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Ranking of Mortgage Underwriting Criteria for Multifamily Rental Property

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Walden University

College of Management and Technology

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Tejram Basdeo

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Walden University
2017

Abstract

Ranking of Mortgage Underwriting Criteria for Multifamily Rental Property

by

Tejram Basdeo

MBA, Lansbridge University, 2005

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

July 2017

Abstract

The 2007-2009 recession negatively impacted the global economy, especially the real estate industry and multifamily rental properties. Obtaining credit became difficult, real estate lost 41% equity, 223 commercial banks failed, and 3.2 million homes were in foreclosure. Grounded in systems theory, the purpose of this causal comparative study was to examine the impact of mortgage lender type on the average ranking of 8 mortgage underwriting outcome measures. For the study, 44 accredited mortgage professionals completed an online-survey. The results of the analyses of variance indicated a statistically significant ($p < 0.001$) lender type effect on credit score and loan-to-value ratio. Further analyses on credit score indicated a significant ($p = 0.006$) relationship between Category A and B lenders, Category A and C lenders ($p < 0.001$), and Category B and C lenders ($p < 0.001$). Further analyses on loan-to-value ratio indicated a significant ($p = 0.017$) relationship between Category A and B lenders and also Category A and C lenders with ($p < 0.001$), but the difference between Category B and C lenders is not statistically significant with ($p = 0.063$). The implications for positive social change include economic growth and expansion, as access to financing increases. Tenants in multifamily rental properties might also benefit from economic growth as the standard of living could increase when landlords initiate capital spending and development.

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Dedication

I am dedicating this doctoral study to three pillars that are the foundation and driving force for my success and accomplishments. During this challenging period, these pillars were support systems by motivating, inspiring, and encouraging me to persevere and achieve my goals.

Two of the three pillars are my children, Diya and Dylan. They motivate and inspire me to perform at my optimal ability. My objective with this accomplishment is to set the foundation for my children to have a benchmark that they can work towards and surpass. I am hoping that my accomplishment will form a pathway that Diya and Dylan could use in setting and accomplishing their own dreams and aspirations.

The third pillar is Radica, my life partner and supporter. Radica enables me to accomplish my dreams and aspirations by supporting and encouraging my endeavors. Radica's support extends beyond emotional and psychological. Radica acts as my idea board and devil's advocate.

This accomplishment is a true testament that individual success is dependent on one's environment and individuals that surround them.

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I would also like to extend a special thank you to my committee members; Dr. Peter Anthony, Dr. James Glenn, and Dr. Cheryl Lentz. Dr. Anthony is my chair and an outstanding professor; he is efficient, dedicated, respectful, knowledgeable, and most importantly, he truly cares for his students' success and advancement.

Last but not least, I would like to thank my family, Radica, Diya, and Dylan. Radica your support extends beyond a partner role; you fostered my doctoral study endeavor and success. Diya and Dylan, both of you inspired and encouraged me to continue advancing myself. Your love and support have kept me going and barred me from dropping out of the journey during tough periods. Thank you.

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Section 1: Foundation of the Study

As a result of the 2007-2009 financial crisis, lenders and financial regulators implemented several changes to mortgage lending in an effort to mitigate a similar future crisis (Scanlon & Elsinga, 2014). Sullivan and Bernstein (2013) stated that although 20% of the 315 million Americans reside in multifamily rental properties (U.S. Census Bureau, 2012), little information is available regarding their funding options. There are many publications on the five Cs of credit and different lending criteria (Carl-Christian & Hemlin, 2012). However, little information exists on the average ranking of mortgage lending criteria among different categories of lenders (Agyapong, Agyapong, & Darfor, 2011). While lending criteria are important in the underwriting process, some criteria may have more importance or weight among the different categories of lenders.

The objective of this study was to examine the average ranking of mortgage outcome measures among different categories of lenders for multifamily rental properties in Ontario, Canada. Identifying the average ranking of mortgage outcome measures will prepare borrowers when applying for multifamily rental property mortgages. Further, identifying the ranking or weighting of the different mortgage underwriting criteria could contribute to an effective credit management system (Ferreira, Santos, Marques, & Ferreira, 2014). Mortgage agents and brokers could benefit from an effective credit management system as mortgage application processing time decreases (Glascock & Lu-Andrews, 2014).

Background of the Problem

The 2007-2009 financial crisis was caused by ineffective banking, financial regulation, and poor financial governance (Tatom, 2013). Kiani (2017) stated that over speculation in the real estate market was a contributing factor to the financial crisis. Low credit score, high loan-to-value (LTV) ratio, adjustable rate mortgages, and high debt service coverage ratio (DSCR) were some factors that fostered foreclosures (Roulac, 2014).

Hoelle, Pireddu, and Villanacci (2016) stated that pre-recession lenders lowered their credit standards and overlooked credit scores, employment confirmation, and down payment requirements. The financial crisis forced regulators to revise lending standards and implement stricter lending criteria (Scanlon & Elsinga, 2014). Mortgage lenders and regulators implemented several changes to the mortgage lending process and monetary policy to mitigate the probability of another sub-prime mortgage disaster (Peicuti, 2014).

Lenders now conduct detailed scrutiny of mortgage applications and borrowers' profiles, to determine their ability to repay or maintain their debt obligation (Carl-Christian & Hemlin, 2012). Prospective borrowers continue to experience challenges and barriers when seeking mortgages for multifamily rental properties because of increased scrutiny and regulations (Liu & Quan, 2013). Given the 2007-2009 financial crisis and changes in the financing sector, understanding the knowledge gap with multifamily rental property financing and types of mortgages that facilitate multifamily rental property ownership is critical for providing affordable housing (Sullivan & Bernstein, 2013).

Problem Statement

The 2007-2009 recession negatively impacted the global economy, especially the real estate industry (McDaniel, 2014). Nichols, Hendrickson, and Griffith (2011) stated that because of the recession, obtaining credit became difficult, real estate lost 41% equity, 223 commercial banks failed, and 3.2 million homes were in foreclosure. The financial crisis forced regulators to implement stricter lending criteria (Scanlon & Elsinga, 2014). In the future, over $1 trillion in commercial mortgages will come due, and a significant number of borrowers have concerns with not being able to renew their mortgages (Downs, 2011). The general business problem is the credit challenges real estate investors experience when seeking commercial real estate financing. The specific business problem is that some real estate investors do not know the impact of lender type on the average rankings of mortgage underwriting outcome measures.

Purpose Statement

The purpose of this quantitative causal comparative study was to examine impact of lender type on the average rankings of mortgage underwriting outcome measures. The independent variable was lender category, with three levels (Category A, B, and C). The dependent variables were average rankings for gross debt service (GDS) ratio, Total Debt Service (TDS) ratio, DSCR, LTV ratio, property appraisal, and borrowers' credit score, industry experience, and length of employment. The target population was mortgage agents and brokers with an Accredited Mortgage Professional (AMP) designation who facilitate mortgages for multifamily rental property in Ontario, Canada. In Ontario, mortgage agents and brokers are independent professionals who liaise between lenders

and borrowers; and have knowledge and understanding of the lending environment and lender requirements. The findings could be advantageous to real estate investors by providing the average ranking of mortgage underwriting criteria that could ensure their success in securing financing. Limited financing could adversely affect the supply of affordable housing because of higher interest rates and borrowing costs (Sullivan & Bernstein, 2013). Therefore, sufficient financing may ensure an adequate supply of affordable housing while improving the standard of living (Ferreira et al., 2014).

Nature of the Study

Given that the objective of this study was to identify the average ranking of eight dependent variables, a quantitative research method was more appropriate than a qualitative method. Because data for this study was structured and numerical in nature, a quantitative research method was more appropriate (Slife & Melling, 2012). A quantitative research method presents unbiased findings when identifying relationships, measuring differences between variables, and testing hypotheses (Ragas & Laskin, 2014). In contrast, the qualitative research method seeks to understand phenomena and explore issues to identify underlying causes (Slife & Melling, 2012). Additionally, in a qualitative study, the researcher usually collects data directly from participants by conducting observation, interviews, and reviewing audio, video, and documents (Smith, 2014). A qualitative research method involves gathering data and forming opinions on the topic based on the researcher's subject matter knowledge and experience (Slife & Melling, 2012). Therefore, a qualitative research method could cause skewed or biased opinions and findings (Slife & Melling, 2012).

Given that the objective of this study was to identify the average ranking of mortgage outcome measures among different categories of lenders, a causal comparative research design was more appropriate than the descriptive, experimental, and causation research designs. Both causation and causal comparative research designs explore variable relationships. Guo, Cai, and Zhang (2016) identified causation research design as a cause-effect relationship. Causal comparative research design only includes identification of patterns and trends but does not identify cause-effect relationships (Leedy & Ormrod, 2010). Causation research design does not involve manipulating variables but the identification of the effect of the dependent variable on the independent variable. Experimental research design does involve manipulating the control variable to identify the effect on the dependent variable (Wester, Borders, Boul, & Horton, 2013). In most cases, experimental research design involves a laboratory setting or environment (Parolini, 2015). Descriptive research design, which assists in describing or reporting the current situation of a variable and the development of hypothesis, usually occurs only after data are gathered (Leedy & Ormrod, 2010).

A causal comparative research design meets the needs of a study when gathering data in a natural setting rather than a laboratory or other experimental setting (Wester et al., 2013). Data for this study originated from a natural setting and was derived by surveying mortgage agents and brokers. Additionally, the manipulation of variables or identification of cause-effect relationships is not necessary. Therefore, a causal comparative research design was appropriate for this study.

Research Question

The following research question assisted to identify the average ranking of mortgage outcome measures among different categories of lenders for multifamily rental property in Ontario, Canada. The dependent variables were GDS ratio, TDS ratio, DSCR, LTV ratio, property appraisal, and borrower's profile (credit score, industry experience, and length of employment). The independent variables were Category A, B, and C lenders for multifamily rental property in Ontario, Canada.

The research question was: What is the impact of lender type on GDS ratio, TDS ratio, DSCR, LTV ratio, property appraisal, borrower's credit score, borrower's industry experience, and borrower's length of employment?

Hypotheses

The following null and alternative hypotheses assisted in identifying the average ranking of mortgage outcome measures among categories A, B, and C lenders for multifamily rental property in Ontario, Canada. The hypotheses relate to mortgage underwriting criteria and types of lenders. Statistical tests and analysis were performed to either accept or reject the hypotheses.

$H1_0$: There is no statistical significant difference in ranking of GDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H1_A$: There is a statistical significant difference in ranking of GDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H2_0$: There is no statistical significant difference in ranking of TDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H2_A$: There is a statistical significant difference in ranking of TDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H3_0$: There is no statistical significant difference in ranking of DSCR for categories A, B, and C lenders when seeking multifamily rental property financing.

$H3_A$: There is a statistical significant difference in ranking of DSCR for categories A, B, and C lenders when seeking multifamily rental property financing.

$H4_0$: There is no statistical significant difference in ranking of LTV ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H4_A$: There is a statistical significant difference in ranking of LTV ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H5_0$: There is no statistical significant difference in ranking of property appraisal for categories A, B, and C lenders when seeking multifamily rental property financing.

$H5_A$: There is a statistical significant difference in ranking of property appraisal for categories A, B, and C lenders when seeking multifamily rental property financing.

$H6_0$: There is no statistical significant difference in ranking of credit score for categories A, B, and C lenders when seeking multifamily rental property financing.

$H6_A$: There is a statistical significant difference in ranking of credit score for categories A, B, and C lenders when seeking multifamily rental property financing.

$H7_0$: There is no statistical significant difference in ranking of industry experience for categories A, B, and C lenders when seeking multifamily rental property financing.

$H7_A$: There is a statistical significant difference in ranking of industry experience for categories A, B, and C lenders when seeking multifamily rental property financing.

$H8_0$: There is no statistical significant difference in ranking of employment history for categories A, B, and C lenders when seeking multifamily rental property financing.

$H8_A$: There is a statistical significant difference in ranking of employment history for categories A, B, and C lenders when seeking multifamily rental property financing.

Theoretical Framework

Systems theory served as the theoretical framework for this study. von Bertalanffy (1968) first introduced the general system theory in the 1940s. von Bertalanffy emphasized how systems interact with their environments, and acquire new properties through emergence, resulting in continual evolution. von Bertalanffy mentioned that system theory extends beyond manufacturing industry and are also present in financial, social, and political environments. Laszlo and Kripper (1998) stated that a system is a combination of several elements that bond together to accomplish a common goal and could encompass both natural phenomena and process. Therefore, any challenges among the components within a system could significantly influence the outcome or objective of that system.

The mortgage market operates as a complex system with several interacting and relational components, which could influence the expansion or contraction of an economy (Teye, Teye, & Asiedu, 2015). Moreover, mortgage lending criteria form part of a micro system within the mortgage lending environment (Teye et al., 2015). The macroeconomic system is influential and is also impacted by the mortgage market and the lending criteria (Teye et al., 2015). Lending criteria enable mortgage underwriters and

lenders to analyze, approve, or reject mortgage applications (Teye et al., 2015). Challenges or barriers among mortgage underwriting criteria could affect the lending process, which could negatively affect the outcome of mortgage applications. Additionally, barriers with mortgage lending could negatively influence the housing industry, which could eventually affect both the local and global economy (Ferreira et al., 2014).

Operational Definitions

Adjustable rate mortgage: An adjustable rate mortgage is a mortgage with an interest rate that adjusts based on economic and market conditions (Chiang & Sa-aadu, 2014).

Credit score: A credit score is a numeric presentation that represents an individual's credit history and trends (Citron & Pasquale, 2014).

Debt-service coverage ratio (DSCR): The DSCR indicate a business or individual's ability to service debts based on their current net income (Mason & Jayadev, 2014). The result from dividing annual net operating income by annual debt obligation is the DSCR.

Gross debt service (GDS) ratio: The GDS ratio indicates the debt level of a potential borrower (Heylen & Haffner, 2013). The result from dividing annual mortgage payments plus property taxes by gross family income is the GDS ratio.

Loan-to-value (LTV) ratio: The LTV ratio shows the amount of financial commitment by the buyer (Scanlon & Elsinga, 2014). The result from dividing the amount of down payment by the cost of the asset is the LTV ratio.

Mortgage broker and agent: A mortgage broker and agent is an individual or corporation that acts as intermediary between borrower and lender facilitating the brokering of mortgage loans (Peicuti, 2014).

Mortgage fraud: A mortgage fraud occurs when there is willful material misrepresentation, misstatements, or omissions that underwriters relied on when deciding on funding applications or loan insurance (McDonald, 2016).

Property appraisal: A property appraisal is the process of assigning a fair value of a property by assessing the current market value based on comparables, income, or replacement cost (Cummings & Epley, 2013).

Total debt service (TDS) ratio: The TDS ratio indicates the debt level of a potential borrower and how much of the borrower's total income covers outstanding debts (Akoto & Awunyo-Vitor, 2014). The result from dividing annual mortgage payments plus property taxes plus other recurring debt payments by gross family income is the TDS ratio.

Underwriters: A mortgage underwriter is an individual who is primarily responsible for approving a mortgage application. The underwriter reviews documentation, debt ratios, and income verification. Additionally, underwriters align mortgage application to lenders criteria (Sanderford, Overstreet, Beling, & Rajaratnam, 2015).

Assumptions, Limitations, and Delimitations

This study was not without boundaries and had limitations and delimitations. Additionally, there were assumptions made about participants' experience and responses.

The following discussion includes identification of assumptions, limitations, and delimitations of this study.

Assumptions

Assumptions occur by accepting theory as fact even if no evidence exists to support the theory (Schoenung & Dikova, 2016). Assumptions relate to instances where theoretical boundaries exist within the research (Scherdin & Zander, 2014). An assumption of this study was that the intended participants would personally complete the survey and responses are accurate and free from personal bias. Another assumption was responses that apply to mortgage underwriting criteria that could hinder real estate investors and landlords from obtaining financing for multifamily rental properties and not obtaining mortgages for owner-occupied residential or vacation homes.

Limitations

Limitations are components within a research study with potential weaknesses that are outside of the researcher's control (Simon, 2011). A limitation of this study was obtaining responses from a sample that generalized the target population. The sample size could be a limitation; an inefficient sample size could present difficulty determining statistical significance (Lintukangas, Anni-Kaisa, & Veli, 2013). I sent surveys to the target population; however, if responses are only from certain demographics then the data only represented the experience and opinion from that particular demographic. Another limitation of this study was the use of a ranking system to identify potential weighting of mortgage underwriting criteria. The survey only allowed participants to assign one rank for each criterion; no two criteria had the same rank. Consequently, survey responses

could result in skewed findings because some participants may want to assign the same weighting to more than one underwriting criterion.

Delimitations

Delimitations relate to research boundaries, limiting the scope of the study (Simon, 2011). Mortgage agents and brokers with an AMP designation who facilitate mortgage applications for multifamily rental properties in Ontario, Canada served as the primary data collection source for this study. Therefore, mortgage agents and brokers without the AMP designation were not part of the target population. The AMP designation denotes a certain level of education and experience in the mortgage industry. Consequently, data from mortgage agents and brokers without the AMP designation could potentially skew the findings given their lack of industry experience and education. Further, given that this study focused on multifamily rental property financing, mortgage agents and brokers who did not facilitate mortgage applications for multifamily rental properties were not part of the target population. The financing process and requirement for multifamily rental properties could be different from owner occupied or vacation properties. Therefore, data from mortgage agents and brokers with limited or no experience processing multifamily rental property mortgages could potentially skew the findings of this study.

Significance of the Study

Identifying the average ranking of mortgage outcome measures among different categories of lenders for multifamily rental property in Ontario, Canada could be beneficial to both businesses and social welfare. An understanding of financing and

funding barriers could assist business leaders to identify ways and methods to reduce funding barriers and increase funding. The following discussion expands on the benefits for business practice and potential social change.

Contribution to Business Practice

The findings from this study could be beneficial and useful to financial regulators, municipal and federal governments, real estate investors and developers, mortgage lenders, investment advisors, and other stakeholders. Sullivan and Bernstein (2013) found that although one-in-five American families live in a multifamily rental property, there is little information on the financing options or assessments for these properties.

Identifying the average ranking of mortgage outcome measures among different categories of lenders could assist regulators to identify financing barriers and bottlenecks within the lending process. Understanding the ranking of mortgage underwriting criteria could assist real estate investors to determine the importance of each mortgage underwriting criterion and be better prepared when seeking multifamily rental property mortgages, therefore reducing processing times and repetition of duties among mortgage agents and brokers. The identification of mortgage underwriting criteria that contribute to mortgage application rejections could enable regulators to analyze the effectiveness of the current guideline and enact more effective guidelines (Sullivan & Bernstein, 2013). Determining potential mortgage financing barriers that real estate investors experience when seeking mortgages for multifamily rental properties in Ontario, Canada could assist banking and lending representatives to identify financing patterns and trends. Banking and financial regulators could utilize the findings to develop appropriate credit products

for qualified borrowers. An increase in credit products could facilitate the buying, selling, and development of multifamily rental properties.

An effective credit management system could assist in reducing predatory lending, which usually means higher interest rate loans (Nembhard, 2013). As a result of dealing with predatory lenders, the cost of borrowing is high because of the higher interest rate (Nembhard, 2013). Higher borrowing costs impact financial performance, which could lead to a reduction in spending. Mortgage financing could contribute to employment growth, increase the standard of living, and foster local and global economic growth (Ferreira et al., 2014).

Implications for Social Change

Limitation of mortgage financing for multifamily rental properties could motivate black market and underground financing and increase mortgage fraud. Limited financing could result in an increase in fraudulent and criminal activities that could ultimately hinder public safety. To secure a mortgage, applicants that do not satisfy the criteria are more likely to falsify information on their mortgage application (Carrillo, 2013). Mortgage applicants may seek financing from loan sharks and lenders involved in criminal activities interested in converting money from illegal activities into the legal monetary system.

Limited mortgage products could cause interest rate and borrowing costs to increase, eventually causing rents to increase. Lack of mortgage funding could affect both local and global economies, as spending and investment drop. Lack of spending forces governments to reduce expenses and cut vital emergency and law enforcement personnel;

this action leads to an increase in crimes and fraudulent activities (Islam, 2014). Limitation on financing could impede multifamily rental property development, which could limit the supply of quality and affordable rental units (Sullivan & Bernstein, 2013).

A Review of the Professional and Academic Literature

The purpose of this study was to identify the average ranking of mortgage underwriting criteria among Categories A, B, and C lenders for multifamily rental properties in Ontario, Canada. The null and alternative hypotheses were:

$H1_0$: There is no statistical significant difference in ranking of GDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H1_A$: There is a statistical significant difference in ranking of GDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H2_0$: There is no statistical significant difference in ranking of TDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H2_A$: There is a statistical significant difference in ranking of TDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H3_0$: There is no statistical significant difference in ranking of DSCR for categories A, B, and C lenders when seeking multifamily rental property financing.

$H3_A$: There is a statistical significant difference in ranking of DSCR for categories A, B, and C lenders when seeking multifamily rental property financing.

$H4_0$: There is no statistical significant difference in ranking of LTV ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H4_A$: There is a statistical significant difference in ranking of LTV ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

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$H5_A$: There is a statistical significant difference in ranking of property appraisal for categories A, B, and C lenders when seeking multifamily rental property financing.

$H6_0$: There is no statistical significant difference in ranking of credit score for categories A, B, and C lenders when seeking multifamily rental property financing.

$H6_A$: There is a statistical significant difference in ranking of credit score for categories A, B, and C lenders when seeking multifamily rental property financing.

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$H7_A$: There is a statistical significant difference in ranking of industry experience for categories A, B, and C lenders when seeking multifamily rental property financing.

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$H8_A$: There is a statistical significant difference in ranking of employment history for Categories A, B, and C lenders when seeking multifamily rental property financing.

Table 1 highlights some articles reviewed when compiling data for this literature review. The table is organized by author, publication year, journal, purpose of study,

research method, and key findings. While 144 articles were reviewed for this study, five key resources are shown in Table 1.

Table 1

Highlighting Some Materials Adapted in this Study

Author/year	Journal	Purpose	Methods	Key findings
Galster, Tatian, Wilson, (1999)	Housing Policy Debate	To determine the financial condition of multifamily housing stock.	Quantitative research method utilizing Pearsonian correlation and Spearman rank-order statistical analysis. Data derived from the Residential Finance Survey (RFS); administered by the U.S Bureau of Census.	Rent-to-Value ratio and Net Operating Income to Value ratio are highly correlated and Loan-to-Value ratio and Debt Coverage ratio are two of the most used indicators.
Ferreira et al. (2014)	Management Decision	To propose a methodological framework to evaluate mortgage lending decision process.	Quantitative research method utilizing the MACBETH approach.	The authors provided a framework to guide lenders when assessing lending risks.
Gan, Li, Wang, and Kao (2012)	International Journal of Housing Markets and Analysis	To investigate the determinants of mortgage defaults.	Quantitative research study employing the credit scoring model.	The findings indicated that mortgage rate and duration, and borrower rating are related to default rate.
Jones and Richardson (2014)	International Journal of Housing Markets and Analysis	To examine how the shock of the recent financial crisis impact USA and UK housing markets	Qualitative research approach.	The authors concluded that subprime lending in the USA resulted in the global financial crisis. Further, the relaxation of lending criteria and subprime lending led to housing market downturn.
Laszlo and Krippner (1998)	J.S. Jordan (Ed.)	Discussion of System Theory	Qualitative research paper presenting key characteristics of system theory.	Provide insights on systems theory and the evolution of systems theory.

In this literature review section, 95% of the articles were peer-reviewed and 87% published in 2013 or later. I reviewed articles from the Walden University Library that related to the 2007-2009 recession, mortgage lending criteria, mortgage characteristics, multifamily rental properties, and types of mortgage lenders. Articles reviewed related to systems theory, research methodologies, and statistical analysis. This literature review began with a discussion of the 2007-2009 recession, followed by mortgage characteristics, and the different categories of lenders. The conclusion included a discussion on systems theory as related to mortgage financing and a detailed discussion on different mortgage underwriting criteria applicable to multifamily rental properties.

2007-2009 Recession

The 2007-2009 financial crisis contributed to more than one trillion dollars in losses in the United States and resulted in one of the largest global recessions since World War II (Jordà, Schularick, & Taylor, 2016). The recession adversely impacted households, businesses, and governments' revenue and spending (Ewalt & Jennings, 2014). The 2007-2009 recession fostered economic fear, panic, and uncertainty within the global economy and impacted both local and global financial markets (Dufwenberg, 2015). Tatom (2013) mentioned that the 2007-2009 financial crisis occurred because of poor government regulations and increased homeownership with unrealistic expectations. To encourage homeownership, the U.S. government introduced several homeownership programs including subprime borrowing to encourage lenders to extend mortgages to families with substandard credit (Murty, Kiran, & Gupta, 2013). Steinbuks and Elliehausen (2014) stated that financial deregulation and lower lending standards of

financial institutions in the United States and other developed nations encouraged lending to mortgagees with poor credit histories.

The U.S. government encouraged home ownership by introducing tax treatment options for homeowners to deduct mortgage interest as a tax liability (Fetter, 2013). The objective of these programs was to assist borrowers with poor credit history, unstable household income, and little down payment to enter homeownership and build equity (Schwarcz, 2013). As the demand for homes increased, prices also increased, fostering an increase in homeowner equity (Murty et al., 2013). Murty et al. (2013) said that as equity increased, homeowners took out equity through refinancing, second mortgages, or home equity lines of credit, resulting in an increase in household debts relative to household income. To account for inflation, the increased demand for real estate triggered an increase in interest rates (Chen, Gan, Hu, & Cohen, 2013). Increased interest rates eventually led to increased household expenses, forcing borrowers with limited or lower household income to default on their mortgages (Tatom, 2013). As mortgage default increases, it triggered an increase in foreclosure rate, which eventually increased the supply of homes available for sale (Murty et al., 2013). The increased supply of homes available for sale outpaced the demand for homes and eventually forced prices to decline (Murty et al., 2013). As prices declined, many homeowners evaluated their financial position. Some homeowners with negative equity strategically or voluntarily defaulted on their mortgage obligation (Seiler & Walden, 2015). A rapid decline in house price, increase in house supply, and increase in foreclose rate triggered a national panic and economic contraction (Seiler & Walden, 2015).

Bloom (2014) stated that because of economic fear, panic, and uncertainty caused by the 2007-2009 recession, mortgage lenders are fearful of similar future financial collapse. Given the U.S. subprime crisis, the global financial market has changed significantly and is still changing (Bryant, 2012). To prevent a future financial crisis similar to the 2007-2009 recession, government representatives and lenders tightened and reinforced mortgage underwriting criteria for all types of mortgages (Ferreira et al., 2014). Consequently, mortgage lenders implemented new lending regulations and criteria for LTV ratio, income requirement, TDS ratio, GDS ratio, and credit score (Fabozzi, McBride, & Clancy, 2015). New mortgage underwriting regulations limiting the number of financed properties a borrower could have before extending more credit could negatively impact real estate investors and landlords (Dumitriu, 2015). Additionally, some lenders only recognize 50% of rental income in the calculation of GDS and TDS (Canada Mortgage and Housing Corporation, 2015). DSCR, industry experience, and property appraisals are other underwriting criteria mortgage underwriters scrutinize (Mason & Jayadev, 2014).

Increased scrutiny of mortgage applications is causing limitations with mortgage financing, especially among landlords and real estate investors (Roulac, 2014). The changes to mortgage lending regulations and criteria have significantly affected financing of multifamily rental properties in Ontario, Canada (DiPasquale & Cummings, 1992). Sullivan and Bernstein (2013) stated a lack of knowledge exists on how multifamily rental properties achieve financing and the type of mortgages available for investors of multifamily rental properties.

Mortgage Financing

Mortgage financing dates back to the 1100s, and the word mortgage, derived from Latin, means a dead pledge. A mortgage is a loan, secured by real property and structured in a manner where the borrower is required to pay interest based on the principal amount (Lydon & McCarthy, 2013). Ferreira et al. (2014) mentioned that mortgages are the most common and probably easiest form of financing to enable homeownership. Quercia, Ding, and Reid (2012) stated that homeownership is the foundation for long-term asset building; therefore, the availability of mortgages is critical. Mortgage lending is critical for satisfying basic housing needs while fostering both local and global economic growth (Ferreira et al., 2014). There are different mortgages based on the type of property, residential, commercial, and industrial (Ghosh, 2016). Industrial mortgages are mainly for manufacturing and distributing properties (Cortes, Marcondes, & Diaz, 2014). Commercial mortgages are usually for hotels, office buildings, and retail stores (An, Deng, Nichols, & Sanders, 2013). Residential mortgages are comprised mainly of owner-occupied and residential rental properties (Harrison & Seiler, 2015).

Residential mortgages for owner-occupied properties are primarily for single detached homes, semi-detached homes, townhomes, and condominium units. The mortgage application and process for owner-occupied properties are more straightforward than those for multifamily rental properties. During a period of financial constraint, a mortgagee for owner-occupied properties is less likely to default on their mortgage obligations (Teo, 2004). Ghosh (2016) found that banks associated with residential mortgages for owner-occupied homes are less likely to fail than banks that deal with

multifamily rental property mortgages. Concerns underwriters and lenders have for owner-occupied property include borrowers' income, GDS, TDS, and LTV ratio (Teo, 2004). Their objective is to ensure that borrowers have enough disposable income to cover the projected expenses of operating and maintaining their home and other debt obligations (Teo, 2004).

Rental property mortgages are mainly for apartment buildings and other multifamily rental properties (Galster, Tatian, & Wilson, 1999). Zietz (2003) stated that a multifamily rental property is any building with two or more units under one roof. These types of mortgage applications are more complex than owner-occupied mortgages and require extensive analysis of the borrower, the property, and regulatory compliance. DiPasquale and Cummings (1992) mentioned that mortgages for multifamily rental properties are less standardized than mortgages for owner-occupied properties. There is no specific mechanism or structure when accessing mortgage applications for multifamily rental properties (DiPasquale & Cummings, 1992). DiPasquale and Cummings (1992) stated that because of past financial crises, multifamily rental properties are experiencing a limitation of funding. Teo (2004) found that during periods of financial constraint, the mortgagee for investment properties is more likely to default on their mortgage obligation because their venture is profit driven.

Underwriters analyze borrowers' experience or education with managing rental property, employment income and consistency, GDS ratio, TDS ratio, LTV ratio, and credit score (Galster et al., 1999). Additionally, underwriters analyze the subject property appraised value, DSCR, and any potential environmental or regulatory compliance

requirement (An et al., 2013). An underwriter objective is to ensure that borrowers have the ability to manage their rental property (Archer & Smith, 2013). An underwriter assesses the subject property environment and earning potential to determine operation sustainability (Archer & Smith, 2013). Further, an underwriter ensures that the subject property complies with regulations and has no outstanding deficiencies.

Categories of Lenders

While there are several different types of mortgage products, there are also different types of mortgage lenders. Regardless of the type of mortgage products or type of lenders, the mechanics and principles are the same. A lender lends money to a borrower and expects repayment of principal plus interest, amortized over an agreed period (Nesiba, Sorenson, & Sturm, 2012). If the borrower fails to pay the agreed installment, the creditor or lender could foreclose and sell the property to cover the outstanding mortgage balance and any accrued interest (Nesiba et al., 2012).

The different types of lenders are banks, credit unions, insurance companies, monoline lenders, and private lenders (Nembhard, 2013). These lenders fall into three categories. Category A includes banks, credit unions, and other depository institutions (Downs & Shi, 2015). Zietz (2003) found that thrift institutions positioned as the primary funding source for multifamily rental properties have declined. Commercial banks, government sponsored agencies, and private lenders have now become the primary funding source for multifamily rental properties (Zietz, 2003). Conversely, Eisenbeis and Kaufman (2016) stated that prior to the 2007-2009 recession, commercial banks were the premiere source for business financing; however, post-recession, commercial banks

position as the premier funding source declined. Category B includes insurance companies, monoline lenders (lenders that only deal with mortgage agents and brokers and only deal with mortgages products), and other non-depository institutions (Eisenbeis & Herring, 2015). Mason and Jayadev (2014) found that loans originated from insurance companies have less probability of delinquency. Category C includes private lenders (Downs & Shi 2015).

In general, Category A lenders offer lower interest rates on mortgages with excellent prepayment privileges. However, Category A lenders conduct detailed analysis and follow stricter lending criteria than Category B and C lenders. Agyapong, Agyapong, and Darfor (2011) found that banks seek to maximize profits and their lending activities account for 80% of their overall profit. Therefore, to reduce loan default risk, they adhere to strict lending practice and assessment of prospective borrower creditworthiness (Zeidan, Boechat, & Fleury, 2015). Category B lenders follow less strict criteria than Category A lenders; however, they usually have higher interest rates and strict prepayment privileges. Category C lenders are private lenders and have few criteria (Downs & Shi, 2015). Category C lenders will usually accept applicants with low credit scores and minimal documentation. Further, Category C lenders assess applications on a case-by-case basis and approve or reject applications based on their capacity and expected value of the subject property. Category C lenders usually have higher interest rates, higher prepayment penalties, and more upfront processing fees than Categories A and B lenders.

Mortgage lenders employ mortgage underwriters to perform and conduct detailed analyses of mortgage applications. Mortgage underwriters process mortgage applications and assess the information on a mortgage application to determine borrowers' ability to service or repay the mortgage debt (Sanderford et al., 2015). Further, mortgage underwriters assess the five Cs of credit to determine potential credit default risk, prepayment, and repayment risk (Bryant, 2012).

Mortgage lenders and underwriters are usually concerned with interest rate risk, default or credit risk, and prepayment risk (Archer & Smith, 2013). Interest rate risk relates to uncertain future interest rates and the effect on asset market value (Martin, 2013). Interest rate risk could affect both bonds and stocks but usually affect bonds more than stocks (Martin, 2013). Usually, when interest rates increase bond prices decrease and vice versa. Some lenders sell their mortgage portfolio on the secondary mortgage market, so bond interest rates are important. Default risk is the probability that borrowers will not be able to repay or service the mortgage obligation (Ofonyelu & Alimi, 2013). To account for default or credit risk, lenders will charge interest rates based on the level of perceived risks. Sanderford et al. (2015) mentioned that credit risk is important to the lender and helps assess house price, interest rate, and LTV ratio. Prepayment risk occurs when borrowers make early repayment of mortgage principal (Theiakos, Tas, Van, & Kandhai, 2015). Lenders are concerned when borrowers repay full or part of their mortgage principal early or unscheduled because of losing future interest payments (DiPasquale & Cummings, 1992). Usually, lenders implement prepayment penalties to reduce or mitigate prepayment risks (DiPasquale & Cummings, 1992). However, Quercia

et al. (2012) mentioned that high prepayment penalties could trigger mortgage defaults and foreclosures. To ensure transparency and highlight mortgage details, lenders prepare a mortgage disclosure statement, which contains important information pertaining to the mortgage agreement (Shiller, 2014).

A mortgage disclosure statement highlights key details of the mortgage, interest rates, amortization, mortgage terms, prepayment penalty, and authorized prepayment amount (Stephen, Kasozi, Nalukenge, & Tauringana, 2014). Additionally, some lenders may require semiannual and annual reporting. Mortgages could be structured in a manner where borrowers pay an incremental amount every week, biweekly, or monthly. Based on the type of mortgage, the incremental payment could comprise of principal and interest or interest only (Archer & Smith 2013). The amount of the incremental payment depends on the interest rate, principal, amortization, and type of mortgage (fixed or variable term) (Desai, Elliehausen, & Steinbuks, 2013). A fixed rate mortgage means that the interest rate remains constant for an agreed period, usually 6 months, 1 year, 2 years, 3 years, 4 years, 5 years, 7 years, or 10 years (Shiller, 2014). A variable rate mortgage means the rate of the mortgage depends on prime rate and could fluctuate during the term of the mortgage (Shiller, 2014).

To assist in mitigating potential credit risks, lenders may adopt and implement different guidelines, analyses, and investigations of mortgage applicants' profile, documentation, and application details (Ofonyelu & Alimi, 2013). Ofonyelu and Alimi (2013) stated that mortgage underwriters perform detailed analyses of borrowers' financial position and scrutinize supporting documentation to ensure accuracy and the

ability to service both current and future debt obligations. Further, Quercia et al. (2012) stated that no documentation mortgages have a higher probability of default risk. Regardless of the type of property that requires financing, mortgage underwriters approve or reject mortgage applications based on preset lending criteria (Mahadkar, 2013). In Ontario, mortgage underwriters who deal with multifamily rental properties conduct calculations and analyses of borrowers TDS, GDS, LTV, and DSCR ratios. Additionally, mortgage lenders and underwriters review and confirm borrowers' employment history, experiences owning and managing residential rental properties, credit scores, and the subject property appraised value (DiPasquale & Cummings, 1992). Based on borrower credit history and income, some lenders may require additional collateral as security.

Mortgage Underwriting Criteria

Mortgage underwriting criteria are parameters or guidelines that lenders set and use to assist when deciding whether to approve or reject a mortgage application (Ferreira et al., 2014). Mortgage underwriting criteria enable lenders to assess various risks associated with the borrower or the subject property (Ferreira et al., 2014). To reduce default risk mortgage underwriters, there is a need to effectively assess and scrutinize borrowers' character and application details (Ofonyelu & Alimi, 2013). Therefore, mortgage underwriters are usually concerned with the five Cs of credit: collateral, condition, capacity, capital, and character (Wilson, 2016).

The Five Cs of Credit

The five Cs of credit, collateral, character, capacity, condition, and capital are aspects of a borrower profile that mortgage underwriters scrutinize to determine credit

risk exposure (Wilson, 2016). Components of the five Cs are critical to the lending process and a decision is therefore equally important (Carl-Christian & Hemlin, 2012). Challenges with any of the five Cs could increase application processing time and even lead to rejection. Therefore, the five Cs operate as a micro system, where the components need to operate efficiently to be effective and contribute to economic growth.

The assessment of a borrower character encompasses the borrower credit history (Carl-Christian & Hemlin, 2012). In Ontario, the credit assessment displays on a report, analyzes several criteria and assign a numerical score, referred to as a credit score. A credit assessment highlights a borrower payment history, credit utilization, and credit inquiries (Chan, Sharygin, Been, & Haughwout, 2014). Character also relates to borrowers' stability and overall trustworthiness, the length of employment, industry experience, and years lived at current address is a key indicator of a borrower character (Bryant, 2012). Agyapong et al. (2011) found that some lenders base their assessment on the relationship with the borrower and therefore adapt relationship lending practices.

Collateral assessment involves the revision and confirmation of borrowers' assets and liability to determine net equity and possibility of takeover in the event that the borrower defaults on their debt obligation (Agyapong et al., 2011). A collateral assessment also includes the subject property appraised value relative to the intended loan amount (Bryant, 2012). Further, a collateral assessment could also include co-signers net assets and securities (Bryant, 2012).

Capital is the amount of financial commitment a borrower is willing to invest in a subject property (Bryant, 2012). Loan-to-value ratio represents the capital invested,

which could indicate borrowers' ability to service monthly debt obligation (Sanderford et al., 2015). The higher the down payment, the more security lenders have in the event that borrowers' fail to maintain debt obligations (Sanderford et al., 2015).

When reviewing the capacity component, an underwriter will evaluate borrowers' existing debts to determine their ability to take on more debts and maintain current debt obligation (Bryant, 2012). The TDS, GDS, and DSCR are ratios that assist in determining borrowers' existing debts and ability to service future mortgage obligation (Agyapong et al., 2011). House hold income is an element of TDS and GDS calculations and operating income is an element of DSCR calculation.

The condition component of the five Cs involves the assessment of the purpose of the mortgage. Mortgage underwriters will assess the micro and macro-economic environment to determine if there are factors that could affect the borrower financial position (Carl-Christian & Hemlin, 2012). Mortgage underwriters will also assess borrowers' employment or business condition to determine income stability and sustainability (Bryant, 2012).

Ofonyelu and Alimi (2013) found that failing to assess the five Cs could expose the lender to potential default or credit risks. Carl-Christian and Hemlin (2012) mentioned that while the five Cs should assist mortgage underwriters in making objective lending decision, because of decision-making bias mortgage underwriters sometimes overlook key details.

Underwriting Criteria Assessed

The eight underwriting criteria assessed in this study are TDS, GDS, LTV, DSCR, appraisal, borrower credit score, in industry experience, and length of employment (Wilson, 2016). While some lenders or underwriters may not place the same weight on each of the criteria, a general understanding of the impact of the criteria in the lending process could be beneficial. Mortgage application for multifamily rental property undergoes different scrutiny than owner-occupied residential property and other types of mortgage products (DiPasquale & Cummings, 1992). Underwriters and lenders for owner-occupied residential properties review credit score, LTV, GDS, TDS, and income (Mahadkar, 2013). In contrast, for multifamily rental properties, there are more criteria in addition to the criteria for owner-occupied properties such as DSCR, detailed property appraisal, and borrowers' industry experience (Galster et al., 1999).

Gross debt service (GDS) ratio is a calculation that mortgage underwriters perform to determine the percentage of a borrower gross household income that relates to their household expenses (Hossain & Hossain, 2015). Household income and interest are significant components in the calculation of GDS. Quercia et al. (2012) stated that both household income and interest rates could influence default rates. The higher the GDS ratio, the less likely potential borrower will be able to service new debt obligation (Heylen & Haffner, 2013). Therefore, a high GDS is an indication that a potential borrower may have too much household debt relative to gross household income and could potentially be in a situation where servicing both the new debts and existing debts becomes overwhelming. In Ontario, a GDS ratio less than 32% is acceptable (Canada

Mortgage and Housing Corporation, 2015). Household debts include mortgage payments, property taxes, heating expenses, and condominium fees. The formula to calculate GDS ratio is as follows,

$$GDS = \frac{(MP + PT + HC) + CF\ (50\%)}{AHI}$$

Where:

MP = mortgage payments

PT = property taxes

HC = heating costs

CF = condo fees

AHI = annual household income

Total debt service (TDS) ratio is a calculation that mortgage underwriters perform to determine the percentage of a borrower gross household income that relates to their housing-related expenses and other debt obligations (Akoto & Awunyo-Vitor, 2014). Household income and interest rate are important factors in the calculation of TDS and could influence foreclosure and default rates (Quercia, Ding, & Reid, 2012). A high TDS ratio indicates that a potential borrower may have too much household debt relative to gross household income. In Ontario, a TDS ratio less than 40% is acceptable (Canada Mortgage and Housing Corporation, 2015). Therefore, monthly household debts plus other debt obligations should be less than 40% of gross household income. Monthly debts include housing costs plus all other debt obligations (car loans or leases monthly obligation, credit card required payments, line of credit required payments, and other debts with required monthly payments). The formula for TDS ratio is as follows,

$$TDS = \frac{HE + CP + LE + CCI}{AHI}$$

Where:

HE = housing expenses

CP = car payments

LE = loan expenses

CCI = credit card interest

AHI = annual household income

Loan-to-value (LTV) ratio is the percentage of down payment a borrower will commit relative to the appraised value of the subject property (Scanlon & Elsinga, 2014). A higher LTV ratio indicates a riskier transaction because the borrower has little invested which will result in more interest payments (Scanlon & Elsinga, 2014). Ferreira et al. (2014) mentioned that LTV ratio is a commonly used criterion to determine mortgage lending risks. During an economic crisis where house price falls, borrowers with higher LTV ratio could be in a negative equity position (Quercia et al., 2012). Consequently, the probability of default is higher for borrowers to foreclose either voluntarily or strategically. Lin (2014) found that LTV ratio could serve as an indicator to determine the probability of a borrower default potential. Lower LTV ratio indicates a lower credit risk for the lender (Sanderford et al., 2015). Conversely, Glascock and Lu-Andrews (2014) argued that there is no relation between mortgage default and LTV. However, in cases where secondary financing is present, there is a positive relationship between mortgage default and mortgage duration (Gan, Li, Wang, & Kao, 2012). Quercia et al. (2012) argued that high LTV alone does not trigger default, other factors such as unemployment,

high-interest rates, prepayment penalties, and balloon payments could facilitate foreclosures. The formula to calculate LTV ratio is as follows,

$$LTV = \frac{MA}{APV}$$

Where:

MA = mortgage amount

APV = appraised property value

Debt-Service-Coverage-Ratio (DSCR) enables underwriter and lenders to determine how much of the annual rental income covers the annual principal and interest payments (Galster et al., 1999). Additionally, DSCR enables landlords and mortgage underwriters to measures the rental property ability to service the current debts obligation by comparing net operating income with total debt obligations (Ofonyelu & Alimi, 2013). Consequently, DSCR enables the comparison of a rental property available cash flow with the current interest, principal, and sinking fund obligations (Galster et al., 1999). Given that DSCR measures rental property ability to maintain debt obligations, lenders value this ratio (Galster et al., 1999). DiPasquale and Cummings (1992) found that lenders and underwriters of multifamily rental property, value DSCR as more important in ranking than LTV ratio. The formula to calculate DSCR is as follows,

$$DSCR = \frac{NOI}{TDS}$$

Where:

NOI = net operating income

TDS = total debt service

A credit score can range from 300 to 900 and represent the probability of borrowers' ability to service current or future debts (Ferreira et al., 2014). Sharpe and Sherlund (2016) stated that the purpose of credit scoring is to classify borrowers in either a good credit or bad credit group. To mitigate financial risks and uphold high underwriting standards, underwriters have improved the credit scoring systems (Ferreira et al., 2014). Pennington-Cross (2012) mentioned that higher credit score could result in higher quality loans. A higher credit score indicates that the borrower is less likely to default on payments (Ferreira et al., 2014). Therefore, borrowers with lower credit score have a higher probability of mortgage application rejection, higher interest rates, or may require a co-signor (Sharpe & Sherlund, 2016). Conversely, Quercia et al. (2012) stated that the calculation of credit scores is less transparent and needs updating. Wahyudin, Djatna, and Kusuma (2016) mentioned that there is a leakage between the credit scoring system and the borrower financial quality. A credit score derives based on several input variables of a borrower characteristic, reported on the borrower credit report (Sharpe & Sherlund, 2016). A credit report records a borrower payment history, outstanding balance or utilization, length of credit history, types of credit used, and frequency of new credit application (My Money Coach, 2015).

Five factors that affect credit score are payment history, balance outstanding, new credit inquiries and applications, types of credit, and length of credit history (Volpone, Tonidandel, Avery, & Castel, 2015). Payments history accounts for 35% of the credit score, balance outstanding or credit utilization accounts for 30%, length of credit history

accounts for 15%, and both credit inquiries and types of credit accounts for 10% respectively (My Money Coach, 2015) (see Figure 1).

Figure 1. Five key factors in calculating and determining your credit score. Copyright 2015 by My Money Coach. (2015). *What is a credit score & how is a credit score calculated in Canada*. Retrieved from http://www.mymoneycoach.ca/credit/check-credit-rating-report-score/what-is-a-credit-score

Payment history is a reflection of payments made to creditors and accounts for 35% of the credit score (Sah, 2015).). Payment history highlights payments made within 30 days, 60 days, and 90 days or sent to collections. Additionally, payment history shows bankruptcy information if the debtor claimed bankruptcy in the past. Further, credit reports also present creditors and credit utilization information separately for each creditor. Creditors of credit cards, lines of credit, car loans, personal loans, telecommunication, mortgages, and other debts regularly send payment details to the credit-reporting agency. At that point, the credit-reporting agency tabulates and report the debtor credit score for the period (My Money Coach, 2015).

Credit utilization is another aspect of a borrower credit history that accounts for 30% of the credit scores (My Money Coach, 2015). Credit utilization is how much of the

available credit a borrower used (Citron & Pasquale, 2014). The amount outstanding relative to the available credit limit could represent the borrower financial situation. Utilization of 75% or more of the available credit limit could rank the borrower in a higher risk category and negatively influence the credit score (My Money Coach, 2015).

The length of credit history is the third largest component that influences the credit score and accounts for 15% of the credit score (My Money Coach, 2015). The length of credit history shows the history of each payment categorized by individual creditors (Steinbuks, & Elliehausen, 2014). The length of credit history enables an underwriter to review a borrower credit history over a longer period and determine the probability of default (My Money Coach, 2015).

A credit report highlights the number of times borrowers apply for new credit or the number of credit inquiries performed on the borrower (Carl-Christian & Hemlin, 2012). Additionally, a credit report highlights the number of new accounts recently opened. New applications and inquiries account for 10% of a borrower credit score, therefore, more inquiries and new accounts could lead to a lower credit score (My Money Coach, 2015). Additionally, a higher number of new accounts and credit inquiries indicate to lenders that the borrower could be riskier.

The final component of the credit report highlights the type of credit used by the borrower. This component accounts for 10% of the borrower credit score and could indicate how a borrower manages their finances (My Money Coach, 2015). Payment plans, consumer proposal, and debt consolidation are some types of credit that could

indicate that the borrower is having difficulties servicing current debt obligations (Carl-Christian & Hemlin, 2012).

The property appraised value is a critical aspect of the underwriting process. Arsenault, Clayton, and Peng (2013) stated that the value of the property assists in determining collateral or equity which is taken into consideration when assessing credit risk. Additionally, lenders and underwriters rely on property appraisals as a confirmation of value and security (Guo, Xu, & Bi, 2014). Appraisers conduct evaluation of the real property to determine fair market value and collateral (Austin, 2013). Three appraisal approaches are sales comparison, income capitalization, replacement cost approach (Guo et al., 2014). DiPasquale and Cummings (1992) found that lenders may require that the subject property is appraised based on either one of the three valuation models, market comparison, cost replacement, and capitalization. The property appraised value will assist in determining the equity position of the property, especially in recessionary periods (Quercia et al., 2012). Zietz (2003) mentioned that the value of a rental property is dependent on the property proximity to major cities, economic activity in the neighborhood, age, and rental income. A lender uses the value of the property as collateral in the event that the borrower default or are unable to service their debt obligation (Austin, 2013). If a borrower cannot service their debt obligation, the lender will foreclose and sell the subject property to recoup mortgage principal and accrued interest (Liu & Quan, 2013). Consequently, it is paramount that the appraised value is accurate and free from bias to ensure that there is minimal risk exposure for lenders.

A borrower industry experience and education are important factors during the underwriting process for multifamily rental property. Gan et al. (2012) found that borrowers with a formal education are less likely to default on their debt obligation. Lenders and underwriters view multifamily rental property as risky because rental property management could become cumbersome (DiPasquale & Cummings, 1992). A lender or underwriter may feel more secure that the borrower experienced dealing with tenants and is aware of the real estate industry laws and regulations. Borrowers with little or no experience managing rental property have a higher probability of making decisions that might not be cost effective, resulting in lower return on investment (Kabir, 2015). Therefore, the more property management or rental property ownership experience a borrower has, the better the chance of getting approved for a new mortgage.

A borrower employment history and consistency shows stability and is a positive indication of the borrower creditworthiness (Hoelle, Pireddu, & Villanacci, 2016). Quercia et al. (2012) found that income has a direct relation to foreclosure and mortgage default as it impacts the borrower ability to service mortgage obligation. Employment income is a confirmation that the borrower has a stable income to support the rental property in the event that collecting rent from tenants becomes challenging. Additionally, employment income could be beneficial if there is a requirement for significant capital expenditure. Lenders and underwriters perceived borrower with longer employment history as presenting less probability of default or late payments. Therefore, higher household income indicates that a borrower is less likely to default (Gan et al., 2012). Pennington-Cross (2012) stated that higher quality loans are possible for borrowers with

high credit score and verified income. Gan et al. (2012) found that occupation has a direct relation to income level; stable employment and professional occupation are less likely to default on debt obligations.

Lending criteria are indicators that underwriters analyze when making lending decisions (Quercia et al., 2012). Underwriters' objective when conducting analysis of lending criteria is to reduce the probability of lending to borrowers who could not service the mortgage debt obligation (Sanderford et al., 2015). Pennington-Cross (2012) mentioned that while mortgage regulations alone cannot prevent a financial crisis, it could reduce the effect of a crisis. Quercia et al. (2012) stated that while stricter mortgage underwriting criteria could assist in reducing default, it could also limit access to credit. Galster, Tatian, and Wilson (1999) found that single dimensional lending criterion are not isolated and further investigation is needed to identify which multifamily rental property lending criteria have higher probability of default. Although, not all criteria have the same weighting and different types of lenders may view the importance differently, each criterion assists to identify potential strengths or weaknesses of a mortgage applicant character and application (Wilson, 2016). Therefore, lending criteria works within a micro system and any challenges within the system could hinder or affect the application and distribution of multifamily rental property mortgages.

Mortgage Financing Relation to Systems Theory

Biologist Ludwig von Bertalanffy introduced systems theory in the 1940s (von Bertalanffy, 1968). Laszlo and Kripper (1998) mentioned a system consists of natural phenomena and a process to accomplish a common goal. Systems are in sciences,

economics, nature, and information systems (Cudworth & Hobden, 2013). Mangal (2013) stated that a system is a group of components strategically organized and interact, functioning as a single unit. Chan (2014) stated that a system comprised of several interacting elements working together in a dynamic environment. Systems theory focuses on the arrangement and relationship between the components that connect them as a whole (Sayin, 2016). Systems theory originally focused on physics, biology, and engineering but further evolved into other fields, such as sociology, economics, management, philosophy, and organizational theory (Bunn, 2014). Tuan and Shaw (2016) mentioned that social systems have similar characteristics as supra-individual entities. Mangal (2013) stated that an effective and efficient system should incorporate self-organization, resilience, and hierarchy.

Therefore, components within the mortgage lending process operate as a system. Further, mortgage financing could also be one component within a macro system. To be effective and efficient, lending criteria self-organization and robustness are critical. Mortgage underwriters decide to approve or reject a mortgage application based on the lending guidelines and criteria assessment (Neidermeyer, Boyd, & Neidermeyer, 2014). Mortgage underwriters and the mortgage process interaction represent a hierarchical function. Any challenges within the underwriting process or criteria that do not meet the required benchmark could result in more processing time or application rejection by the mortgage underwriter. Further, misunderstanding or misinterpretation of mortgage lending criteria could hinder transparency and increase mortgage application processing time. Therefore, testing the resilience of a mortgage lending system by incorporating

feedback and achieve a common goal. Awareness of the ranking of mortgage underwriting criteria among different categories of lenders could assist borrowers when seeking mortgages for multifamily rental properties. Consequently, mortgage agents and brokers could become more efficient, as they will spend less time processing mortgage applications and achieving higher approval rate.

Ferreira et al. (2014) found that the relationship between the economy and mortgage lending is mutual. Ofonyelu and Alimi (2013) stated that a successfully banking system relates to the performance of businesses and the economy. Further, Jones and Richardson (2014) stated a direct relationship exists between real estate prices and the macro economy. Therefore, mortgage financing is a micro system that is also a critical function within a macro environment.

Figure 2 displays how financing, business spending, employment, government revenue, and government spending contributes to macro-economic growth. Any challenges with one or more of the components of this macro system could directly or indirectly impact components within the system. Consequently, impacting macro-economic growth.

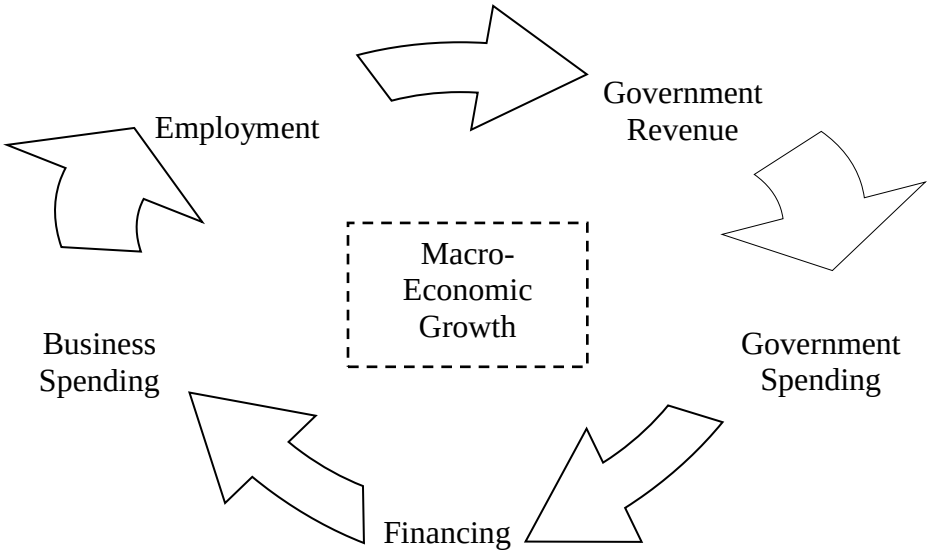

Figure 2. Factors that impact macro-economic growth

Figure 3 displays how mortgage underwriting criteria could assist in determining whether to approve or reject a mortgage application. Mortgage lending criteria operate within a micro system that forms part of the financing component in a macro system. Further, a barrier within the macro system could impact the micro system and barrier within the micro system could impact the macro system.

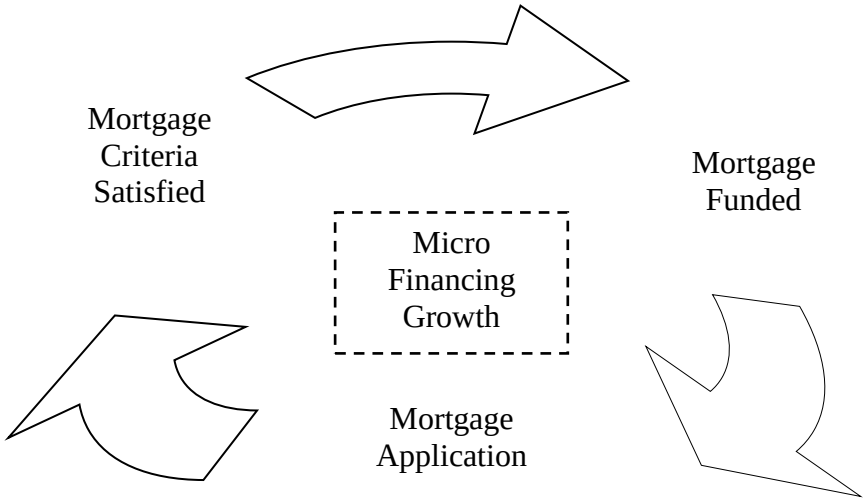

Figure 3. Lending criteria and micro financing growth

Mortgage financing as a whole is one component within a macro system. Any challenges that hinder mortgage financing could eventually affect the macroeconomic system. Mortgage financing is critical in assisting potential homeowners to acquire real property without having the full amount of the purchase price to fund the transaction (Ferreira et al., 2014). Ferreira et al. (2014) stated that mortgage financing fosters homeownership and encourage builders to build more homes, which eventually lead to job creation and increased employment. Therefore, mortgage financing could promote local and global economic growth (Ferreira et al., 2014). The aspect of mortgage financing acts as a system and could impact both local and global economies and an economy gross domestic product (GDP) (Ferreira et al., 2014). Limited mortgage financing could lead to higher interest rates, increased mortgage fraud, reduced building and construction, and increased unemployment. Consequently, limited financing could trigger local and global economic contraction (Darvas, 2014). During or after a recessionary period mortgage financing become limited because lenders are more hesitant to lend during periods of uncertainty (Ofonyelu & Alimi, 2013). Lenders usually increase scrutiny of mortgage applications and adapt more mortgage underwriting criteria during recessionary periods (Ferreira et al., 2014).

The 2007-2009 recession negatively impacted households, businesses, and governments causing a global economic crisis. After careful analysis and investigation of the recession, financial experts identified that several practices in the housing industry contributed to the recession. Lower underwriting standards and tax incentives triggered an increased demand for homeownership. The increased demand for houses outweighs

the supply of houses and caused an upward pressure on prices. As house prices increased and with low or sub-standard lending practices, homeowners took out equity in the form of second mortgages or line of credits. The effect of current market value and interest rate encouraged equity takeout. To combat inflation, financial regulators implemented small incremental interest rates increases. The interest rate increases caused an increase in household debts, which eventually triggered some mortgage defaults and foreclosures.

As foreclosures increased, the supply of houses increases. This economic phenomenon caused an oversupply of houses, which eventually put downward pressure on house prices and value. As house value decreased, market panic in the housing market triggered a mass contraction. Some homeowners overleveraged the value in their homes and could not afford to maintain their debt obligation resulting in voluntary or involuntary foreclosure. The rapid increase in foreclosures propelled the economic contraction which then caused a ripple effect and triggered a global recession.

Financial experts argued that the sub-standard underwriting standards caused lenders to overlook or ignore lending criteria. Lending criteria assist underwriters to identify borrowers' payment history and current financial situation to predict future payment patterns. In general, mortgage underwriters assess the five Cs of credit, which are collateral, character, capacity, condition, and capital. The five Cs of credit become part of the lending criteria. Mortgage underwriters conduct several analysis and statistical testing on the potential borrower collateral, character, capacity, condition, and capital to determine default probability.

A negative impact in the housing market caused a ripple effect and impacted the global economy. The housing market contraction triggered a loss in equity and cashflow. Resulting in a reduction in economic activities; spending and profits. Concurrently, the financial market collapsed because mortgage-backed securities lost significant value. The interrelationship of mortgage lending and the different components of the global economic environment could relate as a macro system. Therefore, mortgage lending as a single component within a macro system could form part of a micro system. If one the lending criteria or components of the five Cs of lending fails, then it creates a limitation on mortgage lending and loan approvals. Therefore, if one component within the macro system fails, then the entire system could fail. If one component within the micro system fails, then a single component within the macro system could fail and could trigger the macro system also to fail (Teye et al., 2015). This theory holds true based on the recent 2007-2009 recession.

Transition

As a result of the 2007-2009 recession, mortgage lenders and financial regulators have implemented transactional changes to mortgage lending and the financial industry as a whole. In addition to owner-occupied dwellings, real estate investors are facing mortgage financing challenges and barriers. This study included examination of the impact of lender type on the average rankings of mortgage underwriting outcome measures. Changes to mortgage regulations affected real estate investors seeking mortgage for their rental property. Limited financing could hinder the quality and number of residential rental units available for rent. Therefore, the availability of multifamily

rental property mortgages could increase the number of affordable housing, standard of living, and overall community morale.

In the following sections, I discussed the role of the researcher, participants, population and sampling, scope, research methodology, ethical implication, data collection instruments and technique, data collection organization, data analysis, reliability, and validity of this study. This section also includes a presentation of the findings, align findings to professional practice, identify potential social change aspect, reflection, and provide recommendation for possible future studies.

Section 2: The Project

The objective of this study was to identify the average ranking of mortgage outcome measures: GDS ratio, TDS ratio, DSCR, LTV ratio, property appraisal, and borrowers' profile (credit score, industry experience, and length of employment) for multifamily rental property financing in Ontario, Canada. In this section, I discussed the research method and design, population and sampling, role of the researcher, participants, data collections instruments and techniques, data analysis, validity, and ethical implications of this study.

Purpose Statement

The purpose of this quantitative causal comparative study was to examine impact of lender type on the average rankings of mortgage underwriting outcome measures. The independent variable was lender category, with three levels (Category A, B, and C). The dependent variables were average rankings for GDS ratio, TDS ratio, DSCR, LTV ratio, property appraisal, and borrowers' credit score, industry experience, and length of employment. The target population was mortgage agents and brokers with an AMP designation who facilitate mortgages for multifamily rental properties in Ontario, Canada. In Ontario, mortgage agents and brokers are independent professionals who liaise between lenders and borrowers and have knowledge and understanding of the lending environment and lender requirements. The findings could be advantageous to real estate investors by providing the ranking of mortgage underwriting criteria that could ensure their success in securing financing. Limited financing could adversely affect the supply of affordable housing because of higher interest rates and borrowing costs (Sullivan &

Bernstein, 2013). Therefore, sufficient financing may ensure an adequate supply of affordable housing while improving the standard of living (Ferreira et al., 2014).

Role of the Researcher

The selection of this proposed research topic draws from my experience, contribution, and current dealings in the real estate industry. Mortgage financing peaked my interest because of my passion for real estate and keen interest in economic growth. The success of a research study depends on the author's experience, contribution, and commitment (Simon, 2011).

I am a real estate investor with 15 years of experience as a founder of a private real estate investment company and property management company in Ontario, Canada. Given my extensive experience and participation in the multifamily rental market in Ontario, I established business relationships with real estate investors, real estate sale professionals, mortgage lenders and brokers, and municipal government representatives. I also developed business relationships with other stakeholders in the residential rental industry such as service contractors, utility providers, and building material distributors.

Randomly selecting participants from a public database that met the eligibility criteria reduced researcher bias. The survey instrument was adapted from another researcher where the questions were developed to meet the research purpose. The purpose of this study relates to the five Cs of credit and the questions in the survey pertain to aspects of the five Cs of credit. The data for analysis were anonymous, and the analysis followed a structural statistical process.

The Belmont Report protocol highlights basic ethical principles and guidelines when conducting research that involves human subjects (see Bromley, Mikesell, Jones, & Khodyakov, 2015). Bromley et al. (2015) mentioned that three of the primary ethical principles identified on the Belmont Report are respect for participants, beneficence, and justice. Researchers should ensure participants remain autonomous and participation is voluntary, mitigate any potential harm that can affect participants, and ensure that the potential societal benefit of the findings does not burden the participants (Bromley et al., 2015).

Data collection began after Walden University Institutional Review Board (IRB) approved the proposed study and after prospective participants acknowledged, and agreed to participate in this study. I disclosed the nature of the proposed study with prospective participants and highlighted that participating in this study is voluntary, and participants can withdraw from the study any time before data analysis and publishing of the findings. In order to ensure the protection of participants' responses and identity, surveys did not have any identification information. Ensuring participants' autonomy will assist in preventing any potential harm to participants by either beneficence or justice, as mentioned in the Belmont Report protocol.

I adopted SurveyMonkey tools to develop and deliver surveys electronically to prospective participants. SurveyMonkey is an online survey development and delivery website that is cost effective and timesaving (Woodward & Harris, 2013). SurveyMonkey's privacy policy assures the protection of participants' identity. To maintain privacy and confidentiality, surveys did not contain any personal identifiers.

Each survey invitation highlighted the consent and withdrawal process and options. Survey instructions highlighted how participants could complete and return the survey or withdraw. Submitted surveys were reviewed to determine completeness and qualification for the study. After the analysis of surveys, the statistical package for social sciences (SPSS) tools enabled sorting, coding, analyzing, and presentation of findings (Bhunia, 2013). Bhunia (2013) mentioned that SPSS v.22.0 is a computer application that interprets and analyzes data from surveys and present findings in various formats. I will securely store raw data for 5 years after completion of the study and then destroy it through shredding and electronic erasure.

Participants

The objective of this study was to identify the average ranking of mortgage outcome measures among different categories of lenders for multifamily rental properties in Ontario, Canada. The findings could be beneficial to real estate investors, banking representatives, mortgage brokers, financial regulators, and municipal government representatives. Determining financing barriers is critical to banks, real estate investors, mortgage agents and brokers, and other stakeholders' success. Consequently, the findings could assist mortgage institutions and lending representatives to identify potential areas of improvement that could strategically position their institution at a competitive advantage and maximize profitability. Therefore, mortgage agents and brokers have a vested interest to participate in this study.

The primary data collection source was mortgage agents and brokers who are AMP designated and facilitate mortgage financing for multifamily rental properties in

Ontario, Canada. Mortgage agents and brokers' contact information was obtained from the AMP member page on the Mortgage Professionals Canada (formerly Canadian Association of Accredited Mortgage Professionals) website and from prospective participants' websites. I searched the AMP member directory on the Mortgage Professionals Canada website to identify and obtain contact information of accredited members who operate in Ontario. Numerical labels were assigned to prospective participants and required SPSS v.22.0 to generate a randomized list of prospective participants. The target population included participants who facilitate mortgage applications for multifamily rental properties in Ontario, attained the AMP designation, and also deals with Category A, B, and C lenders.

Simple random sampling is a common and easy way to analyze gathered data (Abdulai & Shafiwu, 2014). McLeod (2014) found that although probabilistic sampling could be time-consuming and require more financial resources if done correctly, probabilistic sampling allows for generalization based on the sample population. After randomly selecting participants, an invitation email was sent to each prospective participant, introducing myself, explaining the purpose of the study and the importance of their participation. In the invitation email, the consent form was attached, which contained the survey link, allowing participants to click and complete the survey. A reminder email was sent to all prospective participants 7 days before the survey period closed. SurveyMonkey was applied to develop and distribute surveys to prospective participants. SurveyMonkey is an online assessment platform that enables surveyors to develop, deliver, and receive responses from participants (Gupta & Tiwari, 2016).

Research Method and Design

Wester, Borders, Boul, and Horton (2013) stated that research quality relies on the literature reviewed, research design, research question, data analysis, and presentation of findings. To ensure research quality, the selection of an appropriate research question, sampling, analysis, research design, and sample size is critical (Wester et al., 2013). While there are different research methods and designs, selecting the appropriate research method and design is critical for ensuring higher research quality.

The objective of this study was to identify the average ranking of borrower profile (credit score, industry experience, and length of employment), GDS, TDS, DSCR, LTV, and property appraisal. There were eight dependent variables and three independent variables in this study. The quantitative causal comparative research method assisted in ranking the eight dependent variables. The primary data collection tool to gather relevant and appropriate data was a survey including close-ended questions. SPSS v.22.0 software assisted to conduct statistical analysis and interpretation of gathered data by organizing, coding, and analyzing raw data (Bhunia, 2013). Further, SPSS software assisted to present findings in tables (Ueng, 2016).

Research Method

The quantitative research method was more relevant for this study as it analyzes and interprets numerical and statistical data (Slife & Melling, 2012). Statistical tools and procedures facilitate the interpretation of raw data for quantitative research (Smith, 2014). A quantitative research method follows a structured layout, testing theories and hypotheses (Ragas & Laskin, 2014). Consequently, a quantitative research method could

eliminate the probability of research bias or skewed findings based on gathered data. A quantitative research method was appropriate when attempting to identify relationships among variables, sample testing, and null and alternative hypothesis testing (Ragas & Laskin, 2014). Therefore, a quantitative research method was appropriate to identify the average ranking of borrowers' profile (credit score, industry experience, and length of employment), GDS, TDS, DSCR, LTV, and property appraisal based on the different types of lenders underwriting criteria. Surveys comprising of close-ended questions served as the primary data collection tools for this quantitative study.

Alternatively, the qualitative research method focuses on exploring a general problem and understanding views or opinions of individuals (Slife & Melling, 2012). A qualitative study analyzes textual data and is more suitable for exploratory studies (Smith, 2014). Qualitative studies seek to understand or explore opinions and motives and gather data from multiple sources (Slife & Melling, 2012). The final write-up of a qualitative research study follows a flexible structure building upon a general theme (Garcia & Gluesing, 2013). Qualitative researchers gather data and form an opinion on the topic based on the researchers' knowledge or experience on the topic (Ragas & Laskin, 2014). Subsequently, there could be research bias or skewed opinions and findings (Slife & Melling, 2012). A qualitative research method enables researchers to collect raw data directly from participants and usually within the participant's natural setting (Garcia & Gluesing, 2013). Further, a qualitative research method enables the researcher to conduct observation during the initial interview (Ragas & Laskin, 2014).

Garcia and Gluesing (2013) stated that a qualitative research method involves gathering data by observation, narratives, interviews, audio and video, and documents.

The mixed methods research approach employs a pragmatic worldview through sequential, transformative, and concurrent strategies of inquiry (Romm, 2015). Mixed methods use both quantitative and qualitative research approaches by adapting a combination of quantitative and qualitative data gathering procedures, analysis, and presentation techniques within the study (Ragas & Laskin, 2014). Aldebert and Rouzies (2014) stated that mixed methods research could enrich the research question or finding, or both. The mixed methods research approach capitalizes on both the qualitative and quantitative research strengths. However, the mixed methods could be time-consuming and require more financial resources; therefore, it is not preferential for this proposed study (Dumbili, 2014). In addition, Romm (2015) found that an inherent issue with mixed methods research is the reporting and integration of findings given the different data collection methods and analysis.

While all the different research methods are effective and seek to identify trends and patterns, a researcher should select the appropriate method based on the nature of the study (Slife & Melling, 2012). Given that the objective of this study was to identify the average ranking of mortgage outcome measures among Categories A, B, and C lenders for multifamily rental property financing, there are several variables and hypotheses to test. This study followed a structured write-up and used statistical procedures to analyze, interpret, and present findings (Miles, Gordon, & Storlie, 2013). Consequently, a

quantitative research method was more favorable than a qualitative or mixed methods research approach.

Research Design

A quantitative causal comparative research design formed the basis for conducting this study. This non-experimental design fit the purpose of the study more than an experimental design as it followed a structured research approach and procedure (Leedy & Ormrod, 2010). A causal comparative research design does not have the same internal and external validity threats as an experimental research design (Vollmer & Seyr, 2013). While the experimental design focuses on identifying causes and effects, the non-experimental design focuses on descriptive details of trends, opinions, or attitudes of a sample population (Leedy & Ormrod, 2010). Therefore, a quantitative causal comparative research design was appropriate when identifying the average ranking of borrowers' profile (credit score, industry experience, and length of employment), GDS, TDS, DSCR, LTV, and property appraisal when seeking multifamily rental property financing in Ontario, Canada.

Raw data for this study derived from mortgage brokers and agents that operate in Ontario, Canada. A survey with close-ended questions assisted me to gather data from mortgage agents and brokers. Wester et al. (2013) stated that the causal comparative research design is suitable when gathering data in a natural setting rather than a laboratory or other experimental setting. Therefore, the causal comparative research approach fit the purpose of the study.

Population and Sampling

The primary data collection source were mortgage agents and brokers who were AMP designated, operate in Ontario, Canada, and facilitate multifamily rental property mortgages. SurveyMonkey served as the instrument development and delivery method to gather raw data from mortgage agents and brokers. SPSS software served as the application to conduct random sampling and statistical tests.

I used the probabilistic sampling method with the simple random sampling approach. McLeod (2014) found that probability sampling ensures that every member of the target population has an equal opportunity to be selected. Therefore, if conducted correctly, results from the sampled population could represent the target population. Probability sampling could become time-consuming and expensive if extensive data collection is necessary to generalized results (McLeod, 2014). There are sub-categories of sampling methods, such as systematic, stratified, cluster, and multi-stage (Raina, 2014). I employed the simple random sampling approach for this study. The simple random sampling approach is common, straight forward, and easy to analyze collected data (Abdulai & Shafiwu, 2014). If conducted correctly, simple random sampling could reduce the potential of systematic and sampling bias (Nahorniak, Larsen, Volk, & Jordan, 2015). The simple random sampling approach ensures that each member of the target population has an equal opportunity to be part for the sample (Asgari, Ahmadi, Shamlou, Farokhi, & Farzin, 2014). The disadvantage of the simple random sampling approach is it does not ensure the information of the target population is current and easily accessible (Singh & Solanki, 2013). Additionally, simple random sampling could be time-

consuming and expensive if more sampling is needed to ensure that adequate proportion of the sample population participates in the study (McLeod, 2014).

The target population for this study was 1025 designated Accredited Mortgage Professional (AMPs) that operates in Ontario. To ensure appropriate information gathering, verification was conducted to confirm that AMP designated mortgage agents and brokers deals with all categories of lenders, and facilitate multifamily rental property mortgages. To determine and confirm participants' qualification, area of operation, and types of lenders and mortgage dealings, I reviewed the AMP members' directory on the Mortgage Professionals Canada website and individual AMP members' website.

After identification of AMPs that deal with rental property mortgages in Ontario and deals with all categories of lenders, SPSS v.22.0 application was used to randomly select prospective participants. A numerical label was assigned to each potential participant, input the numerical label in SPSS v.22.0 application, and used the random sampling function to randomly select the required sample of 159 participants out of the total population. Bhunia (2013) mentioned that SPSS v.22.0 application serves as a statistical tool to assist researcher with statistical tests, data collection and organization, and presentation of findings.

After randomly selecting prospective participants, I sent an email to prospective participants introducing myself, explaining the purpose of the study, the importance of their participation, and providing a link to the survey. A reminder email was sent 7 days before the survey close, as a reminder to prospective participants of the survey. Figure 4 displays the data collection and analysis process.

Using G*Power version 3.1.7 to conduct an a priori power analysis and determine the minimum sample size required to find significance with a desired level of power set at .80, an α-level at .05, and a moderate effect size of .50(*f*) (see Appendix A) (Erdfelder, Faul, & Buchner, 1996). Based on the one-way ANOVA, a minimum of 42 participants will ensure adequate power. However, a minimum sample size of 159 participants is required to ensure adequate power for the preliminary analyses (one-way ANOVA and *t*-tests). Figure 4 highlights the data collection and analysis process.

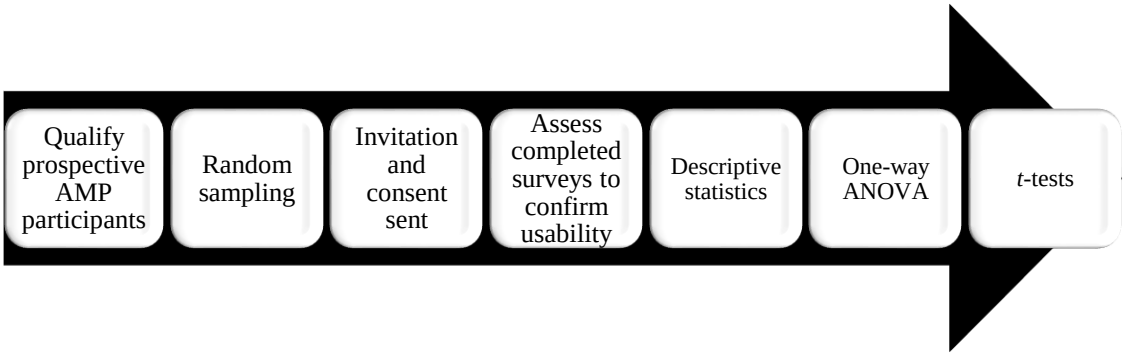

Figure 4. Data collection and analysis process.

Ethical Research

The purpose of this study was to examine the average ranking of mortgage outcome measures among different categories of lenders for multifamily rental properties in Ontario, Canada. Data for this study derived by surveying mortgage brokers and agents who facilitate mortgages for multifamily rental properties in Ontario. The survey gathered information pertaining to the weighting or ranking of individual mortgage underwriting criteria for multifamily rental properties. Further, the survey draws from mortgage brokers and agents' professional experience and industry knowledge. As a result, no part of the survey requested participants' identification or personal information.

Surveys did not contain discriminatory language that reference gender, race, disability, age, sexual orientation, or social connection. SurveyMonkey application facilitated the development and delivery of surveys to prospective participants. Employing SurveyMonkey for survey development and delivery assisted in protecting participants' identity (O'Brien & McGaha, 2014).

Ensuring that none of the participants were at risk by ethical oversight, I obtained Walden University Institutional Review Board (IRB) approval (number 01-17-17-0383044) and permission before commencing data gathering. Walden University IRB reviewed the research design and methodology to ensure that the proposed study did not affect participants from an ethical standpoint. McShane, Davey, Rouse, Usher, and Sullivan (2015) stated that ensuring the protection of participants by ethical factors or oversight is critical and necessary for the successful completion of a research study.

After selecting prospective participants and receiving approvals from Walden University IRB, data collection commenced. An introductory letter and consent form was sent to prospective participants, highlighting my background and contact information, research purpose, the significance of the research and findings, and participants' confidentiality. Further, I disclosed in the introductory letter the potential publishing of findings. The consent letter stated that participation is voluntary and participants acknowledge their intention to participate in the research by responding to the survey.

Each introductory letter had a unique identifier number to protect participants' identity and enable for an effective withdrawal process if necessary. Participants' identification and survey responses will remain classified and kept for 5 years in a locked

safe located at my residence. Additionally, participants' unique identifier code will remain in a locked safe at my residence for 5 years.

There was no incentive for participants to participate in this study. There was no authority or control over any of the participants that could influence their response to the survey. Participation was voluntary, and participants had the option to withdraw from the study any time during the research stages without any challenges. If participants wanted to withdraw from the research and communicated their intention to withdraw, the participants' unique identifier code would have assisted in retrieving and shredding the appropriate participants' survey response. The unique code also ensures accuracy and reduces the probability of name confusion.

Data Collection Instruments

A survey designed by Charles Kwame Addo in 2006 and used in a doctoral study titled *Predicting Powers of Potential Income Versus Credit History for Loan Repayment* served as the data-gathering instrument for this study. Charles Kwame Addo granted permission to use, modify, and adapt the full or part of the original survey (see Appendix B). After Charles Kwame Addo granted permission to use and modify the survey as necessary to meet this research objective (see Appendix C). Addo (2006) designed the original survey to access how lenders evaluate the five Cs of credit when making lending decisions. This study also focused on the five Cs of credit and accessed which of the five Cs are critical among the different types of lenders. The modification of the instrument was cosmetic with the layout and did not distract from the validity of the instrument. The modified survey assisted in ranking credit score, LTV, GDS, TDS, experience,

employment history, DSC, and property appraisal to identify importance when issuing mortgages for multifamily rental property in, Ontario, Canada. Further, the survey measured participants' credibility, industry experience, and area of operation.

The survey designed by Charles Kwame Addo (2006) was effective, pertained to loan criteria, and proved successful for the purpose of the study. Addo (2006) used the original instrument to determine loan officers' likelihood of granting credit to potential borrower based on credit history, income, and probability of repayment (Addo, 2006). Addo (2006) used a Likert scale instrument to survey experienced loan officers. Addo (2006) stated that surveying experienced loan officers increases the probability of gathering reliable and valid data. Given that this study was similar in nature to Charles Kwame Addo (2006) study because the target population comprised of participants that operate in the same industry, and the survey design are both Likert-type scale format, this increased the probability of achieving similar reliability and validity of this survey instrument.

Addo (2006) stated that validity is reliant on reliability and better captured in a comparative situation. The primary concept of validity is the instrument measurement truthfulness, and the primary concept of reliability is the instrument measurement consistency (Addo, 2006). While survey validity focuses on instrument measurement clarity and accuracy, reliability focuses on consistency or repeatability (Grimes & Schulz, 2002). Addo (2006) adapted the bathroom scale analogy to confirm reliability and validity of the survey instrument. The bathroom scale analogy comprises of three scenarios; If the scale always records accurately, then it is considered both reliable and

valid; If the scale consistently over or under weighs by the same weight, then the scale is considered reliable but not valid; and If the scale is unpredictable, then it is not reliable nor valid (Addo, 2006). Grimes and Schulz (2002) stated that a scale that consistently measures five pounds heavier than the actual weight can be reliable but may not be valid. Given that Addo (2006) and Grimes and Schulz (2002) experienced similar illustration of reliability and validity through the bathroom scale analogy, this study should obtain the same application of comparative situation.

Chow, Kwan, Morrow, Cooper, and Leask (2013) stated that survey instruments could ensure high quality of content validity and hypothesis testing. The survey comprised of two sections. The first part of the survey provided data pertaining to participants' licensure, the category of lender participation, and area of operation. The second part of the survey provided underwriting criteria data that enabled for descriptive analysis. Akhavan, Elahi, and Jafari (2014) stated that Likert-type scales are reliable, simple, and efficient. Therefore, the second part of the survey used as a Likert-type scale and required participants to rank the eight dependent variables from 1 to 8 with one being the least important and eight being the most important. The eight dependent variables were borrowers' profile (credit score, industry experience, and length of employment), GDS, TDS, DSCR, LTV, and property appraisal. The three independent variables were Category A, B, and C mortgage lenders for multifamily rental property in Ontario, Canada.

SurveyMonkey served as the development and delivery application for the survey instrument. As participants complete the survey, the completed surveys are accessible by

the senders via SurveyMonkey electronic portal. Independent samples *t* tests (effect size = Cohen's *d*) and Analysis of variance (ANOVA; effect size = partial eta squared (pη2) assessed the relationships between one categorical variable and one continuous variable.

The results indicated that credit score ranks significantly different between the groups; comparison between Category A and B lender indicated ($p = 0.006$), Category A and C lender indicated ($p < 0.001$), and Category B and C lender show ($p < 0.001$). The results for LTV showed a significant difference between Category A and B lenders with ($p = 0.017$) and also Category A and C lenders with ($p < 0.001$), but the difference between Category B and C lenders was not statistically significant with ($p = 0.063$).

The findings highlighted the average ranking of mortgage outcome measures from mortgage agents and brokers perspective. Additionally, the findings highlighted the average ranking of mortgage underwriting outcome measures among three categories of lenders, A, B, and C. Raw data will remain in a locked safe for 5 years.

Data Collection Technique

A survey with closed-ended questions served as the primary data-gathering tool for this study. Kwatra, Pandey, and Sharma (2014) mentioned that surveys with closed-ended questions enable respondents to answer questions appropriately. Shorter effective surveys could reduce respondents fatigue and therefore have a positive effect on the validity of respondents' scores (Wiklund et al., 2014). Rowley (2014) stated that concise and effective questionnaire could improve response rate and reduce coding and analysis time. The survey comprised of two sections with six questions in total. In Section 1,

participants selected the most appropriate answer based on preselected answers. In Section 2, participants ranked eight dependent variables.

Tella, (2015) mentioned that online data collection is increasing; researcher can benefit both financially and reaching a larger population than traditional data collection method. Online environment enables expedited data collection since there is no delay because of transportation or postal error. Conversely, the disadvantage of online data collection or survey is the reliance on participants who may not be technologically advanced. Some participants may not want to participate or complete online survey because of online security or privacy concerns. Computer glitches or compatibility issues may hinder survey delivery or completion. Additionally, some participants may fear that completing online survey will expose their computer to virus.

SurveyMonkey is an online survey development and delivery tool, which enables surveyors to develop, deliver, and receive surveys online (Gupta & Tiwari, 2016). Therefore, SurveyMonkey served as the method for developing, distributing, and receiving completed surveys for this study. Participants received an invitation via email, allowing them to complete and return survey electronically. Post-delivery could result in significant cost, get lost, and require participants to complete and return via postal service, which could be inconvenient (Woodward & Harris, 2013). SurveyMonkey online delivery is easy, convenient for data analysis and less probability of getting lost (Woodward & Harris, 2013). SurveyMonkey parameters ensure questions are complete before proceeding to the next question, ensuring completeness of survey once returned.

This study is similar in scope to the study which the original survey instrument was developed and applied. An approval of the original study by Walden University Chief Academic Officer was an indication that the survey instrument suitability, question format, validity, and scales were tested and valid for the intended purpose. Therefore, adapting the survey instrument for this study seemed necessary and relevant.

After Walden University IRB granted permission, review of the AMP members section on the Mortgage Professionals Canada website and individual AMPs website indicated qualified prospective participants and contact information. Statistical Package for Social Sciences (SPSS) v.22.0 application generated a randomized list of prospective participants with prospective participants assigned numerical labels. After selecting prospective participant, consent and invitation letters via email. When prospective participant received invitation and consent form, they could have decided if they want to proceed with the survey or not. If participants decided to participate, they clicked on the SurveyMonkey link embedded in the invitation and completed the survey. Once finished, participants clicked on the "return button" to return the completed survey. If they did not want to proceed with the study, they simply could have deleted or ignored the invitation email. After confirmation of completed surveys, I imported raw data in the statistical package for social sciences (SPSS) software and conducted analysis and tests.

Data Analysis

The objective of this study was to examine the impact of lender type on the average rankings of mortgage underwriting outcome measures. The dependent variables were borrowers' profile (credit score, industry experience, and length of employment),

GDS, TDS, DSCR, LTV, and property appraisal. The independent variable was the types of mortgage lenders for multifamily rental property. The research question was; what is the impact of lender type on GDS ratio, TDS ratio, DSCR, LTV ratio, property appraisal, borrowers' credit score, borrowers' industry experience, and borrowers' length of employment? The null and alternative hypotheses were the following,

$H1_0$: There is no statistical significant difference in ranking of GDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H1_A$: There is a statistical significant difference in ranking of GDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H2_0$: There is no statistical significant difference in ranking of TDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H2_A$: There is a statistical significant difference in ranking of TDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H3_0$: There is no statistical significant difference in ranking of DSCR for categories A, B, and C lenders when seeking multifamily rental property financing.

$H3_A$: There is a statistical significant difference in ranking of DSCR for categories A, B, and C lenders when seeking multifamily rental property financing.

$H4_0$: There is no statistical significant difference in ranking of LTV ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H4_A$: There is a statistical significant difference in ranking of LTV ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H5_0$: There is no statistical significant difference in ranking of property appraisal for categories A, B, and C lenders when seeking multifamily rental property financing.

$H5_A$: There is a statistical significant difference in ranking of property appraisal for categories A, B, and C lenders when seeking multifamily rental property financing.

$H6_0$: There is no statistical significant difference in ranking of credit score for categories A, B, and C lenders when seeking multifamily rental property financing.

$H6_A$: There is a statistical significant difference in ranking of credit score for categories A, B, and C lenders when seeking multifamily rental property financing.

$H7_0$: There is no statistical significant difference in ranking of industry experience for categories A, B, and C lenders when seeking multifamily rental property financing.

$H7_A$: There is a statistical significant difference in ranking of industry experience for categories A, B, and C lenders when seeking multifamily rental property financing.

$H8_0$: There is no statistical significant difference in ranking of employment history for categories A, B, and C lenders when seeking multifamily rental property financing.

$H8_A$: There is a statistical significant difference in ranking of employment history for categories A, B, and C lenders when seeking multifamily rental property financing.

Statistical package for social sciences (SPSS) v.22.0 application served as the tool to sort, analyze raw data, and present findings in graphical and tabular format (Bhunia, 2013). I conducted descriptive statistics for all variables and calculated means, standard deviations, and the minimum and maximum for continuous variables and frequencies and percentages for all categorical demographic variables. After examining of distributions of

the continuous variables to determine if normality assumptions and parametric testing were adequate and appropriate, I investigated extreme outliers for technical or clerical errors.

Independent samples *t* tests (effect size = Cohen's *d*) and Analysis of variance (ANOVA; effect size = partial eta squared (pη2) was conducted to assess the relationships between one categorical variable and one continuous variable. After conducting the one-way ANOVA analysis to identify statistical significance among the 3 categories of lenders for 8 mortgage outcome measures. There was a statistical significant difference, I conducted pair two sample *t* tests to identify significant difference between Category A and B lenders, Category A and C lenders, and Category B and C lenders.

The results indicated that credit score ranks significantly different between the groups; comparison between Category A and B lender indicated ($p = 0.006$), Category A and C lender indicated ($p < 0.001$), and Category B and C lender show ($p < 0.001$). The results for LTV showed a significant difference between Category A and B lenders with ($p = 0.017$) and also Category A and C lenders with ($p < 0.001$), but the difference between Category B and C lenders was not statistically significant with ($p = 0.063$).

Using G*Power version 3.1.7 to conduct an a priori power analysis and determine the minimum sample size required to find significance with a desired level of power set at .80, an α-level at .05, and a moderate effect size of .50 (*f*). Based on the one-way ANOVA, a minimum of 42 participants ensured adequate power. However, a minimum sample size of 159 participants ensured adequate power for the preliminary analyses (one-way ANOVA and *t*-tests).

Friedman and Mann-Whitney U tests are appropriate for ranking variables and testing paired sample data (Taheri & Hesamian, 2013). I did not select the Friedman and Mann-Whitney U tests for this study because of the paired sample data testing aspect. Portmann and Mlambo (2013) tested and rank paired sample data by employing both Friedman and Mann-Whitney U tests to rank four variables among two different types of firms.

The first assumption was participants are familiar with the ranking of underwriting criteria based on their experience. The second assumption was participants understood and responded appropriately. Use of a scatter plot diagram to test and assess participants' responses identified knowledge on the subject matter and possible extreme outliers. The third assumption was raw data would be appropriate or adequate to perform statistical analysis for this study. Based on the G*Power analysis (see Appendix A), 42 complete responses were required to ensure adequate power. However, a minimum of 159 participants was required to ensure adequate power for one-way ANOVA and t-tests.

SurveyMonkey served as the tool to develop, distribute, and receive the surveys (Gupta & Tiwari, 2016). SurveyMonkey parameters ensured that participants complete each question before proceeding to the next question on the survey. SurveyMonkey parameters assisted in ensuring that surveys are fully complete before returned. Based on the survey (see Appendix C), questions 1 to 4 confirmed participants profile (area of operation, qualification, and category of lenders participation). Question five assisted in ranking mortgage underwriting criteria among different categories of lenders. Question

six gave participants the opportunity to add more information pertinent to mortgage underwriting criteria.

Study Validity

During a research process, several factors could occur and render the findings skewed or incomplete. These factors are threats to validity and divided into two categories, internal and external (Henderson, Kimmelman, Fergusson, Grimshaw, & Hackam, 2013). Internal validity threats are experimental in nature, maturation, regression, selection, history, mortality, diffusion of treatment, testing, instrumentation, compensatory rivalry, and compensation demoralization (Afzali, Gray, & Karnon, 2013). Henderson et al. (2013) stated that internal validity threat could derive from researcher expectation, which could lead to bias findings. Given that this study was a non-experimental, causal comparative study, there were no threats to internal validity.

Threats to statistical conclusion validity applied in this study. There were three potential threats to statistical conclusion validity, data assumptions, sample size, and modified instrument reliability. Statistical conclusion validity relates to effective sampling, reliability measurements, and effective statistical testing. The instrument developer adapted the bathroom scale analogy to confirm reliability and validity of the instrument. The bathroom scale analogy includes three scenarios; if the scale always records accurately, then the scale is considered reliable and valid; if the scale consistently over or under weighs, then the scale is considered reliable but not valid; and if the scale is unpredictable, then the scale is not reliable nor valid (Addo, 2006). Grimes and Schulz (2002) stated that a scale that consistently measures five pounds heavier than the actual

weight is reliable but not valid. Since both Addo (2006) and Grimes and Schulz (2002) presented similar illustration of reliability and validity through the bathroom scale analogy, this study should obtain the same application as modified to fit the purpose of this specific study purpose.

The study used the G*Power software to determine the appropriate number of sample size for this study (Erdfelder et al., 1996) (see Appendix A). The final statistical conclusion validity is that participants would accurately rank mortgage underwriting criteria for the three categories of lenders. To test this assumption, I performed a scatter plot diagram to identify cluster and abnormal variance among the different individual criteria and categories of lenders. Any criteria within the same category of lender that is not close to the cluster could be an indication that the participant may have misinterpreted the question and inaccurately answered the question.

Transition and Summary

This quantitative causal comparative study assisted in examining the average ranking of mortgage outcome measures among different categories of lenders for multifamily rental property in Ontario, Canada. Surveys comprised of closed-ended questions served as the primary data collection tool. SurveyMonkey was used to develop, gather, and transmit raw data via email transmission. Data gathered and developed during the process of this study will remain in a locked cabinet for 5-years after completion of the study and then destroyed by shredding and electronic erasure. Section 3 presents the findings from the study and recommendations.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this quantitative causal comparative study was to examine the average ranking of mortgage outcome measures among different categories of lenders of multifamily rental properties in Ontario, Canada. The dependent variables were GDS ratio, TDS ratio, DSCR, LTV ratio, property appraisal, and borrowers' profile (credit score, industry experience, and length of employment). The independent variable was the type of lenders (A, B, or C) for rental property.

Based on the findings there is no statistical difference in the average ranking of the following mortgage underwriting criteria; GDS ratio, TDS ratio, DSCR, property appraisal, industry experience, and length of employment among the three different categories of lenders. However, there are statistical differences for LTV ratio and credit score.

The results indicated that credit score ranks for each category of lenders are significantly different from each other. Comparison between Category A (banks and depository institutions) and B (insurance companies and non-depository institutions) lenders show ($p = 0.006$), Category A and C (private) lenders show ($p < 0.001$), and Category B and C lenders show ($p < 0.001$). The result for LTV ratio shows a significant difference between Category A and B lenders with ($p = 0.017$) and Category A and C lenders with ($p < 0.001$), but the difference between Category B and C lenders is not statistically significant with ($p = 0.063$).

Presentation of the Findings

While most of the overall ranking is not significantly different between the three categories of lenders, the ranking of LTV ratio and credit score are different among the three categories of lenders. The post hoc test determined where the differences occurred between different categories of lenders. The results indicated that credit score ranks significantly different between the groups; comparison between Category A (banks and depository institutions) and B (insurance companies and non-depository institutions) lenders indicated a statistical difference with ($p = 0.006$), Category A and C (private) lenders indicated a statistical difference with ($p < 0.001$), and Category B and C lenders indicated a statistical difference with ($p < 0.001$). The results for LTV indicated a significant difference between Category A and B lenders with ($p = 0.017$) and also Category A and C lenders with ($p < 0.001$), but the difference between Category B and C lenders is not statistically significant with ($p = 0.063$) (see Table 2).

Table 2

Descriptive Statistics - Mean and Standard Deviation of Ranking for Different Lenders

Items	Category A		Category B		Category C		*p*-value
	M	*SD*	*M*	*SD*	*M*	*SD*	
Borrower employment history	5.59	1.20	5.70	1.15	5.48	1.48	0.646
Borrower industry experience	7.48	0.55	7.45	0.66	7.30	0.85	0.604
Credit score	1.93	0.99	2.55	0.87	3.61	1.08	<0.001 **
Debt service coverage ratio	7.11	0.92	6.93	1.04	6.95	0.96	0.625
Gross debt service ratio	5.23	0.94	5.45	1.02	5.41	1.08	0.347
Loan-to-value ratio	2.11	0.87	1.75	0.78	1.45	0.62	<0.001 **
Property appraised value	2.11	0.84	1.89	0.92	1.70	0.63	0.074
Total debt service ratio	4.34	0.94	4.27	0.87	4.09	1.23	0.093

** significance at 0.01 level

The research question was: What is the impact of lender type on GDS ratio, TDS ratio, DSCR, LTV ratio, property appraisal, borrower's credit score, borrower's industry experience, and borrower's length of employment?

The dependent variables were GDS ratio, TDS ratio, DSCR, LTV ratio, property appraisal, and borrower's profile (credit score, industry experience, and length of employment). Independent variables were Category A, B, and C lenders for multifamily rental property. To answer the research question, eight hypotheses were tested.

$H1_0$: There is no statistical significant difference in ranking of GDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H1_A$: There is a statistical significant difference in ranking of GDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H2_0$: There is no statistical significant difference in ranking of TDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H2_A$: There is a statistical significant difference in ranking of TDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H3_0$: There is no statistical significant difference in ranking of DSCR for categories A, B, and C lenders when seeking multifamily rental property financing.

$H3_A$: There is a statistical significant difference in ranking of DSCR for categories A, B, and C lenders when seeking multifamily rental property financing.

$H4_0$: There is no statistical significant difference in ranking of LTV ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H4_A$: There is a statistical significant difference in ranking of LTV ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

$H5_0$: There is no statistical significant difference in ranking of property appraisal for categories A, B, and C lenders when seeking multifamily rental property financing.

$H5_A$: There is a statistical significant difference in ranking of property appraisal for categories A, B, and C lenders when seeking multifamily rental property financing.

$H6_0$: There is no statistical significant difference in ranking of credit score for categories A, B, and C lenders when seeking multifamily rental property financing.

$H6_A$: There is a statistical significant difference in ranking of credit score for categories A, B, and C lenders when seeking multifamily rental property financing.

$H7_0$: There is no statistical significant difference in ranking of industry experience for categories A, B, and C lenders when seeking multifamily rental property financing.

$H7_A$: There is a statistical significant difference in ranking of industry experience for categories A, B, and C lenders when seeking multifamily rental property financing.

$H8_0$: There is no statistical significant difference in ranking of employment history for categories A, B, and C lenders when seeking multifamily rental property financing.

$H8_A$: There is a statistical significant difference in ranking of employment history for categories A, B, and C lenders when seeking multifamily rental property financing.

Null Hypothesis 1

$H1_0$: There is no statistical significant difference in ranking of GDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

According to a one-way ANOVA test with ($p = 0.542$), there is not enough support to reject the null hypothesis. Consequently, the ranking of GDS ratio for the three categories of lenders is similar (see Table 2). Therefore, there is no requirement to conduct independent samples *t* tests.

Null Hypothesis 2

$H2_0$: There is no statistical significant difference in ranking of TDS ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

According to a one-way ANOVA test with ($p = 0.501$), there is not enough support to reject the null hypothesis. Consequently, the ranking for TDS ratio for the three categories of lenders is similar (see Table 2). Therefore, there is no requirement to conduct independent samples *t* tests.

Null Hypothesis 3

$H3_0$: There is no statistical significant difference in ranking of DSCR for categories A, B, and C lenders when seeking multifamily rental property financing.

According to a one-way ANOVA test with ($p = 0.637$), there is not enough support to reject the null hypothesis. Consequently, the ranking for DSCR for the three categories of lenders is similar (see Table 2). Therefore, there is no requirement to conduct independent samples *t* tests.

Null Hypothesis 4

$H4_0$: There is no statistical significant difference in ranking of LTV ratio for categories A, B, and C lenders when seeking multifamily rental property financing.

A one-way ANOVA test with ($p < 0.001$) supports rejecting the null hypothesis. Consequently, the LTV rank is significantly different between the three groups of lenders. Table 3 displays how LTV ratio ranked among A, B, and C lenders. The ($p < 0.001$) indicated that there was a significant difference among the lenders.

Table 4 displays how LTV ratio ranked among Category A and Category B lenders. The ($p = 0.0165$) indicated that there was a significant difference between Category A and Category B lenders for LTV ratio. Table 5 displays how LTV ratio ranked among Category A and Category C lenders. The ($p < 0.001$) indicated that there was a significant difference between Category A and Category C lender for LTV ratio. Table 6 displays how LTV ratio ranked between Category B and Category C lenders. The ($p = 0.0625$), indicated that there was no significant difference between Category B and Category C lender for LTV ratio.

Table 3

One-way ANOVA – Loan-To-Value Ratio Among Lenders

Summary

Groups	Count	Sum	Average	Variance
Category A lender	44	93	2.113636364	0.75422833
Category B lender	44	77	1.75	0.610465116
Category C lender	44	64	1.454545455	0.393234672

ANOVA

Source of variation	SS	df	MS	F	*P*-value	F crit
Between groups	9.590909091	2	4.795454545	8.183704149	0.000	3.066391037
Within groups	75.59090909	129	0.585976039			
Total	85.18181818	131				

Table 4

Paired Two Sample t-test – Category A and Category B Lenders

	Category A Lender	*Category B Lender*
Mean	2.113636364	1.75
Variance	0.75422833	0.610465116
Observations	44	44
Pearson Correlation	0.317023481	
Hypothesized Mean Difference	0	
df	43	
t Stat	2.495244346	
P(T<=t) one-tail	0.008252322	
t Critical one-tail	1.681070703	
P(T<=t) two-tail	0.0165	
t Critical two-tail	2.016692199	

Table 5

Paired Two Sample t-test – Category A and Category C Lenders

	Category A Lender	*Category C Lender*
Mean	2.113636364	1.454545455
Variance	0.75422833	0.393234672
Observations	44	44
Pearson Correlation	-0.139753933	
Hypothesized Mean Difference	0	
df	43	
t Stat	3.834890443	
P(T<=t) one-tail	0.000202759	
t Critical one-tail	1.681070703	
P(T<=t) two-tail	0.0004	
t Critical two-tail	2.016692199	

Table 6

Paired Two Sample t-test – Category B and Category C Lenders

	Category B Lender	*Category C Lender*
Mean	1.75	1.454545455
Variance	0.610465116	0.393234672
Observations	44	44
Pearson Correlation	-0.047465189	
Hypothesized Mean Difference	0	
df	43	
t Stat	1.91239961	
P(T<=t) one-tail	0.031250627	
t Critical one-tail	1.681070703	
P(T<=t) two-tail	0.0625	
t Critical two-tail	2.016692199	

Null Hypothesis 5

$H5_0$: There is no statistical significant difference in ranking of property appraisal for categories A, B, and C lenders when seeking multifamily rental property financing.

According to a one-way ANOVA test with ($p = 0.062$), there is not enough support to reject the null hypothesis. Consequently, the ranking of property appraisal for all three categories of lenders is similar (see Table 2). Therefore, there is no requirement to conduct independent samples *t* tests.

Null Hypothesis 6

$H6_0$: There is no statistical significant difference in ranking of credit score for categories A, B, and C lenders when seeking multifamily rental property financing.

A one-way ANOVA test with ($p < 0.001$) supports rejecting the null hypothesis. Consequently, credit score is significantly different between the three categories of lenders. Table 7 indicated how credit score ranked among A, B, and C lenders. The ($p < 0.001$) indicated that there was a significant difference between the lenders.

Table 8 highlights how credit score ranked between Category A and Category B lenders. The ($p = 0.006$) indicated that there is a significant difference between Category A and Category B lenders for credit score. Table 9 indicated a statistical significant difference with ($p < 0.001$) between Category A and Category C lenders for the credit score. Table 10 indicated a statistical significant difference with ($p < 0.001$) between Category B and Category C lenders for the credit score.

Table 7

One-way ANOVA – Credit Score Among Lenders

Summary

Groups	Count	Sum	Average	Variance
Category A lender	44	85	1.931818182	0.995243129
Category B lender	44	112	2.545454545	0.765327696
Category C lender	44	159	3.613636364	1.172832981

ANOVA

Source of Variation	SS	df	MS	F	*P*-value	F crit
Between groups	63.74242424	2	31.87121212	32.59477477	0.000	3.066391037
Within groups	126.1363636	129	0.977801268			
Total	189.8787879	131				

Table 8

Paired Two Sample t-test – Category A and Category B Lenders

	Category A Lender	*Category B Lender*
Mean	1.931818182	2.545454545
Variance	0.995243129	0.765327696
Observations	44	44
Pearson correlation	-0.116276456	
Hypothesized mean difference	0	
df	43	
t Stat	-2.904815698	
P(T<=t) one-tail	0.002891268	
t Critical one-tail	1.681070703	
P(T<=t) two-tail	0.0058	
t Critical two-tail	2.016692199	

Table 9

Paired Two Sample t-test – Category A and Category C Lenders

	Category A Lender	*Category C Lender*
Mean	1.931818182	3.613636364
Variance	0.995243129	1.172832981
Observations	44	44
Pearson correlation	0.018100806	
Hypothesized mean difference	0	
df	43	
t Stat	-7.645769774	
P(T<=t) one-tail	0.0000	
t Critical one-tail	1.681070703	
P(T<=t) two-tail	0.0000	
t Critical two-tail	2.016692199	

Table 10

Paired Two Sample t-test – Category B and Category C Lenders

	Category B Lender	*Category C Lender*
Mean	2.545454545	3.613636364
Variance	0.765327696	1.172832981
Observations	44	44
Pearson correlation	0.252159598	
Hypothesized mean difference	0	
df	43	
t Stat	-5.863293621	
P(T<=t) one-tail	0.0000	
t Critical one-tail	1.681070703	
P(T<=t) two-tail	0.0000	
t Critical two-tail	2.016692199	

Null Hypothesis 7

$H7_0$: There is no statistical significant difference in ranking of industry experience for categories A, B, and C lenders when seeking multifamily rental property financing.

According to a one-way ANOVA test with ($p = 0.416$), there is not enough support to reject the null hypothesis. Consequently, the ranking of industry experience for all three categories of lender is similar (see Table 2). Therefore, there is no requirement to conduct independent samples *t* tests.

Null Hypothesis 8

$H8_0$: There is no statistical significant difference in ranking of employment history for categories A, B, and C lenders when seeking multifamily rental property financing.

According to a one-way ANOVA test with ($p = 0.712$), there is not enough support to reject the null hypothesis. Consequently, the ranking of employment history for all three categories of lender is similar (see Table 2). Therefore, there is no requirement to conduct independent samples *t* tests.

Applications to Professional Practice

Mortgage criteria are factors that assist mortgage lenders when making lending decisions. The assessed criteria in this study were GDS ratio, TDS ratio, DSCR, LTV ratio, property appraisal, and borrower's profile (credit score, industry experience, and length of employment). The objective of assessing the criteria was to evaluate borrowers' financial strength and probability of default (Krainer & Laderman, 2014). While a mortgage application is between a borrower and lender, the impact of mortgage lending

for multifamily rental properties impacts many stakeholders. Other parties impacted by multifamily rental property mortgages were real estate sales professionals, mortgage brokers, financial regulators, tenants, social housing representatives, and the economy as a whole. Asabere, McGowan, and Lee (2016) mentioned a positive correlation between the mortgage industry and positive economic growth.

While all mortgage lending criteria are important in the lending process, some lenders rank the criteria differently. Based on the findings of the study, Category C (private) lenders rank LTV ratio higher than Category A (banks and depository institutions) and B (insurance companies and non-depository institutions) lenders. The results for LTV shows a significant difference between Category A and B lenders with ($p = 0.017$) and Category A and C lenders with ($p < 0.001$), but the difference between Category B and C lenders is not statistically significant with ($p = 0.063$). The results indicated that credit score ranked significantly different between Category A and C lender with ($p < 0.001$), and Category B and C lender with ($p < 0.001$). There is a significant difference between Category A and B lender with ($p = 0.006$).

An understanding and awareness of the ranking of the different lending criteria could be beneficial to all stakeholders in the mortgage and multifamily rental environment. Understanding how the different categories of lenders value and rank the different underwriting criteria will enable borrowers to be better prepared when seeking mortgage financing. Mortgage borrowers will be able to determine which category of lenders to pursue based on their strengths and weaknesses or suitability of the lender. As a result, mortgage borrowers could become more efficient and save time and financial

resources. A borrower with a low LTV ratio should focus on Category A and B lenders because based on the findings Category C lenders rank LTV as a high requirement. Moreover, a borrower with a low credit score should focus their application towards Category C lenders.

Knowledgeable borrowers who understand their funding requirements could identify potential lenders that offer better mortgage options which could result in significant financial savings. Identifying which lender is suitable in the early stages of the mortgage application could enable the borrower to save significant time and utilize economies of scale on other projects. Further, borrowers could save on appraisal, environmental assessment, broker, and other fees related to the mortgage application process (Ding, 2014). In the multifamily rental property renewal or new mortgage application process, the lender sometimes requires environmental assessment and appraisal complete before releasing funds (Pu, Fan, & Deng, 2014). Additionally, some lenders require a mortgage application fee. Consequently, if a borrower could determine which lender is more suitable for their application and profile, then the borrower could only incur fees that are required by that specific lender. As a result of lower financing cost, borrowers could become more profitable. As landlords become more profitable, they will eventually reinvest in the community; buying more properties, redeveloping older properties and/or building new properties. Stimulating and fueling other sectors growth and eventually positively impact both the local and global economic growth.

An understanding as to what other lenders value when issuing mortgage financing could enlighten other lenders on possible liability exposure or areas of improvement.

Lenders could use the results of this study and compare or revise their criteria requirements to mitigate mortgage default. Since the primary objective of all lenders is to reduce default risk, understanding and identifying strength and weaknesses based on other lenders could enable revision of processes and checks. Consequently, the findings of this study could enable lenders to save both time and money with mitigating mortgage defaults and foreclosure process.

Both lenders and borrowers could save time and financial resources by using the findings of this study. Additionally, other stakeholders in the multifamily rental property mortgage application process could benefit from the results of this study. The ripple effect of savings and job creation from lenders, borrowers, and other stakeholders could stimulate economic growth and redevelopment. Further, enhanced profitability and productivity could reduce the probability of recession or economic contraction and enhance growth (Christopoulos & León-Ledesma, 2014).

The process of mortgage lending for multifamily rental property is a micro system. There are several factors and steps involved in the lending process. These factors and steps need to cohesively work together to ensure a successful mortgage application and funding (Teye et al., 2015). The probability of mortgage application approval increases as criteria fulfill. Further, multifamily mortgage lending as a micro system forms part of a macro system which relates to local, global, and international economic growth (Driver & Matthews, 2016). Enhanced productivity and profitability for all stakeholders in the multifamily rental property mortgage process could enable a balanced economy and improve the standard of living (Kofner, 2014).

Implications for Social Change

The findings of this study could create awareness of the impact of lender type on the average rankings of mortgage underwriting outcome measures. The findings could assist financial regulators and mortgage lenders when enacting and implementing lending regulations and process. Additionally, an understanding of the ranking of the mortgage underwriting criteria could assist borrowers when seeking and completing mortgage applications. An understanding of the ranking of mortgage underwriting criteria could improve efficiency and productivity among the different stakeholders within the mortgage lending sector. The improved efficiency could enable stakeholders to enhance productivity and profitability. Properties with lower financing cost or where the landlord has a better probability of obtaining financing are more likely to experience more frequent capital improvements and maintenance (Downs & Xu, 2015). As a result, tenants that reside in properties with lower financing cost could benefit from improvements and a home that is in a safe livable condition. Further, a landlord that is profitable or has less barriers with financing is less likely to raise rent or overcharge tenants. The result of a better living condition and competitive rent payments will improve tenants living standard which will positively impact society and the economy.

The community, society, and culture is also impacted with improved profitability. As profitability and spending increases, job creation and employment will increase (Alhassan, Tetteh, & Brobbey, 2016). With better standard of living, increased spending, and overall better community morale the community appearance and presentation will improve.

Recommendations for Action

The results of this study could be beneficial to mortgage lenders, financial regulators, mortgage brokers, and borrowers. It is critical that borrowers are aware of the different weighting or ranking of mortgage underwriting criteria among the different types of lenders. An awareness as to how different lenders value mortgage criteria will enable financial regulators to enact effective policies and remedies.

Financial regulators should be aware that different lenders value LTV ratio and credit scores differently. Table 3 indicated a statistical difference between the different categories of lenders for LTV ratio. Table 4 indicated a statistical difference for categories A and B lenders for LTV ratio. Table 5 indicated a statistical difference for categories A and C lenders for LTV ratio. Table 6 indicated no statistical difference for categories B and C lenders for LTV ratio. Table 7 indicated a statistical difference between the different categories of lenders for credit score. Table 8 indicated a statistical difference for categories A and B lenders for credit score. Table 9 indicated a statistical difference for categories A and C lenders for credit score. Table 10 indicated a statistical difference for categories B and C lenders for credit score.

Colleges and universities that facilitate real estate and mortgage programs could adapt and implement aspects of this study within the curriculum. Real estate sales professionals, investors, and other mortgage stakeholders could use the findings as additional resource for their clients. Additionally, publishing the findings online could make it available to the general public.

Recommendations for Further Research

The findings from the study indicated that Category C lenders rank LTV ratio higher than Category A and B lenders. The study also indicated that Category A and B lenders rank credit score higher than Category C lenders. The following opportunities exist for future research:

- What motivates Category C lenders to value LTV ratio when underwriting a mortgage application? The objective is to identify why Category C lenders rank LTV as the most important.
- What motivates Category A and B lenders to value credit score when underwriting a mortgage application? The objective is to identify why Category A and B lenders rank credit score as the most important.
- What is the mortgage default rate between Category A, B, and C lenders? The objective is to compare default rates between the different categories of lenders to identify potential strengths and weaknesses among the lenders.
- What category of lenders do landlords prefer to deal with? The objective of this study is to identify if there is a specific category of lender that landlords prefer to deal with and why, and
- What factors influence landlords to spend on capital improvements? The objective is to identify what factors encourages landlords to conduct capital improvements.

To address limitations mentioned in Section 1 of this study; such as efficient and appropriate sample size, responses from only a specific demographic, and closed-ended questions, the following studies could assist in mitigating these limitations:

- A qualitative study to identify relative ranking of mortgage underwriting criteria to enable the researcher to ask open-ended questions and participants would provide responses that are not limited to pre-selected answer options.
- Separate studies focusing on the different regions of Ontario; such as Eastern, Northern, Southern, Central, and Western to identify if respondents in different demographic regions value the criteria differently, and
- A study focusing on all of Canada. The findings could be used to identify mortgage criteria benchmark among different regions of Canada.

Reflections

Before embarking on this doctoral study journey, my expectation was to commit research time for quality completion of the study, but the approaches and requirements for doctoral study research was different than my previous research experiences. Time management skills, self-starter attitude, perseverance, and optimism are some attributes I developed to succeed in this journey.

In relation to this study, I was under the impression that credit score was the single most important criteria that all lenders value when issuing mortgage financing and did not expect how important the five Cs of credit is in the mortgage lending industry. I expected the importance of GDS ratio, TDS ratio, credit score, LTV ratio, and property appraisal but did not expect that lenders value the borrower industry experience and

length of employment or that DSCR was reviewed based on how the rental portfolio was structured. From conducting scholarly doctoral research, my outlook on the application of factual data along with personal opinions and experiences can provide objective analysis for decision making.

Conclusions

Mortgage lending for multifamily rental properties may seem to be an isolated issue that only concerns landlord and mortgage lenders. On the contrary, mortgage lending for multifamily rental properties extends beyond just the landlords and lenders and could impact the economy and society. Other stakeholders that could be impacted by multifamily rental mortgage lending are mortgage regulators, tenants, social housing representatives, and real estate sales professionals. It is advisable that all stakeholders continue to research, understand, forecast, and implement effective regulations to mitigate financial crises; such as the 2007-2009 recession. It is also important to continue researching the topic to improve efficiency and enhance profitability. Fueling economic growth and improving the standard of living, could positively impact social change.

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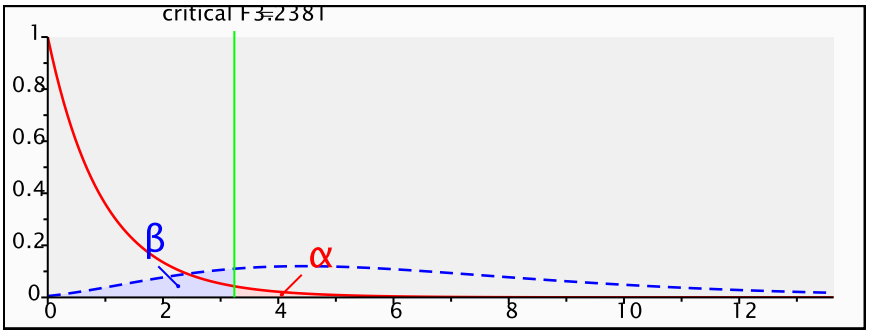
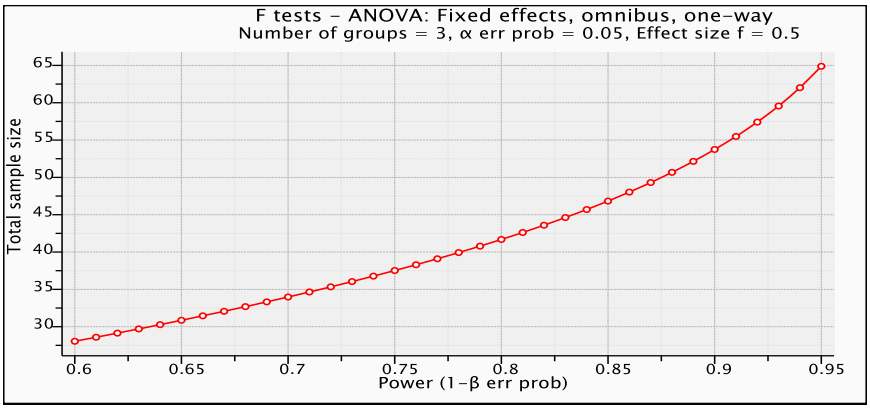
Appendix A: G*Power Analysis





F tests – ANOVA: Fixed effects, omnibus, one-way

Analysis:	A priori: Compute required sample size		
Input:	Effect size f	=	0.50
	α err prob	=	0.05
	Power (1–β err prob)	=	.80
	Number of groups	=	3
Output:	Noncentrality parameter λ	=	10.500000
	Critical F	=	3.238096
	Numerator df	=	2
	Denominator df	=	39
	Total sample size	=	42
	Actual power	=	0.803414

Appendix B: Permission to Adapt and Modify Survey

To

Tejram Basdeo

Today at 11:25 AM
Please feel free to adapt and modify my survey instrument for your dissertation.

Best regards,

XXXXXXX
Lecturer in Economics & Financial Management
Faculty of Economics and Business Administration

Catholic University College of Ghana, Fiapre
Email: xxx@xxxxx.com
Mobile Telephone: +xxx (xxx) xxx-xxx
Visit: www.xxx.xxx

The Practical Navigator:
Oh, I've danced the oceans;
Where the dusk of faith breaks into the dawn of knowledge;
On iron heavy cast;
To rhythms of yawings and pitchings and rollings.

Confidentiality Notice: This e-mail communication and any attachments may contain confidential and privileged information for use by the designated recipient(s). If you are not the intended recipient(s), you are hereby notified that you have received this communication in error. Please, accept my apology and delete it from your computer.

Hide original message

From: Tejram Basdeo <xxxxx@xxxxx.xxx>
To: xxxx@xxxx.com
Cc: Tejram Basdeo <xxxxx@xxxxx.xxx>
Sent: Saturday, June 6, 2015 3:50 PM
Subject: Permission - Survey Instrument

Hello XXXXX,

Hope all is well. My name is Tejram Basdeo, I am currently a DBA student at Walden University. As I am conducting research to complete my doctoral study, I found your dissertation titled *Predicting powers of potential income versus credit history for loan repayment.*

The survey that you developed and used in your dissertation is a very useful tool for me. I would very much appreciate the ability to modify and adapt it for my doctoral study. My proposed research topic is *Relative Ranking of Mortgage Underwriting Criteria Among Different Categories of Lenders for Multifamily Rental Property in Ontario , Canada .*

Would you kindly grant me permission to adapt and modify your survey instrument and use as my primary data collection instrument? As is required, I will certainly cite and reference your work and tool.

Regards,
Tejram Basdeo
(xxx) xxx-xxxx

Appendix C: Survey

RANKING OF MORTGAGE UNDERWRITING CRITERIA OF LENDERS FOR MULTIFAMILY RENTAL PROPERY

The following questions pertain to mortgage underwriting criteria for multifamily rental property in Ontario, Canada. The first four questions relate to your experience and area of operation. The final three questions relate to mortgage underwriting criteria for the three categories of lenders.

- Are you an Accredited Mortgage Professional (AMP) in good standing?
  □Yes □No

- Do you facilitate mortgage applications for multifamily rental property in Ontario?
  □Yes □No

If your answer to the previous two questions is yes, please proceed to the next questions.

- Select from the list below all applicable categories of lenders for which you facilitate mortgage applications.
  □Category A (Banks and other depositary institutions)
  □Category B (insurance companies and other non-depositary institutions)
  □Category C (Private lenders)

- What is the primary geographic area in which you practice?
  □Eastern Ontario □Northern Ontario
  □Southern Ontario □Central Ontario
  □Western Ontario

- Rank the following mortgage underwriting criteria among the three categories of lenders in order of importance from 1 to 8; where 1 is least important and 8 is the most important. **EACH CRITERION MUST HAVE A DIFFERENT RANKED VALUE FOR THE SAME CATEGORY OF LENDER. THEREFORE, NO TWO CRITERIA SHOULD HAVE THE SAME RANK.**

Underwriting Criteria	Category A Lenders (Banks & Depository Institutions.)	Category B Lenders (Insurance Co. & non-depository Institutions.)	Category C Lenders (Private)
LTV			
Credit Score			
DSC Ratio			
TDS Ratio			
GDS Ratio			
Property Appraisal			
Borrower Employment History			

Borrower Industry Experience			

- In your professional opinion, are there any other criteria that are not listed above? Please list and explain.
  _____.