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Impact of Mortgage Characteristics on Retail Mortgage Transaction Completion Time

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This is to certify that the doctoral study by

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2018

Abstract

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MBA, Jacksonville University, 2012

BBA, Jacksonville University, 2010

Doctoral Study Submitted in Partial Fulfillment

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Abstract

In the mortgage industry, many mortgage lenders cannot manage mortgage workflow systems while meeting and exceeding organizational objectives. Organizations with an above-industry average turnaround time (ATT) to complete a retail mortgage transaction (RMT) from origination to funding experience revenue losses. Grounded in the proposition that mortgage loan purpose (MLP), mortgage loan type (MLT), and subject property type (SPT) impact ATT to complete an RMT, the purpose of this causal-comparative study was to assess the impact of MLP, MLT, and SPT on ATT to complete an RMT. Using archival data records (N = 146) from a selected mortgage institution in the state of Florida, the results of the 2 x 2 x 2 factorial ANOVA showed that there were no main or interaction effects $F(5,140) = 0.42$, $p = .83$. Implications for social change include the possibility for mortgage lenders to implement improved workflow processes to reduce costs and improve efficiency metrics and intrinsic value, thereby benefitting organizational stakeholders such as employees and consumers.

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Dedication

I am dedicating this scholarly work to my faith, family, and friends. First, I want to thank God for presenting me with the opportunities and capabilities to achieve my purpose in life. To my wife, Hanadi, who has supported me through every step of this process. To my mother and father, Helen and Atalla, thank you for pushing me to keep in pursuit of my education to achieve my dreams. To my brothers, Nadeem and Basim, thank you for giving me the ability and support to complete my studies.

I would also like to dedicate this work to all my extended family who have been understanding and patient with my isolation to finish this endeavor. Thank you to friends who have been positive influences during the worst and best times of my academic journey. Finally, thank you to everyone who has guided and directed me to reach this esteemed personal and professional milestone.

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Section 1: Foundation of the Study

In the mortgage profession, managers identify procedural problems to make educated decisions to improve business processes (Agarwal, Ben-David, & Yao, 2017; Bapat, 2015). Managerial decision-making, whether positive or negative, may influence a firm's profitability (Persson & Ryals, 2014). The goal of this study was to examine a potential impact of mortgage loan purpose (MLP), mortgage loan type (MLT), and subject property type (SPT) on average turnaround time (ATT) to complete a retail mortgage transaction (RMT) from origination to funding.

Background of the Problem

The mortgage trade is a vast, sophisticated group of financial transactions that deliver intangible services with a possibility of financial risk at every link of the value chain (Muthusamy & Dass, 2014; Zhang & Tang, 2014). Mortgage loan originators (LOs) provide consumers with retail mortgage products in the primary market, while private and public investors supply capital to the finance and housing industries in the secondary market (Ametefe, Devaney, & Marcato, 2016; Petersen, Waal, Mukuddem-Petersen, & Mulaudzi, 2014; Roulac, 2014). Eckstein (2015) noted that understanding complex mortgage investments requires a sophisticated knowledge of the extensive guidelines and complicated regulations of the primary and secondary mortgage sectors. Hall (2015) found that an LOs inefficient processes with complex mortgage procedures increase ATT to complete an RMT. A better understanding of the impact of MLP, MLT, and SPT on ATT may help managers to perfect the retail mortgage lending process.

The formation of the Consumer Financial Protection Bureau (CFPB) spurred consumer expertise in mortgage products and guidelines while adding to the competitive nature of the business for service quality and efficiency (Ambrose & Conklin, 2014; Eckstein, 2015). Hall (2015) stated that a firm's leaders would need quantifiable data and research to refine a business or process. Eckstein (2015) also mentioned that stricter mortgage regulations and credit standards cause competitors to rethink consumer acquisition strategies and to revise mortgage-processing techniques. Examination of the impact of MLP, MLT, and SPT on ATT may offer mortgage managers insight for retail mortgage process improvements to reduce ATT, thus increasing efficiency. Furthermore, these results may offer managers ways to reduce transaction costs, improve organizational reputation, and hence increase profitability and intrinsic value.

The consolidation and loss of financial institutions, which resulted from the 2008-2009 financial crisis, caused customer acquisition costs to increase (Harrison & Seiler, 2015). Abosag, Yen, and Barnes (2016) showed that LOs develop mortgage business through proven marketing strategies to attract consumers to purchase or refinance residential real estate. Carswell and Babiarz (2016) noted that the increase in overall transaction costs and process turnaround times should alert managers to consider functional relationships between consumers and employees. Customer acquisition happens through networking with realtors and builders, and through direct consumer advertising.

Problem Statement

Above-industry ATT to complete an RMT from origination to funding results in revenue losses (Hall, 2015). On average, only 20% of mortgage applicants continue to closing; however, mortgage origination costs represent 33% of the total closing costs of an RMT (Ambrose & Conklin, 2014; Carswell & Babiarz, 2016). The general business problem is that retail mortgage institutions incur escalating transaction costs as ATT increases to complete an RMT (Bakare, 2016). The specific business problem is that some mortgage managers do not know the impact of MLP, MLT, and SPT on ATT to complete an RMT from origination to funding.

Purpose Statement

The purpose of this quantitative, causal-comparative study was to examine the impact of MLP, MLT, and SPT on ATT. The independent variables were MLP, MLT, and SPT. The dependent variable was ATT to complete an RMT from origination to funding. The archival population data included a selected mortgage institution's retail originations data from the state of Florida. Mortgage managers may increase the firm's intrinsic value through more efficient ways to minimize ATT by reducing transaction costs and lessening risks to complete an RMT. Therefore, the social change implication of this doctoral study includes the potential increase in the firm's intrinsic value for organizational stakeholders.

Nature of the Study

Dobbin and Ionan (2015) mentioned that a quantitative method, as I used in this study, is valid when a researcher collects numerical data for hypotheses testing. A

quantitative method was suitable for this doctoral study because I collected numerical data and tested the study hypotheses. Marshall and Rossman (2015) stated that a qualitative research method is appropriate when a scholar seeks to explore a phenomenon through participant interviews. The qualitative method would not have been conducive to my research goals because I did not conduct interviews to explore a phenomenon. Finally, researchers use the mixed method to explore phenomena and examine numerical data, concurrently, through interviews and surveys (Stockman, 2015). Again, the mixed-method approach was not appropriate because I did not conduct interviews to research a phenomenon.

Explicitly, the use of a causal-comparative design can indicate statistical relationships between three categorical independent variables and one continuous dependent variable (Huck, 2012). Dobbin and Ionan (2015) mentioned that other quantitative designs indicate correlations between research variables. The objective of this doctoral study was not to show a correlation but to examine a potential impact between the independent variables on a dependent variable. Koskey and Stewart (2014) offered that an exact experimental design requires four elements that include manipulation, control, random assignment, and random selection. In this doctoral study, I did not show any experimental manipulation, control, nor selection. Therefore, an appropriate design for this doctoral research is a causal-comparative design.

Research Question and Hypotheses

Research Question: What is the impact of MLP, MLT, and SPT on ATT to complete an RMT from origination to funding?

H_0: MLP, MLT, and SPT do not have an impact on ATT to complete an RMT from origination to funding.

H_1: MLP, MLT, and SPT do have an impact on ATT to complete an RMT from origination to funding.

Theoretical Framework

Previous scholars have used theoretical propositions as lenses to view a business problem or phenomenon (Krahmer & Strausz, 2015; Lahav & Zimand-Sheiner, 2016). I developed a proposition regarding a possible theoretical explanation for the impact of MLP, MLT, and SPT on ATT in an RMT, which I justified using findings in extant literature. Al-Bahrani and Su (2015) demonstrated that MLP is a significant variable to determine mortgage pricing. Park (2016) proved that MLT is an influential variable to assess risk performance between insured and uninsured MLTs in RMTs. Gallagher (2016) verified SPT as a significant indicator of tax revenues in local governments. Feng, Fan, and Yoon (2015) measured loan popularity and proved ATT is a critical variable in the assessment of peer-to-peer (P2P) lending strategies for borrowers and lenders. The review of concurrent and previous studies assisted me in evaluating potential impacts of the developed research variables.

In this doctoral study, the independent variables may indicate an impact on the dependent variable based on previous scholars' research. Bhutta, Ringo, and Kelliher (2016) examined MLP and MLT data retrieved from the Home Mortgage Disclosure Act (HMDA aka Humda) database and reported that an increase in MLP and MLT data indicated industry growth. McCormick and Calahan (2013) used SPT as the foundation

for a unique loan identifier in an RMT to track performance throughout primary and secondary market transactions. Li and Goodman (2015) also mentioned that many indices include MLP, MLT, and SPT as factors to investigate critical mortgage problems. Therefore, drawing on existing literature, I proposed that a linear combination of MLP, MLT, and SPT may predict ATT when using a selected institution's RMT data.

Operational Definitions

Average turnaround time: The average time, in days, to complete the RMT process from mortgage origination to funding (Gupta, Yadav, & Goyal, 2017).

Closing: Closing is the finalizing stage for an approved RMT in the process (Barrutia & Espinosa, 2014).

Funding: Funding is the disbursement of funds that consummates an RMT (Papin & Turinici, 2014).

Mortgage loan purpose: Consumers us a mortgage loan to purchase or refinance real estate (Mason, Imerman, & Lee, 2014).

Mortgage loan type: Mortgage loan type is the type of insured or securitized loan provided by retail mortgage companies (Rose, 2016). For the proposed study, loan types include government-insured loans, such as Federal Housing Administration (FHA) and Veterans Administration (VA) mortgages, and conventional loans, securitized by private investors.

Mortgage process: LOs workflow for transaction processing retail mortgages (Hall, 2015). For the proposed study, the mortgage process includes origination, processing, underwriting, closing, and funding.

Origination: The consumer or LO initiate the mortgage process by completing a mortgage application with the intent to proceed (Ambrose & Conklin, 2014).

Processing: The accumulation of all stipulated borrower, LO, title, insurance, home association, taxes, inspection, and appraisal documents to support underwriter approval (Hall, 2015).

Subject property type: Mortgage applications indicate the subject property, or the type of real estate collateral, in an RMT (Thode & Levine, 2017). The SPT for the proposed study is owner-occupied and non-owner-occupied property types.

Underwriting: The overall assessment of borrower and lender risks associated with the approval or denial of an RMT (Bakare, 2016).

Assumptions, Limitations, and Delimitations

Scholars acquire knowledge and information from research to help with developing expectations, boundaries, and omissions in a study (Marshall & Rossman, 2015). A scholar demonstrates the range of intensity of the research by identifying assumptions, limitations, and delimitations (Baumeister, 2013; Riffe, Lacy, & Fico, 2014). In the following literature, I outline my assumptions and the study's limitations and omissions to provide an opening for future scholars to fill any research gaps.

Assumptions

An assumption is a non-testable claim that a researcher takes as true without knowing if the statement is factual (Riffe et al., 2014). My first assumption was that the independent variables reflected an accurate representation of loan characteristics within an RMT. The second assumption was that the dependent variable was an appropriate

measure of efficiency in all mortgage institutions. The third assumption was that the selected data was indicative of all mortgage company data compliant with HMDA and respective state statutes. My final assumption was that there was consistency in the selected data across the mortgage industry.

Limitations

Stockman (2015) mentioned that the shortcomings in research design and methodology indicate the potential boundaries of a study. Specifically, in this study, the limitations were the ex post facto study design and archival data. Koskey and Stewart (2014) stated that a study might be limited owing to the researcher's inability to generalize the research findings and establish study validity. Reio (2016) identified a limitation to the causal-comparative research design noting that it lacks randomization and control and increases the chance of researcher bias. Cotteleer and Wan (2016) experienced limitations in research design and methodology when using archival data to analyze and interpret a phenomenon or to ascertain potential relationships between industry and research. Turiano (2014) stated that the main limitation to archival data is the lack of reciprocity among previous research studies for present scholars to use. In this doctoral study, I sought to define the boundaries and minimize limitations by developing constraints such as controlling data sets and limiting the range of the selected data.

Delimitations

Delimitations are the constraints or controls in research (Atencia, 2014; Wang J, 2015). In this doctoral study, I did not include retail mortgage data from outside the United States. Similarly, I did not include retail mortgage data outside of Florida in the

procured study sample. Furthermore, I did not include retail home improvement mortgage data. Amadi-Echendu and Pellissier (2014) indicated that personal employee data, such as marital status and age, have minimal significance on turnaround times. Therefore, I omitted personal employee data from this examination.

Significance of the Study

Findings from this study may extend mortgage knowledge in scholarly literature and be used to improve retail mortgage processes. Mortgage managers may gain additional perspectives for procedural improvements to increase efficiency, decrease transaction costs, and diminish moral hazard. Bakare (2016) determined that significance in scholarly research depends on the application of the research to a real-time business environment. For bank owners, mortgage lenders, and managers, understanding the value, contribution, and social change factors in this study may lead them to develop vital procedural improvements in RMTs (Adeleye, 2015; Barrutia & Espinosa, 2014). Mortgage managers may choose to apply the findings, whether significant or not, to improve or modify overall loan processes while seeking to improve efficiency, reduce transaction costs, and curb moral hazard.

Contribution to Business Practice

This study has four identifiable contributions to mortgage business practices to help mortgage leaders and managers improve RMT processes and profits. Mortgage managers who can pinpoint and attract applicants with the lowest acquisition costs tend to profit the most (Van Rensselaer, Blackstone, Crabb, & Gordon, 2014). Adeleye (2015), Bapat (2015), and Ertürk (2014) showed that theoretical research applied in

business practices has included significant findings, which have provided managers with applicable results to contribute knowledge and innovate business practices. Hence, the first benefit of this study's findings is the reduction of RMT costs. A second benefit from my findings is the potential for a more efficient mortgage process. A third benefit is that mortgage managers may use the findings to better understand the impact relationships of RMT characteristics have on ATT to achieve organizational goals. A final benefit of this study is that it provides significant data and results to mortgage managers seeking to help increase their firms' intrinsic value. Therefore, my evaluation of MLP, MLT, SPT, and ATT in this study may help mortgage leaders and managers reduce transaction costs, improve RMT efficiencies, and increase their firms' intrinsic value for stakeholders.

Implications for Social Change

This study's positive social change implications include the potential to assist mortgage stakeholders (customers, employees, managers, government agencies, shareholders, and third-party vendors) with process improvements to boost industry reputation. Since 2008, real estate, mortgage, and finance professionals have experienced an increased level of consumer animosity while completing an RMT (Abosag et al., 2016; Hall, 2015). Hall (2015) further stated that the mortgage process needs an overhaul to improve industry reputation to decrease moral hazard and consumer animosity. Understanding among mortgage leaders and managers regarding consumer and employee experiences is vital to achieving a firm's social objectives in the mortgage industry (Bordo, 2014; Pelser, 2014). Markovitch and Willmott (2014) also mentioned that improving the mortgage process may mitigate the moral hazard felt by consumers during

the 2008-2009 financial crisis. My analysis of the impact of MLP, MLT, and SPT on ATT may assist managers in simplifying the loan process to curb consumer animosity and moral hazard and improve industry reputation while increasing the firm's intrinsic value.

A Review of the Professional and Academic Literature

A review of the academic and professional literature shows the various sources a researcher utilized in a study, including peer-reviewed journal articles, government sources, and seminal books (Baumeister, 2013). Cotteleer and Wan (2016) suggested that literature reviews should adopt a phenomenon-driven approach as an alternative approach to literature-driven reviews. Irrespective of the literature review approach, the content analysis must be succinct and show synthesis between professional application, academic research, and results (Larsen & How Bong, 2016). In the literature review, I offer a critical analysis of the extant sources associated with the developed independent variables supporting the refined theoretical proposition while including a critical analysis of the extant sources related to the dependent variable.

Analyzing the literature and synthesizing the research indicated the following topics, (a) theoretical framework; and (b) supportive theoretical reviews, complete with a transitory synopsis of the literature. The following tables represent the frequencies of peer-reviewed and non-peer-reviewed sources organized by year, percentages, and sections. Table 1 represents the number and frequency of peer-reviewed and non-peer-reviewed sources by year. Table 2 indicates the number and frequency of literature review sources by variables. Table 3 displays the number and frequency of unique

sources by literature review section. Table 4 shows the reference type by peer-reviewed and non-peer-reviewed frequencies.

Table 1

Number and Frequency of Peer-Reviewed and Non-Peer-Reviewed Sources by Year

Source year	No. of sources	% of total	PR	Non-PR
<2014	9	5.03%	5	4
2014	29	16.20%	26	3
2015	44	24.58%	44	0
2016	48	26.82%	46	2
2017	42	23.46%	42	0
2018	7	3.91%	7	0
Total sources	179	100.00%	170	9

Table 2

Number and Frequency of Literature Review Sources by Variable

Research variables	No. of sources	% of total	PR	Non-PR
MLP - Independent variable 1	25	32.89%	23	2
MLT - Independent variable 2	20	26.32%	18	2
SPT - Independent variable 3	19	25.00%	18	1
ATT - Dependent variable	12	15.79%	8	1
Totals	76	100%	67	6

Table 3

Number and Frequency of Unique Sources by Literature Review Section

Literature review section	No. of sources	% of total	PR	Non-PR
Search database & terms	3	3.61%	3	0
Theoretical framework	70	84.34%	66	4
Supportive theories	10	12.05%	9	1
Totals	83	100%	78	5

Table 4

Number and Frequency of Reference Type by Peer-Reviewed and Non-Peer-Reviewed

Reference type	Peer-reviewed	Non-PR	Totals	% of total
Book	2		2	1.12%
Conference		1	1	0.56%
Government	3	3	6	3.35%
Journal article	164	2	166	92.74%
Report		3	3	1.68%
Website	1		1	0.56%
Totals	170	9	179	100.00%

Search Databases and Terms

I used Google Scholar, EBSCO Host, ProQuest, Emerald Insight, SAGE Journals, and Science Direct databases to gather materials for this literature review. The search strategy included using multiple search windows, copy and pasting search terms into different databases, using keyboard shortcuts, and brainstorming. An additional strategy involved combining search terms and quoted phrases to narrow down sources. The following were the significant terms and combined quoted phrases I used in searches: *mortgage operations*, *mortgage turnaround*, *average turnaround time*, *mortgage loan types*, *mortgage loan purposes*, *subject property types*, and *theoretical propositions*. Additional search terms and quoted phrases included: *loan originator*, *home loan*,

mortgage process, *mortgage originations*, *owner occupied*, *non-owner occupied*, *1-4 units*, *multifamily*, *purchase*, *refinance*, *FHA, VA,* and *conventional mortgages*. Other search terms and quoted phrases included: *theory of constraints*, *thinking process*, *qualitative*, *quantitative*, *mixed methods*, *turnover*, and *experience*.

Theoretical Framework

In this research, my goal was to show that MLP, MLT, and SPT have a significant impact on the ATT to complete an RMT from origination to funding. Scholars have used MLP, MLT, and SPT as independent or predictor variables in different studies that determined significance on corresponding dependent variables (Al-Bahrani & Su, 2015; Feng et al., 2015; Gallagher, 2016; Park K. A., 2016). Al-Bahrani and Su (2015) applied ordinary least squares (OLS) in a quantile regression (N = 5,013) to predict the significance of purchase MLPs on mortgage pricing. The regression results were significant, (OLS = .1174; df = 33; $p < .05$). Park (2016) examined the risk performance of insured MLTs relative to uninsured MLTs. Park used a propensity score matching technique on observed credit risk scenarios (N = 2,325,945) that yielded notable results that showed MLT as a significant predictor in the model, (t = 1.607; p = .01). Gallagher (2016) examined municipalities and school district data (N = 5,280) from 1980 to 2010 to correlate SPT and property taxes as a funding source for local governments. First-stage regression results were significant for multifamily SPTs in suburban municipalities, (F[3,388] = -.876; $p \leq .01$; R^2 = .42), meaning multifamily SPTs indirectly related to funding for suburban municipalities. Feng et al. (2015) examined loan characteristics, such as rate, amount, and period correlated to predict loan popularity, measured by

funding success rates, the number of bids, and funding times, among potential P2P investors. Feng et al. observed transactions (N = 1,057) and verified, with statistical significance, that loan period had an impact on funding time as a predictor in the model, (t[3] = .866; p < .01). The research findings for the independent variables, MLP, MLT, and SPT, may show mortgage managers a potential impact on the dependent variable, ATT. I will further discuss the independent variables along with the dependent variable in the remaining portion of the theoretical framework.

Mortgage Loan Purposes

A consumer uses a retail mortgage to purchase or refinance residential real estate (Mason et al., 2014). There are similarities and differences in time-based procedures between the two loan purposes, although completion times are almost identical (Bhutta et al., 2016). A purchase MLP requires additional inspectors whereas a refinance MLP may not require an appraiser (Wilcox, 2015). Comparing and contrasting MLP characteristics may offer mortgage managers viable solutions to improve processes to reduce ATT. An in-depth examination of MLP attributes' may provide managers with the data regarding RMT outcomes; however, it will help me to provide a succinct and critical analysis for the inclusion of MLP as a study variable.

Purchase. The purpose of a primary loan is to facilitate a consumer's procurement of residential real estate (Agarwal, Chomsisengphet, & Zhang, 2017). Quantitative and qualitative researchers have found significant relationships between MLP characteristics and the impacts on RMT outcomes (Berg, 2015; Neuhauser, 2015; Serrano-Cinca, Gutiérrez-Nieto, & López-Palacios, 2015). Berg's (2015) regression

discontinuity analysis of MLP originations (N = 4,013) showed a 50% reduction in default rates because of the involvement of a risk manager in an RMT approval process. The regression results were significant, (OR = .313; p = .01; R^2 = .08). Serrano-Cinca et al. (2015) analyzed P2P lending applications (N = 24,449) with 14 loan purposes and found, with statistical significance (p < .001), that the P2P borrower lending grade is an accurate variable for default prediction for 10 of the 14 loan purposes. More interestingly and specifically, a borrower's home purchase did not have any significant impact on P2P lending grades or mortgage defaults in the sampled data. Conversely, in a qualitative review of post-2008 recession articles on financial crisis, Neuhauser (2015) observed that the relaxed rating agency guidelines on MLP, particularly with subprime mortgage loans, increased default rates in securitized RMTs. Collectively, previous research has shown that MLP is an important and required research variable to assess default risk and loan performance. A mortgage manager's analysis of MLP characteristic impacts in an RMT may lead to improved processes to reduce ATT and minimize transaction costs.

Scholars have found that purchase MLPs have a substantial role in estimating risk and capacity metrics to improve efficiencies and reduce costs (Li & Goodman, 2015; Serrano-Cinca et al., 2015; Sharpe & Sherlund, 2015). Li and Goodman (2015) stated and measured probability factors of borrower default, and calculated credit accessibility and risk, simultaneously. Li and Goodman's risk index showed that government-insured purchase MLPs increased by 48% after the 2008 housing crisis. Serrano-Cinca et al. (2015) stated that loan purpose is a risk assessment factor associated with the probability of loan defaults among all P2P lending grades, A through G. For the highest P2P lending

grade (A), chi-square test results were statistically significant, ($\chi 2$[6, N = 7,901] = 342.041; p = .01), whereas the chi-square test results for the lowest grade (G) were also statistically significant ($\chi 2$[6, N = 55] = 42.218; p = .01). Sharpe and Sherlund (2015) completed a regression analysis of HMDA data applications and originations between 2003 and 2014, to determine if mortgage employees, credit scores, and MLPs predicted capacity utilization. Purchase MLPs (N = 4) per mortgage employee was a significant predictor in the model, (t = .196; p < .001). An LOs efficient ATT, or capacity utilization, of RMTs, is critical to delivering an intangible product in consumer lending; therefore, managers' capabilities to utilize the metrics to make decisions may assist them in meeting company goals to optimize capacity, thus reducing ATT and RMT costs.

Process optimization to manage capacity is an organizational goal for mortgage managers to increase mortgage-backed securities (MBSs) investments influencing market activity (Downs & Shi, 2015; Teye, Teye, & Asiedu, 2015). Downs and Shi (2015) conducted a difference-in-differences estimate of HMDA data between 2003 and 2010 to compare pre-2008 and post-2008 securitization regulations on RMT denial rates between various lender types. RMT denial rates influenced purchase MLP capacities in subprime lending within bank holding companies (BHCs) and respective affiliates, unaffiliates, and independent mortgage companies. Downs and Shi assessed the association, with statistical significance, between lender type and MLP denial rates, where lender type, MBSs of BHCs showed above average purchase MLP denial rates that resulted in chi-square test results, ($\chi 2$[3, N = 6,364,421] = .48; p = .01). In the rural housing sector of Ireland, Teye et al. (2015) surveyed two housing communities (N = 380) to explore the

systematic relationship between new housing finance and supply and demand capacities in the Ghanaian mortgage market. The chi-square test results showed with statistical significance, ($\chi 2$[4, N = 196] = .148; p = .05), that the relationship between purchase MLPs and housing supply capacities signals strength in industry activities. A successful mortgage manager's ability to manage RMT capacity through purchase MLPs will require minimization of ATT to maximize profitability on the sale of MBSs in the secondary mortgage market. The significance between purchase MLPs and capacity management in various mortgage systems has stalled efficient operations in multiple real estate sectors; therefore, is a justified reason for me to include MLP as a study variable to predict a potential impact on ATT in completed RMTs.

Researchers have presented additional justification for the inclusion of MLP as a research variable and have shown various relationships and phenomena between purchase MLPs and market activity (Bhutta et al., 2016; Curtis, 2014; Zou, 2016). Bhutta et al. (2016) examined 2012 HMDA RMT data (N = 18,691,550) to analyze market activity by lending institution segmented by MLP. The scholars calculated a 10% increase in purchase MLPs from 2011 to 2012, which resulted in a 26% increase in total RMT activity for the same period. This statistic is important as it indicated the first increase in purchase MLPs since 2004. Curtis (2014) observed mortgage transactions (N = 31,971) and created a state-specific index that showed which state foreclosure laws favored lenders, and that predicted the impact of the laws to mortgage origination activity in prime and subprime markets. Lender-favored state foreclosure law contained mixed results of prime purchase MLP activity as a predictor variable being insignificant, (t[12]

= .48; $p > .10$; $R^2 = .361$), whereas the scholar's results also exhibited with statistical significance, ($t[12] = 1.90$; $p < .10$; $R^2 = .431$), subprime purchase MLP activity as a predictor variable influenced LOs to originate in states with lender-favored foreclosure laws. In contrast, Zou (2016) analyzed the challenges and changes that arose from the evolution of Chinese housing operations through a combination of financial liberalization regulations to increase affordable housing. Zou found that a location-specific mix of financial liberalization regulations assisted borrowers with alternative purchase MLPs, which contributed to a 10% increase in location-specific economic development. Mortgage managers who can optimize purchase MLP activity may produce an increase in overall market activity as indicated in the research above; therefore, improving ATT to meet demand validates the inclusion of MLP as a study variable.

Financiers, private and public, moderate investing behaviors by evaluating market activity, examining borrower creditworthiness, and utilizing available information (Kim, Tunas, & Green, 2016; Prystav, 2016; Zhang & Tang, 2014). Zhang and Tang (2014) showed government-sponsored enterprises (GSEs) investor performance through 15 different credit standards segmented by MLP among RMTs ($N = 18{,}700{,}000$) and calculated the modification rates between 2000 and 2010. The GSE, Federal Home Mortgage Loan Corporation (FHMLC aka Freddie Mac) had higher modification rates eight out of 10 years compared to GSE, Federal National Mortgage Association (FNMA aka Fannie Mae). Kim et al. (2016) stated that MLP is the second most significant factor to predict loan delinquency but did not provide statistical findings to support the claim. Prystav (2016) experimented with German business students ($N = 432$) to evaluate the

relationship between loan purpose, information availability, investor behaviors, and loan project investment amount. The loan purpose results of the one-way ANOVA were significant, (F[3,235.653] = 3.789; $p < .01$). The challenge is for investors to moderate financing behaviors through market analysis, creditworthiness, and information availability; therefore, analyzing MLPs to determine an impact on ATT in an RMT may also provide mortgage investors with additional, yet critical information to moderate investing behaviors.

Refinance. An alternative loan purpose for consumers in an RMT is to refinance real estate to receive cash or reduce interest rates and maturity terms (Mason et al., 2014). Researchers showed that refinance MLPs had a significant impact on origination capacity (Bhutta et al., 2016; Downs & Shi, 2015; Sharpe & Sherlund, 2015). Sharpe and Sherlund (2015) found an inverse relationship between refinance MLPs and interest rate adjustments controlled by the LOs to manage refinancing demand. Downs and Shi (2015) proved those capacity limitations were significant between 2003 and 2010 as the research indicated LOs originated 11% less refinance MLPs. Bhutta et al. (2016) confirmed Downs and Shi's research through the analysis of purchase and refinanced MLPs of HMDA data between 2004 and 2015, which indicated that LOs originated 14% less refinance MLPs. An LOs ability to control refinance MLP capacity with interest rate adjustments is more reason for the inclusion of MLP as a study variable to examine the impact on ATT in an RMT.

Scholars also examined significant relationships between risk, default, prepayment, and refinance MLPs, respectively (Bylander & Hamilton, 2015; Caplin,

Cororaton, & Tracy, 2015; Gibilaro & Mattarocci, 2016). Gibilaro and Mattarocci (2016) completed a regression analysis of property market trends and bank risk exposure (N = 2,798) while controlling for type of bank and loan purpose. Loan purpose was a significant predictor in the model, (t = .16; p = .05), as mortgage managers determined default risk in an RMT. In the Cambodian microfinance industry, Bylander and Hamilton (2015) examined socio-economic relationships (N = 11,662) between credit risk and migration and used loan purpose as a control variable. The logistic regression results were significant for 2 of 3 loan purposes, (OR = 1.39; p < .01) and (OR = 1.38; p < .01), investment and consumption loan purposes, respectively. Among borrowers with Federal Housing Administration (FHA) mortgages, Caplin et al. (2015) defined sustainable homeownership as paying off a current loan by refinancing or held to maturity by default. The prepayment (N = 188,789) and default (N = 191,393) results indicated statistical significance for cash-out and no cash-out refinance MLPs. The scholars found statistically significant findings for cash-out refinance MLPs was, (F[1,3] = 1.30; p = .01; R^2 = .024), whereas no cash-out refinance MLPs was, (F[1,3] = 1.44; p = .01; R^2 = .023). The prepayment result for cash-out refinance MLPs was (F[1,3] = 1.38; p = .01; R^2 = .019), whereas no cash-out refinance MLPs was (F[1,3] = .78; p = .01; R^2 = .012). Migration, sustainable homeownership, and capital necessities for different borrowers proved that loan purpose, whether in retail banking or microfinance, significantly impacts socio-economic consequences as well as transaction outcomes. Therefore, previous researchers justified my decision for the inclusion of MLP as an independent study variable.

Additional justification for the inclusion of the MLP variable was because of the various relationships between decision-making, costs, competition, and refinance MLPs. Ambrose and Conklin (2014) used the refinance MLP characteristic, cash-out loans (N = 269,573), as a predictor in an OLS regression to examine the relationship between mortgage broker competition and costs. The scholars found MLP predictor variable results statistically significant, (OLS = 443.00; df = 18; p = .01). Al-Bahrani and Su (2015) also used OLS, although in a quantile regression to indicate the significance in refinance MLPs, specifically cash-out loans (N = 5,013), on mortgage pricing. The results were significant, (OLS = .3011; df = 33; p < .01). Agarwal, Ben-David et al. (2017) assessed borrower decision-making and measured the net present value (NPV) of investing in one percentage point to reduce the note rate and exiting a mortgage within a specified time. Agarwal, Ben-David et al. used the Cox model hazard regression and yielded results, with statistical significance, for refinance MLP types (N = 17,204,751), rate-term and cash-out, (t[-46.84] = -.027; p = .01) and (t[-78.92] = -.045; p = .01), respectively. Refinance MLPs, specifically cash-out, had a significant impact on mortgage pricing, costs, and competition; therefore, may offer mortgage managers additional data in decision-making processes and provides further justification for the inclusion of MLP as a variable in this study.

Mortgage Loan Types

LOs sell bundles of RMTs by MLT to secure private or government-insured investors in the secondary market to replenish primary market capital (Cao & Liu, 2016). In this study, MLT characteristics in RMTs included conventional and government

purchase and refinance mortgages (Rose, 2016). Conventional, FHA, and VA mortgages differ in lending institutions, guidelines, costs, and turnaround times (Harrison & Seiler, 2015). In this study, assessing similarities and differences between MLT characteristics in RMTs may offer significant data for industry stakeholders to make effective decisions to reduce costs, minimize turnaround and achieve socio-economic goals.

Conventional. A conventional mortgage is a residential, non-government real estate loan provided by LOs to borrowers with a specific risk profile (Cao & Liu, 2016). Previous quantitative and qualitative researchers analyzed primary and secondary data and found various relationships between borrower decisions, MLT characteristics and RMT purposes (Lang & Hurst, 2014; Park K. A., 2016; Rose, 2016). Park (2016) analyzed a scenario after borrowers decided to default on conventional and government loans. Park's results indicated statistical significance for borrowers (N = 6,625) that decided to default on conventional loans, (t[10] = 1.607; p = .01) compared to government loans. Rose (2016) showed that MLT guidance regarding debt structure and utilization choices for people with homeownership as an objective. Rose advised homeownership-seeking decision-makers that effective debt management and utilization strategies will lead to lower cost mortgages, such as conventional MLTs. Lang and Hurst (2014) assessed the decision-making of state grant recipients (N = 35,161) through observation of MLT selection in RMTs. Lang and Hurst proved with statistical significance, (t[16] = .096; p < .01), (t[16] = .217, p < .01), (t[16] = .123; p < .01), for 2007, 2008, and 2009, respectively, state grant recipients made correct decisions to choose conventional MLTs over government MLTs as related to loan size and down

payment options in RMTs. Mortgage borrowers' individual decisions influenced MLT choice in a purchase RMT; therefore, including MLT as a variable to examine the impact on ATT may offer mortgage managers significant data for profitability and efficiency metrics to make effective decisions to meet organizational goals.

Prior researchers used MLT data to calculate industry performance metrics, such as changes in the federal funds rate (FFR), regulation, and foreclosure rates (Bhutta et al., 2016; Orzechowski, 2017; Shindelar, 2015). Bhutta et al. (2016) analyzed HMDA data and showed that conventional MLT originations decreased by 14% between 2009 and 2015 because of the increased role of government in consumer lending. Orzechowski (2017) estimated loan growth rates by MLTs as grouped into high and low capital-intensive banks to determine significant changes in the FFR. The generalized least square (GLS) regression of MLT to predict the changes in the FFR indicated with statistical significance in both high (N = 1,008) and low (N = 1,440) capital intensive banks, (t = -.095; p < .001) and (t = -.102; p < .001), respectively. Shindelar (2015) showed that there was no significance in the foreclosure rates among prime, conventional MLTs (4%) measured against sub-prime conventional (15%) and FHA (4%) government loans. MLT as a variable to explore industry performance metrics provided mortgage managers with quantified performance data to make valuable decisions to minimize foreclosure rates, improve regulations, and capitalize on FFR changes.

Mortgage consumers use credit availability, risk, and financial literacy fundamentals as crucial decision variables for MLT choice in mortgage markets (Cox, Brounen, & Neuteboom, 2015; Li & Goodman, 2015; Lucas, 2016). In the Dutch

mortgage market, loan types are amortizing, deferred amortization, and interest-only loans. Cox et al. (2015) found that risk aversion and financial literacy decision variables were only statistically significant in relationship, both indirect and direct, to interest-only loan types, (t = -2.33; p = .05) and (t = 2.11; p = .05), respectively. In the U.S. market, Li and Goodman (2015) measured the expected GSEs default risk versus origination quarter between 1998 and 2013 that yielded a credit availability trend. The scholars used the trend line to show that the GSEs parallel industry credit trends, reducing conventional MLT credit accessibility during the 2008 financial crisis. Lucas (2016) grouped loan type data between 1998 and 2010 and stated that by 2010, GSEs financed 63% of new home purchase MLPs with conventional MLTs. Credit, risk, and financial literacy are essential variables in borrowers' decisions to choose loan type; therefore, verified the inclusion of MLT as an independent variable to determine an impact on ATT to complete RMTs from origination to funding.

Government. Government MLTs, for the purposes this study, included FHA-insured and VA-guaranteed mortgages (Reiss, 2016). In previous quantitative and qualitative research studies, scholars examined different relationships between decision-making, sustainability, and government MLTs (Aksoy, Keiningham, Buoye, & Ball, 2016; Caplin et al., 2015; Reiss, 2016). Reiss (2016) assessed the sustainability of the FHA and the impact in the secondary mortgage market during the Great Recession. Reiss stated that it benefits the FHA to ensure sustainable mortgages to limit default risk, which leads to increased transaction costs. Conversely, Caplin et al. (2015) defined and analyzed homeownership sustainability through FHA MLTs paid in full or refinanced to

non-FHA mortgages. Caplin et al. found that prepayment risk of FHA MLTs (N = 159,169) at a loan-to-value (LTV) level of 80-84%, (t = .96; p = .05), are twice as likely than LTV level of 100-104%, (t = .64; p = .01), to pay off FHA mortgages. Aksoy et al. (2016) surveyed credit union members (N = 642) and applied the wallet allocation rule (WAR) to members' decisions to use a credit union or bank for a purchase MLP controlled by seven loan types. Aksoy et al. revealed that most credit union members surveyed (70%), used the WAR to choose a bank over a credit union regarding competition in value and loan type offerings and yielded a 55% bank application rate. Borrowers that sought funds obtained competitive government MLT offerings compared to conventional MLT offerings in down payment and RMT costs. Therefore, my assertion is correct to include MLT as an independent variable in this study to examine the impact on ATT in RMTs between origination and funding.

Scholars further analyzed the lending decisions in primary and secondary markets to determine MLT characteristics impact on credit supply and borrower decision-making to attain company goals (Dettling & Hsu, 2017; Ivanov & Wang, 2017; Metawa, Hassan, & Elhoseny, 2017). In the primary market at the state level, Dettling and Hsu (2017) stated loan types (N = 3,555,612) are credit cards, auto loans, unsecured loans, and mortgages and examined consumer offers received by census tract income. Dettling and Hsu's results, (t[3] = -.0349; p = .01), proved, with statistical significance, that changes in the minimum wage rate influenced loan type decisions as income levels increased. Ivanov and Wang (2017) defined loan types as revolving or term loans (N = 6,190) and found with statistical significance, in an OLS regression, results, (OLS = .4016; p < .01),

as lender credit ratings declined, borrowers loan type options to access credit also declined. Metawa et al. (2017) defined mortgage, personal, and auto loans as loan types. Metawa et al. provided a genetic algorithm (GA) assisting mortgage managers to make effective decisions based on loan types during periods of illiquidity as compared to other algorithms, such as two-level partitioning (TLP) algorithm and the multi-objective evolutionary algorithm (MODE-GL). The scholars' results indicated that MLT was a significant variable (M = .43, SD = .011) in GA lending decisions as compared to lending decisions based on TLP and MODE-GL algorithms. The impact of MLT characteristics on credit supply and borrower decision-making is noteworthy because mortgage managers used MLT attributes that derived the information to make effective decisions to achieve company objectives.

Further justification for MLT inclusion as a variable in this study is because in prior studies scholars assessed MLT attributes and various RMT metrics (Akins, Li, Ng, & Rusticus, 2016; Dodson, 2014; Ellie Mae, Inc, 2016). Akins et al. (2016) examined the relationships (N = 21,454,463) between competition and loan application rejection, controlling for MLT among other predictors. Akins et al. proved that MLT is a significant predictor in the model, (t[17] = -.83; p =.01), where competition decreases, and rejections increase. Dodson (2014) performed tests (N = 370) that assessed the comparative advantages between large and small banks government MLT offerings in competition for fixed-asset lending in rural areas. Borrower MLT selection and property equity were significant indicators for large banks to lend in rural areas for fixed assets. The scholar's results were statistically significant, (t[13] = -.88; p = .10) and (t[13] = -.0375; p = .10),

respectively. In 2016, Ellie Mae analysts assessed the time to close mortgage loans in days, segmented by MLT. The analysts found as of December 2016, the FHA averaged one business day better than conventional lenders, and three days better than VA lenders. The results indicated the FHA time to close was 49 days, 50 days for conventional, and 52 days for VA mortgages. The scholars above showed that MLT was a significant indicator for RMT metrics; therefore, qualifying my decision to include MLT as an independent variable to examine the impact on ATT in RMTs.

Subject Property Types

In RMTs, the SPT refers to housing units that are single family residences (SFRs), both detached and attached, condominiums, and multifamily properties (DeLisle, 2015). LOs classify owner-occupied SFRs and condominiums as one detached to four attached residential housing units whereas non-owner occupied multifamily properties, such as apartments, are greater than five units (McCormick & Calahan, 2013). Private and public investors use specific guidelines, procedures, and valuation models for SPT attributes (Bellotti, 2017). Mortgage managers' assessments of SPT characteristics may help to decide on process improvements to reduce ATT and increase intrinsic value for stakeholders.

Owner-occupied. Much of residential real estate includes owner-occupied properties appraised as detached SFRs to attached SFRs, such as a townhome or a quadplex, and condominium (Thode & Levine, 2017). Quantitative and qualitative researchers used SPT characteristics to examine various industry metrics, such as liquidity, homeownership rates, and market shifts (Blau, Nguyen, & Whitby, 2015;

Glascock & Lu-Andrews, 2015; Grover & Grover, 2014). Glascock and Lu-Andrews (2015) showed that size and liquidity have a significant impact on real estate investment trusts (REITs) stock price behaviors in extreme stock market declines. The scholars measured REITs size by market capitalization and REITs liquidity by turnover and bid-ask spread. Glascock and Lu-Andrews controlled for SPTs and examined beta statistics of REIT stocks (N = 5,652) before an extreme stock market decline to predict stock pricing behaviors that affected abnormal returns. The scholars' findings were statistically significant. Glascock and Lu-Andrews found that liquid REITs holding residential SPTs were an influential predictor in the pricing behavior model, (t[10] = 1.04; p = .01) and (t[10] = -.6215; p = .01), turnover and bid-ask spread, respectively, to maximize abnormal returns during extreme market declines. Blau et al. (2015) performed a multivariate analysis that observed (N = 8,848) effects of the distribution of market liquidity between REITs and non-REITs, which used seven SPTs as indicator variables of the REITs bid-ask spread. The scholars' results for residential SPTs as a predictor in the model showed statistical significance on REITs liquidity distribution, (t[7] = -4.36; p = .01). In the European Union (EU), Grover and Grover (2014) explored the phenomena of residential property prices indices (RPPI) on integrated financial systems to develop an aggregation of EU financial systems into a single index. Grover and Grover did not provide statistics but stated that Central and Eastern EU members have higher owner occupancy rates although a low mortgage usage rate, which indicated less cohesion among EU financial systems that contributed to market declines. Although Grover and Grover showed that the EU members had substantial homeownership rates, instability

remained in respective financial systems whereas Glascock and Lu-Andrews and Blau et al. indicated that REITs with high liquidity, holding specific rather than diverse SPTs, capitalized on financial instabilities during extreme market declines, maximizing abnormal returns. Maintaining liquidity in the primary mortgage market from the secondary market allows for LOs to take additional risks on SPTs to maximize homeownership rates and minimize default rates.

Additional researchers showed that market declines accounted for defaulted mortgages and assessed loan performance metrics controlling for SPT attributes (Adelino, Gerardi, & Hartman-Glaser, 2016; Agarwal, Chomsisengphet, et al., 2017; Brueckner, Calem, & Nakamura, 2016). Adelino et al. (2016) examined mortgages (N = 5,313,951) from Lender Processing Services (LPS) and Core Logic (CL) and assessed the relationship between default and the time to sell mortgages to private investors, controlling for SPT. The scholars' results showed SPT as an indicator variable that did not have any statistical significance on defaulted loans, (t[32] = -.0012; p = .01). Conversely, Brueckner et al. (2016) used SPT attributes and created a model to predict default among private (N = 401,017), public (N = 1,100,972), and portfolio (N = 151,058) investors in securitized mortgages originated with alternative mortgage products (AMPs). Brueckner et al. conducted a proportional hazard regression and verified, with statistical significance, that owner-occupied residences defaulted on AMPs regardless of investor types, (t[44] = .158; p = .001), (t[44] = .253; p = .001), (t[44] = .255; p = .001), respectively. Agarwal, Chomsisengphet et al. (2017) examined delinquency rates among professionals in the finance industry, controlling for SPT. Agarwal, Chomsisengphet et

al. found with statistical significance, (OR = .84; p = .01), that SPT was a noteworthy indicator in the model that determined delinquency rates among financial professionals that owned and resided at their primary residence. Even though Adelino et al. did not find any significance in the results, Agarwal, Chomsisengphet et al. and Brueckner et al. proved that SPT characteristics are significant predictors for default. Therefore, mortgage managers may use SPT characteristics to determine an impact on ATT in an RMT, as considered for this study.

Prior scholars showed that information and feedback influenced profitability and value, respectively, among private and public investors (Freybote, Ziobrowski, & Gallimore, 2014; Gokkaya, Highfield, Roskelley, & Steele, 2015; Ribeiro-Ferreira, 2016). Ribeiro-Ferreira (2016) stated that the Australian government put profits before people during the financial reform that led to exclusionary policies for potential homeowners. To determine the association between profitability and SPT attributes, Gokkaya et al. (2015) examined REITs with single and multiple property types (N = 126) between 1993 and 2007 and correlated information asymmetry impacting IPO returns between specific REIT holdings. Gokkaya et al. found, with statistical significance, that IPO returns for REITs holding a particular property type realized fewer returns than REITs holding multiple property types at IPO. The ANOVA results were significant for single and multiple SPTs, (F[2, 90] = 2.701; p = .01) and (F[2, 36] = 11.491; p = .01), respectively. Freybote et al. (2014) created a controlled experiment of residential appraisers (N = 30) that determined a relationship between feedback and appraisers' SPT value judgments since Dodd-Frank required LOs to use appraisal management companies

(AMCs). Freybote et al. results, (t[3] = .668; p = .05), proved that feedback had not influenced appraisers' SPT value judgments since the start of AMCs. Although Ribeiro-Ferreira did not show any significance with SPT valuations, which could have been from the small sample, Gokkaya et al. and Freybote et al. provided noteworthy evidence of the relationships and associations between SPT attributes and RMT metrics, such as valuations and profitability. Therefore, the decision to include SPT as an independent research variable is correct.

Non-owner occupied. Many homeowners purchase additional real estate in various locations for use as a second home or an investment property (McCormick & Calahan, 2013). Qualitative and quantitative scholars explored phenomenon and examined stock prices to determine effects and impacts on the mortgage and real estate industries (Bokhari & Geltner, 2016; Glascock & Lu-Andrews, 2015; Ribeiro-Ferreira, 2016). With a qualitative lens, Ribeiro-Ferreira (2016) analyzed the change in the Australian residential real estate market through the evolution of the mortgage industry. The scholar found that the evolution of the mortgage industry caused a decline in owner-occupied properties and a corresponding rise in non-owner-occupied properties. Glascock and Lu-Andrews (2015) created a model, controlling for REIT SPTs. Glascock and Lu-Andrews examined beta metrics of REIT stocks before an extreme stock market decline to predict stock pricing behaviors impacting abnormal returns on the day of (Day 0), the day after (Day 1), and up to three days (Days 1-3) after an extreme stock market decline. The scholars' results indicated with statistical significance, (t[10] = -.8479; p = .01), (t[10] = .9058; p = .01), and (t[10] = .4936; p = .01), respectively, that industrial/office

SPT is another influential predictor in the pricing behavior model. Bokhari and Geltner (2016) used SPT characteristics and predicted the nature and magnitude of depreciation in multifamily and commercial properties (N = 107,805) and the impact on valuations over time, from an investment perspective. The scholars OLS regression predicted, with statistical significance, (OLS = 50.46; $p < .01$) and (OLS = 52.99; $p < .01$), office and retail SPTs, respectively, depreciated at a faster rate than industrial SPTs, (OLS = 73.75; $p < .01$). Bokhari and Geltner's results proved that office and retail SPTs required redevelopment at least 21 years earlier, impacting depreciation values over time. Property valuations affected by defaults impacted corporate profits; therefore, a review of default, trends, and profitability associated with SPTs may assist managers to limit default, minimize ATT, and reduce transaction costs.

In previous research, scholars used SPT characteristics as predictors to determine default and profitability; and indicators to explore trends in laws and regulations (Aznar, Sayeras, Rocafort, & Galiana, 2017; Griffin & Maturana, 2016; Sklar & Edwards, 2017). Griffin and Maturana (2016) examined MBS loan data from 2002 to 2007 that determined the effects of occupancy misreporting predicted delinquencies that resulted in MBS loan losses. In a logit regression, the researchers evidenced, with statistical significance, occupancy misreporting influenced delinquencies, (OR = 1.08; $p < .01$). In Barcelona, Spain, Aznar et al. (2017) found that new non-owner-occupied property types (N = 43), such as properties listed on Airbnb, impacted the profitability of area hotels. At the $p = .05$ significance level, the scholars' results exhibited ten hotels with negative profitability, ten hotels showed positive profitability levels less than a 5% return, and 12

hotels stated profitability above a 10% return, an indication of variability of profitability among hotels within one kilometer of an Airbnb. Conversely, Sklar and Edwards (2017) explored Florida community deeds, covenants, and restrictions regarding non-residential use of residential properties, such as Airbnb and vacation rentals by owner (VRBO). Sklar and Edwards stated that local, state, and federal governments ruled for the community association laws that disallow the use of residential properties for Airbnb and VRBO businesses. The SPTs as indicators and predictors may help to assist mortgage managers in making decisions on SPTs impact on ATT in an RMT; therefore, further justified for inclusion as an independent variable in this study.

Average Turnaround Time

Mortgage managers use ATT as a critical industry metric to monitor the efficiency of sales and operations employees who execute the retail mortgage process (Markovitch & Willmott, 2014). The time begins with the borrower's signature on the intent to proceed document and ends with the disbursement of funds, typically measured in days (McCormick & Calahan, 2013). The industry ATT is 50 days from mortgage origination to funding (Bhutta et al., 2016). Analysis of the ATT metric in various industries may offer mortgage managers meaningful results to maximize process efficiencies, thus reducing costs, and increasing profitability and intrinsic value for stakeholders.

Most of the previous research about ATT was outside the mortgage industry, although scholars found that consumer preferences indicated that process efficiencies, or efficient ATT, increases intrinsic value (Amadi-Echendu & Pellissier, 2014; Coletti,

Gosselin, & MacDonald, 2016; Lanzarini, Monte, Bariviera, & Santana, 2017). Conducting interviews and distributing questionnaires, Amadi-Echendu and Pellissier (2014) analyzed conveyancing transactions in South Africa and found that because of the number of role players and regulations, buyers and sellers had similar research results that concerned process impediments that hindered ATT in transactions. Amadi-Echendu and Pellissier did not provide statistical data but provided a framework to reduce delays and improve ATT in conveyancing transactions in South Africa. Coletti et al. (2016) discussed the benefits of non-depository mortgage finance companies (MFCs) in the Canadian mortgage market that delayed ATT. Coletti et al. stated that the benefits of technological enhancements improved efficiency, which reduced ATT in Canadian mortgage processes but did not provide statistical data for verification. In Ecuador, Lanzarini et al. (2017) created a decision tree model and examined credit records to analyze time-consuming processes in credit scoring applications, or ATT, and two previous models, C4.5 and PART, that showed the same metrics with different attributes. Lanzarini et al. compared the research credit model to two previous models, individually, and found that alpha levels for the two previous models were lower than the research model method by $\alpha = .03$ as well as model precision 2% more accurate. Technology, process optimization, and improved credit assessment techniques improved credit granting processes thus reducing ATT and increasing the firm's intrinsic value for stakeholders.

Previous researchers examined the maritime industry, focusing on industry metrics, such as occupancy rates and turnaround time of seaports in various locations that

influenced competition (Omoke, Diugwu, Nwaogbe, Ibe, & Ekpe, 2015; Santos, Mendes, & Soares, 2016; Schepler, Balev, Michel, & Sanlaville, 2017). In Portugal, Santos et al. (2016) created a marginal cost pricing model for European maritime seaport throughput analysis. In the dynamic model, Santos et al. measured throughput as the number of containers processed per unit of time, or the ATT of seaport employees handling containers. The scholars model specified increases in marginal costs, which increased capacity and occupancy rates, increased ATT, thus reducing seaport efficiency. Schepler et al. (2017) created an optimization model for competing European seaports based on the scheduling of trucks, trains, and ships on port terminals that determined ATT, or port efficiencies. The unique optimization model from Schepler et al. provided multi-terminal and multi-modal container ports optimal configurations to reduce ATT and improve port services to increase profitability and market share among competitors for maritime ports. Omoke et al. (2015) investigated privatization effects of the Nigerian transportation industry, specifically maritime performance, which used average berth occupancy and ATT data. The scholars used non-parametric tests, specifically Mann-Whitney U and Wilcoxon W tests, and rejected the null in both scenarios, meaning that privatization had a positive and significant impact on average berth occupancy, ($MWU = 6$; $WW = 72$; $.02 < p < .05$), and ATT, ($MWU = 5$; $WW = 33$; $.001 < p < .05$), in Nigerian ports.

In addition, prior researchers showed that scheduling algorithms influenced ATT in automated and digital queuing processes (Gupta et al., 2017; Tani & El-Amrani, 2017; Wang, Huang, & Wang, 2016). Wang et al. (2016) devised a scheduling framework that divides processes into four phases to reduce ATT in workflow systems. Wang et al. found

that the developed scheduling framework improved performance, or ATT, by over 20%. Tani and El-Amrani (2017) showed the importance of developing efficient scheduling algorithms that dealt with big data and cloud computing efficiency to complete tasks. Tani and El-Amrani examined five algorithms and proved that ATT decreases, significantly, with higher-order algorithms that are more complex and advanced to accomplish tasks with swiftness. Moreover, Gupta et al. (2017) assessed scheduling algorithms between several queues by developing a unique model. The scholars' models stated that a combination of prior scheduling algorithms could improve ATT in multilevel queuing processes. Scheduling algorithms can transpose into the mortgage industry by streamlining departmental processes and wait times to reduce ATT, thus increasing profitability and value. The previous scholars' research provided excellent evidence and support for utilizing ATT as the dependent research variable.

Supportive Theoretical Reviews

The highest level of scholarly research requires that the researcher provide an opposing or supporting view of a phenomenon to substantiate a literature analysis (Baumeister, 2013). Also, a scholar's critical analysis of peer-reviewed literature increases research synthesis and construct identity (Larsen & How Bong, 2016). Moreover, the development of literature reviews through a different lens further shows breadth and depth to scholarly research (Stockman, 2015). I confirmed that the theoretical propositions of the causal-comparative relationships between MLP, MLT, SPT, and the corresponding impact on ATT through a supportive lens with two theories, the theory of constraints and the thinking process theory.

Theory of Constraints

The objective for any organization is the principle of continuous improvement through lean operations (Goldratt & Cox, 1984; Golmohammadi & Mansouri, 2015; Taylor & Mead, 2015). Goldratt and Cox (1984) defined the theory of constraints (TOC) as the development of manufacturing processes around the point of congestion to improve throughput or ATT. As defined previously in this study, the RMT process begins with origination, continues through processing, underwriting, closing, and concludes with funding. Golmohammadi and Mansouri (2015) stated that managers created production strategies based on the TOC. The complexity of the retail mortgage process includes production phases that may require improvement centered around TOC. Identifying constraints is a challenging goal, although Taylor and Mead (2015) mentioned that undesired effects, or constraints, arise during competitive times along the process. Therefore, application of TOC in the mortgage process may assist mortgage managers with identifying and eliminating constraints that delay ATT and reduce costs to increase profitability and intrinsic value for stakeholders.

Thinking Process

Previous scholars identified theoretical concepts that offered managers analytical data to determine process optimization and improvements in various industries (Santos, 2013; Taylor & Asthana, 2016; Taylor, Hailey, & Parajuli, 2015). Fulfilling mortgage consumer demand requires lean operations to deliver intangible services. Taylor, Hailey et al. (2015) used Goldratt's thinking process theory, which is identifying what to change, knowing what to change it to, and how to implement the change, to help eliminate

constraints and improve lending processes in the rural Nepalese microfinance industry. The current mortgage process is factory-like from the perspective of process fulfillment. Santos (2013) stated that process perfection was the product of identifying process inadequacies to re-prioritize competencies in real time. Taylor and Asthana (2016) examined the U.S. electrical industry and applied the TOC and the thinking process to inventory control problems to minimize cost and to meet delivery dates. Although managers implement TOC and thinking process concepts in manufacturing, the principles of lean production may convey into the consumer lending industry. Therefore, coupling the thinking process concept with TOC in this study may allow for constraint identification and throughput improvements in the mortgage process to reduce costs, ATT, and to maximize profitability and intrinsic value.

Literature Synopsis

The potential results of this study may provide mortgage managers with credible data to make valuable decisions regarding process optimization, cost reduction, and value maximization. The purpose of this study was to analyze the impact of MLP, MLT, and SPT on ATT to reduce customer wait times and transaction costs in an RMT. Moreover, another purpose of this study was to improve the retail mortgage process to increase profitability and intrinsic value for organizational stakeholders. Furthermore, this study may offer scholars additional data to fill knowledge gaps in future studies.

Transition

The background of this study showed the procedural problems with the consumers, employees, and management's inabilities to complete an RMT in an efficient

time. Identification of the general and specific business problems identified the purpose of the study, which led to the articulation of research questions and hypotheses from the extensive literature review. Additionally, the first section of the proposal indicated the importance of justifying theoretical propositions as a lens to view the business problem. The appropriate terminology of the established operational definitions justified the assumptions, limitations, and delimitations. Furthermore, Section 1 indicated the importance of the study, which benefits mortgage institutions through business contributions and social change.

In Section 2, I discussed my role as the researcher, the reason for the lack of participants along with the procured archival research data. This section also included the research methods and design chosen for this study as well as the determination of the population and sampling, which will show the appropriate sample size from a target population for the evaluated archival data records. Also, in Section 2, I indicated that the data instruments and techniques for this study included data analysis and research validation. The concluding section, Section 3, showed the findings and an applicable presentation of the completed study into mortgage practices. Moreover, Section 3 showed that the findings applied to professional practice while creating social action in the mortgage industry. Additionally, in Section 3, I offered recommendations for action and future studies. Furthermore, I concluded this study with a reflection on the process and experience.

Section 2: The Project

In applied research, identifying the purpose of the study, the researcher's role, the participants, and the research information may improve academics and businesses. Scholarly research information includes a method, design, instrumentation, data collection, analysis, and validity, which provides the academic and business communities with numerical data to make effective decisions based on statistical evaluation and interpretation. In the following section, I present the methodology I used for the study and describe the significance of the research.

Purpose Statement

The purpose of this quantitative, causal-comparative study was to examine the impact of MLP, MLT, and SPT on ATT. The independent variables were MLP, MLT, and SPT. The dependent variable was ATT to complete an RMT from origination to funding. The archival population data included a selected mortgage institution's retail originations data from the state of Florida. Mortgage managers may increase the firm's intrinsic value through more efficient ways to minimize ATT by reducing transaction costs and lessening risks to complete an RMT. Therefore, the social change implication of this doctoral study includes the potential increase in the firm's intrinsic value for organizational stakeholders.

Role of the Researcher

A researcher's role in a scholarly study depends on the selected research methodology and design (Call-Cummings, 2017; Metcalf, 2016; Stockman, 2015). My role as the researcher was to contact a targeted retail mortgage company in order to

procure, analyze, and interpret the archival data; in doing so, I ensured ethical compliance under the purview of the Belmont Report. The Belmont Report contains the guidelines and ethical principles for the protection of human subjects during behavioral and biomedical research (The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). The Belmont Report consists of three primary principles that indicate (a) respect for persons, (b) beneficence, and (c) justice (The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). In what follows, I discuss these principles in detail as they applied to this study.

Respect for Persons

In this study, I did not use human participants, thus eliminating the need for any biomedical or behavioral tests as indicated in the Belmont Report (Clayton, Supiano, Wilson, Lassche, & Latendresse, 2017; Guillemin et al., 2017). I collected and incorporated primary archival data records into this study from a selected mortgage institution for analysis and interpretation. Acemoglu, Johnson, Kermani, Kwak, and Mitton (2016) stated that personal connections are biased towards a given side of an issue, which reduces beneficial outcomes. As I procured the archival data to complete this study, I showed respect and professionalism towards my professional partners within the selected mortgage institution. Obeying the Belmont Report guidelines required meticulous attention to the line between academic research and professional practice. While not using human participants, abiding by the guidelines, with beneficence and justice, exudes respect for people in academic and professional research.

Beneficence

Beneficence is the act of doing good or providing a benefit in research, which leads to favorable societal outcomes (Borgia, 2013; Hales, 2016; McCann & Sweet, 2014). Hales (2016) showed that research requires an objective perspective, which benefits academic and professional research because a subjective view indicates researcher bias. Bradley, Gokkaya, and Liu (2017) gathered 28 years of employment history from the financial analyst industry that indicated increased knowledge and expertise benefits personal and professional development among employees and leaders in an organization. Ertürk (2014) proved that managers gained tacit knowledge from a hands-on approach throughout organizational processes benefits further scholarly research to improve business procedures. The breadth and depth of this study provided me the appropriate materials to complete this study commensurate with my education and experience and to benefit academic research and professional practice.

Moreover, ethical consideration is mandatory in scholarly research; it must be upheld and continued by all researchers, academic and professional (Borgia, 2013; Clayton et al., 2017; Hales, 2016). Borgia (2013) stated that ethical governance in banking requires a social report to maintain the organization's success at implementing and assessing corporate social responsibility activities. Also, Hales (2016) showed that a researcher's uses of the appropriate tests for proposed research would reduce intentional and unintentional personal biases in cultural research. Therefore, I approached this study with objectivity to minimize any researcher bias and maximize research benefits.

Justice

The concept of justice in research is synonymous with respect for people regarding their equality and rationality (Call-Cummings, 2017; Hales, 2016; Lahav & Zimand-Sheiner, 2016). Ertürk (2014) mentioned that managerial rationality supports the ability to innovate processes from experience whereas Bradley et al. (2017) showed that the employee equality gained over time benefited the organization with rational decision-makers. Rational and equitable working relationships develop over an employee's tenure in any industry (Acemoglu et al., 2016; McCann & Sweet, 2014). Even though I sustained a career in the mortgage industry for over 25 years, no professional relationship existed between the mortgage institution, the employees, or myself. However, I do have a relationship with the topic because of my career in the industry. In Florida, I am a licensed real estate agent and mortgage loan originator, and I actively work in the industry. I previously worked at many large banks and owned my own mortgage business during my professional tenure. Sustaining the justice principle of the Belmont Report required me to draw from previous working experiences to ensure equitable benefits for all vested stakeholders.

Participants

In this study, I did not include any human participants because I used recent archival data from a selected retail mortgage company. Previous researchers stated that successful research includes and excludes specific data determined by eligibility criteria (Bailey, 2014; LaBonte & Kilpatrick, 2017; Reio, 2016). My criteria for data included in this study was that it was archival data from a selected retail mortgage company doing

business in the state of Florida for at least 5 years. Excluding archival data from outside the state of Florida allowed me to generalize the findings to a national scale. Additionally, I did not include home improvement data in the research. Moreover, the mortgage characteristics of the archival data were specific to MLP, MLT, SPT, application dates, and funding dates. Furthermore, I excluded employee demographic information because of the lack of human participants.

Previous scholars have justified the use of archival data in research to analyze, predict, and interpret observable facts in research (Barraclough, af Wahlberg, Freeman, Watson, & Watson, 2016; Gligor, Esmark, & Holcomb, 2015; Szabó, Müllerová, Suchánková, & Kotačka, 2015). Acemoglu et al. (2016) used a relationship network to obtain archival data to analyze unusual returns from firms that have employees nominated for high public office positions. Similarly, to procure the raw archival data I contacted decision-making, mortgage professionals, via networking, phone, and email, whom originated and funded retail mortgages in the state of Florida.

Creating and sustaining effective working relationships requires a scholar to use a robust professional network within the targeted industry, which is important to further reinforce academic and professional research applications (de Sivatte, Gordon, Rojo, & Olmos, 2015; Houghton, 2016; Malone & Issa, 2013). My strategy was to reach out to affiliates in my professional network to obtain contact information of decision-makers in retail mortgage companies to procure archival RMT data for analysis and interpretation. Moreover, I planned and organized virtual meetings that developed and maintained a

working relationship with mortgage professionals in various departments, such as IT, sales, and operations to complete this study.

Research Method and Design

There are three research methodologies used in conducting social scientific studies: qualitative, quantitative, and mixed methods (Koskey & Stewart, 2014; Park & Park, 2016; Runfola, Perna, Baraldi, & Gregori, 2017). Specific research methodologies parallel scholars' philosophical assumptions of worldviews. My selection of a specific method resulted from careful consideration of all three methodologies.

Research Method

Scholars' worldviews are the set of principles that influence their actions in research (Cairney & St Denny, 2015; Cap, 2017; Shahadan & Oliver, 2016). Worldviews derive from scholars' research disciplines, mentorships, and previous research experiences (Guo, 2015; Kaplan, 2015; Neuman & Guterman, 2016). The three worldviews that influence researchers when choosing a methodology are pragmatic, constructivist, and post-positivist.

Pragmatic. Pragmatic researchers will apply all sensible and realistic research methods to analyze variable relationships and explore phenomena (Cap, 2017; Ralph, Birks, & Chapman, 2015; Snelgrove, 2017). Scholars with commonsensical worldviews will complete mixed methods research, which is the combination of qualitative and quantitative methods (Cairney & St Denny, 2015; Hales, 2016; Shahadan & Oliver, 2016). Further, pragmatic researchers implement all research approaches to solve theoretical problems with rational principles (Shahadan & Oliver, 2016; Snelgrove, 2017;

Stockman, 2015). The pragmatic worldview offers scholars the most advantageous methods to analyze and interpret data (Hales, 2016; Koskey & Stewart, 2014; Stockman, 2015). Because the formulation of my research questions and hypotheses were quantitative, I omitted qualitative research scenarios, and thus also omitted the use of a mixed-methods approach. Even though I approached the research study with practical knowledge from education and experience, there were not any immeasurable data characterizations involved in this research. Although a pragmatic worldview is essential to complete a mixed-method research approach, it was not suitable because of the lack of qualitative research methods for the research study.

Constructivist. Scholars with a constructivist worldview use subjectivity to explore and assess phenomena in a qualitative approach (Jakobsen, 2016; Neuman & Guterman, 2016; Raza, Murad, & Zakar, 2016). Constructivist researchers analyze and interpret study participants' views with qualitative research methods (Neuman & Guterman, 2016; Ralph et al., 2015; Snelgrove, 2017). Researchers with constructivist philosophies also work to understand study participants' backgrounds to gain cultural and historical perspectives (Jakobsen, 2016; Raza et al., 2016; Snelgrove, 2017). Researchers who use a qualitative methodology to describe the accounts of participants' views or observations of a phenomenon articulated a conceptual basis for a study (Bailey, 2014; Cairney & St Denny, 2015; Runfola et al., 2017). Again, I simplified the research study by using quantitative archival data, so a constructivist approach was not suitable for this research.

Post-positivist. Post-positivist researchers analyze data through quantitative methods to predict relationships between variables and then use the assessments to test projections stemming from the theories (Guo, 2015; Kaplan, 2015; Snelgrove, 2017). Post-positivist researchers employ a deterministic worldview to resolve possible outcomes and effects of research studies (Guo, 2015; Hales, 2016; Kaplan, 2015). Scholars will be more inclined to select a quantitative method with a post-positivist emphasis in research studies with testable theories (Bailey, 2014; Hales, 2016; Snelgrove, 2017). Therefore, I drew upon post-positivist philosophical assumptions to shape the research technique for this study.

In quantitative research, scholars created a hypothetical framework for data acquisition from primary and secondary data sources, which requires a statistical lens to formulate an analysis of the findings (Onen, 2016; Park & Park, 2016; Reio, 2016). An appropriate quantitative evaluation technique is a factorial analysis of variance (ANOVA) *F* test to measure three categorical independent variables and one continuous dependent variable (Dobbin & Ionan, 2015; Koskey & Stewart, 2014; Onen, 2016). After consideration of all three methods, I determined that a quantitative approach would be the most effective method for this current study. I analyzed an impact relationship between independent and dependent variables that yielded numerical results for statistical analysis and interpretation. For the reasons above, application of the quantitative research methodology to the study is reasonable and justified.

Research Design

Three quantitative designs in scholarly research include correlation, experimental, and quasi-experimental designs (Dobbin & Ionan, 2015; Hales, 2016; Park & Park, 2016). Researchers use quantitative designs to analyze scientific theories by investigating relationships between independent and dependent variables (Al-Thani & Semmar, 2017; Cotteleer & Wan, 2016; Guo, 2015). Moreover, scholars use quantitative research designs to answer research questions by evaluating hypotheses with statistical procedures, which yields numerical results to interpret and generalize to a larger population. I used a causal-comparative design to analyze the impact of MLP, MLT, and SPT on ATT to complete an RMT from origination to funding.

Correlational. Quantitative researchers use correlational designs to examine a relationship between continuous independent and continuous dependent variables (Bosco, Aguinis, Singh, Field, & Pierce, 2015; Dobbin & Ionan, 2015; Kaplan, 2015). Although a correlational design helps researchers to relate variables, researchers are unable to imply causality by using this design (Dobbin & Ionan, 2015; Guo, 2015; McCarthy, Whittaker, Boyle, & Eyal, 2017). Thus, scholars will use regression analyses to analyze and interpret the results to the general population (Guo, 2015; McCarthy et al., 2017; Park & Park, 2016). The primary objective of this study was to determine an impact of categorical independent variables on a continuous dependent variable; therefore, a correlational design was not suitable.

Experimental. Quantitative researchers use experimental designs to analyze a cause and effect association between categorical independent variables and categorical

dependent variables (Al-Thani & Semmar, 2017; Guo, 2015; Marshall & Rossman, 2015). In an experimental design, researchers randomly assign variables for manipulation to make causal inferences (Koskey & Stewart, 2014; Marshall & Rossman, 2015; Park & Park, 2016). Scholars use an experimental design to test variances with statistical procedures such as ANOVA, analysis of covariance (ANCOVA), and multivariate analysis of variance (MANOVA) to interpret and generalize study results (Guo, 2015; McCarthy et al., 2017; Runfola et al., 2017). In this study, I sought to examine a causal-comparative impact of independent variables on a dependent variable; thus, a cause and effect relationship was not sufficient. Instead, I used an ANOVA to examine the impact of three categorical independent variables on a continuous dependent variable.

Quasi-experimental. Quantitative researchers also assess causal relationships in quasi-experimental designs, although there is a lack of randomization for study variables (Cotteleer & Wan, 2016; Park & Park, 2016; Reio, 2016). Scholars may also influence independent variables but have a lessened ability to make causal inferences (Guo, 2015; Koskey & Stewart, 2014; McCarthy et al., 2017). A causal-comparative design provides future scholars a pre-established relationship of variables for future research (Al-Thani & Semmar, 2017; Park & Park, 2016; Riffe et al., 2014). Although scholars will use ANOVAs, ANCOVAs, and MANOVAs in quasi-experimental research, a quasi-experimental design was not suitable for this study.

Population and Sampling

Scholarly research requires a targeted sample from a population to obtain necessary data for statistical analysis and interpretation (Gibson, 2017; Koskey &

Stewart, 2014; Onen, 2016). Researchers segment quantitative data collection by demographics and psychographics in surveys whereas with the use of archival data; appropriate sampling methods could be randomized (Aziz & Hassan, 2017; Ciabuschi, Forsgren, & Martín, 2017; Sage, Blalock, & Carpenter, 2017). A selected mortgage institution provided the population with archival data from which to retrieve the sample for this study.

Population

I used lender-provided data to select a sample from the population of originated and funded retail mortgage data in the state of Florida within the previous 12 months of this study. The procured archival data contained in the population included mortgage characteristics such as loan purpose, loan type, and property type. Moreover, the primary archival data included loan application dates and loan funding dates for me to compute the difference in days between the dates, or ATT. Furthermore, I derived the research sample from the population for analysis and interpretation.

Sampling

Researchers group sampling in two categories, probabilistic and non-probabilistic methods, which include specific methods for each sampling category (Aziz & Hassan, 2017; Ciabuschi et al., 2017; Sage et al., 2017). I used a probabilistic, simple random sampling approach in this study. The reason I included the research variables stems from literature investigation and professional experience. Prior scholars showed that the propositioned independent variables, MLP, MLT, and SPT, influenced various mortgage industry outcomes, respectively (Al-Bahrani & Su, 2015; Gallagher, 2016; Park K. A.,

2016); therefore, these were necessary for inclusion as research variables. Moreover, the independent research variables are necessary mortgage application inputs to determine underwriting approvals and successful disbursements of funds in RMTs.

A probabilistic technique involves a random sampling procedure, whereas non-probabilistic is a specific sampling method (Dobbin & Ionan, 2015; Koskey & Stewart, 2014; Turiano, 2014). As in all research, there are advantages and disadvantages to a proposed sampling approach and technique. The strengths of a simple random, probabilistic approach are that the random selection of the sample data from the target population creates an equal chance to minimize data variabilities along with an unbiased selection process (Aziz & Hassan, 2017; Ciabuschi et al., 2017; Sage et al., 2017). The weaknesses of a simple random, probabilistic technique are the increased chances of sampling errors, wider dispersion of the sample, and heterogeneity for a scholar to generalize research findings (Aziz & Hassan, 2017; Ciabuschi et al., 2017; Sage et al., 2017).

There are four broad probabilistic sampling techniques used by scholars in quantitative research, which are simple random, stratified, systematic, and cluster sampling. I selected a simple random sampling procedure because the independent research variables in this study are not mutually exclusive. Researchers must define the sampling technique in the proposed study to assist with data collection, analyses, interpretation, and generalization (Çankaya, 2016; Khan M, 2016; Scealy & Welsh, 2017). Scholars design research around a simple random sampling technique, giving each population data point and an equal chance for selection to limit uncertainty, decrease

variability and simulate patterns (Endo, Watanabe, & Yamamoto, 2015; McCormick, Jackson, Carr, & Meyer, 2015; Xu & Yan, 2017). Scholars use stratified sampling to organize the population into mutually exclusive groups, then apply simple random procedures to reduce dispersal among a sample of predicted and observed trials (Bensadoun, Monod, Makowski, & Messean, 2016; Hu et al., 2016; Lafontaine, Sawada, & Kristjansson, 2017). A mortgage loan originator can have owner-occupied, government-refinance transactions or non-owner occupied, conventional-purchase transactions. Also, my use of a simple random sampling technique was because the developed independent research variables are not subsequent variables of the other; thus, eliminating a systematic sampling method. Systematic sampling has a multitude of variations dating back to 1948, although researchers use a systematic sampling procedure when the population sizes, N, are a multiple of sample sizes, n, and intervals, k (Çankaya, 2016; Khan M., 2016; Khan, Shabbir, & Gupta, 2015). In research, where variables occur naturally, scholars use a cluster sampling procedure to select a sample from the target population groups (Firoozi, Kazemi, & Jokar, 2017; Momeni, Mohammadreza, & Amini, 2017; Scealy & Welsh, 2017). Moreover, the justification for my selection of a simple random sampling technique was because the developed independent research variables do not occur in natural groups.

Evaluating the sample size requires computer applications to assess mathematical relationships. MS Excel 2016, G*Power version 3.1.9.2, and Statistical Package for Social Sciences (SPSS) version 24 are software packages used to analyze statistical significance of a potential impact of independent variables on a dependent variable (Faul,

Erdfelder, Buchner, & Lang, 2009). Effect sizes and power analyses are essential to empirical study scholars who seek relationships between categorical and continuous variables using statistical tests (Bosco et al., 2015). Additionally, effect sizes and power analyses indicate the magnitude of a relationship in an empirical study (Bosco et al., 2015). Therefore, conducting a priori power analyses will identify the sample size range for an empirical study. In this study, I conducted a 2 x 2 x 2 factorial ANOVA, as shown in a G*Power *F*-test selection, applying a medium effect size $f = .25$, $\alpha = .05$, and $df = 1$, indicating a minimum sample size of 128 archival data records required to achieve a power analysis of .80. Increasing the sample size to 296 will increase the power level to .99. Further increasing the sample size to 410 will increase the power level to .999. Therefore, an appropriate sample size for the proposed study will be between 128 and 410 archival data records graphed in Figures 1 and 2, respectively.

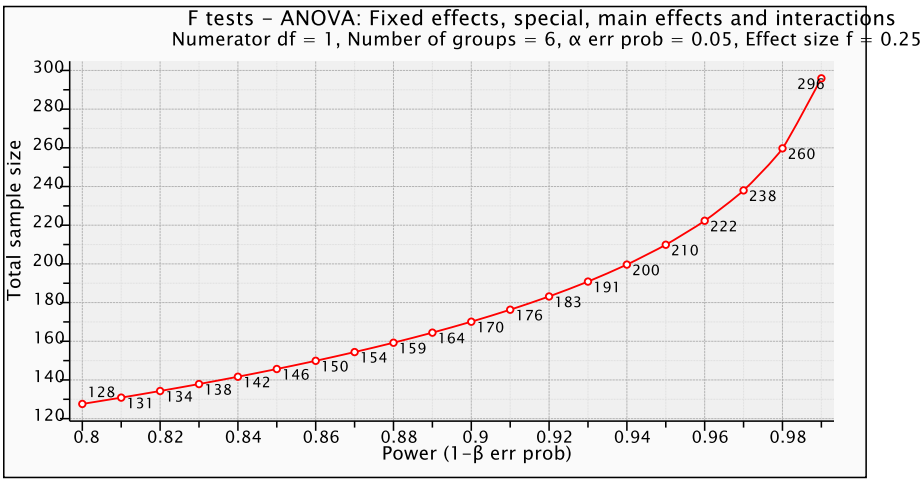

Figure 1. Total range of archival data records between .80 and .99 power analyses.

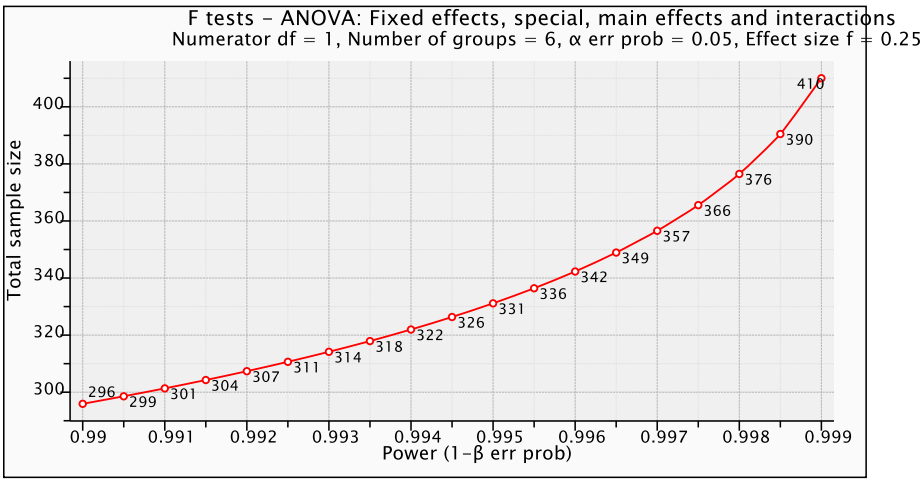

Figure 2. Total range of archival data records between .99 and .999 power analyses.

Ethical Research

I sampled non-identifiable, archival data records from a selected mortgage institution for analysis and interpretation. To maintain ethical standards and professionalism, the Walden University Institutional Review Board reviewed and approved the request for collected data (approval number 11-13-17-0426588) for this study. Also, I sent an initial request to participate in the study to the company decision-maker (see Appendix A). Also, I needed the company's decision-maker to authorize an official letter of cooperation to begin data collection of archival data within the firm (see Appendix B). Moreover, both parties will agree to a mutual confidentiality agreement limited to the proposed study (see Appendix C). Furthermore, both parties will consent to a mutual limited dataset user agreement limited to the scope of the current research (see Appendix D).

The selected mortgage institution, nor the employees received any compensation for participation in this research study. I did not receive any compensation, nor incentives limited to the facilitation of the developed research. Also, if the decision-maker decided to withdraw the selected mortgage institution from the study, there are no penalties for doing so. The requirement for withdrawal from the study is a written correspondence from the decision-maker explaining the reason(s) for withdrawal. Also, upon confirmed withdrawal from the study, I would appropriately dispose of all raw data, following all federal, state, and local electronic disposal laws.

An affirmative response showed that the decision-maker acquiesced to my professional request and agreed to participate in this research study. I will store the archival data in an encrypted and password-protected storage drive for at least five years by all research compliance regulations. DeSimone, Harms, and DeSimone (2015) stated that data screening and storage in scholarly research requires techniques to minimize weak data points. Although I took precaution with encryption and password protective security measures, screening the archival data confirmed that the data did not contain any private identifying information specific to any borrower in any retail mortgage transaction. Furthermore, the appendices contain specific details regarding all consent, compliance, and confidentiality forms for this study.

Data Collection Instruments

Researchers gathered data to correlate the significance of various data collection methods, including archival data, to provide an analysis of the findings and to generalize to the population (Barraclough et al., 2016; Ma, Zhang, Lin, & Li, 2017; Reio, 2016).

Upon gathering the data, scholars begin to screen, analyze, and organize the data for outliers, anomalies, and incomplete data points (LaBonte & Kilpatrick, 2017; Sleeper et al., 2017; Zhang et al., 2017). I did not require the use of standardized data collection instruments such as surveys because the population of data is archival; therefore, once I received the archival data, I processed the data to ensure that the requested variable information was correct in the electronic source document. The independent variables, MLP, MLT, and SPT, reflect a nominal scale of measurement with two levels per independent variable. The dependent variable, ATT, is continuous with a ratio scale of measurement.

The archival data consisted of mortgage characteristics such as loan purpose, loan type, and property type, which defines the independent variables, respectively. The first independent variable, loan purpose or MLP, consisted of two levels, purchase and refinance mortgage transactions. The second independent variable, loan type or MLT, consisted of two levels, conventional and government mortgage transactions. The final independent variable, property type or SPT, consisted of two levels, owner-occupied and non-owner-occupied mortgage transactions. Also, the archival data contained continuous dependent variable information, such as application and funding dates, to determine ATTs to complete RMTs from the selected random sample.

Using SPSS, I measured the nominal independent variables in a 0/1 scoring system. The MLP variable, 0 = purchase, 1 = refinance. The MLT variable, 0 = conventional, 1 = government. The SPT variable, 0 = owner-occupied, 1 = non-owner-occupied. Moreover, I measured the continuous dependent variable, ATT, through

calculating the difference between the funding date and the application date to derive the turnaround time, or ATT, to complete an RMT from origination to funding. Furthermore, the raw archival data records may be provided upon request.

In prior research, many scholars collected data through different methods and means to produce raw data for analysis and interpretation (LaBonte & Kilpatrick, 2017; Ma et al., 2017; Sleeper et al., 2017). Previous researchers used technology to improve data collection methods to enhance data screening and project efficiencies (Huang & Savkin, 2017; Read, LaPolla, Tolea, Galvin, & Surkis, 2017; Zhang et al., 2017). A variety of researchers in different industries used electronic data capture methods to provide accurate and precise data analysis for reliable data interpretation (Huang & Savkin, 2017; LaBonte & Kilpatrick, 2017; Zhang et al., 2017). In this study, I was the primary source for data collection; although, I did retrieve the data set from the selected mortgage institution, electronically.

Data Collection Techniques

Researchers use various data collection techniques, such as surveys, archival databases, and structured observations, to acquire data from reliable and valid collection instruments (Eisenhardt, Graebner, & Sonenshein, 2016; George, Haas, & Pentland, 2014; Gibson, 2017). For this study, the decision to select archival data required careful thought and scrutiny, to ensure accurate and precise data records for results interpretation and generalization (Gibson, 2017; Houghton, 2016; LaBonte & Kilpatrick, 2017). My decision to procure the archival data was to utilize professional affiliations, which provided a benefit for me with minimal travel costs, maximum data availability, and

convenience. Surveys and observations may require additional levels of cost, security, and privacy factors exceeding the scope of this study. The deficiency in the professional affiliation method was the time needed to contact decision-makers of the selected firm and secure a time to speak about the research and set up appropriate security and privacy credentials to obtain the archival dataset.

Data Analysis

Research Question

What is the impact of MLP, MLT, and SPT on ATT to complete an RMT from origination to funding?

Hypotheses

Null Hypothesis (H_0). MLP, MLT, and SPT do not have an impact on ATT to complete an RMT from origination to funding.

Alternative Hypothesis (H_1). MLP, MLT, and SPT do have an impact on ATT to complete an RMT from origination to funding.

For the completion of this study, I analyzed and interpreted the archival data records through a statistical ANOVA *F*-test. A correlation design requires that both, independent and dependent variables use scale measurements whereas a chi-square design requires independent and dependent variables in nominal measurements, or levels (Dobbin & Ionan, 2015; Huck, 2012; Park & Park, 2016). Independent-samples *t*-tests mandates for a single independent variable, which have two or more levels on a nominal scale of measurement whereas an ANOVA *F*-test better fits the statistical analyses for the

research study because of the multiple, two level, categorical independent variables, and the scale, continuous, dependent variable.

Different data collection methods require different data scrubbing and screening techniques although all approaches require security measures to maintain data integrity (DeSimone et al., 2015; Lin, Shen, Chen, & Sehldon, 2017; Sleeper et al., 2017). I collected the archival data from a lone source, thus allowing me to screen and clean the data efficiently. Even though there was not an issue with missing data, there was a minimal opportunity for missing data from data retrieval and through electronic transfer. However, missing data was not as likely as it would have been with survey and observation techniques because of the subjective variability of participants in the survey and observation approaches (Eisenhardt et al., 2016; George et al., 2014; Slater, Joksimović, Kovanovic, Baker, & Gasevic, 2017). In the case of missing archival data, I contacted the appropriate company liaison to retrieve the missing information to complete this study.

Previous scholars stated that ordinary factorial ANOVA assumptions include random sampling, an adequate sample size, appropriate scales of measurement, and regular data distribution (McCarthy et al., 2017; Serbic & Pincus, 2017; Tacikowski, Freiburghaus, & Ehrsson, 2017). Researchers test hypotheses by utilizing various statistical measures such as ANOVA *F*-tests and independent samples *t*-tests (McCarthy et al., 2017; Serbic & Pincus, 2017; Tacikowski et al., 2017). I tested and assessed assumptions in the evaluated data research through factorial design ANOVA to interpret the findings and make recommendations for future research. Although I am utilizing a

probabilistic, simple random sampling method, which is an assumption violation, bootstrapping the archival data may offer an indication of a normal distribution of data within the acceptable sample size range shown in Figures 1 and 2, respectively.

Scholars who conduct empirical studies must consider descriptive and inferential statistics to analyze, interpret, and generalize significant findings (van Schaik & Weston, 2016). The Delphi Method is a statistical procedure that allows a researcher to infer results that will help solve business problems (Ertürk, 2014; van Schaik & Weston, 2016). Furthermore, inferring results from selected categorical and continuous variable relationships to require the appropriate data analysis instruments, such as SPSS, to prove strong numerical relationships for analysis and interpretation (Larsen & How Bong, 2016; van Schaik & Weston, 2016). Interpretation of the statistical results will use effect sizes and confidence intervals to determine a significant impact of the independent variables on the dependent variable.

Study Validity

In this study, I used a probabilistic, simple random sampling method to ensure the external validity of the research. Also, the selection, uniqueness, and timing of data can threaten external validity (Call-Cummings, 2017; Gibson, 2017; van Duijn & Post, 2014). External validity determines the scholar's opportunity for generalizing the findings to the population (Gibson, 2017; van Duijn & Post, 2014; Wacker, Hershauer, Walsh, & Sheu, 2014). Moreover, a correlation design would threaten the external validity of the study; thus, further justifying my decision for a causal-comparative design.

Scholars threaten internal validity in research by the data selection to make inferences, experimental data manipulation, and testing procedures such as data collection instruments (Cotteleer & Wan, 2016; Ma et al., 2017; Onen, 2016). I used archival data in this study; therefore, mitigating any internal validity threats. Scholars can lessen internal validity threats by creating control groups, developing equality among data points, and increased data randomization (Call-Cummings, 2017; Onen, 2016; van Duijn & Post, 2014). Thus, I integrated the present archival data records required to minimize any internal validity threats and to examine, interpret, and generalize the findings to a larger population.

Statistical conclusion validity ensures that the inferences made regarding the research questions, and models are correct (Huck, 2012; van Duijn & Post, 2014; Wacker et al., 2014). Also, construct validity ensures that the variables are appropriate for the proposed measurements and analysis (Call-Cummings, 2017; van Duijn & Post, 2014; Wacker et al., 2014). The threats to statistical conclusion validity consist of the reliability of the instrument, the assumptions made from the data, and the sample size (Call-Cummings, 2017; Gibson, 2017; Huck, 2012). These three validity threats magnify the Type I error rate, which causes the rejection of the null hypothesis when, in fact, the null hypothesis is correct.

Seeking an acceptable coefficient value higher than 0.7, I conducted an internal consistency reliability check against the sample size that showed the relative association through Cronbach's alpha (Huck, 2012; Slater et al., 2017; van Duijn & Post, 2014). Moreover, the appropriate sample size will improve the validity of a proposed study

whereas a sample size below the optimal study requirements may limit or nullify the findings causing improper inferences (Dobbin & Ionan, 2015; Huck, 2012; van Duijn & Post, 2014). Furthermore, ensuring the use of an appropriate sample size, by conducting a power analysis through the G*Power tool sufficed as evidence of an appropriate sample size.

Summary and Transition

Above-industry average turnaround time (ATT) to complete an RMT from origination to funding results in revenue losses. I grounded this study based on the hypothesis that MLP, MLT, and SPT could have a significant impact on ATT to complete an RMT from origination to funding. To test this hypothesis, I implemented a 2 x 2 x 2 factorial ANOVA to examine the impact of the categorical independent variables on the continuous dependent variable. My role as the researcher was to contact and acquire a targeted retail mortgage company followed up with procuring, analyzing, and interpreting the archival data, and in doing so, ensure the ethical compliance under the purview of the Belmont Report. I did not include any human participants because the data comprised archival data records for the last 12 months from a selected retail mortgage company operating in the state of Florida. Based on a sample size calculation, I selected, randomly, between 128 and 410 archival records to complete the statistical analysis.

In Section 3, I introduce the findings of the statistical analysis and any professional applications related to the mortgage industry. Also, the next section included implications for social change along with my recommendations for action and future

studies. Furthermore, I concluded with a reflection on my experiences with the doctoral process and completed the study.

Section 3: Application to Professional Practice and Implications for Change

Research Study Overview

The purpose of this quantitative, causal-comparative study was to examine the impact of MLP, MLT, and SPT on ATT. The independent variables were MLP, MLT, and SPT. The dependent variable was ATT to complete an RMT from origination to funding. The null hypothesis was that MLP, MLT, and SPT did not have an impact on ATT to complete an RMT from origination to funding. The alternative hypothesis was that MLP, MLT, and SPT did have an impact on ATT to complete an RMT from origination to funding. The results of the 2 x 2 x 2 ANOVA indicated non-significant results; I found no main or interaction effects. Therefore, I failed to reject the null hypothesis that MLP, MLT, and SPT do not have an impact on ATT to complete an RMT from origination to funding.

Presentation of the Findings

Descriptive Statistics

The research analysis included 146 archival data records from a selected mortgage institution in the state of Florida. The analysis comprised three nominal variables and one ratio variable. Table 5 shows the descriptive statistics for the study nominal variables. Table 6 depicts the descriptive statistics for the doctoral study scale variable.

Table 5

Frequencies (f) & Percentages (%) by Nominal Level

Independent variable	Nominal level	*f*	%
Mortgage loan purpose	Purchase	137	93.8%
	Refinance	9	6.2%
	Total	146	100.0%
Mortgage loan type	Conventional	64	43.8%
	Government	82	56.2%
	Total	146	100.0%
Subject property type	Owner-occupied	136	93.2%
	Non-owner-occupied	10	6.8%
	Total	146	100.0%

Table 6

ATT Mean (M) and Standard Deviation (SD) by Factor Nominal Level

Independent variable	Nominal level	*M*	*SD*
Mortgage loan purpose	Purchase	41.41	20.57
	Refinance	45.78	20.64
Mortgage loan type	Conventional	39.28	17.99
	Government	43.55	22.25
Subject property type	Owner-occupied	41.93	20.32
	Non-owner-occupied	38.30	24.25

Assumptions Testing

The ANOVA assumptions tested normality and equality of variances; however, the Levene's test of equality of variances was not significant ($F = .982$; $p = .43$), showing the assumption of equal variances was not in violation. The normality assumption as violated is depicted in Figure 3.

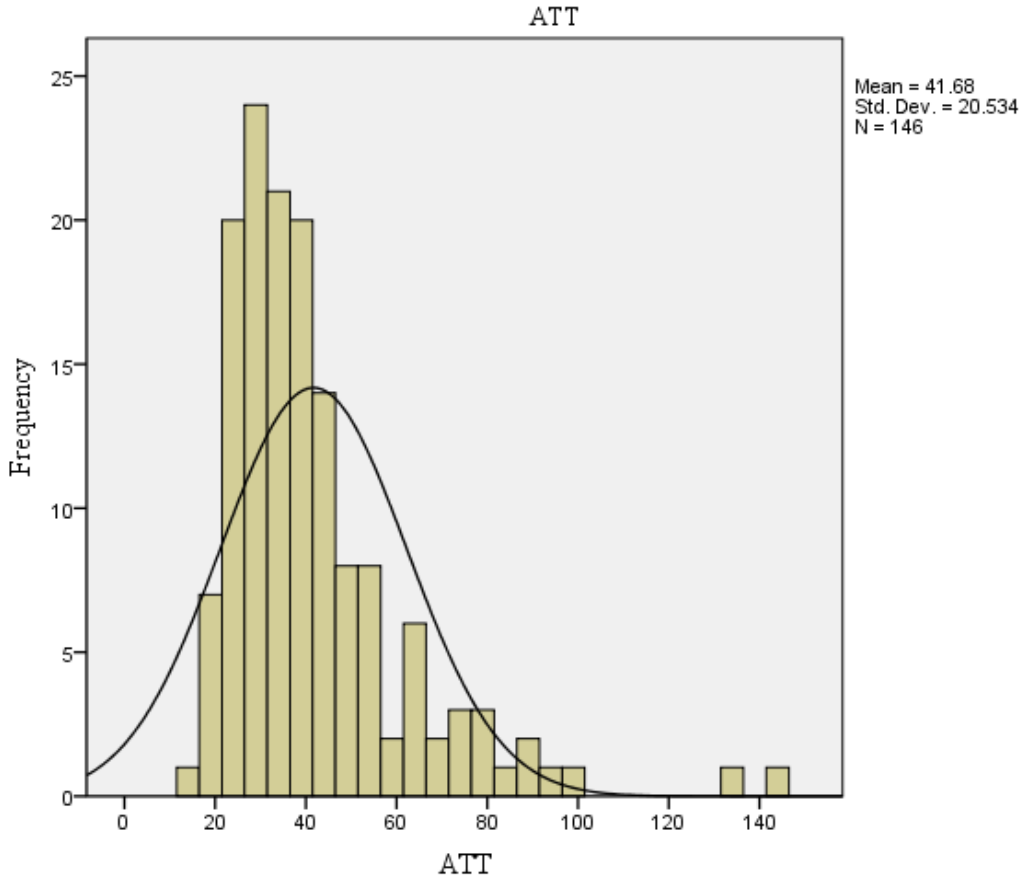

Figure 3. Histogram of average turnaround time frequency

Inferential Statistics

The results of the 2 x 2 x 2 ANOVA indicated that there was no significant main effect (F[5,140] = 0.42; p = .83); MLP, MLT, and SPT did not significantly impact ATT to complete an RMT. There were no significant interaction effects found either. Table 7 depicts the results of the 2 x 2 x 2 ANOVA.

Table 7

2 X 2 X 2 ANOVA Results (N = 146)

Variable	*df*	*F*	*η*	*p*
MLP	1	.135	.001	.714
MLT	1	.837	.006	.362
SPT	1	.016	.000	.900
MLP*MLT	1	.257	.002	.613
MLP*SPT	1	.063	.000	.802
MLT*SPT[a]	0			
MLP*MLT*SPT[a]	0			

[a] Values could not be computed due to small cell sample size

Analysis of Findings

The theoretical framework I used in this study was a proposition supported with theories such as TOC and thinking process to determine if MLP, MLT, and SPT impacted ATT during the completion of an RMT from origination to funding. The theoretical proposition required me to develop constructs I could use to determine the significance of any impacts between MLP, MLT, SPT, and ATT in an RMT. The first independent variable, MLP, was not significant in this study, although other researchers have determined it to be significant in relation to mortgage pricing, denial rates, and loan performance (Al-Bahrani & Su, 2015; Downs & Shi, 2015; Li & Goodman, 2015). Also, previous scholars have identified statistical significance between purchase MLPs and

regulations, risk, and capacity (Neuhauser, 2015; Serrano-Cinca et al., 2015; Sharpe & Sherlund, 2015). However, in this study, purchase MLPs did not indicate statistical significance as an interaction effect with the dependent variable, ATT. Moreover, previous scholars found that MLP and market activity relationships were statistically significant (Bhutta et al., 2016; Curtis, 2014; Zou, 2016). Although in this study, purchase MLPs indicated greater market activity than refinance MLPs, there was no statistical significance to market activity regarding ATT.

Analysis from earlier researchers also showed that significant statistical relationships existed between MLP and origination activity, costs, and decision-making (Agarwal, Ben-David, et al., 2017; Al-Bahrani & Su, 2015; Downs & Shi, 2015). Downs and Shi (2015) found a significant difference between purchase and refinance MLPs, favoring purchase MLPs. My findings confirmed this statistic in that the selected mortgage organization data showed a significant difference in nominal MLP levels (see Table 5). Al-Bahrani and Su (2015) found that MLP influenced mortgage pricing at the refinance level, while Agarwal, Ben-David et al. (2017) assessed the NPV of costs. Both prior studies resulted in statistically significant findings among the relationships. Understanding the relationship between MLP and RMT outcomes may allow mortgage managers additional data to make improved decisions regarding capacity, risk, and regulation while working towards continuous process improvements.

Prior researchers have evaluated MLT (the second independent variable in this study) and various RMT characteristics and have found statistical significance in their respective findings (Lang & Hurst, 2014; Park K. A., 2016; Rose, 2016). The statistical

significance in the earlier scholars' research showed that managers' decisions pertaining to loan type offered effective debt management strategies and lower costs when borrowers chose conventional MLTs rather than government MLTs. This borrower decision increased risk and pricing of government MLTs for down payments less than 20%. In this study, MLT, on either nominal level, did not indicate any statistical significance in regard to completing an RMT from origination to funding. However, the frequencies of MLT nominal levels were the closest among the three independent variables with government MLTs greater than conventional MLTs (see Table 5). My study data supports the MLT frequency statistic because the higher percentage of government MLTs indicates the inability of potential mortgage consumers to realize a 20% down payment as needed for conventional MLTs.

Scholars also have examined MLT nominal levels in conjunction with industry performance metrics, such as foreclosure rates and regulations (Bhutta et al., 2016; Orzechowski, 2017; Shindelar, 2015). These scholars analyzed data between 2009 and 2015 and determined that increase in government MLTs had not influenced the rate of foreclosures; however, the ability of MLT characteristics to predict regulatory changes, such as the FFR, showed significance. In this study, MLT as an independent variable did not indicate statistical significance in RMT performance.

The increase in mortgage costs is a concern for all parties involved in an RMT, especially purchase customers who seek to limit cash outflows for physical real estate investments (Aksoy et al., 2016; Caplin et al., 2015; Reiss, 2016). Prior scholars' have found that the greater the LTV of government MLTs, the greater the risk of default;

hence, the stringent decision-making necessary to maintain homeownership sustainability leading to lower mortgage costs. Moreover, previous researchers showed how minimum wage changes impacted MLT choice from mortgage customers (Dettling & Hsu, 2017). Thus, I found that a borrower's ability to afford a conventional MLT was limited and that conventional MLTs are not as frequent as government MLTs (see Table 5).

Previous researchers indicated that there was a statistically significant relationship between SPT nominal levels and various industry metrics, which included liquidity, homeownership rates, and market shifts (Blau et al., 2015; Glascock & Lu-Andrews, 2015; Grover & Grover, 2014). These scholars found that liquidity, ownership rates, and market changes determined specific investment behaviors of real estate investors. However, SPT characteristics in my study did not indicate any statistical significance to complete an RMT. In contrast to the analysis of Grover and Grover (2014), who indicated that Eastern EU members had high homeownership rates, yet low financing rates, my data analysis yielded a more significant percentage of owner-occupied SPT transactions (see Table 5).

Many scholars have associated and evaluated real estate investment trends and the impact on SPT characteristics. My findings indicated a higher percentage of owner-occupied SPTs, whereas Ribeiro-Ferreira (2016) showed that, in the Australian real estate market, non-owner-occupied property investments rose with the evolution of the mortgage industry. Additionally, prior scholars found that specific non-owner-occupied SPT characteristics predicted, with statistical significance, depreciation in the several

types of non-owner-occupied SPTs, such as office/retail, industrial, and multifamily properties.

In this study, the findings that resulted for ATT indicated consistency in the mortgage industry as related to prior research. In previous research, Bhutta et al. (2016) yielded a 50-day turnaround time to complete an RMT. My findings showed improvement of this metric, yielding a 42-day ATT. However, Bhutta et al. included a more substantial amount of archival data records from the HMDA database. Also, previous scholars indicated that automated scheduling and queueing algorithms helped to reduce ATT in workflow processes (Tani & El-Amrani, 2017; Wang et al., 2016). Also, Gupta et al. (2017) evaluated the scheduling algorithms between a multi-queue workflow system and found that algorithms could improve ATT. Although the selected categorical, independent variables did not yield results of statistical significance to ATT in an RMT, process improvements should remain as priorities for organizations to meet consumer demand.

Applications to Professional Practice

Since the advent of mobile technology and as society progresses into the future, consumers will demand more user-friendly technology for more efficient mortgage transactions, continually, while LOs seek to mitigate financial risks (Asal, 2018; Blackwell & Kohl, 2018; Li, Skouri, Teng, & Yang, 2018). In 2018, Blackwell and Kohl studied the typology of housing financing systems. Blackwell and Kohl determined four ideal systems that included person-to-person, state, deposit-based, and bond-based financing systems. Also, in 2018, Li et al. analyzed various trade credit payment options

to mitigate default risks by the buyers and the impact on seller profitability. Li et al. found a minimal profitability impact to demand from sellers who requested advanced payments versus credit payments using trade credit financing. Moreover, in 2018, Asal analyzed Swedish housing price data between the first quarter of 1986 and the last quarter of 2016, controlled with affordability, demographics, and price effects. Asal found a direct statistical relationship between a long-run indicator, housing prices, and a short-term dynamic metric, disposable income, affecting financing decisions. Thus, researching the alternative mortgage characteristics that impact ATT while investing in innovative technologies to improve customer relationships will provide LOs with more efficient processes to reduce costs and to increase stakeholder value.

Mortgage managers can apply the findings of this study to make operational and technological advancements to the current mortgage process, in respective organizations. Based on the results of this study, I found that not all theoretical propositions accurately gave an analysis of the impact on a specific outcome. The relevance of these study findings as related to mortgage business practices offered a gap in knowledge between research and practice. The association between research, such as TOC and thinking process, and mortgage lending using MLP, MLT, and SPT to evaluate the impact on ATT to complete an RMT from origination to funding offers managers applicable business and research findings in areas of risk, capacity, efficiency, and value.

Additionally, alternative research characteristics such as communication between borrower and lender will offer LOs increased knowledge of respective mortgage consumers. Xu and Chau (2018) researched the impact of communications between

borrower and lender in successful peer-to-peer lending transactions. Xu and Chau found an indirect relationship between lender comments and funding success while a direct relationship between borrower responses to lender comments and funding success. Hence, efficient communications between borrower and lender impact funding rates, or ATT.

The mortgage industry is evolving as technological tools expand organizational reach to the market. A manager's ability to minimize risk and maximize resources to capitalize on technological advances may provide an increase in profitability and intrinsic value. Understanding the relationship between various RMT characteristics may also provide mortgage managers with data to make necessary changes at the right time as previous research showed. Moreover, comprehending when and how to implement the change is critical to successful and efficient operations. Therefore, making necessary adjustments, knowing how to adjust, and implementing the adjustment to mortgage operations may deliver improved results in RMT outcomes.

Implications for Social Change

Social change in the mortgage industry derives from geopolitical, socioeconomic, and environmental factors in which lawmakers react via policy-making; and most often, too slow to impede crises (Emin, 2018; Graff, 2018). In 2018, Graff examined and measured the performance metrics of homeownership policies, namely Roosevelt-era housing policies and Clinton-era housing policies. Graff defined two metrics being government homeownership rates and mortgage market financial frictions. Furthermore, in 2018, Emin researched the effects of crisis origin countries on global finance and trade.

Emin used statistical relationships between correlation data that found investors liquidate holdings in crisis originated countries, which cause financial shocks in the investor's home country. The researchers showed that geopolitical, socioeconomic, and environmental factors impact global financing; thus, impacting retail financing. Mitigating crises risk and market frictions will offer LOs incentives to provide mortgage customers with most effective technologies to complete RMTs more efficiently, considering mortgage debt to be the most significant percentage of consumer investment portfolios.

A real estate transaction is the most valuable asset an individual will have in their respective investment portfolios, and the ability to transact real estate efficiently supports socio-economic improvements. In 2018, Shichor investigated the social impacts of the unethical and illegal activities and the lack of criminal sanctions against guilty parties. Shichor found that judges and lawmakers imposed minimal penalties against guilty parties. The propositions for positive social change included the possibility to provide value to mortgage stakeholders, who include customers, employees, managers, government agencies, shareholders, and third-party vendors, with process improvements to enhance mortgage business attractiveness and reduce costs. Mortgage managers application of effective processes may lead to improved industry reputation, technological process advancements, reduced employee moral hazard, and increased intrinsic value. Realistic and logical implications are that mortgage leaders can apply this study to obtain a better understanding of ways to improve the overall retail mortgage transaction processes from origination to funding.

Recommendations for Action

Continuous improvement is the most common goal in all production-based organizations. The results from this study are relevant to mortgage lenders, and I recommend that industry decision-makers research and implement technological process improvements to the mortgage process that focuses on reducing ATT to complete an RMT from origination to funding. The independent variables, MLP, MLT, and SPT, are significant about decision-making, capacity constraints, and profitability while the dependent variable is significant to improve efficiency and reduce costs.

The successful implementation of process advancements may help lending managers to enhance employee-customer relationships. Mortgage institutional decision-makers should apply findings of this study to business processes to improve on ATT to complete RMTs from origination to funding. The earlier research and current findings support the need for industry leaders to consider technological advancements in information processing and verification to complete RMTs more efficiently and effectively to increase intrinsic value.

I will share my study results with other industry colleagues and professionals through scholarly journal publications. Additionally, I will share the results through training courses and seminars regarding technological RMT process enhancements. My focus will be on assisting institutional leaders to reduce costs, improve ATT, and increase intrinsic value for organizational stakeholders.

Recommendations for Further Research

I offer the following areas for future research on the topic of mortgage characteristics impacting completion times. Recommendations for further research include identifying additional mortgage characteristics, such as default rates, regulatory controls, and secondary market investors, which will allow for other statistical analyses, such as multivariate regression analysis. Moreover, a future scholar could use interest rates as an independent variable or a control variable. Further recommendations include a more extensive dataset and multiple organizations to analyze and interpret results more significantly that limited the statistical findings of this study.

Also, future scholars should conduct further research to examine ATT and the relationship to alternative mortgage metrics not covered in the scope of this study. Performing future studies about ATT could help mortgage leaders with the data necessary to make the proper adjustments to workflow processes. Moreover, considering this study focused on a single mortgage institution in the state of Florida, future scholars should acquire data outside the state to compare any relevance or statistical significances.

Reflections

The DBA Doctoral Study process was a motivating and humbling experience for me. This DBA Doctoral Study process was a challenge for me to balance work, home, and school while recovering from an economic disaster. Each procedure required of me to be meticulous to ensure that I met and exceeded the Walden University requirements of a rigorous process. Attention to detail is necessary to complete the various steps along the process, including meeting the DBA rubric requirements from committee members,

the IRB process, and conforming to APA guidelines. Exceeding the requirements offered an implication of higher academic recognition by writing and communicating with peers and professionals.

Investing the time to complete a retail mortgage transaction from origination to funding is a personal objective of mine, considering my employment history in the mortgage business. As a licensed mortgage loan originator for over 25 years, this topic is essential to determine expectations for your customers and improve efficiency metrics for the organization. The results pertaining to the independent variables of this research study were typical to my personal experiences in the industry as the majority of my clients were owner-occupant borrowers seeking either conventional or government financing. The findings for ATT were also better than average from my experiences in the mortgage industry and examined research.

Conclusion

The explicit goal of this study was to determine if specific mortgage characteristics, such as MLP, MLT, and SPT impacted ATT to complete an RMT from origination to funding. The results of this study showed that I fail to reject the null hypothesis because of the lack of significance between the independent, nominal variables and the dependent, interval variable. Although, the data conformed to industry averages as the frequencies of the independent variable confirmed the economic lending environment in the state of Florida. Owner-occupant, government-insured, purchase mortgages are still dominating the industry and maintaining market share since the 2008-2009 financial crisis.

Moreover, the results of this study substantiate and reinforce the theoretical framework and supportive theories of throughput (TOC) and process improvements (Thinking Process). Even though the data yielded insignificance, the data results may lead to further research to improve upon workflow completion times in the mortgage industry. The general idea to improve ATT was to improve the overall intrinsic value of the organization for all stakeholders.

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Appendix A: Request to Participate in Study

Dear Mortgage Professional,

My name is Kareem Tannous, and I am a Doctor of Business Administration candidate at Walden University finishing my doctoral study. First, thank you for accepting my invitation. Second, thank you for taking the time out your schedule to read this request. Finally, I humbly request of you, as a mortgage professional and decision-maker, to participate in my doctoral study.

Your approval and participation are essential and will require a letter of cooperation, a limited data set user agreement, and confidentiality agreement to be signed by all parties. I will then be able to provide you with the details of my study. If you wish to accept my request and participate in this study, we will be striving to make a positive social impact on consumers, employees, and the mortgage industry as a whole.

As professionals and scholars, we are always seeking innovative ways to improve, utilizing the resources around us, and lead our societies into the future. I am requesting to use your firm's retail mortgage data between 2011 and 2016, specifically for the State of Florida, using non-borrower particular mortgage characteristics, potentially to determine statistical significance to my research.

Again, I eagerly await your approval or rejection to participate in my doctoral study.

Very Respectfully,

Kareem A. Tannous
Doctor of Business Administration Candidate
Walden University
Kareem.tannous@waldenu.edu
904.894.5430

Appendix B: Letter of Cooperation from a Research Partner

11/10/2017

Dear Kareem Tannous,

Based on my review of your research proposal, I permit for you to conduct the study entitled Impact of Mortgage Characteristics on Retail Mortgage Transaction Completion Time within the [redacted] As part of this study, I authorize you to procure non-sensitive archival data records. Individuals' participation will be voluntary and at their discretion.

We understand that our organization's responsibilities include: providing the non-sensitive archival dataset. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Walden University policy on electronic signatures: An electronic signature is as valid as a written signature as long as both parties have agreed to conduct the transaction electronically. The Uniform Electronic Transactions Act regulates electronic signatures. Electronic signatures are only valid when the signer is either (a) the sender of the email or (b) copied on the email containing the signed document. Legally an "electronic signature" can be the person’s typed name, their email address, or any other identifying marker. Walden University staff verify any electronic signatures that do not originate from a password-protected source (i.e., an email address officially on file with Walden).

Appendix C: Confidentiality Agreement

Name of Signer: Kareem Tannous

During the course of my activity in collecting data for this research: Impact of Mortgage Characteristics on Retail Mortgage Transaction Completion Time. I will have access to information, which is confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant.

By signing this Confidentiality Agreement, I acknowledge and agree that:

1. I will not disclose or discuss any confidential information with others, including friends or family.
2. I will not in any way divulge, copy, release, sell, loan, alter or destroy any confidential information except as properly authorized.
3. I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant's name is not used.
4. I will not make any unauthorized transmissions, inquiries, modification or purging of confidential information.
5. I agree that my obligations under this agreement will continue after termination of the job that I will perform.
6. I understand that violation of this agreement will have legal implications.
7. I will only access or use systems or devices I am officially authorized to access, and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.

Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.

Signature: Kareem Tannous **Date: 11.10.2017**

Appendix D: Limited Data Set User Agreement

DATA USE AGREEMENT

This Data Use Agreement ("Agreement"), effective as of November 13, 2017 ("Effective Date"), is entered into by and between Kareem A. Tannous ("Data Recipient") and [redacted] ("Data Provider"). The purpose of this Agreement is to provide Data Recipient with access to a Limited Data Set ("LDS") for use in research in accord with the HIPAA and FERPA Regulations.

1. Definitions. Unless otherwise specified in this Agreement, all capitalized terms used in this Agreement not otherwise defined have the meaning established for purposes of the "HIPAA Regulations" codified at Title 45 parts 160 through 164 of the United States Code of Federal Regulations, as amended from time to time.

2. Preparation of the LDS. Data Provider shall prepare and furnish to Data Recipient a LDS in accord with any applicable HIPAA or FERPA Regulations

Data Fields in the LDS. **No direct identifiers such as names may be included in the Limited Data Set (LDS).** The researcher will also not name the organization in the doctoral project report that is published in Proquest. In preparing the LDS, Data Provider or shall include the **data fields specified as follows**, which are the minimum necessary to accomplish the research: Mortgage Loan Purpose, Mortgage Loan Type, Subject Property Type, Application Dates, and Funding Dates.

3. Responsibilities of Data Recipient. Data Recipient agrees to:

   a. Use or disclose the LDS only as permitted by this Agreement or as required by law;

   b. Use appropriate safeguards to prevent use or disclosure of the LDS other than as permitted by this Agreement or required by law;

   c. Report to Data Provider any use or disclosure of the LDS of which it becomes aware that is not permitted by this Agreement or required by law;

   d. Require any of its subcontractors or agents that receive or have access to the LDS to agree to the same restrictions and conditions on the use and/or disclosure of the LDS that apply to Data Recipient under this Agreement; and

   e. Not use the information in the LDS to identify or contact the individuals who are data subjects.

4. Permitted Uses and Disclosures of the LDS. Data Recipient may use and/or disclose the LDS for its research activities only.

5. Term and Termination.

   a. Term. The term of this Agreement shall commence as of the Effective Date and shall continue for so long as Data Recipient retains the LDS, unless sooner terminated as set forth in this Agreement.

   b. Termination by Data Recipient. Data Recipient may terminate this agreement at any time by notifying the Data Provider and returning or destroying the LDS.

   c. Termination by Data Provider. Data Provider may terminate this agreement at any time by providing thirty (30) days prior written notice to Data Recipient.

   d. For Breach. Data Provider shall provide written notice to Data Recipient within ten (10) days of any determination that Data Recipient has breached a material term of this Agreement. Data Provider shall afford Data Recipient an opportunity to cure said alleged material breach upon mutually agreeable terms. Failure to agree on mutually agreeable terms for cure within thirty (30) days shall be grounds for the immediate termination of this Agreement by Data Provider.

   e. Effect of Termination. Sections 1, 4, 5, 6(e) and 7 of this Agreement shall survive any termination of this Agreement under subsections c or d.

6. Miscellaneous.

   a. Change in Law. The parties agree to negotiate in good faith to amend this Agreement to comport with changes in federal law that materially alter either or both parties' obligations under this Agreement. Provided however, that if the parties are unable to agree to mutually acceptable amendment(s) by the compliance date of the change in applicable law or regulations, either Party may terminate this Agreement as provided in section 6.

   b. Construction of Terms. The terms of this Agreement shall be construed to give effect to applicable federal interpretative guidance regarding the HIPAA Regulations.

   c. No Third Party Beneficiaries. Nothing in this Agreement shall confer upon any person other than the parties and their respective successors or assigns, any rights, remedies, obligations, or liabilities whatsoever.

   d. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

e. Headings. The headings and other captions in this Agreement are for convenience and reference only and shall not be used in interpreting, construing or enforcing any of the provisions of this Agreement.

IN WITNESS WHEREOF, each of the undersigned has caused this Agreement to be duly executed in its name and on its behalf.

DATA PROVIDER	**DATA RECIPIENT**
Signed: _____	Signed: Kareem A. Tannous
Print Name: [redacted]	Print Name: Kareem A. Tannous
Print Title: Manager	Print Title: Doctoral Candidate