysis based on sex. You will also want to change the Value Field Settings to Count, Average, Max, and Min, just like we did above. Our pivot table menu should now look like this:



Our new Ethnicity pivot table now looks like this:

Row Labels	Count of Original Int Rat	Average of Original Int Rat2	Max of Original Int Rat3	Min of Original Int Rat4
Control	174	5.777873563	8.5	3.75
Target	20	6.1775	7	4.3
Grand Total	**194**	**5.819072165**	**8.5**	**3.75**

At this point you can go ahead and clean it up. Change the decimal points, rename your columns, add a header, and put the difference in rate spread box under the pivot table. Here's what our final product looks like:

Title Secured - Ethnicity				
Group	**Number of Loans**	**Average Rate**	**Highest Rate**	**Lowest Rate**
Control	174	5.78	8.50	3.75
Target	20	6.18	7.00	4.30
Grand Total	**194**	**5.82**	**8.50**	**3.75**
	Difference	0.40		

Our data shows a 40-basis point spread with the control group having the lower average rate. With a universe of almost 200 loans, that might be more of a spread than

we feel comfortable with. Coming up, we will show you how to break down your data further by branch and by lender. This can help us narrow down this pricing disparity and see if it is one or two people causing high rate differences.

You can now repeat this process with all of your consumer loan products. You've learned how to identify if borrowers are males or females. You've also learned how to tell if a last name is Hispanic or non-Hispanic. We have gone through how to build pivot tables and see your results.

Once you have reached this part of the module, you have conducted a good and thorough analysis of your organization's pricing practices. However, larger organizations with multiple branches or markets may want to break down your analysis even further.

Breaking Down Your Data Even Further

If you are a larger organization with multiple branches and many lenders, you can break down your pricing analysis even further. The previous procedures on how to conduct the pricing analysis by Sex just gives you the organization's results by product only. But what if your rate spreads are higher than you are comfortable with?

There is a quick and simple way to break down your data even further. You can break it down by markets, branches, and lenders. If you have a significant amount of loans in your sample, you could break down by markets and do a separate analysis for each market. You can also consider shortening your timeframe from say one year to six months or even three months if your organization makes that many loans.

At the very beginning of this section, we talked about the information you would want to have generated in your loan download. Within that list was market name, branch name, and lender name. You may have numbers or codes instead of names, but that's quite alright. If you are able to get the branch and lender information on your loan download, you can take the pivot table that you already created and build on it.

PRO TIP

In the next part of this module, we will show you how to break down the analysis you have just conducted into pricing by branch and pricing by lender. If you have several branches and you want to make sure each of them is pricing in line with policy, you might want to continue. If you are seeing larger disparities in your products, you can also break down by lender to see if it is certain lenders not following policy. If you are a smaller institution with few lenders and branches, you can decide on performing these next steps. If you already have a small loan universe, breaking it down by lenders will result in even smaller loan samples, reducing the usefulness of the data.

How to break down your data by Branch:

Go back to your pivot table that has your pricing results by sex. You can do this for any or all of the products that were included within the review. The example we will show you how to build from is our earlier vehicle car loan results. If you have low rate disparities, this step may not be necessary.

First you will want to highlight your pivot table and make a copy. You can highlight the entire table and right click to choose "copy," or you can use the quick copy method by highlighting the table, holding down the "Ctrl" key, and typing the letter "C" for copy. After you have successfully copied the table, you should see a green dotted box around it like this:

Group	Number of Loans	Average Rate	Highest Rate	Lowest Rate
Control	159	5.81	8.50	3.75
Target	35	5.85	8.50	4.00
Grand Total	**194**	**5.82**	**8.50**	**3.75**

We are going to use the same spreadsheet tab that we made our original pivot tables in. Next you will want to scroll down several rows from your current pivot table and then paste it. You can paste the new pivot table by either right clicking and choosing the "Paste" option or the quick key by holding down "Ctrl" and pressing the "V" key for paste. Now your pivot table spreadsheet should look like this.

2					
3	Group	Number of Loans	Average Rate	Highest Rate	Lowest Rate
4	Control	159	5.81	8.50	3.75
5	Target	35	5.85	8.50	4.00
6	**Grand Total**	**194**	**5.82**	**8.50**	**3.75**
7					
8					
9					
10	Group	Number of Loans	Average Rate	Highest Rate	Lowest Rate
11	Control	159	5.81	8.50	3.75
12	Target	35	5.85	8.50	4.00
13	**Grand Total**	**194**	**5.82**	**8.50**	**3.75**
14					
15					
16					

The new pivot table (the lower one) that we just created is the one we will be working in for this next step. You can do anything you want in the new pivot table. It will not change anything in the pivot table above. If you make a mistake or decide you don't want it, simply delete it and start over. You will need to click in any of the cells within your new pivot table to get your PivotTable Fields box to come up.
Our next step will be to locate the branch name or code. Remember, you can go back to the tab that has your data and find which header has your branch information. Locate the branch code within the PivotTable Fields box, left click and hold it, then drag it down into the "Rows" box.

IMPORTANT NOTE: Depending on how many branches you have; this new pivot table box could get really large. Here is what ours looks like:

Group	Number of Loans	Average Rate	Highest Rate	Lowest Rate
Control	**159**	**5.81**	**8.50**	**3.75**
1	14	5.74	7.00	4.00
2	1	8.50	8.50	8.50
3	9	5.72	7.00	3.85
4	10	5.16	6.50	4.10
6	2	4.20	4.30	4.10
7	10	6.63	7.25	6.25
8	1	7.50	7.50	7.50
9	26	5.27	8.25	4.00
10	1	6.25	6.25	6.25
11	2	6.38	6.50	6.25
12	6	4.91	6.25	4.10
14	1	7.00	7.00	7.00
15	13	6.37	8.25	4.25
17	8	6.72	7.75	5.75
19	16	5.77	7.00	4.10
21	8	5.58	7.25	4.10
22	1	5.25	5.25	5.25
23	7	5.64	6.75	3.75
24	3	6.92	7.00	6.75
25	4	5.76	6.25	4.30
26	9	6.59	8.25	4.10
27	7	5.15	7.00	4.25
Target	**35**	**5.85**	**8.50**	**4.00**
1	7	6.25	7.25	5.00
3	1	8.50	8.50	8.50
6	1	6.25	6.25	6.25
7	7	5.56	6.75	4.10
9	5	5.05	6.25	4.75
14	1	7.00	7.00	7.00
15	1	7.00	7.00	7.00
16	1	6.50	6.50	6.50
19	2	5.40	6.50	4.30
21	5	5.55	6.75	4.00
26	1	7.00	7.00	7.00
27	3	5.38	8.00	4.05
Grand Total	**194**	**5.82**	**8.50**	**3.75**

There may be some useful information on here, and there may not be. If you have strong pricing practices and minimal disparities, you might not get much out of this table. When we did the analysis of SNB, we found one branch in particular had a much higher disparity than the others. That let us know that market's pricing was not as strong as the others.

The example we are looking at has 27 branches. You may notice that in the target group below, not all 27 branches are listed. That just means that there was not a target group loan made in that branch.

When you compare the average rates by branches from the control to target group, keep in mind the number of loans made by that branch. Often times you will see a branch with a large disparity, but they only made one target group loan. In the example above, look at Branch 3. The average control group rate was 5.72% and the target group rate was 8.5%. At first glance, that looks bad – a 278 basis point spread. But you need to see that there was only one loan to the target group for that branch.

You will use the same concepts for your overall analysis that you use for your branch and loan officer analysis. If the target group sample is very small, the data will not be meaningful.

How to break down your data by Loan Officer:

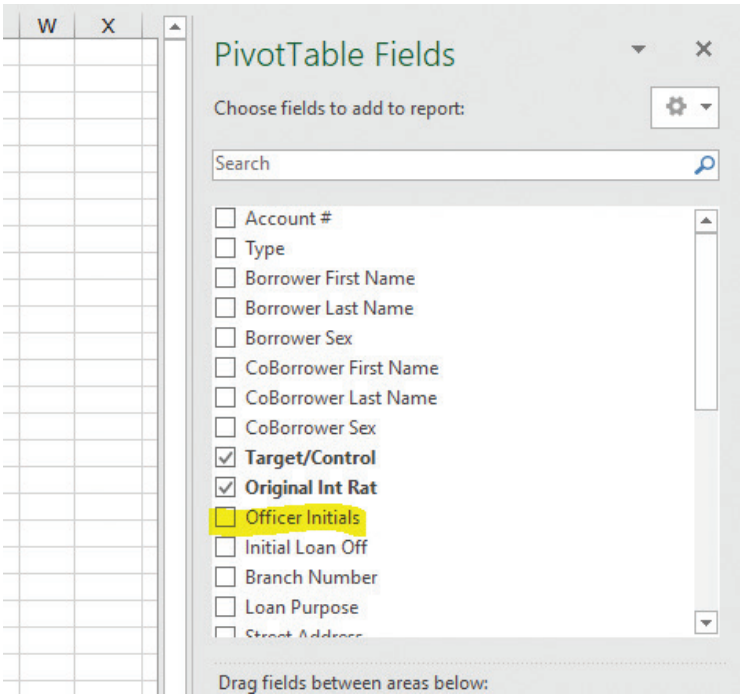
You will follow all of the same procedures above. Go back again and copy your original pivot table and paste it somewhere in the same spreadsheet tab. This time we just pasted it to the right of our original pivot table. Here's what ours looks like now:

Group	Number of Loans	Average Rate	Highest Rate	Lowest Rate
Control	159	5.81	8.50	3.75
Target	35	5.85	8.50	4.00
Grand Total	**194**	**5.82**	**8.50**	**3.75**

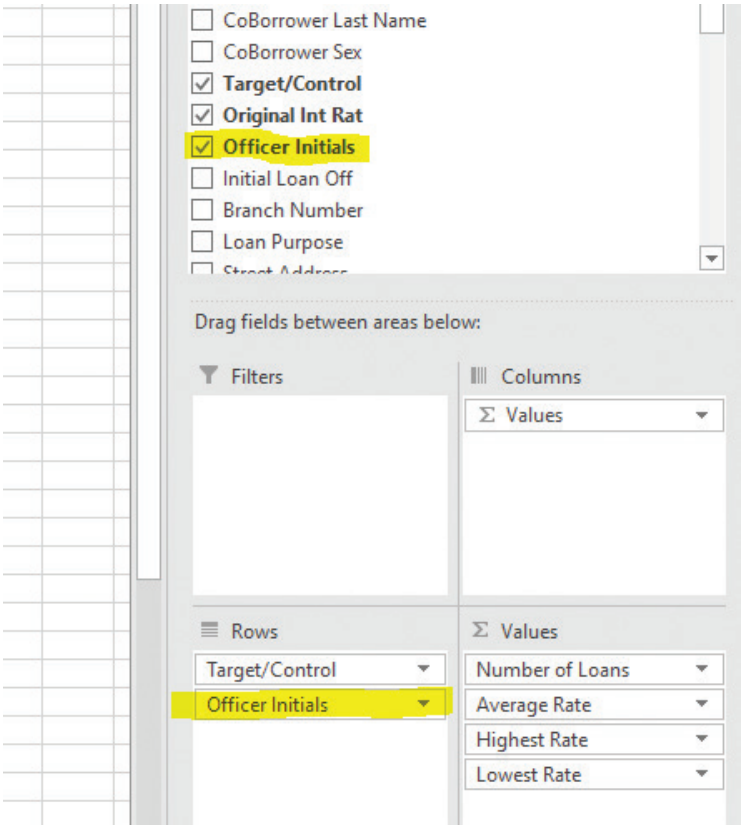
Group	Number of Loans	Average Rate	Highest Rate	Lowest Rate
Control	159	5.81	8.50	3.75
Target	35	5.85	8.50	4.00
Grand Total	**194**	**5.82**	**8.50**	**3.75**

Group	Number of Loans	Average Rate	Highest Rate	Lowest Rate
Control	**159**	**5.81**	**8.50**	**3.75**
1	14	5.74	7.00	4.00
2	1	8.50	8.50	8.50
3	9	5.72	7.00	3.85
4	10	5.16	6.50	4.10
6	2	4.20	4.30	4.10
7	10	6.63	7.25	6.25
8	1	7.50	7.50	7.50
9	26	5.27	8.25	4.00
10	1	6.25	6.25	6.25
11	2	6.38	6.50	6.25
12	6	4.91	6.25	4.10
14	1	7.00	7.00	7.00
15	13	6.37	8.25	4.25

You will want to click on any cell within your new pivot table. This time instead of pulling the branch code into the "Rows" box, you will want to pull down the loan officer code. In our example, our loan officer data is labeled "Officer Initials."



When we added the Officer Initials to the Rows box, we found that we have 42 loan officers listed. It really made our pivot table large. If you only have a couple loan officers, yours will look much cleaner and user friendly.



On the right, you will see what our analysis looks like based on loan officers. Again, you may or may not find useful data in this test step. If you find all of your loan officers are pricing consistently to both the control and target groups, that's good! That's what you want to have happen. In the case of Second National Bank, we found that one branch was pricing loans to females much higher than the other branches.

We broke the spreadsheet down further by loan officer and found two loan officers that priced loans much higher to females. That was part of their problem. By the way, the two loan officers who were pricing female loans much higher were female loan officers. Don't think that lenders won't discriminate against someone because they share similar characteristics. The highlighted rows you will see on the next page were done manually. We like to highlight those rows that we want to evaluate further to make them easier to see.

Group	Number of Loan:	Average Rate	Highest Rate	Lowest Rate
Control	**159**	**5.81**	**8.50**	**3.75**
26	1	4.30	4.30	4.30
66	1	4.10	4.10	4.10
89	5	5.82	6.50	4.10
106	8	5.88	7.00	4.00
115	3	6.67	7.25	6.25
136	1	8.50	8.50	8.50
143	1	7.00	7.00	7.00
151	1	5.00	5.00	5.00
178	4	6.13	7.25	5.25
189	8	5.04	6.50	4.10
200	2	6.25	8.25	4.25
243	7	6.51	7.25	4.30
275	2	6.75	7.00	6.50
276	6	6.71	7.75	5.75
329	2	5.28	6.25	4.30
338	5	5.76	7.00	4.55
344	4	5.19	7.00	4.25
369	4	6.88	7.00	6.50
396	3	4.22	4.30	4.10
469	6	5.79	6.75	3.75
476	1	6.25	6.25	6.25
498	6	5.64	6.50	4.30
525	1	4.75	4.75	4.75
538	7	5.76	7.25	4.10
586	1	4.55	4.55	4.55
592	4	4.30	4.75	3.85
611	3	5.10	6.75	4.25
612	1	7.50	7.50	7.50
672	7	6.61	7.00	6.25
674	2	6.25	6.25	6.25
685	10	5.90	7.00	4.10
686	3	6.92	7.00	6.75
707	1	5.25	5.25	5.25
712	1	4.30	4.30	4.30
729	3	5.75	6.25	4.75
742	8	6.91	8.25	6.25
763	4	6.19	6.75	5.25
779	14	4.74	6.50	4.00
799	2	5.63	6.50	4.75
851	1	4.10	4.10	4.10
944	4	5.98	8.25	4.10
960	1	6.75	6.75	6.75
Target	**35**	**5.85**	**8.50**	**4.00**
26	1	6.25	6.25	6.25
89	6	6.25	7.25	5.00
106	1	6.25	6.25	6.25
115	4	6.56	6.75	6.25
143	1	7.00	7.00	7.00
235	1	6.50	6.50	6.50
243	1	7.00	7.00	7.00
338	2	5.40	6.50	4.30
344	2	6.05	8.00	4.10
538	5	5.55	6.75	4.00
592	1	8.50	8.50	8.50
611	1	4.05	4.05	4.05
672	3	4.23	4.50	4.10
742	1	7.00	7.00	7.00
779	4	5.13	6.25	4.75
944	1	4.75	4.75	4.75
Grand Tota	**194**	**5.82**	**8.50**	**3.75**

The pivot table above is not from SNB. This is the sample data for this course. We highlighted four rows. We like to start with the target group and find the lenders that made the most loans. There were four that we identified. When lenders only make a few loans to the target Group, there won't be enough data (loans in our sample) to form conclusions on whether they are pricing consistently or not.

In the example, the lender who made the most loans to the target group was lender #89 with 6 loans. Only having 6 loans is not a lot of data, but it's somewhere to start. The average rate to the target group was 6.25. If you look at the top portion of the table and find lender #89 you will see the average rate given to the control group was 5.82. That does give us a 42-basis point spread. It's hard to say there is an issue with only 6 loans to the target group, but it may be something you will want to keep on your radar.

Let's look at the real-world example of Second National Bank. All of the data has been scrubbed, but the numbers are accurate. Here is what SNB's pricing pivot table looked like for Vehicle Titled Loans:

Vehicle Titled Loans				
Group	**# of Loans**	**Average Rate**	**Highest Rate**	**Lowest Rate**
Control	378	6.35	13.25	3.10
Target	122	7.21	13.50	3.25
Grand Total	**500**	**6.56**	**13.50**	**3.10**
	Difference	0.86		

The "Difference" row you see at the bottom is something we added. We simply typed in the word "Difference" and subtracted the target group number by the control group number. It's a nice way to present your data in your report.

This review started a chain of events that led to re-writing pricing procedures, tightening up exceptions, completing a new analysis 12 months later, and conducting a comparative file analysis. An 86-basis point spread is significant, especially when we have 500 loans in our universe. We then broke it down by branches:

Branches					Differences
Row Labels	# of Loans	Average Rate	Highest Rate	Lowest Rate	
Control Group	**378**	**6.353**	**13.250**	**3.100**	
1	5	5.410	6.200	4.750	
2	14	4.679	7.050	3.250	
3	4	7.313	13.250	4.800	
4	61	5.758	12.500	3.250	
5	51	5.963	13.250	3.100	
6	74	7.141	13.250	3.650	
7	22	6.680	13.250	3.250	
8	32	6.200	13.000	3.250	
9	72	6.829	13.250	3.400	
10	41	5.952	13.250	3.650	
11	2	7.350	10.300	4.400	
Target Group	**122**	**7.211**	**13.500**	**3.250**	
2	1	6.600	6.600	6.600	1.92
4	19	6.003	12.000	3.250	0.24
5	8	6.744	13.250	4.650	0.78
6	28	8.738	13.250	3.750	1.60
7	14	8.261	13.500	3.900	1.58
8	11	8.068	12.250	4.150	1.87
9	27	6.500	11.500	3.900	-0.33
10	12	5.863	10.300	3.250	-0.09
11	2	5.150	6.450	3.850	-2.20
Grand Total	**500**	**6.562**	**13.500**	**3.100**	

If you look at the branch numbers in the table above, we've highlighted branches 6, 7, and 8. In the far-right column labeled "Differences," We simply subtracted the target group average by the control group average. You may notice even higher rate spreads in branches 2 and 11, but there were only 1 and 2 loans made from those branches, respectively, so it won't show us any trend data.

When we looked to see where those branches were physically located, we noticed that two of them where in the same market. This further helps tell the story of the large rate spreads for this particular product. Knowing that we likely have one market or just a few lenders that are leading to these large disparities, we wanted to break it down further by loan officer. Using the procedures above, we took our pivot table and added in the loan officer. Here's what that data looked like:

Differences

Loan Officer	# of Loans	Average Rate	Highest Rate	Lowest Rate
Control Group	**378**	**6.353**	**13.250**	**3.100**
Female 1	35	7.000	13.250	3.750
Male 1	7	7.707	13.250	5.400
Female 2	15	5.880	12.000	3.750
Male 2	4	5.413	6.200	4.750
Male 3	1	12.500	12.500	12.500
Male 4	2	4.450	5.150	3.750
Male 5	39	7.368	13.250	3.650
Female 3	36	5.590	11.750	3.100
Male 6	1	9.950	9.950	9.950
Male 7	19	6.608	13.250	3.250
Male 8	4	5.625	6.600	4.000
Female 4	23	5.883	9.200	4.150
Female 5	39	7.268	13.250	3.650
Male 9	2	4.700	4.750	4.650
Female 6	6	7.325	13.250	4.400
Male 10	9	5.122	5.850	4.000
Male 11	1	6.250	6.250	6.250
Male 12	29	6.271	13.250	3.400
Male 13	8	6.113	12.000	3.900
Female 7	2	4.450	5.400	3.500
Female 8	25	6.066	13.250	3.650
Male 14	1	3.900	3.900	3.900
Female 9	23	6.622	13.000	3.250
Male 15	12	4.842	7.050	3.250
Male 16	35	5.559	9.150	3.250

					Differences
Loan Officer	**# of Loans**	**Average Rate**	**Highest Rate**	**Lowest Rate**	
Target Group	**122**	**7.211**	**13.500**	**3.250**	
Female 1	16	9.328	13.250	3.750	2.328
Male 1	1	4.800	4.800	4.800	-2.907
Female 2	5	5.720	8.200	3.750	-0.160
Male 17	1	3.750	3.750	3.750	
Male 2	1	6.600	6.600	6.600	1.188
Male 5	20	6.193	10.350	3.900	-1.175
Female 3	6	7.208	13.250	4.650	1.618
Male 7	14	8.261	13.500	3.900	1.653
Female 4	7	6.471	12.000	4.250	0.589
Female 5	11	8.332	13.250	4.000	1.064
Female 6	2	5.150	6.450	3.850	-2.175
Male 10	2	7.050	9.950	4.150	0.800
Male 12	7	7.379	11.500	4.950	1.108
Male 13	1	5.900	5.900	5.900	-0.212
Female 8	7	5.964	10.300	3.250	-0.102
Female 9	9	8.294	12.250	4.250	1.673
Male 16	12	5.729	9.950	3.250	0.171
Grand Total	**500**	**6.562**	**13.500**	**3.100**	**0.171**

The names of the loan officers were changed to represent their gender and a numerical value. You will notice the highlighted loan officers had much higher rate spreads. What we found from this analysis was that loan officer "Female 1" and "Female 3" worked in Branches 6 and 7, respectively. We have not located a significant root cause of our pricing disparity issues. In this case, we would want to discuss the findings with those lenders, provide follow up training, and monitor their pricing going forward.

Analyzing the Data

From the initial analysis, we found that there were high rate spreads for consumer secured loans. We further broke down the data by branch and found one market

(with two branches) had by far the highest rate spreads. We then further broke it down by lender and found that two female lenders were large contributors to the high rate spreads. It boils down to this: Female lenders where charging female borrowers a much higher rate for the same product.

PRO TIP

Lenders CAN AND DO discriminate against applicants that share similar characteristics. We have seen minority lenders discriminate against applicants of the same race. The example we just went through showed how female lenders discriminated against female applicants.

Analyzing Your Results

What to do with high rate spreads?

If your rate spreads for any product or to either prohibited bases is higher than you are comfortable with, there are many things you can do. It all comes down to finding the root cause. Here are some likely issues you may find:

1. One or more loan officers are not following the rate sheet
2. Loan officers are deviating from the rate sheet too much
3. Your pricing model is set up to favor loans with co-borrowers (use the higher credit score with multiple applicants)
4. One branch/market has inconsistent pricing (most of your loan officers and branches are likely pricing correctly, but you may have outliers like SNB did)
5. Your pricing model/tool can be manipulated (we've seen financial institutions that use a pricing model spreadsheet that they thought was always followed, but it turns out lenders could manipulate the spreadsheet and often did to try and match competitor's rates)
6. You may have a handful of real low- or real high-priced loans that is skewing your data
7. You may have miscoded loans (we often find that a handful of loans were coded wrong or had wrong collateral, skewing the data)
8. The interest rate showing up in your download may be inaccurate – this is frustrating, but it happens
9. Your sample size is too small (if you only have a couple loans to the Target Group, your data sample size is too small to get a meaningful analysis)
10. Or any combination of the above

PRO TIP

Once you determine the weaknesses in the program and decide on corrective action, ensure management is on board and supportive of the changes you are recommending. Often times when there are major pricing issues that need to be addressed, you may experience push-back from the loan staff. Management should not only be on board; they should be the ones pushing out the changes. It is your job to identify the risk; it is management and the Board's job to carry out corrective action. If you identify and document weaknesses with corrective action, and management does not take action, that will likely reflect poorly on the management rating at your next examination.

You get to play detective at this point and find out why your loans are priced the way they are. Often times, you can simply look at your raw data and go through each line to find anomalies. Too many times, we have heard a president say their loan officers always follow the rate sheets, only to find rates all over the place on the loan download.

Next Steps and Corrective Action:

A. Find the reasons for your pricing disparities

B. Interview loan officers, as applicable

C. Have discussions with loan committee, as applicable

D. Put corrective action in place to correct procedural issues

E. Monitor pricing and track all pricing deviations

F. Retest in 6-12 months

TUSCAN CLUB
UNIVERSITY

APPENDIX B

REDLINING PROCEDURES

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REDLINING PROCEDURES

STEP 1)
GENERATE A LOAN DOWNLOAD

In Module 8 – Pricing Module, we talked about the steps to generate a loan download. If you have already completed Module 8 and did your pricing review, you are already set up to conduct your redlining review. For directions on what to include within your loan download, refer to Step 1 within the Pricing Module.

You will want to follow the procedures in the pricing module to sort your loan download as prep for the redlining review. **You will need to complete through Step 5 - Grouping Loans by Type.** Once you have completed that step, you are ready to start the redlining analysis.

Our loan download has been sorted and separated by loan type. The particular product we will be reviewing for the purposes of this example is residential real estate; however, you can do this same analysis with any loan product, including commercial lending.

Here is what our loan download looks like to get started. Your data will look different, but you will want to make sure you loan download includes the type of product and the full address:

	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
	Office	Branch	Loan Purpos	Street Addres	City	Stat	Zip Cod	Class Co	Class Code	Coll Cod	Type	Loan Am	Date Opened	
5	763	15	Real Estate		Sioux Falls	SD	57104	30	Home Secured	3	Residential Real Estate	$ 525,000.00	3/19/2018	
5	779	9	Real Estate		Sioux Falls	SD	57104	30	Home Secured	3	Residential Real Estate	$ 300,300.00	2/27/2018	
5	469	23	Real Estate		Sioux Falls	SD	57104	30	Home Secured	3	Residential Real Estate	$ 208,550.00	8/3/2018	
1	189	4	Real Estate		Sioux Falls	SD	57104	30	Home Secured	3	Residential Real Estate	$ 38,000.00	4/16/2018	
5	276	17	Real Estate		Sioux Falls	SD	57104	30	Home Secured	3	Residential Real Estate	$ 147,944.00	7/30/2018	

You will notice the street address column is blank to hide the actual addresses we used for this school. The data in the manual also will look different than the data we used in the videos, so you will see two slightly different sets of data.

STEP 2)
PICKING YOUR SAMPLE

Once you have decided on which types of loans to include within your review, you will need to pick a sample. Your sample should be large enough to represent the actual practices of your organization, but you do not have to include the entire loan universe if the sample size is too large. For our sample, we are looking at a total of 200 home loans originated within a one-year time frame. Your timeframe could be smaller if you have thousands of loans. If your organization doesn't make a large amount of loans in a particular category, you might just want to include all of them.

The sample table below is from the FDIC Compliance Examination Manual. This table is used for conducting Community Reinvestment Act reviews. It is very similar to what we will be doing here. Your sample will likely be GREATER than the minimum required in this table, but ensure you choose at least the minimum under the 10% precision level.

Sample Size Table		
Number of Originations or Purchases	**Sample Size Based on Precision Level**	
	5%	**10%**
≤30	Entire Universe	
31-50	42*	30
51-75	59*	36
76-100	73	41
101-150	97	47
151-200	115	51
201-300	143	55
301-400	162	58
401-500	176	60
501-1,000	213	63
> 1,000	257	67

*or the entire universe if less than the sample size

STEP 3)
GEOCODING LOANS

In order to determine where these loans were made, we will need to Geocode the full address for each loan. If you have software that does that automatically, you will have a great head start. If you don't, don't worry. We will walk thru the process.

Before we get into the weeds, let's talk about some key terms. What are census tracts and what do we mean by Geocoding?

A census tract is a small, relatively permanent subdivision of a county. The purpose of establishing census tracts is to set stable geographic units for presenting data. The population of census tracts typically between 1,200 and 8,000 people, with roughly 4,000 being optimum. As census tract populations grow, they may split. You may originally have census tracts 101, 102, and 103 in an area. After the population grows enough in one of those areas, it may split and you will see census tracts 101.01 and 101.02.

Census tracts typically follow visible and nonvisible legal boundaries. These can include major highways, rivers, or other districts. They will always follow county (or parishes) and state boundaries. Just like a county border never crosses over a state border, a census tract never crosses over a county border. When we get to the FFIEC maps, all census tract borders are in blue.

Each census tract will also get an income designation. There is some simple math behind it that we won't get to far into, but they are basically broken down into one of four categories:

Low-income = less than 50% of the median family income

Moderate-Income = 50% to less than 80% of the median family income

Middle-Income = 80 to less than 120% of the median family income

Upper-Income = 120% or more of the median family income

Those income buckets are a quick way to categorize the income level of each census tract. You don't have to worry about doing the math; the FFIEC website does it all for you. You just need to find the income level of the census tract in which the loan was made.

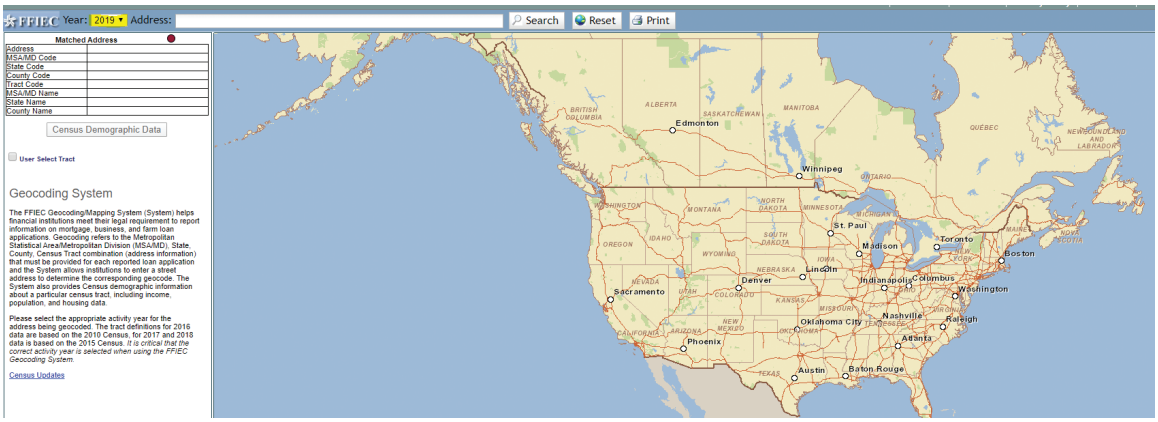
What is geocoding? Geocoding is simply taking a physical address and finding out what census tract the address is in. When you successfully geocode a loan (which we will teach you how to do), you will be able to find the census tract number, it's income level, and the percentage of minorities that live in that tract. This is the data we need to gather for our analysis.

To geocode a loan, you will need the full address:

- Street address
- City
- State
- Zip code

Once you have this information, you can copy and paste it into the FFIEC's website. To get to the website, go to **www.ffiec.gov** and click on the "Geocoding/Mapping System" link under Consumer Compliance:

At the top left-hand corner of the window, you will need to choose the year in which your loan was originated. Sometimes it will not let you select the current year. If you have this issue, select the most recent year available.



Go back to your loan download. You will want to create some new columns for the data that we are going to gather. You will want to add columns directly after the address columns on your spreadsheet. You will want to insert six new columns. You can name them the following:

a. State Code
b. County Code
c. Census Tract Number
d. Census Tract Income Level
e. Census Tract Minority Level
f. In/Out

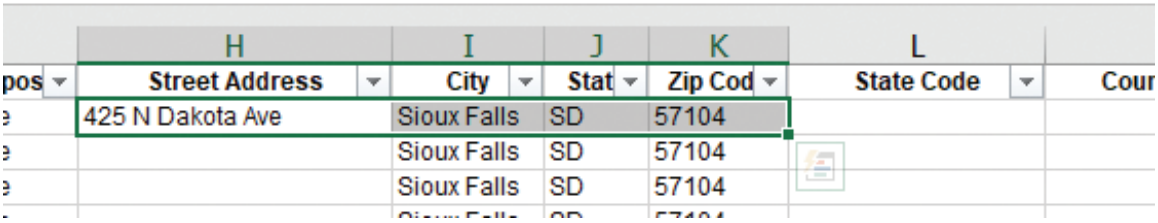
Here's what your spreadsheet should look like now. CT = Census Tract

G	H	I	J	K	L	M	N	O	P
n Purpos	Street Address	City	Stat	Zip Cod	CT Number	CT Income Leve	CT Minority Leve	Class Co	Class Code
Estate		Sioux Falls	SD	57104				30	Home Secured
Estate		Sioux Falls	SD	57104				30	Home Secured
Estate		Sioux Falls	SD	57104				30	Home Secured
Estate		Sioux Falls	SD	57104				30	Home Secured
Estate		Sioux Falls	SD	57104				30	Home Secured

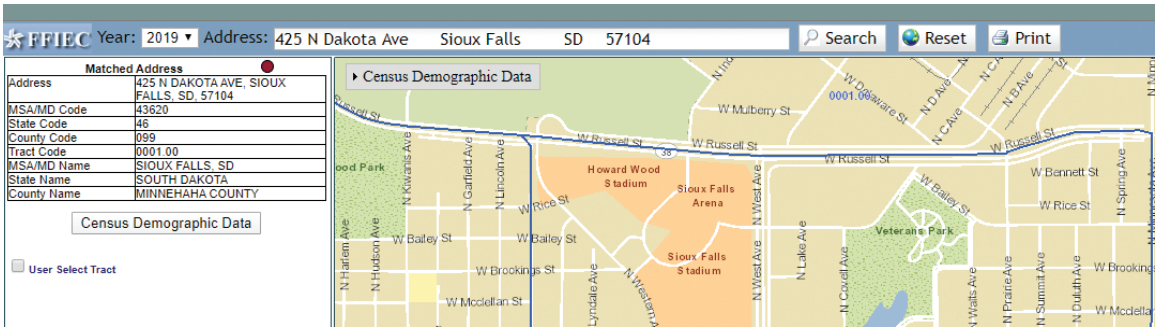
Once you have those new columns added, you are ready to start geocoding your loans. The purpose of geocoding loans is to gather the data needed in the new columns so we can create pivot tables to see how your organization is lending to all parts of your assessment area.

To geocode a loan, you will want to copy the entire address from your spreadsheet and copy that into the address box of the FFIEC geocoding software. Here is the quickest and easiest way to do this:

i. Highlight the cells for the address
ii. Hold down the "Ctrl" key
iii. Press the "C" key for copy
iv. Go to the address box on the FFIEC website
v. Hold down the "Ctrl" key
vi. Press the "V" key for paste
vii. Hit enter



	H	I	J	K	L	
pos	Street Address	City	Stat	Zip Cod	State Code	Cour
	425 N Dakota Ave	Sioux Falls	SD	57104		
		Sioux Falls	SD	57104		
		Sioux Falls	SD	57104		



Once you have entered the data, your "Matched Address" box to the left of your screen should populate data about where that address is located.

Matched Address

Address	425 N DAKOTA AVE, SIOUX FALLS, SD, 57104
MSA/MD Code	43620
State Code	46
County Code	099
Tract Code	0001.00
MSA/MD Name	SIOUX FALLS, SD
State Name	SOUTH DAKOTA
County Name	MINNEHAHA COUNTY

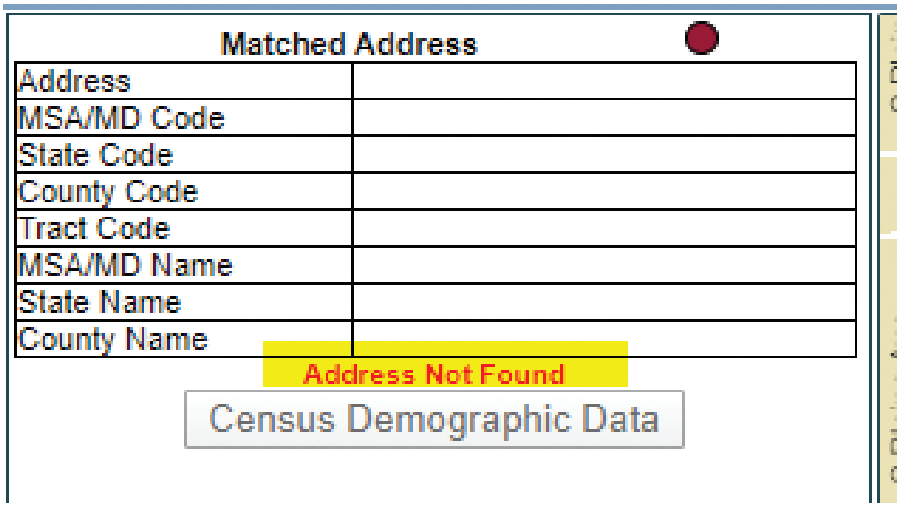
Census Demographic Data

This will have some of the data that you will need to fill in your spreadsheet. We can now fill in the State Code, County Code, and Census Tract Number. The other three columns will come up in a moment.

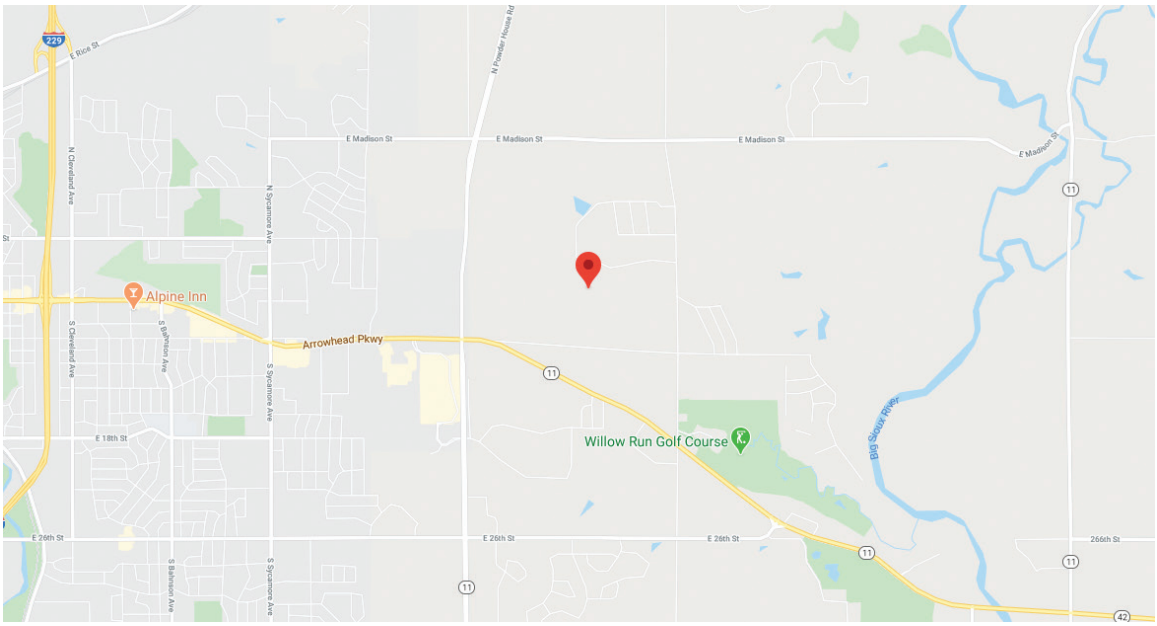
	H	I	J	K	L	M	N	O	P	Q	
	Street Address	City	Stat	Zip Cod	State Code	County Code	CT Number	CT Income Leve	CT Minority Leve	In/Out	Clas
ate	425 N Dakota Ave	Sioux Falls	SD	57104	46	99	1				
ate		Sioux Falls	SD	57104							
ate		Sioux Falls	SD	57104							
ate		Sioux Falls	SD	57104							

What to do if your address doesn't match?

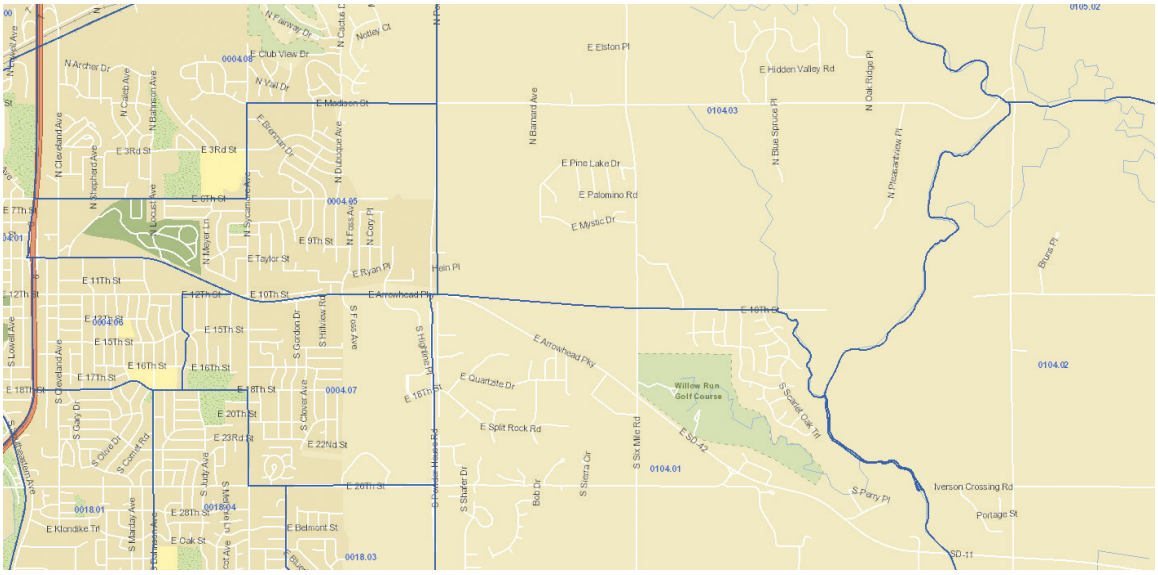
It is possible that when you enter in an address that there will be no match or it will say "Address Not Found" as shown below. The most likely cause is because the property is newer, and it is not in the FFIEC geocoding system yet. It could also be because you don't have the correct year chosen, so double check that as well. Often times it will not let you geocode if you have the current year selected because the data is not out yet. If that happens, simply select the prior year.



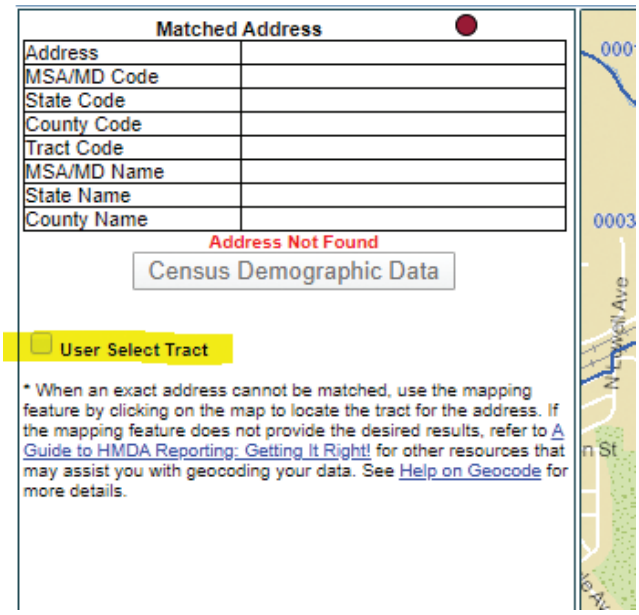
If it still isn't finding the address, the best way to gather the data is to first go to an internet mapping page (we will use Google Maps) and try and locate where the property is. To do this, simply paste the entire address into Google and find the map of where the property is. We chose brand new construction in a community that we know wouldn't be in the FFIEC site yet. When you click on the map, it will show you where the property is or very close. Zoom out so you can see main roads or landmarks near the property.



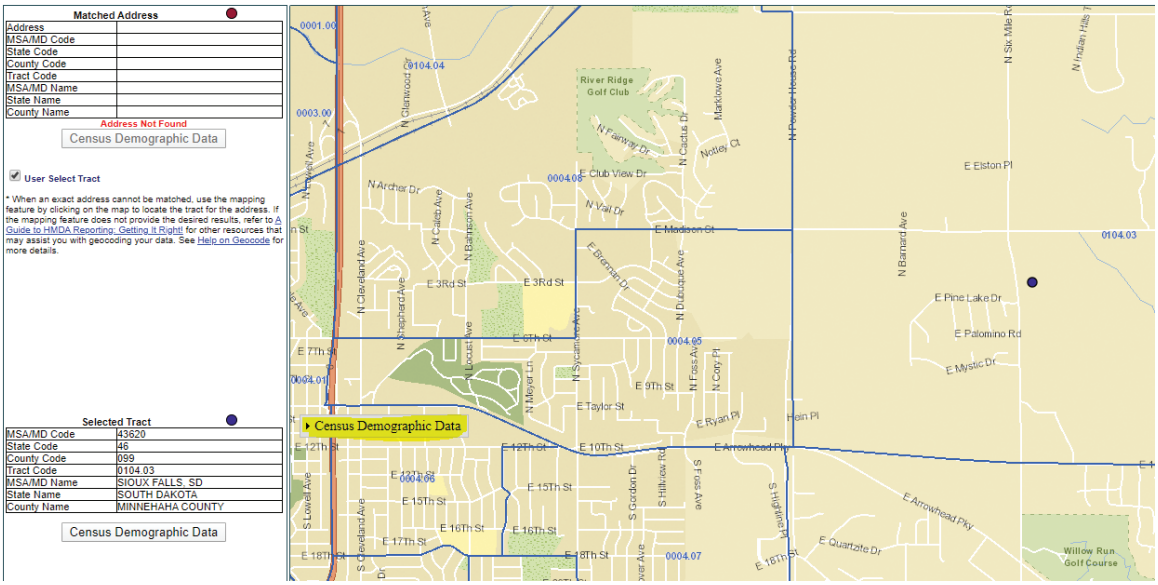
Now, you will want to go to the FFIEC map and locate the same area of the community.



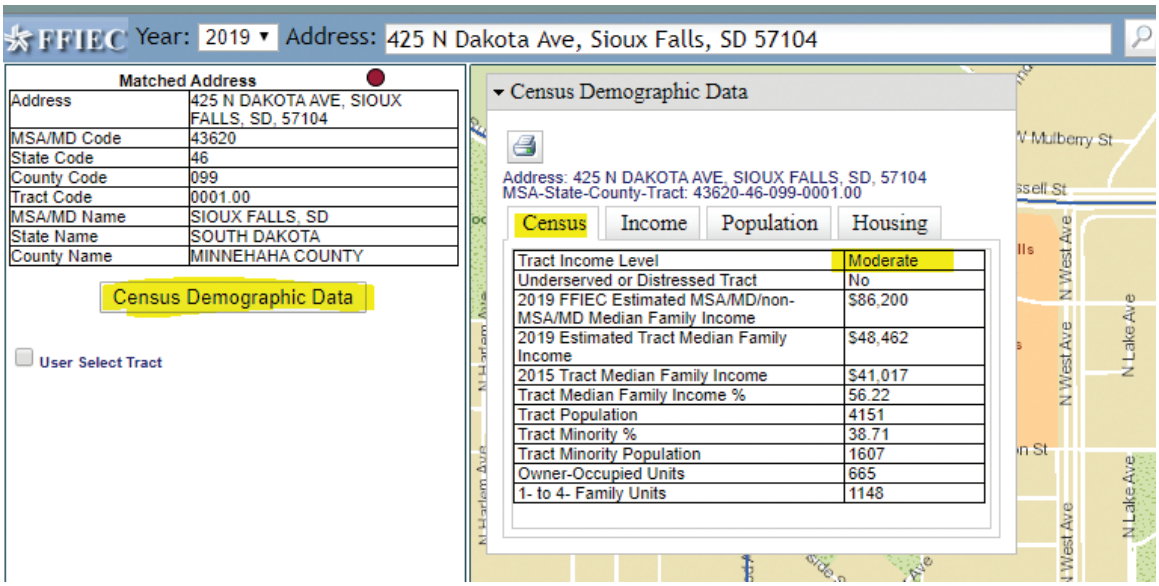
We technically don't need the exact spot of this home. What we need is the census tract data (what CT is the home in?). You can see the census tract boundaries in blue. So, if you are confident you know where the building is located, you can find the census tract data you need. To find the data, select the "User Select Tract" option under the Census Demographic Data box.



Once you select that option, you can left click on the FFIEC map where the home is located. That will then populate the data you need into the demographic data box.



Our next step is to find the income and population data for this census tract. To do that, click on the "Census Demographic Data" box. It should now look like this:

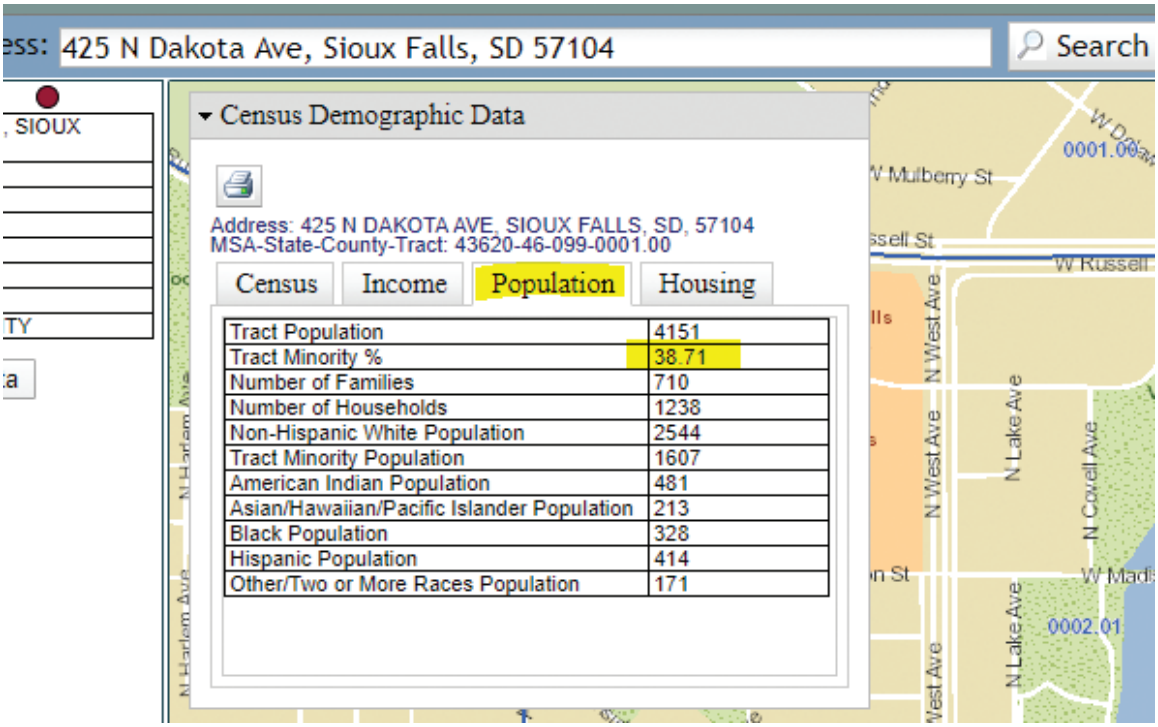


Within that box, you will find the rest of the information you will need. Under the "Census" tab which is highlighted in the picture above, it will tell you the "Tract Income Level." There are only four census tract income levels as we discussed previously:

1. Low-income (less than 50% of the median family income, or MFI)
2. Moderate-income (at least 50% and less than 80% of the MFI)
3. Middle-income (at least 80% and less than 120% of the MFI)
4. Upper-income (120% or more of the MFI)

In our example above, the FFIEC tells us (see highlight) that we have a moderate-income census tract. Type "moderate" in your CT Income Level column for this loan.

Next, we will need to find the minority population level for this census tract. In the screenshot above, the FFIEC tells us that 38.71% of the population is minority. However, additional information about the composition of the minority population exists. To find that additional data, we will want to click on the "population" tab within our Census Demographic Data box.



In the population tab, it also shows the population is 38.71% minority. We will just round up to 39 and enter that into our spreadsheet. However, you can see that the most significant minority groups are American Indian (481 individuals) and Hispanic (414 individuals). UPDATE - you should always round down so you in all cases so you don't accidently create majority-minority census tracts when they don't really exist.

We have now successfully geocoded a loan and gathered the appropriate data for our analysis. You will want to repeat those steps for all of the loans in your sample. This can get a bit repetitive, but it will give us excellent data to use. Get comfortable with the quick control keys and it goes much faster. Having a second monitor is also very helpful.

Hold down the "Control" key and Type the letter "C" for copy.

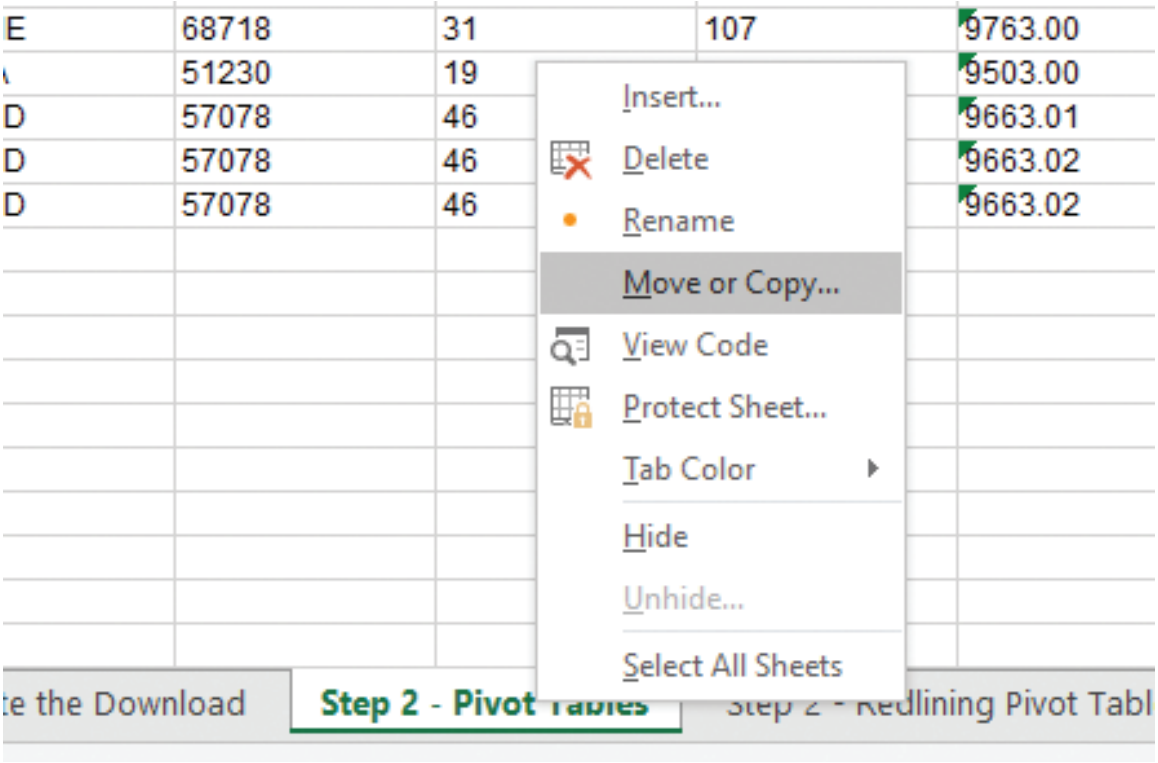
Hold down the "Control" key and type the letter "V" for paste.

You may notice that we have one column that has not yet been used: "In/Out." We only want to review those loans that were made inside our assessment area. The reason for this is we will be comparing your data to the assessment area data, and if you have loans in your sample that are outside of your assessment area, we won't be comparing apples-to-apples.

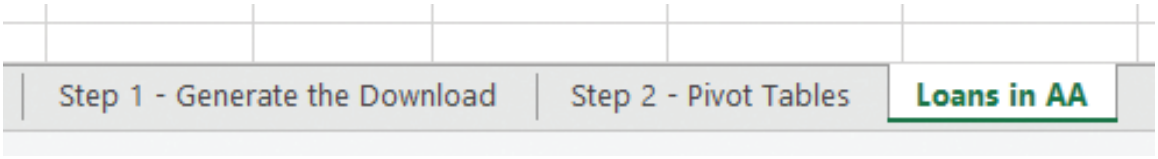
At this point, you will need to locate a list of all of the census tracts within your assessment area. This should be located within your CRA Public File. As you go down your loan download, if the loan is within a census tract that is inside your assessment area, you will simply type "In" to the "In/Out" column. If it is outside your assessment area, type "Out." When you are completed, your download should look something like this:

	I	J	K	L	M	N	O	P	Q	R	S
	City	State	Zip Code	State Code	County Code	CT Number	CT Income Level	CT Minority Level	In/Out	% Minority	Class C
	Sioux Falls	SD	57103	46	99	0004.01	Low	61	In	> 50% Minority	
	Sioux Falls	SD	57103	46	99	0004.01	Low	61	In	> 50% Minority	
	Sioux Falls	SD	57107	46	99	0104.06	Low	61	In	> 50% Minority	
	Sioux Falls	SD	57106	46	99	0104.06	Low	61	In	> 50% Minority	
	Sioux Falls	SD	57103	46	99	0004.06	Moderate	70	In	> 50% Minority	
	Sioux Falls	SD	57103	46	99	0004.06	Moderate	70	In	> 50% Minority	
	Springfield	SD	57062	46	9	9677.00	Middle	16	Out	< 20% Minority	
	Tabor	SD	57063	46	9	9676.00	Middle	8	Out	< 20% Minority	
	Brookings	SD	57006	46	11	9588.03	Upper	8	Out	< 20% Minority	
	Brookings	SD	57006	46	11	9589.00	Middle	10	Out	< 20% Minority	
	Hartington	NE	68739	31	27	9771.00	Middle	3	Out	< 20% Minority	
	Vermillion	SD	57069	46	27	9659.00	Middle	11	Out	< 20% Minority	
	Vermillion	SD	57069	46	27	9659.00	Middle	11	Out	< 20% Minority	
	Watertown	SD	57201	46	29	9543.02	Upper	1	Out	< 20% Minority	

You will want to make a copy of this spreadsheet. To do that, simply right click on the spreadsheet tab at the bottom of your spreadsheet and choose "Move or Copy."

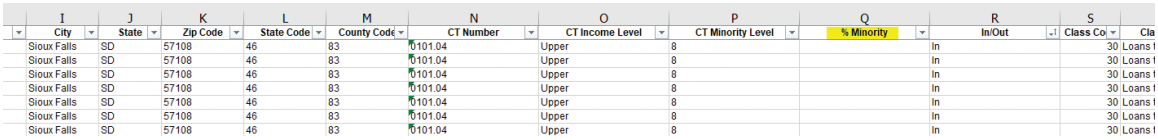


Then you will want to check the "Create a copy" box. When you click enter, it will make a copy of this spreadsheet. At this point you will want to delete out all of the loans that were outside of your assessment area. We will use this spreadsheet going forward, as we don't want the loans that were out of the area included within the analysis. Move the new tab to the right and rename it as "Loans in AA."



Once you have geocoded all of your loans and removed the loans outside of your assessment area, you will need to add one more column to your spreadsheet. In this new column, put the percentage level of minority census tracts into buckets. You can choose what your percentage levels will be, but at least one bucket should be greater than 50% minority. The goal here is to determine the levels of minority population for your assessment area and compare that to your organization's actual performance.

Let's start by adding the new column to our spreadsheet. Put it right after the CT Minority Level column. Let's label this "% Minority."



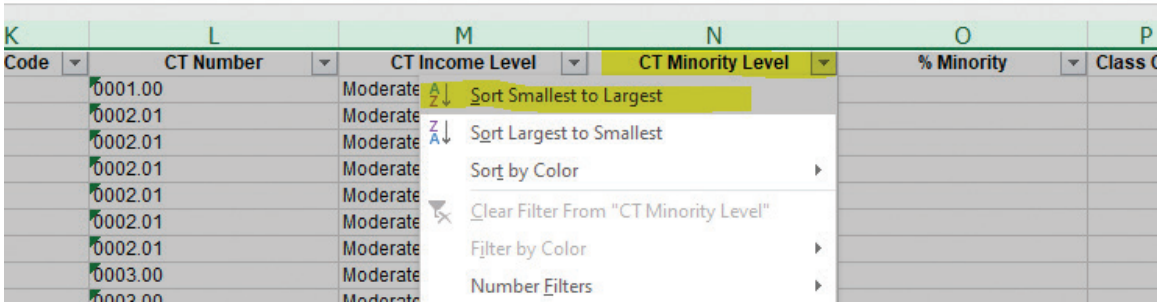
	I	J	K	L	M	N	O	P	Q	R	S	
	City	State	Zip Code	State Code	County Code	CT Number	CT Income Level	CT Minority Level	% Minority	In/Out	Class Co	Cla
	Sioux Falls	SD	57108	46	83	0101.04	Upper	8		In	30	Loans t
	Sioux Falls	SD	57108	46	83	0101.04	Upper	8		In	30	Loans t
	Sioux Falls	SD	57108	46	83	0101.04	Upper	8		In	30	Loans t
	Sioux Falls	SD	57108	46	83	0101.04	Upper	8		In	30	Loans t
	Sioux Falls	SD	57108	46	83	0101.04	Upper	8		In	30	Loans t
	Sioux Falls	SD	57108	46	83	0101.04	Upper	8		In	30	Loans t
	Sioux Falls	SD	57108	46	83	0101.04	Upper	8		In	30	Loans t

Now we need to decide on how many buckets to include. We are going to choose three buckets:

1. <20% Minority
2. 20% < 50% Minority
3. >50% Minority

Bucket number three is the most important bucket. If you remember from our case studies, both institutions were criticized because their lending to census tracts that were >50% minority population was low (examiners called them "majority-minority"). We will want to know how many loans we made to those census tracts and compare that with our assessment area composition. In the videos, we only reviewed two buckets - those that were majority-minority (over 50%) and those that were not. Here, we have three buckets. Both are acceptable. In this example. you will get more data. For organizations that work in areas with fewer majority-minority census tracts, you may want to add another bucket to get more data if you only have a few census tracts over 50% minority.

First, sort your data from "Smallest to Largest" by sorting the "CT Minority Level" column. **IMPORTANT NOTE: Make sure you highlight the entire spreadsheet and that you have filters turned on before you sort.**



Now you should easily be able to type in which of the three buckets your census tracts fall into. It should look like this:

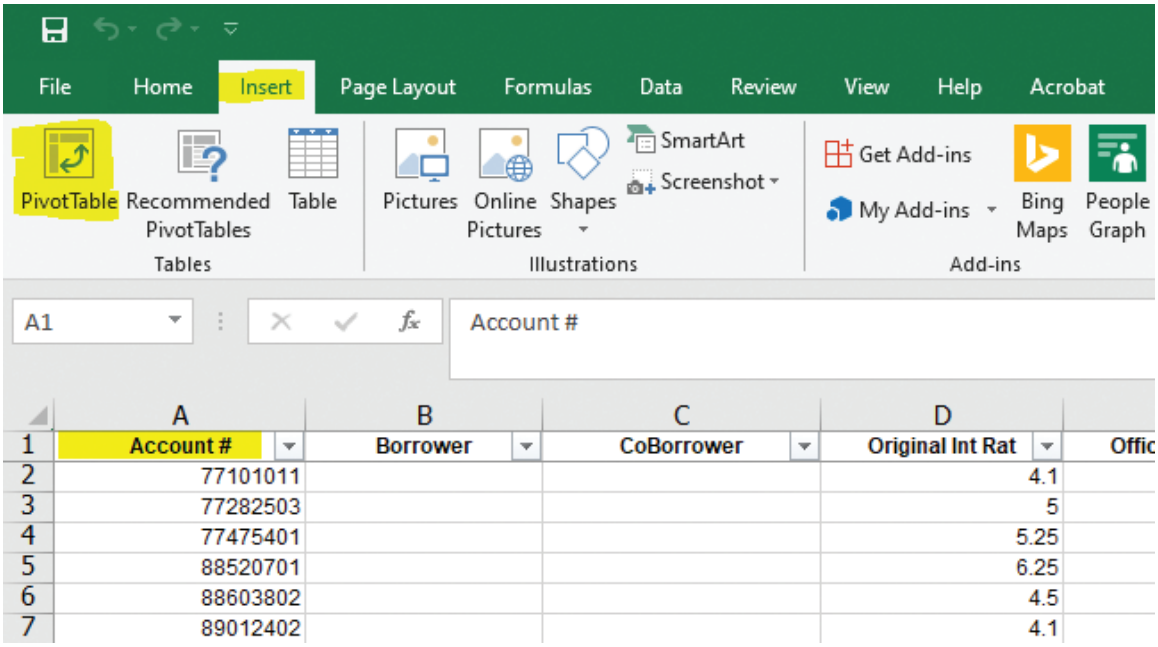
J	K	L	M	N	O	P	
State	Zip Code	CT Number	CT Income Level	CT Minority Level	% Minority	Class Co	Class Code
SD	57078	9663.02	Middle	15	< 20% Minority	30	Loans to Individ
SD	57104	0012.00	Middle	16	< 20% Minority	30	Loans to Individ
SD	57062	9677.00	Middle	16	< 20% Minority	30	Loans to Individ
SD	57105	0015.00	Moderate	20	20% < 50% Minority	30	Loans to Individ
SD	57104	0015.00	Moderate	20	20% < 50% Minority	30	Loans to Individ
SD	57105	0015.00	Moderate	20	20% < 50% Minority	30	Loans to Individ
SD	57105	0015.00	Moderate	20	20% < 50% Minority	30	Loans to Individ
SD	57105	0015.00	Moderate	20	20% < 50% Minority	30	Loans to Individ
SD	57105	0015.00	Moderate	20	20% < 50% Minority	30	Loans to Individ
SD	57105	0015.00	Moderate	20	20% < 50% Minority	30	Loans to Individ
SD	57106	0011.08	Moderate	20	20% < 50% Minority	30	Loans to Individ
SD	57106	0011.08	Moderate	20	20% < 50% Minority	30	Loans to Individ
SD	57106	0011.08	Moderate	20	20% < 50% Minority	30	Loans to Individ
SD	57106	0010.02	Moderate	20	20% < 50% Minority	30	Loans to Individ

We are now ready to start building our pivot tables.

STEP 4)
BUILDING PIVOT TABLES

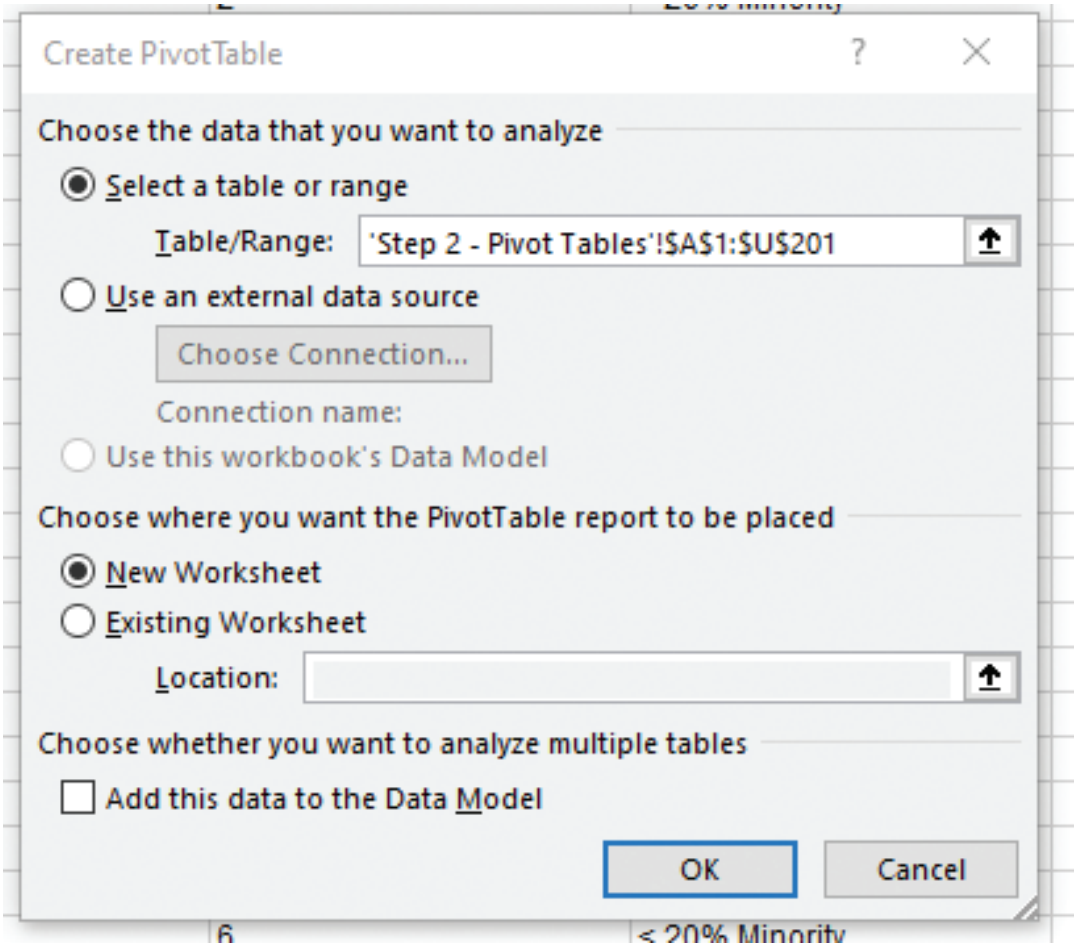
Now that our data is in the format that we need it in and all of our loans have been geocoded, we can start building our pivot tables. We will follow many of the same procedures as in Module 8, but there are a few key differences. Let's get started building pivot tables for our redlining review.

First, we want to start by inserting the pivot table. To do this, click into the very upper left box A1. Then, click on the "Insert" tab at the top of your spreadsheet. You will want to find the "Pivot Table" option and click it.

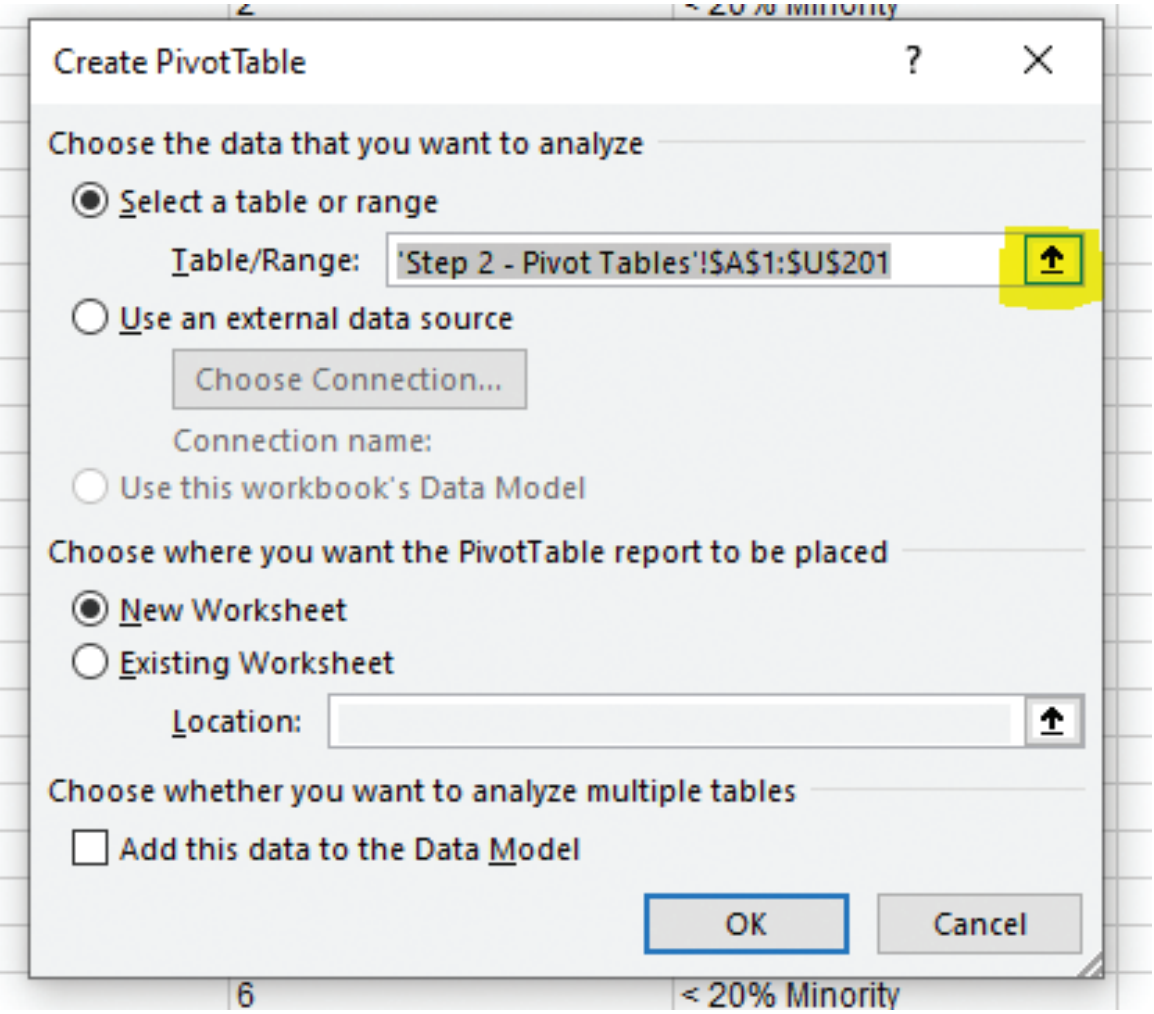


	A	B	C	D
1	Account #	Borrower	CoBorrower	Original Int Rat
2	77101011			4.1
3	77282503			5
4	77475401			5.25
5	88520701			6.25
6	88603802			4.5
7	89012402			4.1

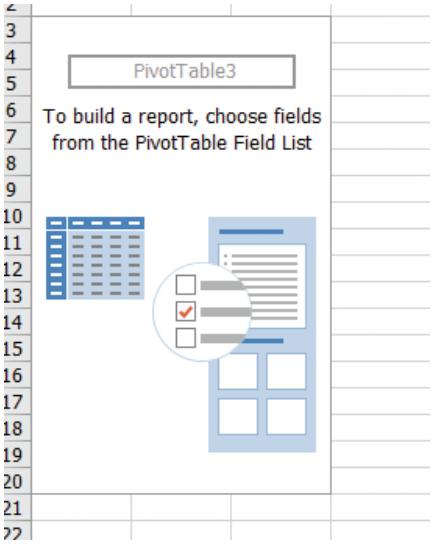
That will bring up a new box to help create the pivot table.

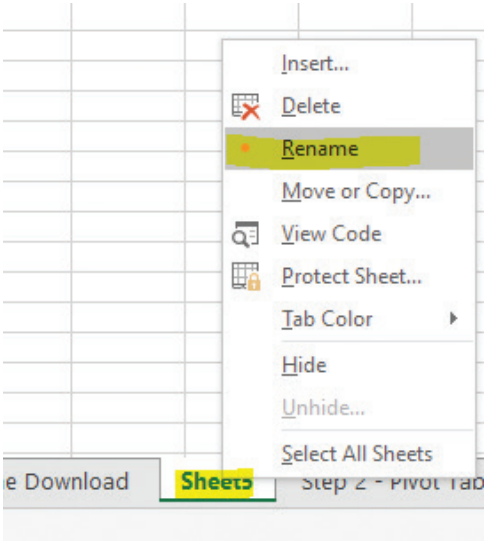


Next you will want to select the Table/Range. To do this, click up the little up arrow.



That will let you highlight the data you want to include within your pivot table. You will want to first scroll all the way to the top and left and left click once into cell A1, then, without clicking into the spreadsheet again, scroll all the way to the right and down to the bottom row and find the cell in the lower right hand corner that has the last bit of data in it. While holding down the shift key, left click once into the lower right-hand corner. This will highlight all of your data. Then hit enter. Make sure "New Worksheet" is selected. Then click Ok. Your new tab should be created with the empty shell of your pivot table, as shown in the following image.





At this point, we like to move our new pivot table tab right behind the download tab and rename it. To do that, right click on the new tab and choose "rename."

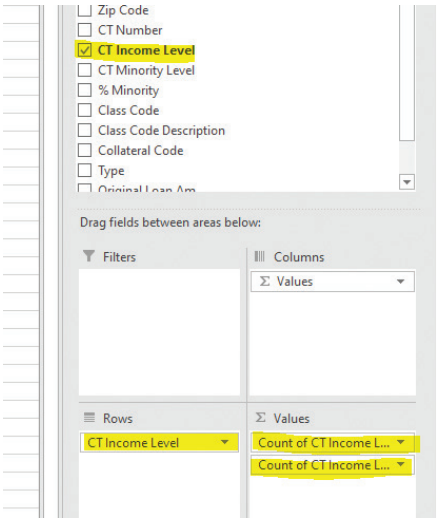
Then to move the tab, left click and hold on it, and then drag it to the right or left, wherever you want to put it to best organize your data. Let's start plugging in some numbers.

PRO TIP

If you ever click outside your pivot table box, the "PivotTable Fields" box on the right of your spreadsheet will disappear. To get it to come back, simply click anywhere inside your pivot table and it will come back.

Analysis Based on Income Levels

Within your PivotTable Fields box, you will be dragging down pieces of data into the boxes below. First, let's find the CT Income Level field.

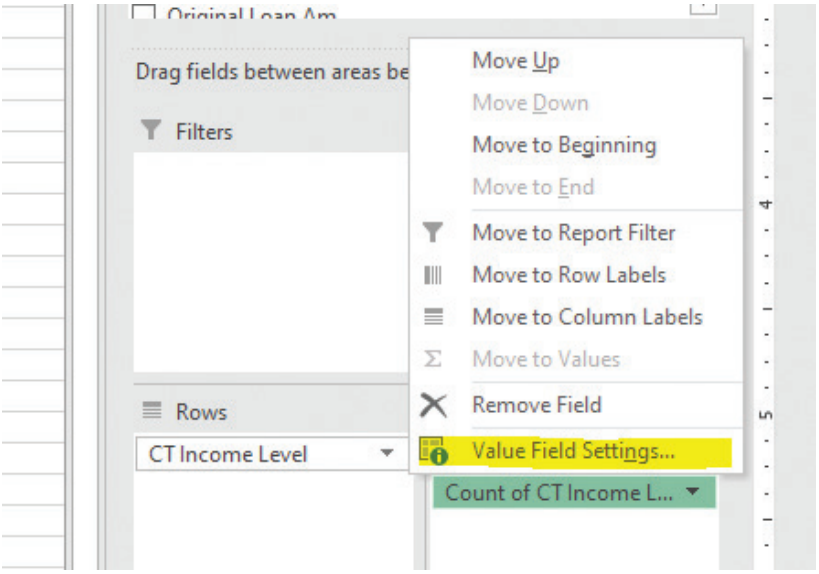


1. Left Click and drag it down to the "Rows" box one time
2. Left Click and drag the same one down to the "Values" box twice
3. It should now look like this

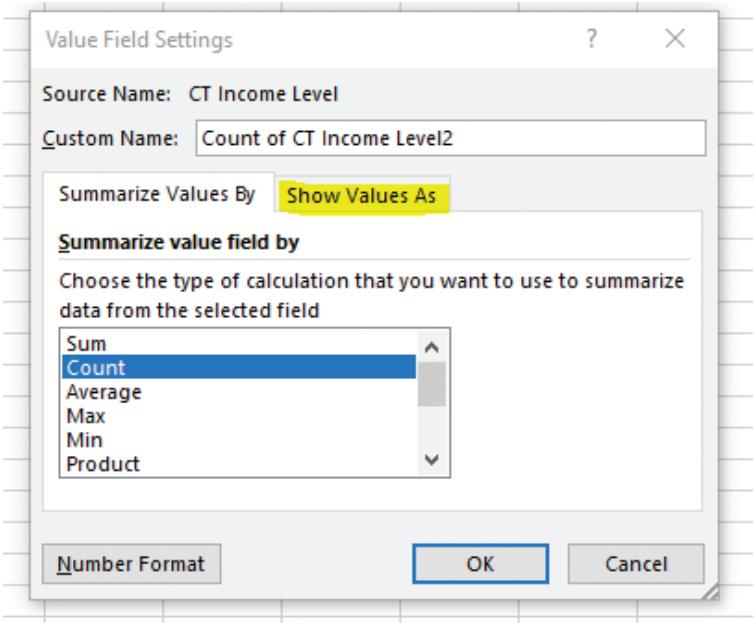
Your pivot table should look something like this (your numbers will be different)

Row Labels	Count of CT Income Level	Count of CT Income Level2
Low	7	7
Middle	85	85
Moderate	53	53
Upper	55	55
Grand Total	**200**	**200**

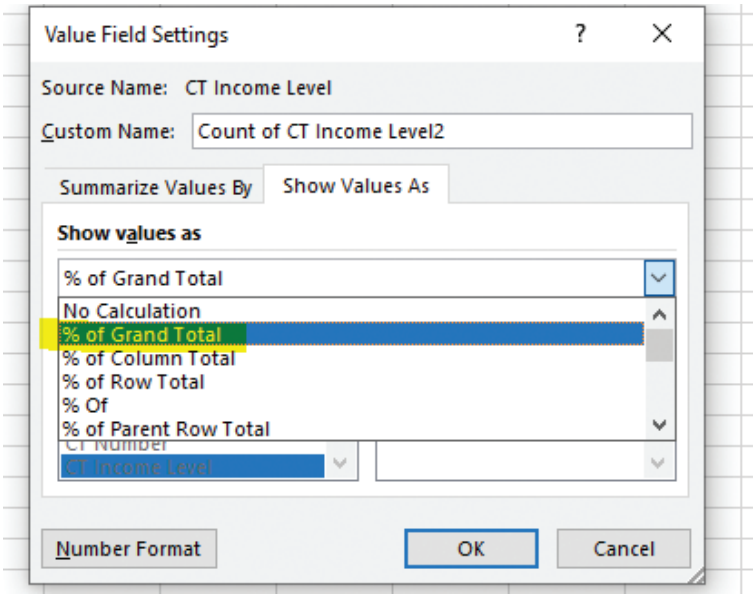
The Pivot table above will show you what census tracts your loans were originated in, based on income. Let's clean up the table a bit. First, you will need to change how the second "Values" data is being calculated. The top "Values" box should be at "Count" which tells us the total number of loans. If it is set to "Sum", follow the same steps below and change the first value to "Count". We want to change the second value to tell us the percentage of the total. To do that, click on the little down arrow and choose "Value Field Settings."



It should automatically have "Count" highlighted. Leave that on Count. If it is set on "Sum", ensure you change it to "Count". Now click on the tab that says "Show Values As."



You will want to click the drop-down box and choose "% of Grand Total." Click Ok.



This will show the percentage of all of your loans in the product you are looking at that went to each of the 4 census tract types by income level. Here's what ours looks like:

3	Row Labels	Count of CT Income Level	Count of CT Income Level2
4	Low	7	3.50%
5	Middle	85	42.50%
6	Moderate	53	26.50%
7	Upper	55	27.50%
8	**Grand Total**	**200**	**100.00%**
9			

You can clean this up by relabeling the columns and adjusting the rounding if you would like. You can also give it a table header to make it presentable for a report.

Lending by Income Level – Home Loans		
CT Income Level	**# of Loans to CT**	**% of Loans to CT**
Low	7	3.5%
Middle	85	42.5%
Moderate	53	26.5%
Upper	55	27.5%
Grand Total	**200**	**100.0%**

This tells half of the story. What examiners look for and what you will want to look for is your organization's lending levels to the low- and moderate-income census tracts. This is very similar to the CRA review examiners perform. They find the Geographic Distribution of loans, and they follow the same process. You can conduct this review for any of your loan products. This is a good review to do for commercial loans to show you are lending to all parts of your assessment area, regardless of income levels.

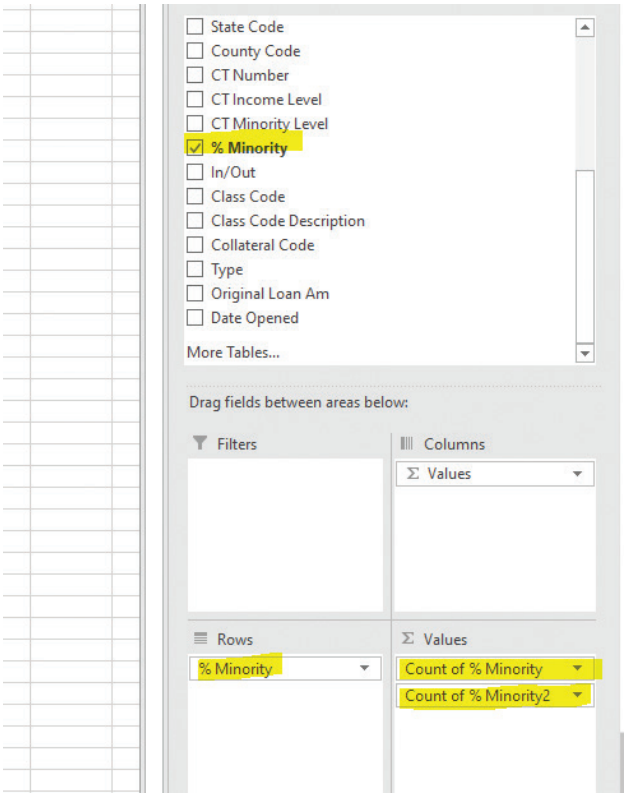
You will now need to compare this data to your assessment area. To do this, you will need to get a list of the census tracts that make up your assessment area. There should be a listing of them in your CRA public file. You will want to add up all of the census tracts, and find the percentage of census tracts in each income level listed in the table above. You can now compare your loan performance to that of your assessment area.

For example, if 14% of your organization's assessment area consisted of low-income tracts, and only 3.5% of your home loans went to low-income tracts, your organization could possibly have some area for improvement. Lending in low- and moderate-income areas is just one metric. What is really important for redlining is lending in high minority areas. That is the most critical.

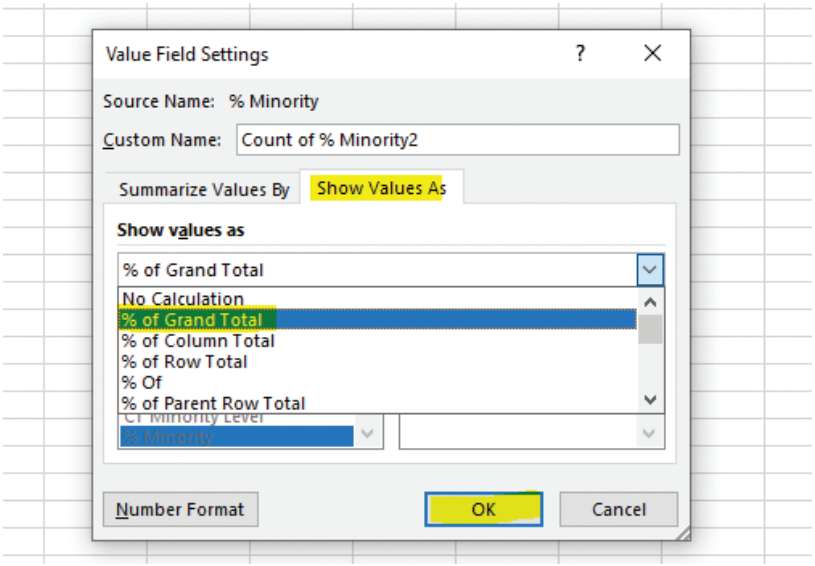
Analysis Based on Minority Levels

Now we will recreate the same analysis above, but this time we will find out the percentage of loans that were made to the higher minority census tracts. To do this, go back to our new spreadsheet that only includes the loans in the assessment area. Let's first click in Cell A1, then click the "Insert" tab, and click "Pivot Table" as we discussed earlier. Highlight all of your data and create a new table.

We will follow the exact same steps as with income, except that this time we will drag the "% Minority" field down into our "Rows" and "Values" boxes.



We will again want to ensure the first down arrow is set to "Count". Then click on the down arrow for the second field within the "Values" box and choose "Value Field Settings…" Then click on the "Show Values As" tab and choose "% of Grand Total" in the dropdown menu. Then Click "Ok."



Your pivot table should now look like this (with different numbers).

Row Labels	Count of % Minority	Count of % Minority2
< 20% Minority	147	73.50%
> 50% Minority	15	7.50%
20% < 50% Minority	38	19.00%
Grand Total	**200**	**100.00%**

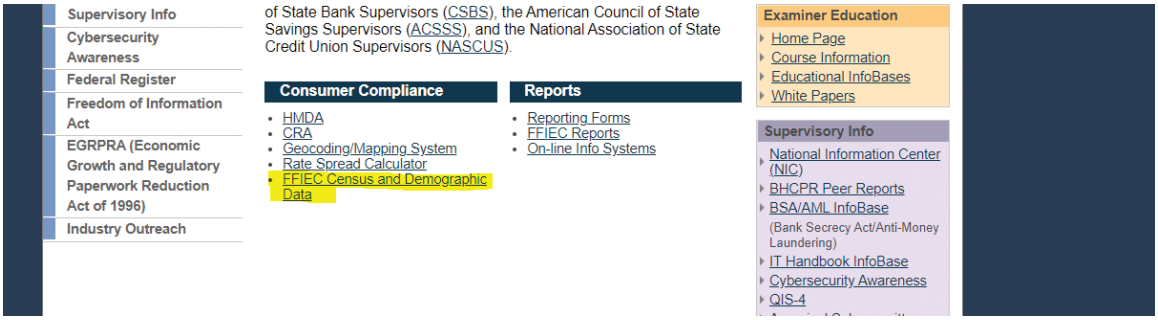
After cleaning it up and renaming the columns, we have a nice table to put into our report.

Lending by Minority Population - Home Loans		
% Minority	**# of Loans to Group**	**% of Loans to Group**
< 20% Minority	147	73.5%
> 50% Minority	15	7.5%
20% < 50% Minority	38	19.0%
Grand Total	**200**	**100.0%**

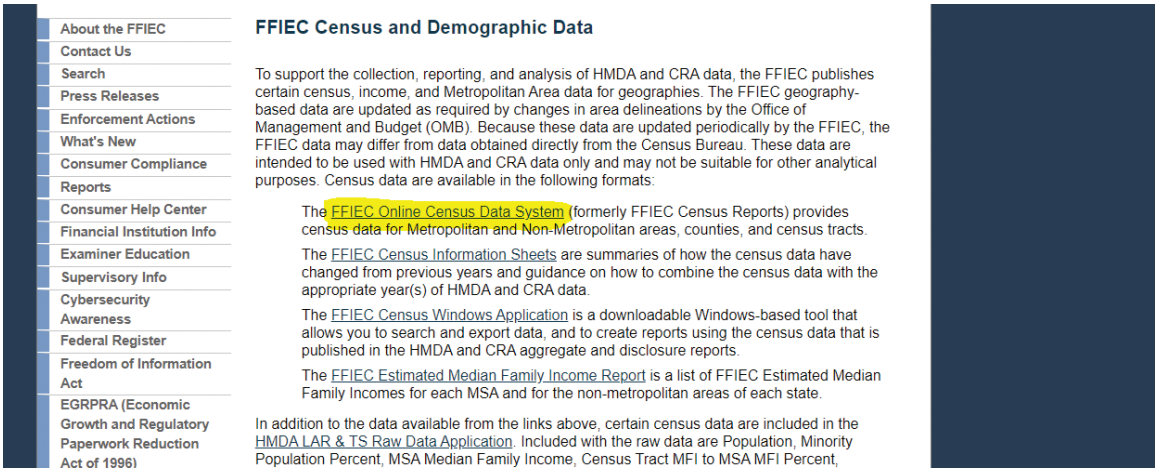
There is a way to gather a large amount of census tract data very quickly. Follow the steps below to see how.

Just like with the income analysis, you will have to determine how many census tracts are within your assessment area that fall into each of the different buckets within our table above. If you have a small amount of census tracts in your assessment area, this can go quickly. You can simply go to the FFIEC map, chose the "User Select Tract" option, and click anywhere into a census tract. It will tell you the data you will need. Repeat this step for all of the census tracts in your area. You will be able to calculate what percentage of total census tracts fall within the three groups based on minority population.

If you have dozens or even hundreds of census tracts, there is another way to gather this data. First, go back to the main FFIEC page: **www.ffiec.gov**. Click on the "FFIEC Census and Demographic Data" link under "Consumer Compliance."



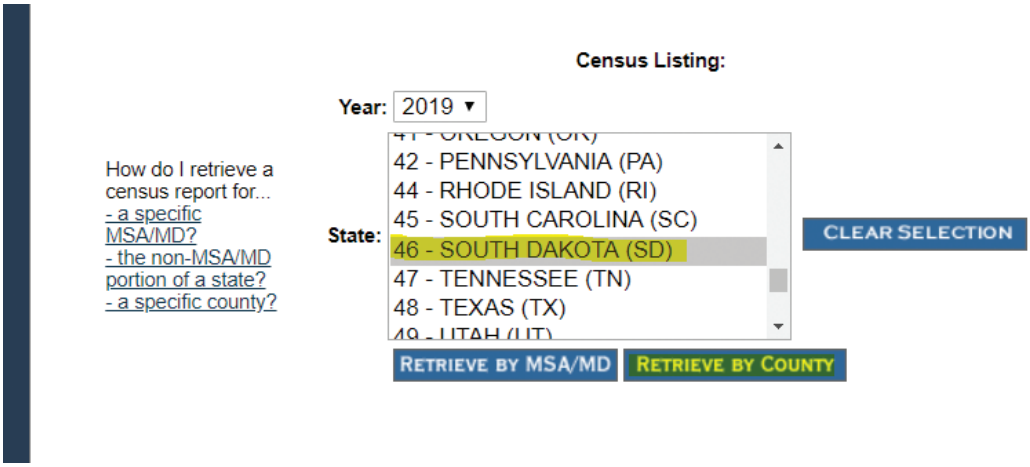
Then click on the "FFIEC Online Census Data System" link.



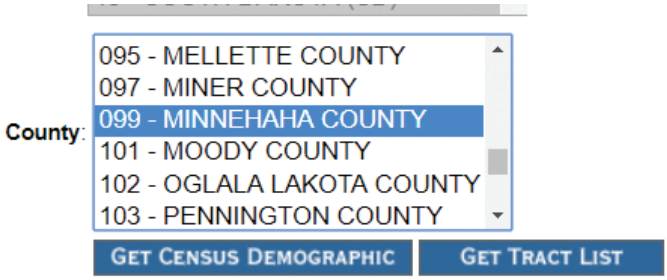
This is the main page where you can get information on the census tracts in your area. You can get info by county or by MSA.

By County

First, scroll down and choose the state. Left click to select it and then click "Retrieve by County" blue box.



Now scroll down to select the county you want. You will have to do this one county at a time. Once you have selected the county, choose the "Get Census Demographic" blue box.



This will bring up a list of all of the census tracts within the county. It will tell you which census tracts are in the county, their tract income level, and the tract minority % population.

2019 FFIEC Census Report - Summary Census Demographic Information
State: 46 - SOUTH DAKOTA (SD)
County: 099 - MINNEHAHA COUNTY
Records 1 through 42 of 42

Data Report Links
Demographic (PDF) Income (PDF) Population (PDF) Housing (PDF)

*** Will automatically be included in the 2020 Distressed or Underserved Tract List**

Tract Code	Tract Income Level	Distressed or Under-served Tract	Tract Median Family Income %	2019 FFIEC Est. MSA/MD non-MSA/MD Median Family Income	2019 Est. Tract Median Family Income	2015 Tract Median Family Income	Tract Population	Tract Minority %	Minority Population	Owner Occupied Units	1- to 4-Family Units
0001.00	Moderate	No	56.22	$86,200	$48,462	$41,017	4151	38.71	1607	665	1148
0002.01	Moderate	No	59.97	$86,200	$51,694	$43,750	4508	43.79	1974	729	1354
0002.02	Moderate	No	59.57	$86,200	$51,349	$43,456	2495	13.11	327	293	498
0003.00	Moderate	No	65.99	$86,200	$56,883	$48,139	3766	35.40	1333	1031	1495
0004.01	Moderate	No	76.02	$86,200	$65,529	$55,461	2912	27.85	811	913	1059
0004.05	Moderate	No	75.87	$86,200	$65,400	$55,352	5577	40.25	2245	919	1213
0004.06	Moderate	No	65.78	$86,200	$56,702	$47,986	3258	24.03	783	751	1014
0004.07	Middle	No	85.58	$86,200	$73,770	$62,436	2940	9.29	273	847	955

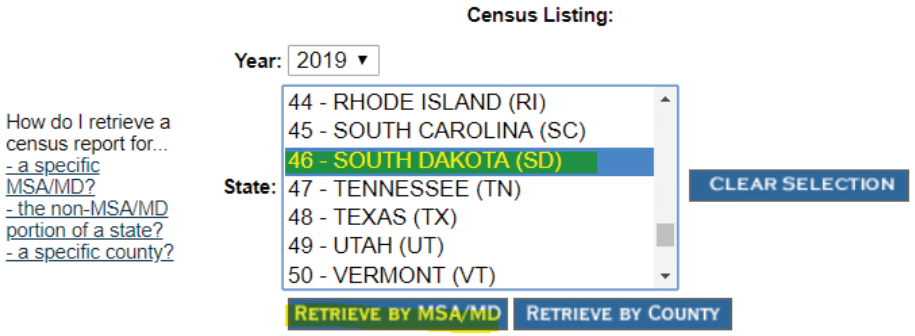
You have two ways of collecting this data. You can download it into a PDF by simply clicking the "Demographic (PDF)" link. You will want to click on the "PDF" to generate it. This will let you save all of the data for this county. Or you can simply highlight the table, and then copy and paste it into an Excel spreadsheet like this:

Tract Code	Tract Income Level	Distressed or Underserved Tract	Tract Median Family Income %	2019 FFIEC Est. MSA/MD non-MSA/MD Median Family Income	2019 Est. Tract Median Family Income	2015 Tract Median Family Income	Tract Population	Tract Minority %	Minority Population	Owner Occupied Units	1- to 4-Family Units
1	Moderate	No	56.22	$86,200	$48,462	$41,017	4151	38.71	1607	665	1148
2.01	Moderate	No	59.97	$86,200	$51,694	$43,750	4508	43.79	1974	729	1354
2.02	Moderate	No	59.57	$86,200	$51,349	$43,456	2495	13.11	327	293	498
3	Moderate	No	65.99	$86,200	$56,883	$48,139	3766	35.4	1333	1031	1495
4.01	Moderate	No	76.02	$86,200	$65,529	$55,461	2912	27.85	811	913	1059
4.05	Moderate	No	75.87	$86,200	$65,400	$55,352	5577	40.25	2245	919	1213
4.06	Moderate	No	65.78	$86,200	$56,702	$47,986	3258	24.03	783	751	1014
4.07	Middle	No	85.58	$86,200	$73,770	$62,436	2940	9.29	273	847	955
4.08	Middle	No	97.15	$86,200	$83,743	$70,875	4038	35.74	1443	930	1113
5	Moderate	No	56.83	$86,200	$48,987	$41,458	3289	31.53	1037	744	1214
6	Moderate	No	67.93	$86,200	$58,556	$49,559	2590	23.51	609	354	810
7	Moderate	No	61.48	$86,200	$52,996	$44,850	4433	33.14	1469	540	1151
9	Moderate	No	62.42	$86,200	$53,806	$45,540	3619	29.21	1057	691	1384
10.01	Moderate	No	70.33	$86,200	$60,624	$51,310	3628	17.83	647	1130	1378
10.02	Moderate	No	57.99	$86,200	$49,987	$42,308	5036	20.37	1026	937	1547
11.01	Moderate	No	50.33	$86,200	$43,384	$36,716	4598	11.57	532	215	547
11.05	Middle	No	101.56	$86,200	$87,545	$74,091	6611	8.08	534	2129	2338
11.06	Upper	No	127.07	$86,200	$109,534	$92,697	10716	8.68	930	3085	3456
11.07	Middle	No	98.24	$86,200	$84,683	$71,667	3401	8.97	305	780	1086

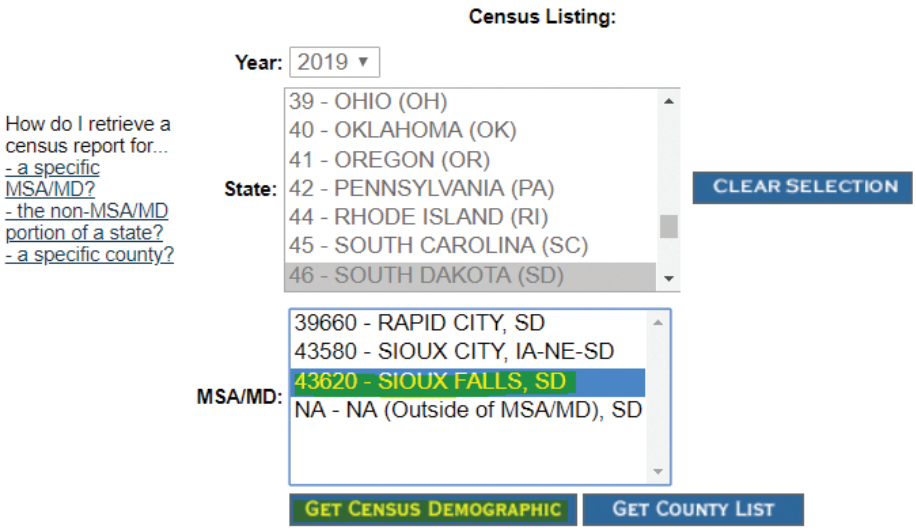
When you choose this option, you can easily add to the spreadsheet. If you have multiple counties, you can generate each county separately and add the census tract information to your spreadsheet. This is a quick and easier way to find the totals you need to compare your lending data to. When you put all of your counties together into one spreadsheet, you can delete out any census tracts that are not part of your assessment area.

By Metropolitan Statistical Area (MSA)

You can also generate all of the data for an MSA. To do that, simply go back to the FFIEC Online Census Data System. Select the state where your MSA is located, then click the "Retrieve by MSA/MD" blue button.



Then simply select the MSA you want the data on and then click the "Get Census Demographic" blue button.



Analyzing the Data

At this point, you should have a lot of data. You have likely chosen a few different loan types (home loans, commercial loans, etc.), geocoded them, and found what percentage of your loans went to low- and moderate-income areas and what percentage went to higher minority areas. You should also be able to compare that data to your assessment area.

If your organization made 17% of your commercial loans to low- and moderate-income areas, but 44% of your assessment area is low- and moderate-income census tracts, you may have areas of concern. If 18% of your assessment area is made up of census tracts that are >50% minority, but only 2.4% of your loans went to those census tracts, you may have areas of concern.

If you plotted your branch locations on a map, and they are all located away from high-minority census tracts or form any type of shape that appears to be avoiding higher minority areas, you may have areas of concern. In general, your lending patterns should match your assessment area.

Let's finish off this module with a real-world example of what you would like your performance to look like.

Using Maps

You may not need to physically plot each of your loans onto a map to its exact street address, but you could write on your map showing the number of loans that you made within each census tract. You will ideally be able to show you made loans throughout your assessment area without "skipping over" higher-minority census tracts. You do not want to see any gaps that look like donut holes.

If you have higher-minority census tracts that are immediately adjacent to your assessment area, you should consider include them in your assessment area, or your assessment area may appear to be excluding them unreasonably. However, you need to be able to serve those census tracts. Simply having them as part of your assessment area is one step; making loans in those areas is the next step.

Real-World Example

We performed a redlining review for an institution that had between 20-40 branches and assets between $1 billion - $5 billion. This institution's assessment area had fairly low minority populations; however, there were a few sections of the assessment area that had higher amounts of Hispanic residents. The institution's primary regulator had instructed them to conduct reviews to ensure they are lending to all applicants, but like so many other institutions, they didn't know what to do.

We performed a pricing review using the Census Bureau Surname Tool (in Module 9) and geocoded loans to ensure the institution was penetrating the higher minority populations. We did the entire review with the tools taught in this course and without ever touching HMDA data.

Here is a summary of the key findings within the review:

- The institution's assessment area had a total Hispanic population of 6.5%
  - We were able to get all of this data from the FFIEC website
- The percentage of total consumer loans made to Hispanics was 9.5%
  - We used the Surname tool to identify all Hispanic borrowers, then simply found the % of loans made to those borrowers
- The two communities in the assessment area with the highest populations of Hispanic residents both had a branch location
  - Gathered from management

- Both branch locations above had multiple Spanish speaking employees to serve the needs of Hispanic borrowers
  - Gathered from management

On the following pages we will show you the pivot tables from the pricing/redlining review for three of the institution's products. Some of the data is a result of the pricing review, so we built upon that review to see our loan penetration ratios for Hispanic borrowers. Remember: redlining is providing unequal access to credit on a prohibited basis. While this review did not focus on geography, it did focus on penetration rates to Hispanics, comparing their loan penetration ratios to actual Hispanic population ratios in this institution's REMA.

The Target Groups below for the Gender Analysis were loans to females only. If there was a male presence on the loan, it was a Control Group loan.

The Target Groups for the Ethnicity analysis was any loan that had a Hispanic borrower or coborrower. If there was no Hispanic borrower on the loan, it was a Control Group loan.

Vehicle Title Purchase Loans

Vehicle Title Purchase - Gender Analysis				
Group	**# of Loans**	**Average Rate**	**Highest Rate**	**Lowest Rate**
Control	XXX	5.58	10.00	2.90
Target	XXX	5.46	8.25	3.25
Grand Total	**XXX**	**5.56**	**10.00**	**2.90**
	Difference	**0.12**		

Gender Analysis: the rate spread for vehicle title purchase loans was 12 basis points, with the target group having the lower average rate.

Vehicle Title Purchase - Ethnicity Analysis					
Group	**# of Loans**	**Average Rate**	**Highest Rate**	**Lowest Rate**	**% of Total Loans**
Control	XXX	5.57	10.00	2.90	90.2%
Target	XXX	5.44	8.00	3.85	9.8%
Grand Total	**XXX**	**5.56**	**10.00**	**2.90**	**100.0%**
	Difference	**0.13**			

Ethnicity Analysis: the rate spread for vehicle title purchase loans was 13 basis points, with the **target** group having the lower average rate.

Ethnicity Loan Penetration Analysis: a total of 9.8 percent of vehicle title purchase loans went to the target group.

Vehicle Title Non-Purchase Loans

Vehicle Title Non-Purchase - Gender Analysis				
Group	**# of Loans**	**Average Rate**	**Highest Rate**	**Lowest Rate**
Control	XXX	7.20	13.00	3.20
Target	XXX	7.42	12.75	3.75
Grand Total	**XXX**	**7.26**	**13.00**	**3.20**
	Difference	**-0.22**		

Gender Analysis: the rate spread for vehicle title non-purchase loans was 22 basis points, with the control group having the lower average rate.

Vehicle Title Non-Purchase - Ethnicity Analysis					
Group	**# of Loans**	**Average Rate**	**Highest Rate**	**Lowest Rate**	**% of Total Loans**
Control	XXX	7.25	13.00	3.20	89.0%
Target	XXX	7.35	12.75	4.10	11.0%
Grand Total	**XXX**	**7.26**	**13.00**	**3.20**	**100.0%**
	Difference	**-0.10**			

Ethnicity Analysis: the rate spread for vehicle title non-purchase loans was 10 basis points, with the control group having the lower average rate.

Ethnicity Loan Penetration Analysis: a total of 11 percent of vehicle title non-purchase loans went to the target group.

Home Mortgage Purchase and Refinance Loans

Mortgage Purchase/Refinance - Gender Analysis				
Group	**# of Loans**	**Average Rate**	**Highest Rate**	**Lowest Rate**
Control	XXX	4.68	5.75	3.25
Target	XXX	4.76	6.25	3.75
Grand Total	**XXX**	**4.70**	**6.25**	**3.25**
	Difference	**-0.08**		

Gender Analysis: the rate spread for mortgage purchase and refinance loans was 8 basis points, with the control group having the lower average rate.

Mortgage Purchase/Refinance - Ethnicity Analysis					
Group	**# of Loans**	**Average Rate**	**Highest Rate**	**Lowest Rate**	**% of Total Loans**
Control	XXX	4.70	6.25	3.50	90.6%
Target	XXX	4.68	5.50	3.25	9.4%
Grand Total	**XXX**	**4.70**	**6.25**	**3.25**	**100%**
	Difference	**0.02**			

Ethnicity Analysis: the rate spread for mortgage purchase and refinance loans was 2 basis points, with the target group having the lower average rate.

Ethnicity Loan Penetration Analysis: a total of 9.4 percent of home purchase and refinance loans went to the target group. This analysis was the most important for our redlining analysis because it showed that while Hispanics made up 6.5% of the population, Hispanics received 9.4% of the home loans. Therefore, we were able to conclude that the bank was not avoiding loans to Hispanic borrowers (our target group).

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