STRATEGIC A.D.R.A. RESOURCE DECISIONS IN PRIVATE LENDING:

THE ROLE OF ADAPTIVE LEARNING AS

MEDIATED BY RISK AND ENTREPRENEURIAL ATTITUDES

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ABSTRACT

Strategic ADRA Resource Decisions in Private Lending:

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Mediated by Risk and Entrepreneurial Attitudes

By Mark S. Fellhauer

The Great Recession of 2008 and the intertwined subprime loan crisis brought significant regulation and constraints to the USA mortgage lending and related commercial investment real estate markets. As a result, banks and financial institutions lost most decision-making discretion in both shaping and granting such loans. In addition, most traditional lending institutions found private, non-qualified commercial mortgage investment loans unappealing. An alternative source of funding called private lending, or hard money lending, has emerged as a more flexible and largely unregulated source of needed funds (Friedman, 2017). It is especially popular for converting office buildings into residences to alleviate the U.S. housing shortage.

This research seeks to identify decision patterns in the little-researched private lending industry using strategic resource movement theory (O'Bannon, 2010). Specifically, it examines the role of adaptive learning, as operationalized by career background, in loan decisions under conditions of market disequilibrium.

I developed a parallel mediation model that measures a direct pathway by which career background (banker vs. entrepreneur) influences the decision to extend an overdue construction loan. The situation is mediated by risk propensity and individual entrepreneurial orientation.

The original target survey group, a professional lending organization, had its membership plummet during COVID and delivered a minuscule initial response rate. As an alternative, I used

the Prolific crowd-sourcing company to vet business professionals who could serve as proxies for private lending professionals.

In the resulting analysis, mediated pathways linking career to risk and to entrepreneurship proved significant, as did the risk-to-loan path. The direct pathway from career to loan decision, and the mediated entrepreneurship-to-loan path, were not significant.

Interesting post-hoc demographic patterns are also discussed, along with benefits to theory and practice and suggestions for future research.

Keywords: *ADRA Strategic Resource Movement, Private Lending, Adaptive Learning, Risk Propensity, and Entrepreneurial Orientation.*

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

CHAPTER I. PHENOMENON OF INTEREST **1**

Decisions, Strategy, and Private Lending 3

Decision Norms and Past Experience 4

Risk Propensity 6

Entrepreneurial Factors 6

Research Question 7

Significance of the Research 8

Potential Benefits for Academic Research 8

Potential Benefits for Business and Industry 8

Report Structure 9

CHAPTER II. LITERATURE REVIEW & HYPOTHESES **10**

The Great Recession and the Evolution of Private Lending 10

Loosening Mortgage Loan Access 11

Popularity Surge for Private Lending 12

Commercial Real Estate Niche Emerges 13

ADRA Resource Movement and Lending 14

Conditions of the Loan Applicant 16

Role of Past Events 17

Decision Focuses and Influences 17

Incomplete Information 18

Prospect Theory and Biases 20

Adaptive Learning 20

Entrepreneurial Orientation 23
Risk Propensity 24
Career Background Factors 25
Summary Thoughts and Model for Strategic Decisions in Private Lending 26

CHAPTER III. METHODOLOGY 29
Sampling Set 29
Setting 30
Sampling Method 30
Power Analysis & Sample Size 30
Survey Mailing Size 31
Operationalization of Constructs 31
Dependent Variable: Loan Decision 31
Independent Variables 33
Private Lender's Background 33
Individual Entrepreneurial Orientation 34
Risk Propensity 35
Demographic and Control Variables 35
Decision Scenarios 36
Study 1 – Attack / Avoid Lodge Scenario 37
Study 2 – Defend / Retreat Office Scenario 38
Development of Qualtrics Survey 38
Refinement of Scales and Items 39
Sequence of Questionnaire 39
Survey Operations 39
Actions to Minimize Non-Response 39
Online Survey Release Plan 40
Data Analysis Plan 40
Testing of Data Gathering System 41
Justification of Statistical Analysis Method 41

Structure of Regression Model 41
Revisions to Survey Population 42

CHAPTER IV. DATA ANALYSIS & RESULTS 44

Prolific© Platform Survey Procedures 46
Main Survey Response Rates 46
Characteristics of Survey Respondents 46
Key Informants 46
Respondent Demographics 46
Entrepreneur vs. Business Degree Differences 48
Preliminary Data Analysis 49
Dependent Variable – Loan Probability (LOAN) 49
Independent Variable – Career Background (CAREER) 50
Tests of Normality 51
Homogeneity of Variance Tests 52
Scales: Factor Analysis and Reliability 53
Entrepreneur Data Set Factor Analysis and Reliability Check 53
Business Degree Data Set Factor Analysis and Reliability Check 55
Control Variables 57
Test of Hypotheses 58
Value of Bootstrapping 58
Post-Hoc Tests 60
Conclusion 61

CHAPTER V. DISCUSSION 62

Implications of the Findings 62
Role of Risk Propensity 63
Background and Entrepreneurial Orientation 64
Limitations and Validity Issues 65
Generalizability 65
Statistical Conclusion Validity: Survey Response Bias 65

Construct Validity: Refinement of Scales 65
Causality, Field Studies and Regression.....66

Ideas for Future Research 66
Changes in PL Decision Process 66
Move from Proxies to Private Lending Professionals 67
Excess Property Opportunities, Federal and Otherwise 68
Conclusions 70
Benefits to Theory 70
Benefits to Practice.....70

REFERENCES 72

APPENDICES 84
A. Institutional Review Board (IRB) Documents 85
B. Communications with American Association of Private Lenders (AAPL) and Survey Recipients 96
C. AAPL Newsletter with Study Recruitment Story 108
D. Survey Materials for Office Scenario 110
E. R Code Base for Statistical Analysis 129
F. Variable Histograms 142

LIST OF TABLES

1. Private Lending Categories of ADRA Resource Movement.....19
2. Mediated Regression Sequence of Variable Entry 42
3. Population Summary 47
4. Key Informant Group Demographics 48
5. Inter-Factor Pearson Correlations.....49
6. Tests of Normality 51
7. Levene's Homogeneity Test of Variance on LOAN 52
8. Entrepreneur Population – Factor Analysis.....54
9. Reliability Analysis – Entrepreneur Dataset.....55
10. Business Degree Population – Factor Analysis 56
11. Reliability Analysis – Business Degree Dataset.....57
12. Results of Hypothesis Tests.....59
13. Goodness of Fit Indicators.....59
14. ANOVA: Risk Propensity and Loan Decisions.....60
15. Entrepreneurship & Financial Organizations for Potential Research Collaboration 68

LIST OF FIGURES

1. Private Lending Resource Movement Model 32
2. PL Resource Movement Model: Study 1 – Lodge Scenario 37
3. PL Resource Movement Model: Study 2 – Office Scenario 38
4. Prolific Process Flow Activity.....45
5. Loan Probability - Entrepreneur 49
6. Loan Probability – Business Degree.....50
7. Derivation of *Career Background* Variable 51
8. Hypothesis Testing Model Specification.....58
9. Mediation Testing Outcomes.....62

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CHAPTER I
PHENOMENON OF INTEREST

Over the past thirty years, the changing interplay of strategy and capital acquisition has altered how organizations operate. Disruptive trends include the 1990s technology bubble (Frank & Browning, 2001) and the IPO craze (Kelly, 2001), and the 2000s uptick in private equity financing and the 2008 Great Recession changed how corporate-level strategy is conducted (Hoskission, Shi, Yi, & Jin, 2013) and how such decisions are made. One economic area affected by the interaction between private lending and the Great Recession was mortgage lending (Gramm & Solon, 2016), both residential (Rose, 2011) and commercial (Guodong & Xiulu, 2013).

The Great Recession and the intertwined subprime lending crisis began slowly in 2007, when the French bank BNP Paribas found itself unable to value U.S.-based mortgage bonds (McDonald, Mollenkamp, & Reilly, 2007). Similar situations eventually caused the Federal Government to respond with the Emergency Economic Stabilization Act of 2008 (H.R. 1424).[1] The level of volatility in the mortgage industry has caused significant distress to commercial banks (Majeske & Lauer, 2013) and contributed to the closure of major banks and brokerages, including Lehman Bros. and Bear Stearns. The 2008 bankruptcy of Lehman, with some $300 billion in assets, remains the largest bankruptcy filing in U.S. history, with an eventual clean-up

[1] The Emergency Economic Stabilization Act is more commonly known as the Troubled Assets Relief Program, or TARP.

cost of some $6 billion (Ferek, 2019). In response to the instability of the mortgage and banking industry, the 111th Congress passed the Dodd-Frank Wall Street Reform and Consumer Protection Act (H.R. 4173), and numerous other pieces of legislation that have restricted bankers' lending practices. The level of oversight and unappetizing nature of granting loans on investment real estate, plus the plunging value of commercial real estate (Painter, 2020), caused banks to shy away from such loans. This opened the door to increased private lending activity.

This mortgage-based private lending, more commonly known as "hard money lending[2]", is a sub-group of the financial services sector that primarily caters to investors in distressed real estate, more commonly known as flippers. These loans are short-term and flexible in terms (Brown, 2015; Dezember & Rudegeair, 2018). The rationale for this flexibility is that investors need access to funds in a relatively short timeframe, often have difficulty meeting traditional credit guidelines, and the buildings in question are unable to secure traditional financing (Breault, 2018; Friedman, 2017). Given this, private lenders charge a premium above the market rate, in the form of fees or points, a percentage of the loan amount. Additionally, the interest rate on these loans is at a premium above the market interest rate, due to the increased risk (Dezember & Rudebaeir, 2018; Friedman, 2017). These loans are typically collateralized by the real estate itself (American Association of Private Lending, 2018; Breault, 2018). More recently, the COVID-19 epidemic has produced mixed results in commercial real estate. Apartment buildings, warehouses, logistics sites, and Sunbelt properties are selling well due to their increased appeal (Grant, 2022). A surplus in corporate workspaces, however, has emerged from the stopgap "work from home" model spawned by COVID safety restrictions. Furthermore, it appears that many corporations are moving permanently to more work-from-home options,

[2] While the terms Hard Money Lending and Private Lending are synonyms, this paper will use Private Lending as the preferred research construct.

which means a surplus of in-office workspaces and, thus, lower values (Putzier, 2021). Rising mortgage interest rates could put a damper on purchases of even the more attractive commercial property types (Grant, 2022). In private lending and lending more generally, manufacturing costs are agnostic to the final loan amount.

In times of economic upheaval, strategic moves, procedures, and techniques often change recovery. This is especially the case within the increasing real estate relationship with the private lending industry (Breault, 2018; Friedman, 2017). Factors to be explored will include strategy decisions, influence of past decisions, risk propensity, and entrepreneurial themes within this emerging industry.

Decisions, Strategy, and Private Lending

In early studies of business strategy, the concept of decision-making in strategic literature was only beginning to be explored (Paine & Anderson, 1976, p. 122). Porter (1979), when discussing how competitive forces shape strategy, emphasized strategists' decisions in pursuit of competitive advantage. These decisions included positioning the company, influencing industry balance, and exploiting industry change. A decade later, strategic research agendas (Boulding et al., 1994; Eisenhart & Lishner, 1992) suggested that a decision to deploy or retract resources could be examined as a potential predictive framework for strategy. Utility theory has been used to determine the overall profitability of a transaction, and in some cases, it is appropriate when the overall level of profitability is easier to estimate (Moore, 1989). Chen and Miller (1994) employed Vroom's (1964) expectancy framework to explain such decisions. In this context, a decision is an antecedent condition for all strategy execution observed in the marketplace. In other words, for a firm to enter, exit, or take other action in the market, a decision must be made (O'Bannon, 2010).

O'Bannon (2005, 2010) focused on strategy as resource movement, with four core movements that a firm can take (2010): attack (committing resources); defend (maintaining resources); retreat (subtracting resources); or avoid (not engaging in the market). O'Bannon's ADRA framework further expands the work of Chen and Miller (1994) and Vroom's (1964) expectancy framework. Within the expectancy framework, the expectancy of a transaction matches with relative competitive strengths, and the overall valence portion matches with *stakes,* or overall transaction profitability.

This meshes with a common theme in strategy that antecedent conditions influence strategic decisions (e.g., Boulding et al, 1994; Chen & Miller, 1994; O'Bannon, 2010). Perceived strategic moves are focused on future assessments of expectancy and valence (Chen & Miller, 1994; O'Bannon, 2010).

It is argued that decision makers utilize a subjective, independent level of valence that is distinct from the market level of valence (Chen & Miller, 1994), which is influenced by their background and past decisions. It is this background that informs less-structured private-lending decisions and serves as the baseline for valence perception. This research seeks to explain how these past experiences and background affect strategic decision-making in the emerging private lending industry.

In private lending in commercial real estate, much of the activity falls within the realm of entrepreneurship, namely the creation of new opportunities (Lumkin & Dess, 1996). Entrepreneurial factors will be addressed.

Decision Norms and Past Experience

The Industrial Revolution created a structural shift across most industries. Many small craft manufacturing shops gave way to large, vertically integrated factory systems that no one

quite knew how to manage (Hax & Majluf, 1984). In the early 1900s, systems of budgeting and financial control, and later long-range planning, formed the basis of pre-strategy management systems.

Simultaneously, the Scientific Management movement, led by Fredrick W. Taylor, emerged, pursuing the "one best way" to do things in each industrial situation (Kanigel, 2005). This push towards systematic thinking and reliance upon experts will be expanded upon in the Chapter. 2.

Rational choice theory emerged in the 1940s, emphasizing the expert decision maker who processed relevant information to make economically maximizing choices (Morgenstern & von Neumann, 1944). In conditions of uncertainty, rational decision makers purportedly use expected utility theory to resolve it by assigning probabilities.

Rational choice theory proved problematic because it described what ideal decision-makers should engage in: economic maximizing behavior. – rather than what they actually do. In reality, decision makers often engage in *bounded rationality* (Simon, 1972), a decision-making process limited by factors such as incomplete information and the failure to pursue optimal choices. These include prospect theory (Kahneman & Tversky, 1979), agency theory (Eisenhardt, 1989), and the learning organization (Senge, 1990).

An alternative pathway has emerged in business and education that emphasizes a learning-by-doing approach (Arrow, 1962) rather than focusing on decision-making shortcomings. Called *adaptive learning* (Argyris, 1976a; Appelbaum & Goransson, 1997; Chiva, Grandio & Joaquin, 2010), it focuses on a systematic cycle of analysis based upon deductive reasoning, discussion, and continuous improvement. Adaptive learning has the potential to capture the semi-structured decision processes in private lending, and the learn-by-

doing emphasis aligns with the entrepreneurial tie-in to private lending, which will be discussed presently.

Risk Propensity

In situations of incomplete information, a person's attitudes toward risk can influence decision-making. The specific construct of *risk propensity* can be defined as "a personality attribute that reflects a decision maker's cumulative tendency to take or avoid risks and is simultaneously persistent and can evolve as a decision maker gains more experience," (Hung & Tangpong, 2010, pp. 88-9). Factors influencing these decisions include uncertainty (Mintzberg, 1976) and the role of emotions (Kim, 2012), which seek to explain how managers make "unstructured" strategic decisions. Furthermore, in the case of private lending, it influences decisions on resource movement (O'Bannon, 2005; O'Bannon, 2010; Chen & Miller, 1994).

Entrepreneurial Factors

The ideas of entrepreneurship can inform this research through a three-vector approach to the discussion. We will address entrepreneurship's potential from the perspectives of classic strategy, parallels between private lending and traditional entrepreneurship activities, and the fact that the most recent business-related, rather than education-related, adaptive learning work appears in the fields of entrepreneurship and franchising.

Entrepreneurial orientation in franchisor-franchisee relationships is of interest, as many similarities exist between a private lender being an employee of a firm that provides capital to be lent and marketing materials. Typical franchisor-franchisee relationships are symbiotic (Combs, Ketchen, & Short, 2011).

The majority of private lenders working for companies (e.g., not sole proprietors) are not lending their personal capital, nor are they preparing their own marketing material (Blomquist,

2021). This relationship allows us to look toward the franchise/ franchisee model due to the existing parallels within the industry.

Recent research by Brand et al. (2017) posits that franchising is an entrepreneurial activity. Additional research in franchising (Dada & Watson, 2012; Chien, 2014; and Grunhagen et al, 2014) shows a positive relationship between *entrepreneurial orientation* (Colvin & Slevin, 1989), a bundle of characteristics supportive of entrepreneurial success, and success within the franchise. Thus, the individual entrepreneurial orientation of private lenders may also offer insights into their decision behavior. The "learn by doing" aspects of emerging private lending procedures tie in well with the themes of adaptive learning.

Research Question

Given the relationships between entrepreneurial orientation, risk propensity, resource movement, and the inherent risks involved, it is theorized that these constructs shape an individual decision maker's perceived level of expectancy and valence, or a payoff from a strategic resource movement and a firm's ability to perform the strategic move. When addressed in the context of private lending, these interacting factors lead to this overall research question:

In private lending, what effect does the experience of lenders have on strategic resource-movement decisions, and what are possible intervening factors?

The research strategy for this work can best be thought of as theory-building and explanation-focused (Snow & Thomas, 1994). The industry focus of the research contributes to theory building by testing the attack, defend, retreat, and avoid logic (O' Bannon, 2010) in a field study. The explanation focuses on locating relationships between past experiences and future decision-making within private lending. The growth rate of private lending, relative to traditional

lending, given changing market conditions, provides an optimal backdrop for research of this type.

Significance of the Research

This research seeks to provide insights into what guides the decision-maker as private lending moves from a niche activity to a fledgling industry. This will use the Attack-Defend-Retreat-Avoid (ADRA) framework (O'Bannon, 2005; O'Bannon, 2010) to address the resource-movement decisions within the private lending arena. This research seeks to advance knowledge in both the theoretical and practical aspects of this phenomenon.

Benefits for Academic Research

First, chronicling private lending has begun primarily in general media, not academia. A recent EBSCO Search yielded eight articles on Hard Money Lending, of which only one was peer-reviewed (Brown, 2015). Only since 2015 have articles in popular business publications, such as *The Wall Street Journal*, begun to document the increased prominence of private lending as real estate investment dollars reached pre-2009 levels (Dezember & Rudebaeir, 2018; Friedman, 2017; Gramm & Solon, 2016).

Second, the use of the ADRA framework to explore private lending will allow the charting of personal expectancy and valence at play in a largely unstructured industry. This will test both the ADRA framework and the resource-movement aspects it entails.

Further, the anticipated decision-scenario research will provide additional survey tools that may help explain both ADRA and the private lending phenomenon. The tools could likewise have potential use in other realms of strategic decision-making research, especially those in which decision criteria are loosely defined.

Benefits for Business and Industry

Potential benefits for practitioners include a better understanding of lenders' antecedent backgrounds in decision-making and the dynamics of adaptive learning during the process. The private lending arena draws agents from two primary backgrounds: former commercial bankers and "hard money" brokers with little or no banking experience. In the aftermath of the Great Recession, former bankers with a background may be more cautious than the pure "hard money" group in making and extending loans. This research will delve into this area.

This would be of interest to both practitioners and the newly emerged American Private Lending Association, which, in the wake of the Great Recession mortgage scandals, seeks ethical norms for its industry and members.

Report Structure

The remainder of this dissertation includes the literature review, methodology, results, and discussion. Specifically, Chap. 2 presents the literature review, expanding on ADRA and the role of experience, and outlines emergent hypotheses and a research model. Chap. 3 features: the methodology, an experimental scenario for a private lending decision, the subject base, and a preview of statistical tools and tests. Chap. 4 describes regression assumptions and provides statistical test(s) of the model. The data patterns and results of hypothesis tests are also included. Chap. 5 discusses conclusions and recommendations for future research.

CHAPTER 2

LITERATURE REVIEW & HYPOTHESES

> *Individuals continually face decisions whose consequences are only poorly understood.*
>
> *This uncertainty can arise from a variety of sources. Several outcomes are possible, and the individual decision-maker probably has only a vague idea of how to combine these elements into a well-formulated decision model. Risks become even more complex when the choice is made in a situation of strategic independence. What happens when the outcomes are conditioned by the choices of others, who may be equally in the dark about the actual state of affairs? Will rational individuals necessarily arrive at some predictable, or dominant, jointly determined outcome?*
>
> Moore & Moore (1989, p. 367)

The Great Recession had a significant impact on financial services, including the overall mortgage industry. This chapter will deal with these influences and what they suggest for the ADRA Resource Movement model (O'Bannon, 2010) as a roadmap for the process of private lending. Related topics will include the salience of risk propensity, entrepreneurial activity, and lender career patterns in such lending decisions. The discussion will generate testable hypotheses and an ADRA model for private lending decisions.

The Great Recession and the Evolution of Private Lending

Analysts of the Great Recession of 2007-08 and the embedded mortgage crisis often cite the Community Reinvestment Act (CRA) of 1977 (Bhutta & Act of 1968) as a precursor, which sought to increase the availability of mortgage loans in low-income, often minority neighborhoods (Bhutta & Ringo, 2015). In part, the CRA sought a remedy for *redlining* (Jan 2018), a practice in which bankers conspired to deny mortgage loans to creditworthy people because they lived in low-income areas. Adjustments made to the CRA over the next two decades attempted to balance loan availability with prudent risk management (Bhutta & Ringo, 2015; Ding, Quercia, Li & Ratcliffe, 2011).

During the 1990s, the Financial Services Modernization Act (FSMA) emerged amid a decade of strong economic growth in the USA, spurred by technology gains, job growth, and increased foreign trade (Anderson, Stewart, Andes & Ezel, 2012). At the time, the banking industry was pursuing an agenda of restructuring and deregulation (Shiller, 2000). Among other things, the 1999 FSMA legislation replaced the 1933 Depression-era Glass-Steagall Act, which had forbidden ownership by bank holding companies of both depository institutions and investment companies[3]. The replacement FSMA permitted banks to conduct business in both sectors and raised the risk level permitted for many loan types (Yeager, Yeager, & Harshman, 2007).

Loosening Mortgage Loan Access

As champions of the CRA pressed for more liberal loan-granting metrics to lower-income clients (Cincotta, 1999; Ding et al, 2011), parallel FSMA forces fostered more highly leveraged investments across the financial spectrum, including mortgage loans. FSMA liberalized the rules on branch banking and opened the way for more *subprime* mortgage loans, those made to persons with very low credit ratings (Adelino, Schoar, & Severino, 2016). To hedge against the risk of these subprime loans, banks began to bundle them into "pools" (a homogenous group of loans that would function as a Collateralized Debt Obligation, aka a "CDO") as securities (AKA: securitize) and sell them to third parties. The third parties were primarily institutional investors, who were able to purchase these newly created securities because of their relatively high institutional credit rating. This preceded the housing and subprime mortgage crisis of 2007-08, one of the key phenomena of the Great Recession. In the aftermath of the recession, various

[3] Commonly referred to as "Gramm-Leech," due to the sponsor of Senator Phil Gramm and Rep. Jim Leach (along with Rep. Thomas Bliley).

parties have analyzed possible roles for the CRA (Gramm & Solon, 2016; Sperry, 2012), the FSMA, and subprime loan instruments (Ding et al., 2011) in triggering the recession.

The role of the CRA was the subject of special scrutiny. Various reports have either minimized the CRA's impact (e.g., Adelio et al, 2016; Ding et al, 2011) or emphasized its impact (e.g., Gramm & Solon, 2016; Sperry, 2012). Resolving this debate is beyond the scope of this discussion. Instead, these disruptions caused by CRA, FSMA, and the subprime defaults helped foster the Dodd-Frank Act.[4] In 2010, the Dodd-Frank Act (Barth & Jahera, 2010) placed strict post-recession restrictions on financial institutions. The administrative burden of these restrictions made private lending a desirable alternative to public financing in the commercial real estate market.

Popularity Surge for Private Lending

For many years, the great majority of consumers have relied on the traditional 15- or 30-year fixed mortgage. Most of these loans are for owner-occupied residences, meaning the person obtaining the financing will occupy the residence as their primary residence (Rose, 2011). Those in the real estate business who do not intend to live in the property as a residence are considered non-owner-occupied loans and left to commercial bankers to transact (as opposed to Residential Mortgage Professionals) (Friedman, 2017). These non-owner real estate investors could either purchase these homes from an estate, from foreclosure, from the taxing authority, or through numerous other avenues. The commercial banker would lend the funds to the investor (Guodong & Xiulu, 2013) for purchase. The terms of the loan vary, including the interest rate, which was always based on the capacity to repay. The market functioned in this manner for decades.

[4] The Wall Street Reform and Consumer Protection Act (Pub.L. 111–203, H.R. 4173). Also known as Dodd–Frank, it was signed into United States federal law by US President Barack Obama on July 21, 2010.

In the late 1990s, as real estate prices began to rise dramatically, many new investors sought to enter the market. They obtained financing through traditional channels, as previously mentioned. This irrational exuberance (Schiller, 2000), coupled with the passage of the Gramm-Leach-Bliley Act (repealing the Glass-Steagall Act of 1933), led to an erosion of underwriting standards, which serve as checks on creditworthiness. This decline led to a surge in residential real estate activity, driving prices up in the early 2000s.

This essentially changed in 2008, when the real estate market saw steep declines. In response to this decline, many banks shifted their focus and re-examined the risk in this business line (Adelino, Schoar, & Severino, 2016). Many banks decided to transition their business away from traditional real estate lending amid falling real estate prices. In addition, many other regulations followed suit in assessing the cause of the real estate market downturn.

Private lending existed prior to the Great Recession; however, this emerging market essentially functioned as a sole proprietor, fragmented business in which an individual would lend their own funds to another for real estate investment (Hokission et al., 2013). These borrowers were often considered not creditworthy, or the collateral was deemed too risky, meaning the properties were placed in a higher risk classification by a commercial bank. Private lending loans are short-term loans secured by real estate (Mandell, 2016). These loans are typically non-owner occupied and primarily for investment (speculative) purposes. These loans have higher interest rates and fees, yet are more flexible regarding terms (Dezember & Rudebaier, 2018).

Commercial Real Estate Niche Emerges

The rationale for obtaining these loans is that the down payment requirements are typically much lower, thereby increasing the overall return on investment exponentially. This industry has been operated mainly by individuals who would loosely underwrite and disburse funds in a largely unstructured manner (Dezember & Rudebaeir, 2018). With the advent of the Consumer Financial Protection Bureau and TRID lending guidelines (CFPB, 2018), many investors have sought ways to achieve above-average returns in a largely unregulated market. Because private loans are made to a business, they are not subject to the standards of the long-standing Real Estate Settlement Procedures Act (RESPA), more commonly known as RESPA (Guodong & Xiulu, 2013). In addition, because these loans are made on a private basis, they are not subject to traditional lending guidelines, as they fall outside the general provisions of RESPA (Subpart A - General Provisions, Coverage 12 CFR 1024.5(a)) (Friedman, 2017).

This market has seen new entrants, which have begun to provide some structure to the industry. Most information on private lending, however, comes from general media rather than academic research. A recent Ebsco Host search of private lending yielded eight studies conducted since 1950 that focus on private lending in emerging markets. Study topics include the rise of private lending from a strategic perspective and its financial implications. There are several additional non-peer-reviewed articles detailing the rise of private lending. In a related vein, the American Association of Private Lending has only been in operation since 2017 (AAPL, 2018). With the popularity of many real estate investing shows and a real estate market that has started to increase overall activity, many investors are turning to private lending to fund their next project. Given this emerging structure, entrepreneurial decision-making and adaptive decision-making are appropriate (Mintzberg, 1973).

ADRA Resource Movement and Lending

Utilizing Vroom's expectancy/valence (1964) theory of motivation applied to a strategic context, O'Bannon (2010) examines strategy in terms of resource movement. Expectancy can be thought of as the firm's internal strengths (relative competitive strength). Valence, in this context, assesses the external environment (or market) to determine the attractiveness of a situation. It is the assessment of these two facets, and their interaction, that governs a strategic move (resource commitment).

Within O'Bannon's (2010) framework, there are four resource movements: Attack, Defend, Retreat, and Avoid. Under this ADRA framework, an *attack* is the commitment of resources to enter a market or to take market share from another competitor. A *retreat* is taking resources away from a market, project, or line of business. A *defend* strategy is committing resources to maintain a position in the overall market, while an *avoid* strategy is being cognitively aware of competitors being in the market but deciding not to enter the position. Table 1 gives examples of possible ADRA actions at both the initial and follow-up phases of the transaction.

These moves are based on the assessments of expectancy and valence. If a manager views an opportunity with a high level of valence and views the level of firm expectancy high as well (the ability of the firm to execute on the opportunity), then the move (a difficult-to-reverse resource commitment) will be initiated (attack).

TABLE 1.

Private-Lending Categories of ADRA Resource Movement

	Private Lending Actions	
Resource Movement Options	**Initial Disbursement**	**Subsequent Moves**
Attack	Grant loan	
Avoid	Decline Loan	
Defend		Maintain Relationship
Retreat		Foreclosure

It is important to note that in O'Bannon's ADRA framework (2010), a firm is defined as an "aggregation of perceptions." It is this line of reasoning that is crucial to defining levels of expectancy and valence, because it establishes that perceived levels are independent of the market and that strategic moves will be made in economic disequilibrium, which most markets operate in.

One comparison of ADRA and rational-choice decision-making came in a strategy simulation. It involved two manufacturing companies competing in multi-market scenarios (Fueger, 2006). Note: Fueger employed an early iteration of ADRA, which did not yet include the avoid option (O'Bannon, 2005). One simulated firm used a game theory (GT) strategy (von Neumann & Morgenstern, 1944), an offshoot of rational choice. In the simulation, the GT firm sought to maximize all possible options in each simulation round rationally. The other firm used ADR, which allowed "fine tuning of various aspects of the model, including the relative weights of the factors making up RCS (relative competitive strengths) and stakes" (Fueger, 2006, p. 70).

In net present value comparisons, GT had superior profits in low-growth scenarios of 2% or less and consumed fewer resources in early rounds. The GT firm, however, tended to have cash-flow problems in the advanced rounds of the simulation. Alternatively, ADRA has superior profits in moderate-to-high-growth scenarios of 4% or greater, but it tends to consume more

resources. Plus, ADRA fostered a smoother transition in strategy shifts, such as moving from attack to defense (Fueger, 2006).

Conditions of the Loan Applicant

Also shaping expectancies are the loan applicant's conditions. Enhancing a favorable view of the borrower would include a loan on high-value property, the borrower's past reputation and performance, and the viability of the recovery plan (Mandell, 2016). Fostering an unfavorable view of the lender would be a property shrouded in legal uncertainties and, as discussed in the AAPL (2018) code of ethics, a venture with very little economic chance of success. Inherent in the process is an underlying moral hazard problem beyond the scope of this work.

Role of Past Events

The idea of someone having a remarkable memory of a bad event is not new. A PsychInfo search for “memories of traumatic events” yielded 912 articles, from 1942 to 2013. In a 2008 TIME article, entitled “Why Do We Remember Bad Things?” Blue stated that almost everyone remembers the exact details (where they were, what they were wearing, etc.) of the September 11, 2001, World Trade Center attack. Schacter (2012) argues that this phenomenon has been helpful in human development, although these processes have yet to be examined in the context of lending.

Private lending has many practitioners with experience in commercial banking (American Association of Private Lending, 2018). Due to the stiff regulation of that sector, especially mortgages in the post-subprime era (Barth & Jahera, 2010), and the collapse of many banks with actual or observed unemployment for many (de la Merced, 2008), these banking veterans likely could be more cautious in their private lending decisions than pure private lenders.

H_1: Among private lenders, non-bankers will be more likely to approve or extend loans than former bankers.

Decision Focuses and Influences

Scott (2010) critically examined Lindblom's (1959) original analysis and asserted that modern society has dramatically improved its ability to examine decisions empirically and can, in fact, recall data. This ability is rapidly increasing. It is also argued by Scott (2010) that we are in a state of *punctuated equilibrium* – a term borrowed from evolutionary biology – characterized by slow evolution followed by rapid change over a relatively short period.

Paine and Anderson (1976) viewed strategic decisions, as well as strategy in general, as self-referential processes in which managers were required to examine their decisions. Mitchell, Shephers, and Sharfman (2010, p. 683) define *strategic decisions* as "Those choices made by managers that commit important resources, set important precedents, and/ or direct important firm-level actions." While this definition is influenced by Mintzberg et al. (1976), it sets forth strategic decision-making as a process of resource movement. This process suggests that not all decision-making is purely economic.

This moves us to a discussion of three major trends in decision-making that apply to strategy, and how they relate to private lending. These are rational choice theory (von Neumann & Morgenstern, 1994), which assumes economically maximizing decisions by a rational actor; prospect theory (Kahneman & Tversky, 1979), which attempts to account for incomplete information and non-optimizing decisions; and adaptive learning (Argyris, 1976), a learn-by-doing process which leads to better decisions as experience grows.

Incomplete Information

Most human choices are made without knowing the probability distribution of the outcome. This standard concept in economics is called *asymmetric information*, a situation in which all rational agents do not have the same level of information. *Expected utility* measures the amount of value one would obtain from consuming a good before the consumption of that good (Morgenstern & Von Neumann, 1948; Vroom, 1964). An underlying assumption of utility theory is that managers are, in fact, utility-maximizing, which does not fully account for the decision-making process. In addition, these decisions "may not be justifiable, nor a proven case documented for their efficacy within the organization, but they will have proven through experience to give acceptable decisions in a robust capacity" (Krabuanrat & Phelps, 1998, p. 84).

The strategy field has adopted contentions of decision theory and economics regarding bounded rationality (Simon, 1972), adaptive expectations (Lachman, 1943; Evans & Ramey, 2004), and agency theory (Eisenhardt, 1989) in relation to decisions. Earlier works suggest these views would fall short because "if the theory of chess (the complete tree of possible games) were fully known, there would be nothing left to play" (Simon, 1972. p 166) and "expectations are largely a response to events experienced in the past but the M.O. of the response is not the same in all cases even of the same experience" (Lachmann, 1943, p. 18). Understanding that the entire set of outcomes and expectations for a particular occurrence (even the same event) is essentially impossible to quantify, this research addresses how these perceptions are formed and their influence on overall strategic decision-making capability.

A core assumption in any decision process is that of incomplete information (Morgenstern & von Neumann, 1944). In the case of private lending, imprudent lending decisions result in immediate consequences, including foreclosure (for the owner) and unexpected ownership (for the lender), a situation neither party would prefer (Friedman, 2017;

Dezember & Rudegaeir, 2018). While these decisions have caused distress, holding on to memories of bad events could lead to missed opportunities in the marketplace **(**Gramm & Solon, 2016**)**.

Resolving problems of incomplete information has proven to be a stumbling block for rational choice theory. While rational choice and expected utility outline how economically maximizing decisions should be made, they do not describe how most people do it.

Prospect Theory and Biases

Kahneman and Tversky (1979) further advanced the study of decision-making under uncertainty, introducing prospect theory, which posits that decision makers view gains and losses from a particular transaction differently and that this relationship is not as linear as utility theory (Arrow, 1962) would suggest. Further, decision-makers are influenced by mental biases from past experiences, and often rely on *heuristics,* quick rules-of-thumb that bypass deeper optimizing analysis for a satisfactory short-run solution (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992).

Krabuanrat and Phelps (1998) include procedures and heuristics - along with power and politics, and garbage can – in their three schools of general decision making: "Such heuristics, as organizational routines, have been proposed by the resource-based school of competitive advantage as a major source of strategic competitive advantage." (Krabuanrat & Phelps, 1998, p. 84).

Adaptive Learning

While Kahneman and Tversky and other heuristics monitors tend to focus on the flaws and shortcomings of heuristics, a parallel view has emerged to emphasize the benefits of a learning-by-doing approach of *adaptive learning,* which "…involves any improvement or

development of the explicate order through a process of self-organization. Self-organization is a self-referential process characterized by logical deductive reasoning, concentration, discussion, and improvement" (Chiva et al, 2008, p. 117). This adaptive learning is commonly cited in psychology literature as having a statistically significant, robust effect on overall decision-making capability (Guilbault et al, 2004). Adaptive learning mechanisms also appear in research on entrepreneurial activity, which likewise emphasizes a strong learn-by-doing approach. Subsequently, parallels between entrepreneurship and private lending will be discussed.

Adaptive learning has been studied in both psychology and economics. It ranges from Argyris' (1976) definition as "single-loop learning" to Proveda and Giannitsarou's (2005) definition as the "assumption that agents do not form expectations rationally but instead learn or use estimates of coefficients... which they update in every period by employing some econometric technique." We will use the second assumption as the backdrop for adaptive learning in this research. Arrow (1966) earlier viewed adaptive learning as a learning by doing and as an interactive process, which is consistent with the approach taken in economics. This is not to say, however, that either approach is better than the other. Single-loop learning is primarily focused on effectiveness (Morales, Verdu-Jover, & Llorens, 2009). Effectiveness concerns making the best possible decision under a given set of constraints, much as modern business is conducted.

Single loop learning permits an organization to maintain its present policies or achieve its present objectives by adjusting or adapting its behaviors" (Chiva, et. al, 2008, p 117). In this sense, the strategic move is a function of the experiences and perceptions the manager has gained over time. All these moves intuitively require a baseline to make these decisions (Scott, 2010), and it is precisely this baseline that the theories of bounded rationality attempt to address but fall

short of. Using an adaptive learning framework, a baseline for strategic decision-making can be constructed as a function of past behavior and experience.

While the term adaptive learning was first coined by Argyris (1976) as single-loop learning, this does not mean the concept had not been researched prior. According to Argyris (1976) there are three types of learning. Single-loop learning is the type of learning necessary to address technical issues. This type of learning is necessary for accomplishing routine tasks. In management, for instance, a routine task may be filling out a form or following a particular procedure for a performance appraisal. Double-loop learning involves going beyond the technical aspects of a situation and questioning the underlying assumptions of a problem or issue. A typical use of double-loop learning in a managerial decision would be in the previously mentioned performance appraisal, where the manager looks beyond the format and questions why the employee received a negative or positive appraisal. Triple-loop learning requires more introspection than double-loop learning. However, the triple loop is beyond the scope of our discussion.

The critical difference between single-loop and double-loop learning is the underlying assumptions. Single-loop learning is appropriate because the phenomenon being questioned is how past experiences influence new lending decisions. Given that lending decisions are a functional part of everyday banking competition, this is appropriate. If the phenomenon in question was a shift in how lending was conducted, or if the institution was considering a shift in its lending mix, single-loop learning would be inappropriate. This point is examined by Petrie & Alpert (1983) in their examination of retrenchment in higher education. This differentiation is further explored by Greenwood (1998), who argues that humans seek other means to achieve the same ends, thereby distinguishing single-loop learning from double-loop learning and setting a

baseline for single-loop learning. Given that we are reviewing processes within an existing structure and are not seeking to understand what prompted a change in a particular business structure, single-loop learning is appropriate (Romme & Dillen, 1997). That said, the nascent private-lending industry is seeking more uniform procedures to increase both efficiency and the legitimacy of self-regulation, so double-loop may eventually play a greater role in private lending. At this time, the global efficacy of single-loop vs. double-loop is beyond the scope of this discussion.

Similarly, adaptive learning shares similarities with the idea of a *learning organization* (Senge, 1990). "Learning Organizations are places where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together." (Senge, 1990, p. 1). Senge frequently discusses adaptive learning in organizational processes.

Entrepreneurial Orientation

Schumpeter defines the entrepreneur as the agent who fosters creative destruction (Schumpeter, 1934). This idea helps shape the modern concept of creative destruction (Schumpeter, 1934). Mintzberg (1976) further suggests three modes of strategic decision-making: entrepreneurial, adaptive, and planning. Miller (1983) takes this a step further, identifying three factors that foster entrepreneurship across three types of firms: simple, planning, and organic. Bernoster, Mukerjee, and Thurik (2020) take this approach a step further by seeking to separate the role of affect from entrepreneurial orientation.

Referring to Schumpeter, who defines the entrepreneur as the agent who fosters creative destruction (Schumpeter, 1934). This idea both fosters and shapes the modern concept of creative destruction. Mintzberg (1976) further suggests three modes of strategic decision-making: entrepreneurial, adaptive, and planning. Miller (1983) takes this a step further, identifying three factors that foster entrepreneurship across three types of firms: simple, planning, and organic. Simple firms tend to be tied to the traditional, trait-based school of leadership. Planning firms tend to prefer more formal controls, and organic firms tend to adapt to the overall environment. There are no constraints as to overall firm size or market capitalization.

Approaches to examining entrepreneurial orientation (EO) emerged from the work of Colvin & Slevin (1989). Firm-level entrepreneurial orientation emphasizes strategic decision-making processes and links to outcomes. The most heavily researched approach was developed by Lumkin, Wells, and associates (Lumkin & Dess, 1996; Wells et al, 2013). Individual entrepreneurial orientation focuses on individual attitudes and skills. (Joardar & Wu, 2011; Langkamp et al, 2012; Bolton, 2012). This research will largely follow the individual entrepreneurial orientation pathway, and it is hypothesized that pure private lenders, as opposed to those with a robust commercial banking background, will have a higher entrepreneurial orientation.

H_2: *Private Lenders with higher levels of entrepreneurial orientation will be more likely to approve or extend loans than private lenders with lower levels of entrepreneurial orientation.*

Risk Propensity

First noted by Knight (1965), entrepreneurs have long been seen as risk bearers. This view essentially complements Schumpeter's (1934) creative destruction, which was later removed in his 1974 work, shifting risk away from entrepreneurs and placing it with the investor.

In the context of this research, the risk taker would be the firm and not the lender itself, as the firm is providing the capital to lend. Risk propensity can be defined as the willingness to accept financial risk (Bucciol & Miniaci, 2018). It is commonly thought that humans are *risk-averse*, preferring less risk to more risk. However, this characteristic is underrepresented in entrepreneurial activity. Gu, Hu, Wu, and Lado (2017) found a positive correlation between risk propensity and entrepreneurial self-efficacy.

This view essentially complements Schumpeter's (1934) concept of creative destruction, which was later removed in his 1974 work, shifting risk away from entrepreneurs and onto investors. In the context of this research, the risk taker would be the firm, not the lender, as the firm is providing the capital to lend.

While many entrepreneurs thought of themselves as risk takers, this was primarily confined to those who considered themselves more innovative. The entrepreneurs who lay on the small business end of the spectrum (of which franchisees would lie) considered themselves less risk-taking and more prudent planners (Densberger, 2014). This somewhat contradicts Karcisky (2014), who contends that franchisees with a high level of risk propensity have a 'U-Shaped' performance curve. However, "Franchisees with a very high-risk propensity may proceed with too risky opportunities and so recklessly put their resources and capital at risk." (Karcisky, 2014, p. 142). Thus, providing the following hypothesis:

H_{3a}: *Private lenders with higher levels of risk propensity will be more likely to approve than private lenders with lower levels of risk propensity.*

H_{3b}: *Private lenders with higher levels of risk propensity will be more likely to extend loans than private lenders with lower levels of risk propensity.*

Career Background Factors

Risk propensity and Entrepreneurial Orientation may also reveal patterns in a private lender's career background. Referring to Densberger (2014) and Karcinsky (2014), too much entrepreneurship may prove to be 'too much of a good thing.' Those with a commercial banking background would fall outside the entrepreneur category, while those with a pure private lending background would exhibit traits that could be considered more entrepreneurial.

The calculus of prospect theory lends itself to the study of capital decisions in commercial real estate (Guodong & Xiuli, 2013) and to the problem of status quo bias during strategic change (Martin, 2017). The status quo bias could be problematic for private lenders with a commercial banking background, given the banking industry's heavy regulatory environment and the need to meet set expectations. Private lenders who are former bankers would have lower levels of entrepreneurial orientation due to the status quo bias of experience.

H_4: *Among Private Lenders, non-bankers will have higher levels of entrepreneurial orientation than former bankers*

In risk processing, information asymmetries and the demands of unstructured or semi-structured decision-making could affect individuals of varied backgrounds differently. Previous discussion noted that former bankers once operated in a highly regulated environment and sometimes became unemployed when their banks failed. Thus, former bankers would be more conservative in their risk attitudes. This suggests the following hypothesis:

H_5: *Among Private Lenders, non-bankers will have higher levels of risk propensity than former bankers*

Summary Thoughts and Model for Strategic Decisions in Private Lending

Much has been written and explored in decision theory, extending back to Simon's (1955) discussion of rational choice and other works in behavioral decision making (March, 1958).

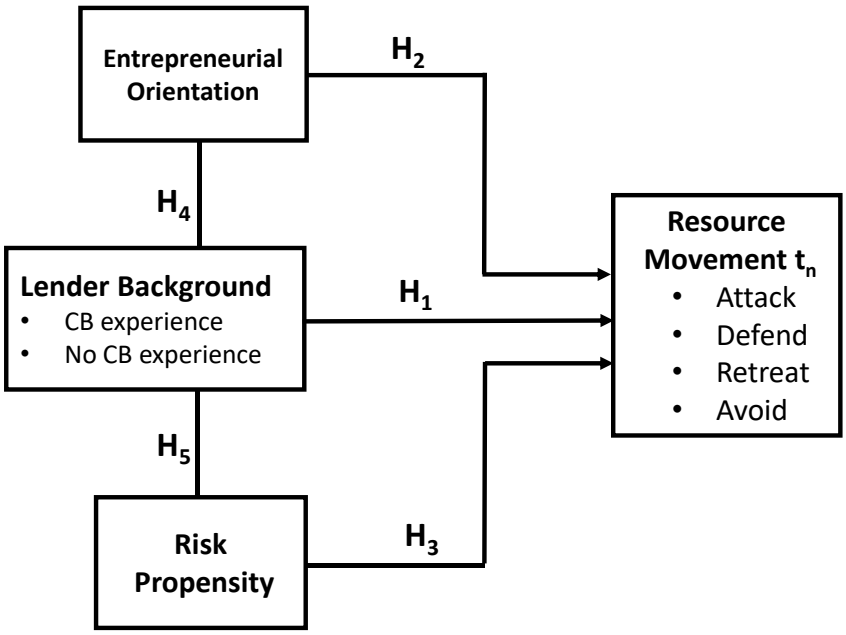
Prospect theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992) provides a sound theoretical framework for examining decisions in this context. Behavioral economics concerns how people make decisions when the probability of the outcome is known. However, implicit in many strategic decisions is a probability function that is largely unknown. In other words, there may be some idea of a new product's success prior to launch; however, this probability distribution is largely unknown.

Chen and Miller (1994) looked at Vroom's (1964) Expectancy Valence logic, in a strategic context, in two facets. First, the expectancy portion can be thought of as "do I have the ability to accomplish the task set before me?" While valence can be viewed as "do I value the particular award from completing this task enough to engage and accomplish the task?" This framework examines economic incentives through a motivational psychology lens. Further support comes from the relationship in franchise opportunities, which, given lenders' unique relationship with their employers, makes this appropriate. The unique aspect is that, in most cases, these lenders make loan decisions but fund the loan with their employer's capital. This relationship is further examined by Dada and Watson (2010), who found that entrepreneurial orientation is positively associated with franchisee outcomes.

The theoretical model outlined in Figure 1 is presented below. In this proposed research model, we will test the relationship of lender background in terms of risk propensity and entrepreneurial orientation, relative to resource movement options (O'Bannon, 2010). The researchers' overarching conclusion is that experience plays a significant role in future decision-making. This is coupled with the idea that not all decision-making is purely economic, in which a decision-maker would rationally assess the cost-benefit calculus and determine which decision

was 'optimal.' The decision process is less linear than that, as Vroom (1964) eloquently points out.

Figure 1.
Private Lending Resource Movement Model



Further, strategic decision-making, while an antecedent condition for strategic action, is not equivalent to strategic action itself. The 'second step' in this process, resource movement (O'Bannon, 2005; 2010), is what agents interacting within the market will witness. These decisions and strategic actions are what will be tested within this model, and the methodology will be discussed in the following chapters.

CHAPTER III.

METHODOLOGY

As mentioned in Chap. 1. the research explores the emerging private-lending arena. Specifically, it asks what effect lenders' experience has on strategic resource-movement decisions (O'Bannon, 2005; O'Bannon, 2010) and which intervening factors are possible.

Drawing upon the Snow and Thomas (1994) model for strategy field research, the focus is on theory testing, and the purpose is explanation. This private-lending research model emerged from both the theory-building and theory-testing research analyzed in Chapter 2. Explanation involves a "documenting relationships among variables through hypothesis testing" (p. 466). The research plan includes a cross-sectional field study (Snow & Thomas, 1994) and a quasi-experimental decision-making scenario (Van de Ven, 2007), both delivered via Qualtrics. Questionnaires and experimental scenarios are standard tools in strategy explanation research (Snow & Thomas, 1994).

The methodology development section will begin with a sampling set, followed by operationalization of the constructs into variables. Next are sections on the survey, namely the development of the Qualtrics instrument, tests of the data-gathering system, and the survey delivery schedule and operations. Finally, the data analysis plan supporting the research model and hypotheses will be discussed.

Sampling Set

The sampling set draws upon the private lending industry, specifically members of the American Association of Private Lending (AAPL). Members are at the forefront of establishing standard methods and procedures for the emerging industry, with the AAPL focusing on commercial real estate. Specific topics to be addressed include the setting, the sampling method,

power analysis and sample size estimates, and the anticipated number of participants for the electronic Qualtrics survey distribution.

Setting

The target population is the private lending industry and its associates. The accessible population is the full-time members of the industry, and the sampling frame is the members of the American Association of Private Lenders (AAPL), based in Kansas City. This organization, founded in 2009, is the first national organization to represent private lending and peer-to-peer lending. The approximate 625 AAPL members are, for the most part, engaged full-time in private lending activities and are involved in setting norms for the emerging industry. The unit of analysis is the individual AAPL members, who are decision-makers within their firms.

Sampling Method

A simple random sample, without replacement, was planned to select from AAPL members. However, due to AAPL's privacy concerns, I shifted to snowball sampling via social media platforms and eventually settled on a Prolific system using vetted surrogates. For details, see **"**Revisions to Survey Population**,"** p. 44.

Power Analysis & Sample Size

Studies of Strategic Entrepreneurship behavior have indicated a response rate of approximately 9% (Anderson, Eshima, & Hornsby, 2017). Given the limited number of studies on this topic, it is not easy to estimate the required sample size. Utilizing power analysis, with a .3 effect size, a .05 alpha level, yields a target sample size of 74. This sample set was arrived at using GPower software (version 3.1.9.4). This is roughly 10% of the American Association of Private Lending's overall membership base and aligns well with the expected response rate.

Survey Mailing Size

See “Revisions to Survey Population,” p. 43.

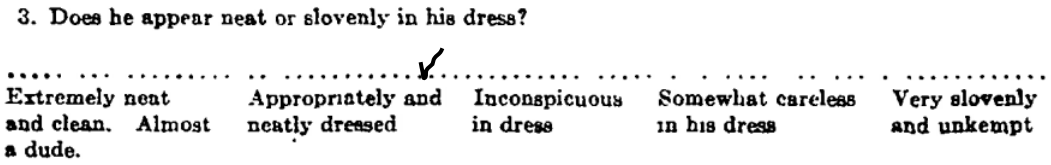
Operationalization of Constructs

Research hypotheses require operationalizing constructs into variables, which are measured using measurement systems. The background of each variable and its usage history will be discussed. Where multiple variables are available, the decision to choose one over the other will be explained.

Dependent Variable: Loan Decision

Loan Decision. This measure will use a VAS format to gauge the percentage likelihood of the loan being approved in Scenario 1 - Lodge or extended in Scenario 2 – Office. The VAS has its origins in the graphic rating scales developed in the early 1900s (Hayes & Patterson, 1921; Freyd, 1923; Scott, 1920).

The GRSs were developed for use in medical, psychiatric, and personality studies to gauge the degree to which a subject exhibited particular behaviors. Freyd (1923, p. 92) gave an example such as this from a job applicant interview form:


3. Does he appear neat or slovenly in his dress?

Extremely neat and clean. Almost a dude. | Appropriately and neatly dressed | Inconspicuous in dress | Somewhat careless in his dress | Very slovenly and unkempt

Instructions called for the rater to place a check mark at the spot along the continuum that he felt corresponded to the impression the applicant made.

Another variation called for psychiatric nurses to describe a therapy patient's behavior by selecting one of 10 statements that best captured it.

Choice (Freyd, 1923, p. 86) ranged from:

1. “Stuporous… to
10. Plans and carries out a piece of work requiring a long period of time, as weaving a rug…”

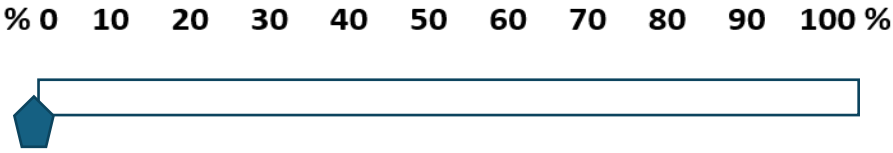
The VAS has emerged as an alternative to the Likert scale (1932). The Likert scale format poses questions and captures responses on a numerical scale, often 1 to 5 or 1 to 7, with verbal anchors for the opposite extremes. Likert scales can have shortcomings, such as producing ordinal data and increasing the likelihood of response style errors (Sung & Wu, 2018). The scale generates ordinal data because there is no guarantee that the intervals between the choices are equal. In simulations comparing Likert and VAS methods, the VAS interval data delivered stronger Cronbach’s alpha and factor loadings than the Likert’s ordinal data (Sung & Wu, 2018). Other VAS benefits include capturing greater variability, as respondents can plot responses on a continuous line rather than choosing among five or seven options (Flynn, van Schaik, & van Wersch, 2004). Further, the continuous line structure frees survey designers from trying to determine how many response categories might be appropriate (Reips & Funke, 2008).

Response style problems arise from respondents' tendency to use Likert scales to select mostly middle/neutral or extreme polar responses (Greenleaf, 1992). Many respondents will register their overall attitude toward a topic rather than focusing on individual items.

Thus, the use of a VAS format over Likert scales has advantages when the VAS is available. In computer surveys, VAS-format responses can be simplified using the toggle line tool, as shown below. The example below shows the question format for the Loan Decision item in this study.

Slide blue bar to point indicating probability.

From the information in the scenario, what is the probability you would approve the loan?



Independent Variables

Private Lender's Background: Mehra (1996) conducted a resource-based strategic management study of the commercial banking environment and built upon the resource-based view of competitive strategy (Mahoney & Pandian, 1992), which this study will provide parallel insight to, though it does not explicitly use a commercial banking sample set. The research question examines whether a lender's financial background influences lending decisions. One main factor is whether the private lender has prior experience in commercial banking.

The decision-making engine within private lending firms lends itself, in Mintzberg's (1973) terms, to entrepreneurial and adaptive decision-making. The relationship between private lenders working for companies closely resembles the franchisor-franchisee relationship, in that the lender is responsible for cultivating client relationships. At the same time, the firm provides marketing support, capital, and brand recognition. This relationship allows the use of franchisee metrics to determine the direction of the relationship (Brand et al., 2017).

Subjects will be asked for their years of experience in private lending and whether they have commercial banking experience. Pure private lenders will be coded as 0, while private lenders with commercial banking experience will be coded 1.

Entrepreneurial Orientation. Measurements of EO have been conducted at two levels: the firm and the individual. Most early measures came at the firm level, stemming from research by Covin and Slevin (1989) on the strategic posture of small manufacturing firms. The research partners developed three EO dimensions of innovation, proactiveness, and risk-taking. Research contemporaries Lumpkin and Dess (1996) added the dimensions of autonomy and competitive aggressiveness.

As for individual aspects of EO, early researchers tended to approach the topic using surrogate variables, such as attitudes toward personal control, self-esteem, and achievement (Harris & Gibson, 2008), or traits such as perseverance, alertness, and emotional intelligence (Zampetakis et al., 2009).

More recently, researchers have taken direct measurements of individual EO (e.g., Rauch et al, 2009; Joardar & Wu; Bolton & Lake, 2012; Bolton, 2012). Drawing upon the five EO dimensions of Lumpkin and Dess (1996), Bolton and Lake translated items of the five dimensions from the firm-level to the individual level ("I believe…"). The resultant scale development showed strong factor loadings for innovation, proactiveness, and risk-taking, but autonomy and competitive aggressiveness were not viable factors on the individual level. When combined into one dimension, the items of the three factors yielded a Cronbach's alpha above .70 (Nunnally & Bernstein, 1994). Subsequent testing among business professionals yielded Cronbach's alphas of .78 or higher across all three dimensions (Bolton, 2012).

In subsequent research, Peak et al. (2019) opted for a unidimensional measure of EO using Bolton and Lake's (2012) ten items. The resulting unidimensional scale yielded a Cronbach's Alpha of 0.875. We will use the unidimensional version of the Bolton & Lake Scale (2012).

Risk Propensity. Most Risk propensity scales were situation-specific or focused on risk tolerance in an entrepreneurial setting (Bolton, 2012). Recent research, however, suggests that a general risk factor exists (Zhang et al., 2018). Scale development by Zhang and associates (2018) has yielded an eight-item General Risk Propensity Scale (GRiPS), with a strong Cronbach's alpha of 0.92.

The GRiPS scale was tested against the competing DOSPERT Scale (Blais & Weber, 2006) and showed better capture of general risk attitudes..

Demographic and Control Variables

Lending institutions gather data pursuant to the Home Mortgage Disclosure Act (HMDA), and the classification of race will be used to assess diversity in responses. This data is required by financial institutions to gather, but it does not readily apply to commercial transactions. This data will be used to provide descriptive statistics for the sample and to test post hoc data patterns.

In research designs, scientists face the challenge of how to deal with extraneous variables, factors that may influence the dependent variable but are not a focus of the study (Spector, 2021). To address this problem, researchers can include control variables in the design to neutralize the effect of a given factor. Common categories of control variables include environmental factors, individual characteristics, and time-related factors (Gravetter & Forzano, 2012).

This study controls for age, gender, and education level, which are common in studies of entrepreneurial orientation and decision-making. As for age, human resource surveys indicate that Generation Xers tend to be more entrepreneurial than Millennials (Fishman, 2016). Likewise, age is associated with generational differences in attitudes across the U.S. population (White, 2008).

Gender has been identified as a moderator in EO framing (Fuentes-Fuentes et al., 2014; Lim & Evnick, 2013), and its impact on entrepreneur loan applications (i.e., Malmstrom et al., 2024) has also received recent attention.

Education level can influence entrepreneurs' strategic decisions (Sonfield & Lussier, 2014). Anbar and Melek (2019) cited seven studies in which education level positively correlated with risk tolerance among bankers, and one study in which it negatively correlated.

Several studies control all three variables. These include Peake et al (2019) in a study of control systems in small businesses, and Fellnhofer (2018) in a study of employee entrepreneurial attitudes and firm performance.

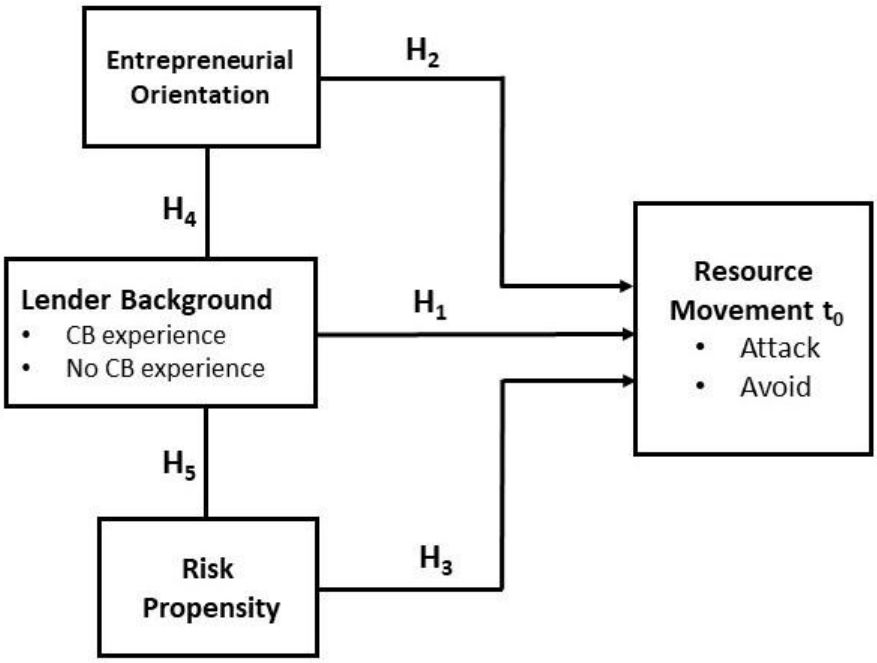
Decision Scenarios

This research will have two parallel studies. One will involve an attack-avoid scenario, in which the private lender will be asked to analyze a new loan application and decide whether to grant it. The second will involve a defend-retreat scenario in which the private lender will be asked to analyze a troubled loan and decide whether to extend it. Four check questions to ensure the subject understands the scenario will be embedded within the questionnaire. If these questions are not answered correctly, the subject will not be able to proceed further. Once the specific scenario has been reviewed, the respondent will indicate rather or not to proceed/ extend the loan, indicating the probability on the VAS Scale.

Before the scenario, questions will be asked about the subject's age, education, and gender. This demographic data will be collected to determine the overall population distribution and calculate descriptive statistics. Once the subject answers the control and scenario questions, they will then answer the individual entrepreneurial orientation questions, followed by the risk propensity questions. It should be noted that these items are not entirely blocked together. The survey items are broken into two blocks each. Keeping both constructs together could lead to responses being influenced by adjacent items (Şahin, 2021). For additional details on item sequence, see page 43 of the Qualtrics Survey Development.

The models for attack/avoid and defend/retreat are shown in Figures 2 and 3, respectively.

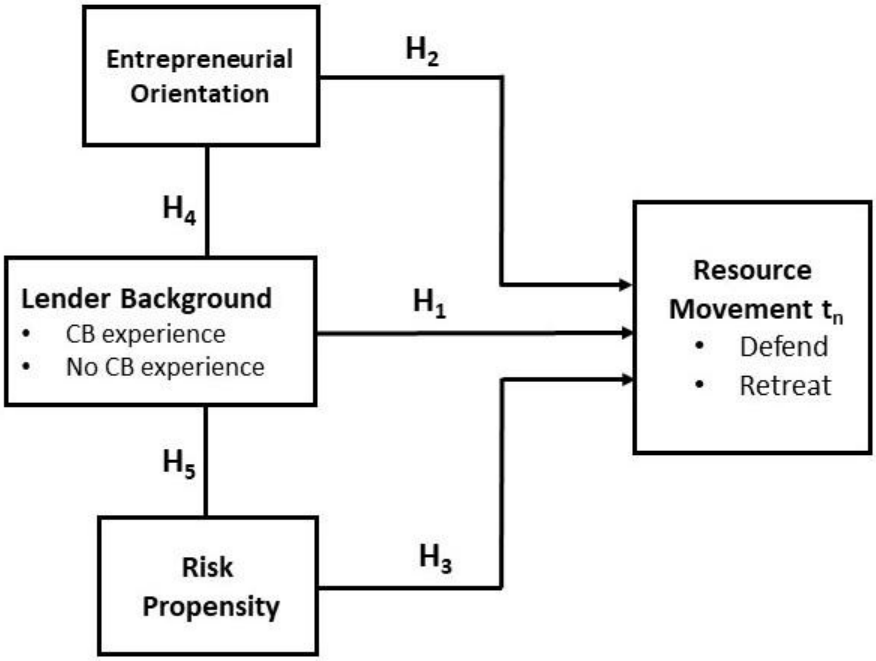
Figure 2.
Private Lending Resource Movement Model
Study 1 – Lodge Scenario



Study 1- Attack / Avoid Lodge Scenario

This scenario involves a partially completed ski lodge that the loan seeker has taken control of. The real property characteristics are described, along with the condition of the loan applicant seeking a bridge loan for working capital to complete the project. General economic and industrial conditions in the area are also discussed. This scenario primarily tests whether a firm would enter the market (via a high probability of granting a loan) or avoid it (via a high probability of not granting a loan). For the whole scenario, see Appendix C.

Figure 3.
Private Lending Resource Movement Model
Study 2 – Office Scenario



Study 2- Defend / Retreat Office Scenario

This second scenario involves an existing loan that is in arrears/ default on an office building refurbishment. The default was due to a delay in government redevelopment incentives, which led to a lack of interest among venture capital investors. The second scenario assumes the firm is already in the market and is evaluating its decision-making capabilities regarding whether to remain. This second scenario was the one used in the operational research. This pathway was followed due to changes in the study, outlined in "Revisions to the Survey Population," page 43. For the complete scenario, see Appendix D.

Development of Qualtrics Survey

Utilizing Qualtrics XM (2020 version), the survey will be delivered to email addresses provided by the AAPL. IP addresses will not be collected, and email addresses will be deleted upon completion of the survey.

Refinement of Scales and Items

The scale items have been refined to align with the study's subject matter.

Sequence of Questionnaire

The sequence of each Qualtrics Survey is as follows:

- Introduction
- Consent form
- Survey Proper
    - Subject's status in private lending (2 items)
    - Lender Background (2 items)
    - Demographics (5 items)
    - Study's decision scenario
        - Study 1: Attack/Avoid (Lodge)
        - Study 2: Defend/Retreat (Office Building)
    - Entrepreneurial Orientation scale (5 items)
    - Risk Propensity scale (4 items)
    - Entrepreneurial Orientation scale (5 items)
    - Risk Propensity scale (4 items)
- "Thank you" panel.

This progression will be followed for the surveys of both Study 1 (Lodge) and Study 2 (Office).

Survey Operations

The survey operations discussion will address actions to minimize non-response, the estimated response rate, and the online survey release plan.

Actions to Minimize Non-Response

Contact has been made with the American Association of Private Lending, which supports the research. These are realistic scenarios that portray authentic lending decisions encountered in their daily work, in which private lenders decide whether to fund new projects or

end funding for existing ones. These scenarios could establish a link in the day-to-day work, in the sense that they could provide insight into why lenders make confident decisions and not otherwise.

Using a Qualtrics electronic survey with a group that is experienced with technology and uses it daily. Further, these are professionals in the private lending industry familiar with these lending decisions. The average online survey response rate is 44% (Wu, Zhao, Fils-Aime, 2022). Additionally, Surg (2022) found that response rates in health care were approximately 68%, while Seshardi and Broekemier (2022) found that the response rate of surveys that took roughly 20 minutes to complete was 63.4%. To achieve statistical significance, power analysis recommended a sample set of roughly 10% of the AAPL membership, which the researchers feel is attainable.

Completing the survey, including making the lending decision for the scenario, will take about 20 minutes.

Online Survey Release Plan

This survey will be released in a single step to members of the American Association of Private Lending.

1. Support email from AAPL
2. Phase 1- Invitation email with survey.
3. Phase 2- Reminder email with survey
4. Phase 3- Final appeal email with survey

Data Analysis

Data analysis will involve several phases, beginning with the testing of the survey system. Then, once data gathering is complete, the primary data analysis will begin. This will

include descriptive statistics, confirmatory factor analyses of the variables, hypothesis tests, and post hoc analyses to detect non-hypothesized data patterns.

Testing of Data-Gathering System

The Qualtrics survey testing included beta testing of the survey content and the overall delivery system—test mailing the survey via email to faculty and graduate student volunteers.

The testing methodology featured two classical mediated regression models in the standard format. Due to a change in the research focus, the equation will measure the Defend/Retreat portion of the model. Within the survey, there are questions dedicated to collecting demographic data that will serve as control variables and will be explicitly tested in the regression equation. Once collected, the researcher will utilize R-Studio to determine overall effectiveness and results. R-Studio will be the primary statistical software package, with Microsoft Excel used for general data cleaning.

Justification of Statistical Analysis Method

The relative relationship between Career Background and Loan Decisions was examined, with Individual Entrepreneurial Orientation and Risk Propensity as intervening variables. Given these conditions, a multivariate parallel mediated regression model is appropriate for the testing environment (Hayes, 2022).

Structure of Initial Regression Model

The regression model will follow a classical mediated regression framework. The equation will test the Defend/Retreat option as the LOAN continuous dependent variable, CAREER as the independent variable, and IEO and RP as mediators, with IEO and RP operating along parallel paths. It will include an error term to capture items not captured within the

model's framework. Control variables are GEN, AGE, and EDU. This yields the following regression equation:

$$LOAN = GEN\beta_1 + AGE\beta_2 + EDU\beta_3 + CAREER\beta_4 + IEO\beta_5 + RP\beta_6 + \varepsilon$$

Table 2 details the coding of the variables within the equation. The regression is denoted as a parallel-mediated regression with a continuous dependent variable.

TABLE 2
Parallel Mediated Regression Sequence of Variable Entry

Sequence	Coefficient	Variable	
		Name	**Code**
Dependent	Y	Resource Movement Decision	LOAN
Block 1: Control	β_1 β_2 β_3	• Gender • Age • Education	GEN AGE EDU
Block2: Independent	β_4	• Lender Background	CAREER
Block 3: Mediators	β_5 β_6	• Entrepreneurial Orientation • Risk Propensity	IEO RP

Revisions to Survey Population

The project has altered its format for recruiting survey participants and tweaked the research test model—the original plan called for using loan professionals affiliated with the

American Association of Private Lenders. Pre-COVID, AAPL had about 3,500 members nationwide. During COVID, the AAPL membership dwindled to about 600, and the AAPL administrators were reluctant to grant us direct access to members due to privacy concerns. AAPL agreed to allow us to contact members via snowball sampling, a method approved by the IRB. Snowballing involved posting the survey link on lending-related social networking platforms to reach volunteer respondents. The response was minimal, not nearly enough to achieve the statistical power required for a valid analysis.

The revised plan calls for us to use the Prolific crowdsourcing service to vet and locate survey participants. Target participants will fall into one of two groups: persons with finance degrees, and persons with entrepreneurship degrees. Persons in these two groups have equivalent work experience and similar attitudes to those of the private lending professionals in the original plan—prolific screeners for qualified respondents for a given survey topic, and routing surveys to them.

To tighten the scope of the research project, only one decision scenario will be used. The Greenfield loan extension scenario will be retained, while the Aurora loan approval scenario will be dropped. This means that the approach-avoidance path of the research model will be omitted from the study. In addition, the dependent variable will be continuous, utilizing the VAS scale. This will still allow testing of the primary model while allowing for the completion of a project disrupted by exogenous forces.

CHAPTER IV.

DATA ANALYSIS & RESULTS

This chapter presents the results of the statistical analysis of the survey data in an objective manner. Interpretation of the results will follow in Chapter 5.

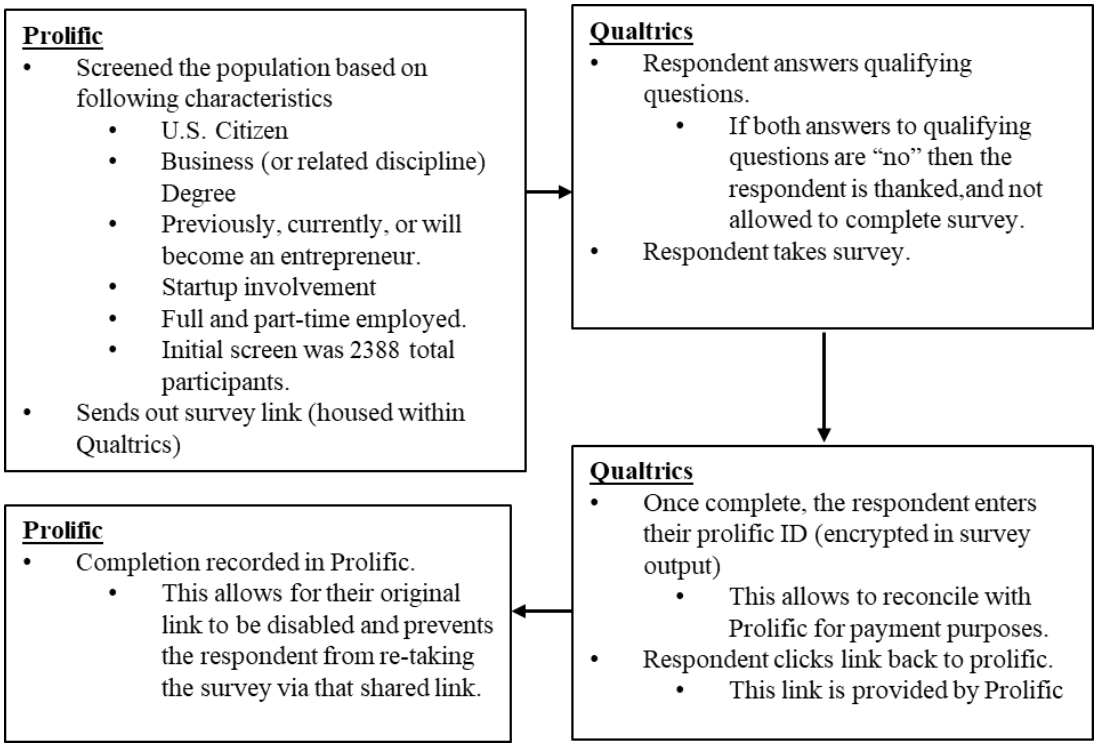
The structure and section sequence of Chapter 4 are as follows. The first section describes using the online survey platform Prolific® to deliver the survey and manage responses. The second section addresses the demographic characteristics of the survey respondents. Next comes the preliminary data analysis section, which addresses correlations, checks for data normality, and factor and reliability analyses of the survey instruments. The tests of hypotheses come next, followed by an anchor section on *post-hoc* analysis, which chronicles interesting patterns that emerged from the data analysis but were not hypothesized prior to the survey.

Prolific Survey Platform Procedures

The primary survey in the Qualtrics format was distributed via Prolific. The initial population available to participate in the survey was 2388. This number was obtained from the demographic information the respondent provided to Prolific. During recruitment, Prolific vets potential survey participants by asking screening questions meant to ensure they are qualified to comment on the survey's topic area.

Prolific sent the invitation to complete the survey via a hyperlink that provided access to the Qualtrics survey. Respondents were compensated for participating in the survey. This compensation was based on how long it took the respondent to complete the survey. The total budget for data collection was $650.00. To receive compensation, respondents were required to

FIGURE 4
Prolific Process Activity Flow



Enter their Prolific ID. Once the ID was entered, there were two clarifying questions to determine if the respondent either had a business degree or considered themselves an entrepreneur. If the respondent answered "no" to both questions, the respondent could not access the primary survey and was directed back to the Prolific entry point and subsequently thanked for their participation. Those responses were not included in this analysis. The primary survey consisted of a scenario about whether to extend a delinquent loan. Next were eight categorical questions, followed by ten questions for Entrepreneurial Orientation, and eight questions for Risk Propensity.

Qualtrics was the primary tool for data collection via a Prolific link. Once the data was gathered, it was then exported into Excel to be "cleaned" and aggregated. The data were split into two sets. One dataset comprised individuals who considered themselves entrepreneurs

(n=181), and the other comprised individuals with a business degree (n=418). Two distinct projects were created in R-Studio, along with a project that included all the responses. This approach minimized confusion and the comingling of the results. R-Studio was the primary tool, while Excel was utilized as the primary "database[5]" for the respective populations. The major packages used in RStudio were the tidyverse and lavaan. The data is in a tabular format.

Main Survey Response Rates

The primary survey had a response rate of 35.8%. Responses that had missing data for any independent variable or that did not complete the survey were not included. Incomplete surveys are defined as those that either did not have a business (or related discipline.[6]) or did not consider themselves an entrepreneur. Of the 855 total respondents, 105 did not meet the initial survey requirements (were neither entrepreneurs nor held a business degree). This yielded 750 gross responses.

Characteristics of Survey Respondents

Key Informants

The data were further truncated to exclude any responses with missing values for any of the independent variables. This yielded a total net dataset of 599, which was broken down into two subsets. The population with a business degree was 418, and the remaining 181 were categorized into the entrepreneur data set.

Respondent Demographics

Most respondents to the survey were white males, with a median age of 35, that held a bachelor's degree. This aligns with the typical demographics of the lending industry. Of the respondents, 22.54% held a master's degree, and 42.9% of the population were female. A breakdown of the study's overall demographics is shown in Table 4 below.

[5] The term "database" is utilized to reference a spreadsheet with the responses. The data is structured in tabular format, with the primary key being the Prolific ID.
[6] Considered related disciplines are marketing, economics, finance, accounting, in addition to general business.

TABLE 3
Population Summary (N = 599)

Variable	**Summary**
Gender	55.26% Male 42.90% Female 1.67% Non-Binary
Ethnic Background	56.26% Caucasian 29.72% Black or African American 6.34% Asian 4.17% Prefer not to say 2.34% American Indian or Alaskan Native .83% Native Hawaiian or Pacific Islander .34% No response
Education	53.09% Bachelors Degree 22.54% Masters Degree 21.20% High School Diploma 1.67% No response 1.5% Doctorate
Age	Range = 22 - 77 Average Age= 35
Tenure with Firm	382 = 1-5 years 143 = 6-10 years 65 = More than 10 years 11 = No response
Firm Size (Revenue in dollars)	**Count** **Revenue Range** **Cum %** 108 Less than $1 Mm 18.0 120 $1 Mm – 5 Mm 38.1 111 $6 Mm -10 Mm 56.6 86 $11 Mm - 15 Mm 71.0 46 $16 Mm to 20 Mm 78.6 128 Greater than $20 Mm 100.0

In terms of tenure with the firm, 64 percent had worked for their respective firms for 5 years or less, which aligns with the emergent nature of private lending activities. Firm size was relatively balanced across the sample, with most respondents affiliated with firms with annual

revenue of $10 million or less. This shows proxy respondents work with relatively small firms from an overall revenue standpoint. This aligns with the private lending sector, given the industry's largely unstructured nature.

Entrepreneur vs. Business Degree Differences

TABLE 4
Key Informant Group Demographics

Variable	**Entrepreneurs** (n = 181)	**Business Degree** (n=418)
Gender	40.61% Male 53.61% Female 5.75% Non-Binary	53.83% Male 44.74% Female 1.2% Non-Binary .24% No Response
Ethnic Background	58.96% Caucasian 27.89% Black or African American 4.78% Asian 7.17% Prefer not to say .66% American Indian or Alaskan Native .53% Native Hawaiian or Pacific Islander	54.07% Caucasian 32.54% Black or African American 6.22% Asian 3.83% Prefer not to say 2.15% American Indian or Alaskan Native .72% Native Hawaiian or Pacific Islander .48% No Response
Age	Average Age= 33	Average Age= 35

When separating out the samples into entrepreneurs and business degree holders (Table 5), the was a higher percentage of those with a high school diploma versus a bachelor's degree within the entrepreneur population versus the business degree population. This finding is intuitive, given the criteria for separating the two populations. Master's degree holders were also overrepresented in the population of those that hold a bachelor's degree versus those that considered themselves entrepreneurs. There was a higher percentage of female respondents that would consider themselves an entrepreneur versus those that just held a business degree.

Preliminary Data Analysis

This section addresses correlational comparisons and regression assumptions checks for data normality, along with factor and reliability analysis of the scale instruments. Table 5 shows the means, standard deviations, and correlations of the main continuous variables in the study.

TABLE 5
Inter-Factor Pearson Correlations (N=355)

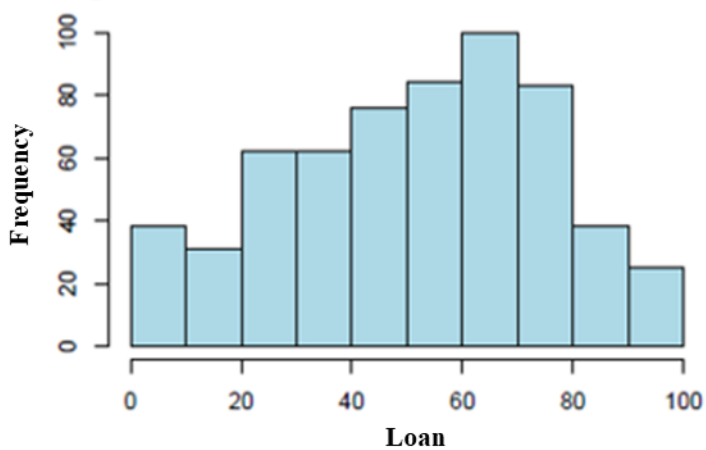
Variable	Mean	s.d.	1	2	3
1. Loan Probability (LOAN)	52.52	24.31	1		
2. Ind Entrep Orient (IEO)	5.27	0.74	.088†	1	
3. Risk Propensity (RP)	4.96	1.18	.179*	.564*	1
4. Age (AGE) (n=342)	34.46	11.15	-0.069	0.009	-0.081

† $p < 0.05$
* $p < 0.01$
Two-tailed test.

Dependent Variable - Loan Probability (LOAN)

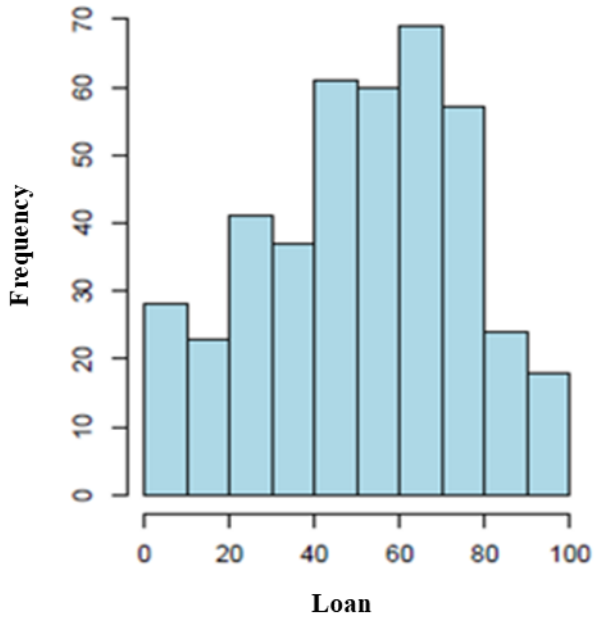
The probability of granting the loan was slightly skewed to the right across the entire population.

FIGURE 5: Loan Probability Histogram-Entrepreneur



This shows that most respondents would grant the loan, given the characteristics mentioned (dependent variable: LOAN). This is shown in Figure 3. In addition, the respondents' overall tenure shows that most have been employed with their current firm for less than 5 years.

FIGURE 6: Loan Probability Histogram-Business Degree



When separating the data into the relative sample sets, the same pattern is followed for the dependent variable. For those with a business degree, the histogram is shown in Figure 5.

This view becomes more normally distributed when reviewing the entrepreneur dataset. While the data is still largely skewed positively, there are more responses with a lower probability of granting the loan.

This suggests that the population that identified as Entrepreneurs was somewhat more conservative than those who were business students. This could be attributed to greater experience or to extraneous circumstances outside the scope of this analysis. Histograms for the remaining independent variables are in Appendix F.[7].

Independent Variable - Career Background (CAREER)

This factor is a derived variable derived from winnowing qualifying questions on Business Degree and Entrepreneurship posture into the CAREER independent variable (N = 355). This parallels the previous discussion in the Characteristics of Informants section. This derived variable included pure entrepreneurs (n = 141) and bankers (n = 418). Figure 5 charts the development of the variable. The fact that this study used Prolific-vetted proxies as respondents rather than working private lenders necessitated this winnowing process. (Note: Original data counts used in factor analysis and reliabilities were ENTREP n = 181 and BIZDEG n = 418).

[7] These histograms are for the combined dataset.

FIGURE 7: Derivation of *Career Background* Variable

Background Sort (N=599)			
	COMBK*	BIZDG	ENTREP*
No	341	181	417
Yes	254	418	181
* Variable had missing data.			

Commercial Bank Sort (N=599)		
	COMBK	BIZDG	ENTREP
No	204	141
Yes	214	40
Total	418	181

CAREER (N = 355)
Pure Ent n = 141
Banker n = 214

In the entrepreneur dataset (n=181), 40 respondents reported a background in commercial banking. This disqualified them as "pure" entrepreneurs who, in private lending, would have no banking experience. For those with a business degree, 214 had commercial banking experience.

Tests of Normality

A z-score and a Shapiro-Wilk test of normality were performed to determine whether the dataset was normally distributed for the independent variables and the applicable control variables. A

z-score greater than 2.58 is desired. A desirable outcome for the Shapiro-Wilk test is between 0 and 1, with a p-value < .05. A result closer to 1 is desirable, with values further away from 1 indicating the data is not normally distributed. The results of this test conclude that the data is normally distributed. All variables pass this test. The results can be found in Table 6.

TABLE 6
Normality Tests (N=355)

Variable	z-Score	Shapiro-Wilk	p-value
LOAN	989.63	0.97	0.00
IEO	93.52	0.96	0.00
RP	93.52	0.96	0.00
GEN	27.11	0.68	<2.2e-16
TENURE	84.8	0.67	<2.2e-16
EDU	36.83	0.83	<2.2e-16
FRMSIZ	63.04	0.88	0.00
COMBANK	11.36	0.62	<2.2e-16

Homogeneity of Variance Tests

Regression analysis assumes homogeneity of variance among the criterion, or dependent, variables (Hair, 1992). This study uses the Levene test (Zhou, Zhu & Wong, 2023) to measure for homogeneity. Levene's test of equality of variances tests the null hypothesis that the variances of the population subgroups are equal. A non-significant F-score returns the result of homogeneity of variance.

TABLE 7
Levene's Homogeneity of Variance Test on LOAN

Descriptives

					95% CI for Mean			
	N	**Mean**	**StdDev**	**StdE**	**Lower Bound**	**Upper Bound**	**Min**	**Max**
Banker	214	52.03	24.531	1.677	48.73	55.34		
Pure Entrepreneur	141	53.27	24.060	2.026	49.26	57.28		
Total	355	52.52	24.319	1.291	49.99	55.06		

Test of Homogeneity of Variances

	Levene Statistic	**df1**	**df2**	**Sig.**
LOAN	.114	1	353	.736

In our study, the Levene test compared the variances of the entrepreneur and banker subgroups for the dependent Loan Probability variable. In comparing bankers and entrepreneurs, Levene's test supports the null hypothesis of equal population variances ($F(1, 353) = .114$, $p = .736$), as shown in Table 7. The homogeneity finding allows for the use of parametric regression analysis. The Levene t-test is often used for situations with only two subgroups, but one-way ANOVA can also be used with only two subgroups (van den Berg, 2022), as is the case here.

Scales: Factor & Reliability Analysis

Prior to hypothesis testing, the data points were separated into the appropriate datasets. A factor analysis was conducted on the Risk Propensity and Entrepreneurial Orientation scale items, along with reliability tests on the two scales.

Entrepreneur Data Set Factor Analysis and Reliability Check

The two constructs tested were entrepreneurial orientation and risk propensity. Entrepreneurial orientation was assessed using a 10-item attitude survey, scored on a 7-point Likert Scale. Risk Propensity was tested utilizing an eight-question attitude survey scored on a seven-point Likert Scale. The questions were distributed to the same sub-populations in the same order. A copy of the survey is in Appendix C. A factor analysis was performed for each population to determine which items best represented each population. As shown in Table 8, the factor analysis for the entrepreneur data set (n = 181) included two factors. Items with a relative score of 0.4 or higher were retained in the model. Items EO9 and items RP4 did not load on either of the factors. For this item, RP4, the question states, "I risk if it means that business might get hurt." This could easily be construed as a question about entrepreneurial orientation rather than risk propensity, which could explain the poor performance of this item. Item EO9 states, "I tend to plan ahead on projects." This item loaded negatively on one factor, which suggests an inverse relationship with that factor. All the others would avoid taking risk items loaded positively.[8]. There is reasoning to consider omitting item EO4, which states, "I often like to try new and unusual activities which are not typical, but which are not necessarily risky." It is not surprising that this item came close to loading on the other factor. Further, the first three items, EO1, EO2, and EO3, all loaded on the other factor. This

[8] RP4 also loaded negatively on the other factor in this data set.

TABLE 8: Entreprenuer Population- Factor Analysis					
	Factor 1	Factor 2	Communality	Uniqueness	Complexity
EO1	0.60	0.20	0.40	0.60	1.20
EO2	0.46	0.19	0.25	0.75	1.30
EO3	0.73	0.16	0.55	0.45	1.10
EO4	0.05	0.42	0.18	0.82	1.00
EO5	0.28	0.40	0.24	0.76	1.80
EO6	0.23	0.60	0.41	0.59	1.30
EO7	0.36	0.45	0.33	0.67	1.90
EO8	0.09	0.45	0.21	0.79	1.10
EO9	-0.12	0.43	0.20	0.80	1.20
EO10	0.03	0.47	0.22	0.78	1.00
RP1	0.74	0.10	0.55	0.45	1.00
RP2	0.87	0.05	0.76	0.24	1.00
RP3	0.89	0.05	0.80	0.20	1.00
RP4	-0.50	0.04	0.25	0.75	1.00
RP5	0.81	0.16	0.68	0.32	1.10
RP6	0.84	0.06	0.70	0.30	1.00
RP7	0.68	0.36	0.59	0.41	1.50
RP8	0.75	0.15	0.59	0.41	1.10

This can be attributed to some overlap between the questions assessing entrepreneurial risk. Given these high loadings, the decision was made to keep these items in the analysis. Omitting these items yields an overall raw alpha level of .90 ($\alpha = .90$). It should be noted that the difference between the raw alpha level and the standardized alpha level is .01. This slight difference shows that the variances are uniform and that none of the items are disproportionately influencing the results. The signal-to-noise ratio (8.20) supports this finding, meaning that the actual variance exceeds random error. Additional support for these results is the low standard error of alpha at 0.0099. This finding suggests that there is a very low variance across repeated samples. This finding suggests that, across the bootstrapped sample set, the dataset's overall variance will remain relatively stable. This supports the model's overall robustness and statistical results. Concluding that the observed relationship in the model is consistent and unlikely to be

due to random sampling noise. The median inter-item correlation is .29, indicating that this data set does not show a high degree of correlation.

TABLE 9
Reliability Analysis- Entrepreneur Dataset

Metric	Value
Raw Cronbach's Alpha	0.90
Standardized Cronbach's Alpha	0.89
Guttman's Lambda 6	0.92
Average Inter-Item Correlation	0.34
Signal-to-Noise Ratio	8.20
Standard Error of Alpha	0.0099
Mean of Items	4.90
Standard Deviation of Items	0.87
Median Inter-Item Correlation	0.29

This does not fully state that multicollinearity could not skew the results, but more to point out that this is not an issue a priori to hypothesis testing. Further, the mean response suggests that the data set is approximately normally distributed.

Business Degree Data Set Factor Analysis and Reliability Check

For the business degree population, the same two constructs were entrepreneurial orientation and risk propensity. Entrepreneurial orientation was measured using a 10-item attitude survey, scored on a 7-point Likert Scale. Risk Propensity was tested utilizing an eight-question attitude survey scored on a seven-point Likert Scale. The questions were distributed to the same sub-populations in the same order. A factor analysis was performed for each population to determine which items best represented each population. The factor analysis for the business degree population was (n=418). The same factor analysis approach was utilized to maintain consistency across both datasets (2-factor, varimax rotation). The same items, RP4 and EO9, presented similar issues in this population and were subsequently dropped from the final analysis. Unlike the entrepreneur population, EO1 and EO3 cross-loaded. This suggests the item does not fit clearly into a single category. Further, the similarities between these two items may stem from the fact that they both

assess entrepreneurial risk within the entrepreneur population. The literature supporting this logic (Bolton & Lane, 2012; Peake et al., 2019) suggests that organizational size does have an overall impact on this scale, and that decisions made by smaller organizations can cause this issue during confirmatory analysis. In reviewing the relative decision, it was decided to keep all the Entrepreneurial Orientation items within the construction, despite loadings that appeared on both factors.

TABLE 10: Business Degree population Factor Analysis					
	Factor 1	Factor 2	Communality	Uniqueness	Complexity
EO1	0.54	0.44	0.49	0.51	1.90
EO2	0.14	0.51	0.29	0.71	1.20
EO3	0.60	0.47	0.58	0.42	1.90
EO4	0.26	0.52	0.34	0.66	1.50
EO5	0.32	0.51	0.36	0.64	1.70
EO6	0.21	0.65	0.47	0.53	1.20
EO7	0.28	0.58	0.42	0.58	1.40
EO8	0.04	0.45	0.20	0.80	1.00
EO9	-0.05	0.60	0.36	0.64	1.00
EO12	0.10	0.59	0.36	0.64	1.10
RP1	0.64	0.21	0.45	0.55	1.20
RP2	0.78	0.25	0.68	0.32	1.20
RP3	0.81	0.23	0.71	0.29	1.20
RP4	-0.27	0.12	0.09	0.91	1.40
RP5	0.80	0.15	0.66	0.34	1.10
RP6	0.74	0.10	0.56	0.44	1.00
RP7	0.63	0.29	0.47	0.53	1.40
RP8	0.77	0.28	0.67	0.33	1.30

After omitting items RP4 and EO9, a reliability analysis was conducted (Table 11). The Cronbach's alpha (raw alpha) is .89 ($\alpha = .89$), suggesting that the dataset's overall reliability strongly reflects the underlying factors. Given that the difference between the raw and standardized alpha levels indicates uniform variances, standardizing these items does not substantially change the estimate. A Standardized alpha level also supports this. Further, the

dataset's overall mean score is 5.1, suggesting a slightly skewed distribution that is still close to normal. The median inter-item correlation is also favorable at .30. As in the previous population, this indicates no initial concerns about collinearity. Additionally, as shown in the previous population, the differences between the raw alpha and the standardized alpha level, once again showing that the variances are relatively equal across the population. The signal to noise ratio of 7.70 suggests that the overall is capturing meaningful variance and not random error. In addition, the low standard error of alpha (0.0079), as in the previous population shows that the estimated coefficients across resampled datasets. Further, this supports consistency in the model and indicates that the results are unlikely to be due to random sampling error.

TABLE 11
Reliability Analysis - Business Degree Dataset

Metric	Value
Raw Cronbach's Alpha	0.89
Standardized Cronbach's Alpha	0.88
Guttman's Lambda 6	0.90
Average Inter-Item Correlation	0.35
Signal-to-Noise Ratio	7.70
Standard Error of Alpha	0.0079
Mean of Items	5.10
Standard Deviation of Items	0.80
Median Inter-Item Correlation	0.30

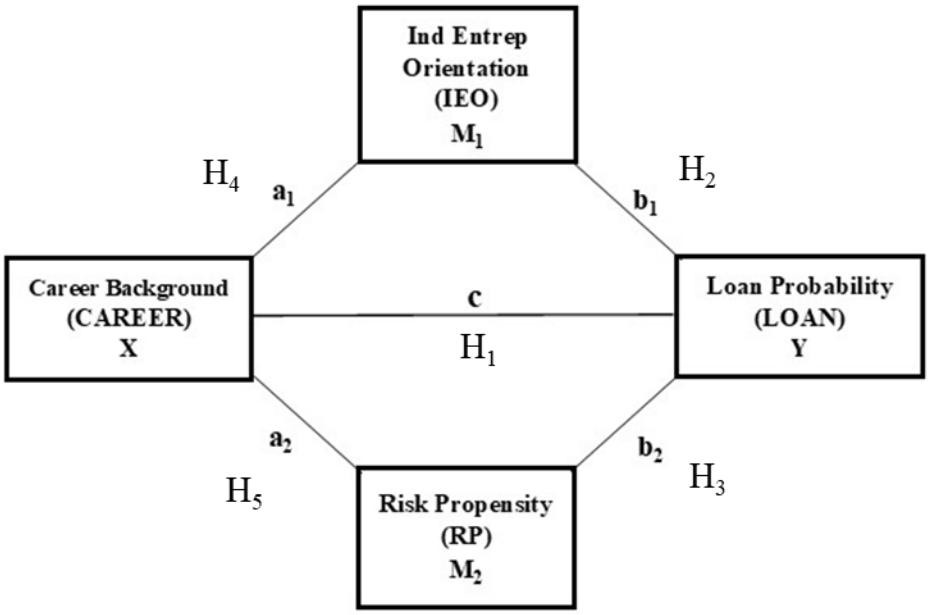
Control Variables

In addition to the independent variables Risk Propensity and Individual Entrepreneurial Orientation, the model included three control variables. These were age, gender, and education. None of these three items was statistically significant. Further, the master's degree and doctoral degree respondents were combined into a single variable, and neither yielded significant results.

Test of Hypotheses

To test the relationship between lending decision, entrepreneurial orientation, and risk propensity, a parallel mediation model was constructed (Figure 9). The benefit of constructing hypothesis tests in this manner is that it allows for a better understanding of the influences on lending behavior, tests multiple hypotheses within one model, and controls for errors due to model misspecification. The Lavaan package in R-Studio was utilized to construct the model. Once the model was defined in RStudio, it was bootstrapped (iterated) 5,000 times.

FIGURE 8:
Hypothesis Testing Model Specification



The Value of Bootstrapping

This iteration consisted of resampling the datasets with replacement. This approach is common and appropriate, given that the overall dataset variance was equal, as shown by the standard error of alpha, and that no model iteration will lead to inconsistencies in the reliability of the results. This methodology is standard practice when constructing parallel mediation models. The model results are shown in Table 12.

TABLE 12
Results of Hypothesis Tests

Path	Hypo	Predictor	Outcm	Est	Std E	z-value	p-value	Std β	Result
A	H4	CAREER	IEO	-0.26	0.08	-3.25	0.001	-0.17	Spt +
	H5	CAREER	RP	-0.66	0.13	-5.06	0.001	-0.28	Spt +
B	H2	IEO	LOAN	-0.59	2.43	-0.24	0.810	-0.02	NotSpt
	H3	RP	LOAN	4.35	1.54	2.83	0.0046	0.21	Spt +
C	H1	CAREER	LOAN	3.98	2.66	1.49	0.14	0.08	NotSpt
	N/A	CAREER	See 1	1.24	2.64	0.47	0.64	0.02	NotSpt

[1] CAREER + (a1 x RP) + (a2 x EO)

In terms of the overall testing, Career Background in Model A does have a statistically significant effect on entrepreneurial orientation (β = -0.26, p 0.0011) and risk propensity (β = -0.66, p = .001 at the 95% confidence level (H4 & H5). Furthermore, the relationship between risk propensity and lending decisions is statistically significant (β = 0.21, p = .0046) at the 95% confidence level (H3). While this half of Model B is supported, the relationship between entrepreneurial orientation and lending decisions is not supported (H2). This could partially explain the low overall model goodness-of-fit. In addition, the direct effect of career background is not supported (H1). Referring to Table 13, risk propensity explains 7.6% of the variance in lending decisions (R-Squared = 0.076), while entrepreneurial orientation explains 2.9% of the variance (R-Squared = 0.029). Using the above results and testing career background and risk propensity as independent variables in a classic linear regression model with lending decisions as the dependent variable yielded statistically significant results (p = 0.001). This does provide some insight into the overall level of entrepreneurial orientation, causing some inconsistencies within the model. This finding

TABLE 13: Goodness of fit indicators

Variable	R-Squared	Adjusted R-Squared
LOAN	0.042	0.034
EO	0.029	0.021
RP	0.076	0.069

suggests these variables have statistical power, but do not fully specify the model. Furthermore, these results may be somewhat skewed by cross-loadings among the aforementioned items.

Post-Hoc Tests

A one-way ANOVA was run and did show that risk propensity did have a statistically significant impact on lending decisions (Table 15). This does mean that those with different levels of risk propensity do make lending decisions differently, given the high level of significance. (p = .000). This is further supported with an overall Chi-Square = 176.52.

TABLE 14: ANOVA Risk Propensity, Lending Decision				
DF	**Sum Sq**	**Mean Sq**	**F Value**	**P Value**
1	6707.6	6707.6	11.68416	0.000**
353	202648.9	574.0763		

A Turkey HSD test for multiple comparisons of means found that none of the pairwise comparisons were statistically significant (adjusted p-values were all close to 1). Given this, we accept that risk propensity does not have a substantial directional impact on overall lending decisions.

In addition to running post hoc tests on the overall model, further analyses revealed interesting patterns in the control variables. Categorizing age by birth into Generations groups –

Baby Boomers, Generation X, Millennials, and Generation Z - revealed one such pattern. It showed that members of Generation Z ($\bar{X}$ = 55.63, s.d. = 22.2) were more likely than Millennials ($\bar{X}$ = 50.48, s.d. = 24.7) to grant loan extensions; and running an exploratory two-tailed t-test showed significant results ($t = -1.788_{(276)}$, $p = 0.075$)[9], which could provide a vector for additional inquiry.

[9] In exploratory computations, $p < 0.10$ can be considered significant (Kerlinger, 1986).

A similar technique was applied to Ethnic groups. A secondary sort kept the Caucasian respondents' category while collapsing other groups into a Non-Caucasian category. A two-tailed t-test revealed that Caucasians ($\bar{X}$ = 55.06, s.d. = 24.6) were more likely to grant loan extensions than Non-Caucasians ($\bar{X}$ = 50.17, s.d. = 23.5), and a two-tailed t-test showed significant results ($t_{(337)} = 1.849$, $p = 0.065$), suggesting a pathway for future inquiry.

Conclusion

While there is a statistically significant relationship between career background and entrepreneurial orientation, and career background and risk propensity, there is no direct relationship between career background and lending decisions. However, there is a statistically significant relationship between risk propensity and lending decisions. Further, when conducting a mediated linear regression with career background and risk propensity as independent variables and lending decisions as the dependent variable, there is a statistically significant linear relationship among these variables.

CHAPTER V.

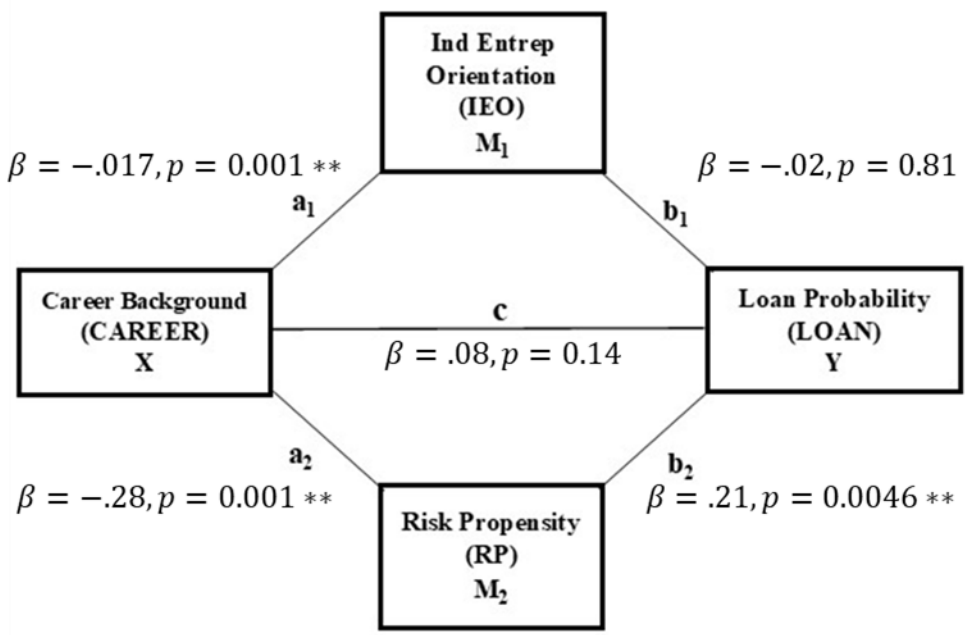
DISCUSSION

Whereas the preceding chapter objectively reported the results of data analysis and hypothesis testing from this research, this final chapter will discuss the research's implications for the private lending field through the lens of ADRA theory. The discussion triad will address implications of the findings, limitations of the research, and ideas for future research.

Implications of the Findings

Model effects and results are recapitulated in the diagram in Figure 10. There is a directionally statistically significant relationship between career background and risk propensity on overall loan probability (H_3 & H_5). This supports the theoretical underpinning that previous experiences and overall desire to take on risk have a statistically significant impact on future decision-making within this proxy population. However, there is no statistically significant impact of career background and entrepreneurial orientation on overall loan probability (H_2 & H_4). This suggests two possible outcomes. The first outcome is that career

FIGURE 9:
Mediation Testing Outcomes



background does have a significant relationship with individual entrepreneurial orientation, which is shown in H_2. This does align with the convention that entrepreneurs come from varied backgrounds and is supported by hypothesis H_2. Second, given that there is not a statistically significant relationship between individual entrepreneurial orientation and the probability of granting/extending credit, it suggests that entrepreneurs may view these questions differently than the general population. Both instances could provide further insight and are directions for future research.

It should be noted that career background does not directly affect loan probability (H_1). It is only when Risk Propensity is added to the equation that career background has a statistically significant impact on the probability of granting/ extending credit, which helps explain the unique variance in the outcome (H_3 & H_5). The relatively low goodness-of-fit suggests that additional variables could improve the overall model. In addition, further mediating effects such as risk perception, overall learning ability, and entrepreneurial intentions could increase the overall goodness of fit.

Role of Risk Propensity

The relationship between risk propensity (RP) and lending decisions (LEND) is significant: as risk propensity increases, the probability of granting a loan decreases. Further, this relationship remains negative throughout the model. The thought process behind this is somewhat intuitive in the respect that the more someone recognizes risky behavior, the less likely they are to grant a loan extension. However, when examining the relationship between risk propensity and LOAN, a positive, statistically significant relationship is observed. In other words, those with higher levels of risk propensity are more likely to grant the loan. Only when career background is added to the model does the overall effect turn negative. This suggests that

those with some lending background are, in fact, less risky, and less risky overall, to a degree that would affect whether a lending decision is made. Further research will be needed to determine whether bankers have favorable memories of bad events. This study is an exploratory step in that direction. Given that both the direct and indirect effects of the parallel mediation model were statistically significant, this shows that risk propensity does impact lending decisions; however, the low goodness-of-fit indicator indicates that, in this population, this model does not have a high degree of explanatory power in making those decisions. Further refinement of the lending scenario could provide a more straightforward pathway for describing the overall relationship. Along with further refining the lending scenario, additional mediating constructs could be added to improve the model's overall goodness-of-fit, given its relatively low level.

Background and Entrepreneurial Orientation

While there were theoretical underpinnings to including the individual entrepreneurial orientation items that loaded on both factors, excluding both of those items could provide helpful information when re-examining the overall model. Along those same lines, while this model followed a parallel mediation pathway, there is support for testing it using a structural equation model. These differences could yield different results when considering a cohort of actual private lenders and would be a natural progression of the research.

While individual entrepreneurial orientation did not have a significant impact on overall lending decisions, there is a statistically significant relationship between career background and individual entrepreneurial orientation. Those with a background in banking are less likely to become entrepreneurs. This relationship warrants further investigation, as the overall effect may

change depending on the many different classifications of bankers (investment, mortgage, retail, commercial, etc.).

Limitations and Validity Issues

This section will discuss constraints on interpreting the results. Specifically, I will address generalizability, statistical construct validity, causality, and scale refinement.

Generalizability

This study was conducted utilizing a proxy group in place of private lenders. Therefore, there are limitations when using the results, specifically when strictly examining the behavior of private lenders. Further, while the sample size was large enough to provide statistical insight into EO, RP, and LEND, the population was broader than if confined to private lenders alone.

Statistical Conclusion Validity: Survey Response Bias

The process of gathering respondents from PROLIFIC required them to "self-identify" their background, leaving some room for interpretation of their overall career. There is no audit of the overall career background, educational background, or entrepreneurial background. In addition, although the requirement for the respondent was a business degree, degrees not defined explicitly within a business school could be omitted. PROLIFIC's categories were utilized to filter the population.

Construct Validity: Refinement of Scales

In this study, the first three items of the entrepreneurial orientation scale, in the entrepreneur population, cross-loaded. Given this was an exploratory study, the decision was made to leave these items in the analysis. Further, this was supported by the overall alpha level ($\alpha = .90$). Future studies could omit these items from the scale. Additionally, two of the three aforementioned items cross-loaded in the entrepreneur population. Given the relatively high

alpha level ($\alpha = .89$) and the exploratory nature of the research, these items were kept in the data. In future studies, consideration should be given to omitting these items.

Causality, Field Studies, and Regression

While regression analysis is a powerful statistical technique for identifying relationships between variables, it is a correlational method. Further, while the analysis shows how variables move together, it does not establish causation. Possible limitations of regression analysis, in addition to being correlational in nature, include failure to account for omitted and unmeasured variables and errors in model specification (Pedhazur, 1982; Hair et al., 1992). Despite these limitations, this study has upheld the theorized relationships among several variables. Model specification errors can be accounted for using a structural equation approach.

Ideas for Future Research

Several opportunities offer themselves for future research on private lending. I will address some of these, including changes in decision-making, opportunities to acquire excess property, and access to actual PL professionals for future studies.

Changes in PL Decision Processes

As this private lending sector grows, more research will be needed into how overall lending decisions are being made. While the current market has recovered from the lows of the Great Recession, more lenders are beginning to offer such products with similar underwriting standards. As the industry continues to evolve, more standards and practices will evolve in parallel to allow for more rigorous inquiry. As this sector grows, more research will be needed into how overall lending decisions are being made. Currently, roughly 30% of the California single-family rental market is financed using a debt service *coverage ratio* (DSCR) approach. These loans focus on overall rental income and essentially ignore the borrower's creditworthiness (ability to repay). In addition, the ability to securitize these loans (through conduits such as

Fundrise) has opened the market (Greenberg, 2015).[10] As the industry continues to evolve, more standards and practices will emerge in parallel, enabling more rigorous inquiry. In addition, hard money lenders are no longer the only firms that extend this type of credit. Several banks and private equity firms offer these credits, while more private lenders continue to enter the market.

Move from Proxies to Private Lending Professionals

The dataset used was a proxy for how past experiences influence private lending decisions. The next logical step would be testing the model on a group of career private lenders. Table 16 shows potential sources of experts for future studies. While the sample may initially be challenging to obtain, as the industry continues to grow and evolve, it could become easier.

Geraci (https://geracillp.com/), a law firm based in Newport Beach, CA, specializes in private lending. This firm hosts two annual conferences for private lending professionals to gather and network. These gatherings have grown over the past few years and could reflect the profession's overall growth. The INNOVATE conference was focused on sharing best practices. In addition, Lightning Docs (https://lightningdocs.ai/) is the market leader in documenting these loans. These are two companies that have stepped forward in the market, helping standardize the process and demonstrating that the industry is beginning to gain structure.

[10] Fundrise provides a crowdfunding alternative for real estate ventures.

Table 15

Entrepreneurship and Financial Organizations for Potential Research Collaboration

Organization	Website and Base	Profile
College Entrepreneurship Organization	c-e-o.org Tampa, Florida	Global network of 16,000 students spread across 250 campuses worldwide.
Association for Enterprise Opportunity	https://aeoworks.org/ Washington, DC	Trade organization that helps small businesses develop entrepreneurial skills. Active in arranging microbusiness loans, has dozens of major corporate partners.
U.S. Association for Small Business & Entrepreneurship	https://www.usasbe.org/ Chicago, Illinois	Educators network to share resources to build strong academic entrepreneurship programs. Hosts Sigma Tau Nu honor society, has certification for educators, and sponsors industry-based special interest groups.
Association For Entrepreneurship USA	https://afeusa.org/ Schaumburg, Illinois	Trade association which helps entrepreneurs grow their businesses through networking and focused blog sites. Also offers health insurance and legal services to small businesses.
American Bankers Association	https://www.aba.com/banking-topics/risk-management Washington, DC	Offers formal courses in basic and advanced risk management; have reference sites on risk issues, and idea exchange network for risk issues.
Wharton/ University of Pennsylvania	https://wallstreetprep.wharton.upenn.edu/real-estate-investing-certificate/ Philadelphia, Pennsylvania	Features online certificates in real estate investing and related issues.
International Risk Management Institute	https://www.irmi.com/ Dallas, Texas	Offers certification training in multiple areas of business risk management, including commercial real estate, construction risk, and insurance.

Excess Property Opportunities, Federal and Otherwise

As interest rates remain elevated and work-from-home (WFH) has become increasingly commonplace (Grant, 2024), several industries have begun downsizing their real estate footprints. The Federal Government, through the Department of Government Efficiency (DOGE), reviewed the current real estate holdings. According to Sen. Joni Ernst, of the DOGE caucus,

> "Not one of the headquarters for any major agency or department in Washington is more than half full. GSA-owned buildings in Washington, D.C., average about a 12% occupancy rate. The government owns more than 7,500 vacant buildings across the country, and more than 2,200 that are partially empty." (Acosta, 2025).

The article further states that the Federal Government is not a very efficient landlord. In addition, Heckman (2025) reports that the Federal Government aimed for a 50% overall reduction in space. For the private sector to take advantage of these opportunities, which fall outside traditional bank lending guidelines, unique financing will be required. This was also mentioned in a Wall Street Journal article, which stated that the Trump administration is "considering selling most of the offices maintained by a federal agency" (Ossola, 2025).

The Federal Government is not the only entity considering selling its real estate portfolio. Several colleges are considering selling off their assets due to low enrollment and the rise of online classes (Kaeding, 2025) or outright closures of colleges with valuable building stock (Dougherty, 2025; Kaeding, 2025; Rembert, 2024). Compounding this, there is an appetite to turn former commercial shops into residential spaces. A Wall Street Journal article noted that vintage retail spaces have been turned into residences in Chicago (Dizik, 2024), and, along with

that, closed hospitals, with their access to city infrastructure, are being converted into apartment complexes (Mehta, 2025). With the demand for affordable housing continuing to rise, there are several areas where non-traditional private credit, such as private lending, will provide much-needed capital to those who would like to "take the risk" or those who would like to take a non-traditional property and convert it into a space they can call their own.

Conclusions

This concludes a national study of private lending decisions, specifically examining the impact of career background, entrepreneurial attitudes, and risk attitudes on these decisions. I will now address the benefits of the research to both theory and practice.

Benefits to Theory

Little empirical research on ADRA has been done since the Fuegler (2006) simulation involving manufacturing firms competing in multi-market scenarios. The dynamics of the private lending decision-making, however, fit pretty well with the final O'Bannon (2010) ADRA model. This study empirically tested half of the model (Defend versus Retreat) and found significance in examining risk propensity: participants either committed resources to maintain a position in the market or pulled out of the market altogether. The next logical step would be to test risk propensity in relation to entering a market or avoiding it altogether.

While entrepreneurial orientation was not statistically significant in this context, reviewing entering a market (attack) or avoiding a market could also provide additional insight.

Benefits to Practice

The findings of this research could help identify training opportunities for current lenders and those entering the field. At a recent Private Lenders conference (2024) sponsored by Geraci, the average age was roughly 30. These are professionals who are still in the beginning stages of

their careers. In addition, conversations regarding data, analytics, and long-standing practices within the traditional banking sector were beginning to take place. For example, during one panel discussion, a lender said they would not commit to a loan unless they walked the property. While this was common practice, it is now the exception. The main reason is the ability to view the property online, along with more sophisticated models to determine overall profitability. These models can also more accurately estimate downside risk than was previously accounted for. Currently, hedge funds and the larger investment community see these types of loans as an opportunity to gain excess returns. Over time, these excess returns (market premiums) will generally erode. It was commonly stated at the 2024 Private Lenders conference that the great majority of them did not utilize data or sophisticated modeling to gauge their decision-making. As the industry continues to mature, data becomes more readily available, and the ability to test lending decisions will become more straightforward.

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APPENDICES

A. Institutional Review Board (IRB) Documents 85
B. Communications with American Association of Private Lenders (AAPL) and Survey Recipients 97
C. AAPL Newsletter with Study Recruitment Story 109
D. Survey Materials for Office Scenario 111
E. Code Base for Statistical Analysis 130
F. Variable Histograms 143

APPENDIX A.

INSTITUTIONAL REVIEW BOARD (IRB) DOCUMENTS

Webster UNIVERSITY

Office of Academic Affairs

February 21, 2023

TO: Mark S. Fellhauer, John P. Orr

FROM: Webster University Institutional Review Board

RE: Strategic Resource Movement in Private Lending: The Role of Adaptive Learning & Entrepreneurial Orientation

STATUS: Exempt - Approved

NOTES:

- The IRB Proposal Number for this research project is SP23-20.
- The proposal has been declared exempt under 45 CFR 46.101(b)(4).
- If any changes are made to the study, the IRB must be notified.
- You are also required to promptly notify the IRB Chair of any problems that arise during the course of the research.

Vicki Callan

Vicki Callan, Associate Professor, Nurse Anesthesia
Chair, Webster University Institutional Review Board, FWA00024297

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SECTION II: PROJECT CHANGES

☑ **Minor Changes:** (e.g., adding non-vulnerable subjects, change of location, deleting something, etc.)

Provide a detailed summary, describing all changes.

The project has altered its format for gaining survey participants, and tweaked the research test model.

Original plan called for using loan professionals connected to the American Association of Private Lenders. Pre-COVID, AAPL had about 3,500 members nationwide. During COVID, the AAPL membership dwindled to about 600 people; and the AAPL administrators were reluctant to give us direct access to members over privacy concerns.

AAPI did agree to let us contact members through snowballing, a method which IRB had approved. Snowballing involved putting the survey link into lending related social network platforms as a pathway to get volunteer respondents. But, response was minimal, not nearly enough for us to have the statistical power needed to run a valid analysis.

Our revised plan calls for us to use the Prolific crowdsourcing service to vet and locate survey participants. Target participants will fall into one of two groups: persons with finance degrees, and persons with entrepreneurship degrees. Persons in these two groups have equivalent work experience and similar attitudes to the private lending professionals sought in the original plan.

Prolific screens for qualified respondents for a given survey topic, and route the surveys to them. Other DMGT dissertations have received IRB clearance in past to use Prolific.

Also, to tighten the scope of the research project, only one decision scenario will be used. The Greenfield loan extension scenario will be be retained, while the Aurora loan approval scenario will be dropped. This means that the approach-avoid path of the research model will be omitted from the study. This will still allow testing of the primary model, while speeding wrap-up of a project which has been disrupted by exogenous forces.

☐ **Significant Changes:** (e.g., change in procedures, adding something, changing consent form, adding vulnerable populations, etc.)

Provide a detailed summary, describing all changes, as well as new/revised forms.

See larger text version next page

☐ **Continuing Review:** (extension of the project; required annually for full board review projects)

Please include the following:

- how many subjects have participated to date;
- summary of any changes to the research protocol (as previously approved by the IRB);
- any other relevant information, especially information about changes in risks associated with the research.

Change-in-Protocol Form

Here is a larger-size text version of the Change of Protocol form's **Minor Changes** section.

The project has altered its format for gaining survey participants, and tweaked the research test model.

Original plan called for using loan professionals connected to the American Association of Private Lenders. Pre-COVID, AAPL had about 3,500 members nationwide. During COVID, the AAPL membership dwindled to about 600 people; and the AAPL administrators were reluctant to give us direct access to members over privacy concerns.

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SECTION III: REVIEW

REVIEWER(S)		ACTION TAKEN:	
Primary Reviewer	Date	☐ Approved	☐ Disapproved
Co-Reviewer	Date	☐ Approved	☐ Disapproved
Chairperson, IRB	Date	☐ Approved	☐ Disapproved

☐ Comments or Contingencies, see attached

☐ End-of-Project Due: _____ Date

SAVE THIS FORM to your computer

EMAIL this form and all additional forms indicated above to the Webster University Institutional Board at irb@webster.edu.

Note: Approval of changes communicated by e-mail. See following page.

Change-in-Protocol Form

Outlook

CIP-SP23-20

From Vicki Callan <vickicoopmans20@webster.edu>
Date Sat 9/14/2024 1:45 PM
To John Orr <johnorr06@webster.edu>
Cc mark.fellhauer@gmail.com <mark.fellhauer@gmail.com>; Eric Rhiney <rhineeri@webster.edu>; IRB <irb@webster.edu>

1 attachments (159 KB)
CIP_SP23-20_VC 9.14.24.pdf;

Hello John,

I am contacting you regarding your research titled "Strategic Resource Movement in Private Lending: The Role of Adaptive Learning & Entrepreneurial Orientation."
I am pleased to inform you that your Change in Protocol request (CIP-SP23-20) has been approved. If any changes are made to the study or problems occur, the Webster University IRB must be notified for further review. You will receive a formal letter from our IRB Expeditor, Olivia Radle, but in the meantime, you may use this email as proof of approval.

Good luck with your research!

Best,
Vicki

Vicki Callan, PhD, CRNA, CHSE, FAANA
Professor, Program Director
Department of Nurse Anesthesia
Chair, Institutional Review Board
Webster University
Browning Hall, ISB 107
8274 Big Bend Blvd.
St. Louis, MO 63119
314-246-5928

From: John Orr <johnorr06@webster.edu>
Sent: Wednesday, September 11, 2024 8:20 AM
To: Vicki Callan <vickicoopmans20@webster.edu>
Cc: mark.fellhauer@gmail.com; Eric Rhiney <rhineeri@webster.edu>
Subject: Re: Research Project Shift: Does IRB need adjustment notice?

Vicki,

Attached file contains the Change in Protocol form for Mark's dissertation, IRB No. SP23-20. Thanks for your assistance!

Webster UNIVERSITY

Institutional Review Board

Periodic Review and End-of-Project Form

INSTRUCTIONS

- Complete this form according to the following outline. (**Handwritten forms will not be accepted**.)
- Submit the signed form to the Webster University Institutional Review Board at irb@webster.edu.

ATTENTION:

1. You must attach a copy of your current consent form.
2. If this form is not approved by (Study granted Exempt status) you are out of compliance and your research must stop. If you continue to use subjects, a complaint of misconduct may be filed against you.
3. You must fill out the "Progress Report" on the back of this form for continuing or finished projects.
4. If your students do not respond to these requests in a timely manner, faculty advisors may be asked to stop doing research at Webster University.

GENERAL INFORMATION

Principal Investigator:

Name: Mark S. Fellhauer

Phone Number: 314-277-6972

Email: mark.fellhauer@gmail.com

Faculty Rank/ Student Status: Doctoral Candidate

Campus: St. Louis, MO

Correspondence Address: johnorr06@webster.edu

Department: Management / Walker SBT

Project Title: Strategic Resource Decisions in Private Lending: The Role of Adaptive Learning & Entrepre

Type of Project (check all that apply):

☐ Faculty Research **Student Directed Research:** ☐ Thesis ☑ Dissertation

☐ Other(please specify):

☐ Course Requirement*: ◯ 16 Week ◯ 8/9 Week *Course #:

Duration of Project: Start Date 02/21/2023 Expected End Date 11/10/2025

Periodic Review and End-of-Project Form

Please answer the following questions. If you need to review your Original Application for Review of Research Project by the IRB or if you have any questions, please contact the IRB Expeditor at irb@webster.edu.

Project Status:

- ○ Continuing with no changes in procedure, risk, or class of human subjects as outlined in the approved protocol. A "Change-In-Protocol Form" is required for any changes.

  Research is expected to be done by _____. **PLEASE COMPLETE PAGE 3**

- ○ Research has not been started yet, but is expected to begin on _____.
- ◉ Completed. No more research to be done. **PLEASE COMPLETE PAGE 3.**
- ○ Research will not be done.

Mark S. Fellhauer	11/10/2025	John P. Orr, PhD	11/10/2025
Principle Investigator	Date	Faculty Advisor (if PI is a student)	Date

Periodic Review and End-of-Project Form

FOR CONTINUING OR COMPLETED ACTIVITY

Progress Report:

1. Number of subjects studied to date 855.

   If continuing, total number of subjects to be studied N/A.

2. Have any risks or untoward results of this activity become apparent since the last review? ○ Yes ◉ No

   If yes, please attach explanation.

3. Where are signed consent forms being kept? (indicate room and building)

   Not applicable.

4. Summarize results to date.

   The original study called for testing whether career background (presence or absence of banking experience) influenced loan decisions in private lending (PL). A professional PL group initially supported participating in the study, until COVID upheaval reduced their membership by 80%. Thus, IRB granted me permission to use vetted business professionals as proxies for the PL practitioners.
   A Qualtrics survey was deployed by Prolific crowd-sourcing service from Oct. 12 to Nov. 1, 2024. A pool of 2,388 potential subjects yielded 855 responses. After culling for severe missing data, and screening for basic qualifications and banking experience, a group of 355 was identified for hypothesis testing: 214 business degree holders with banking experience, and 181 entrepreneurs without banking experience.
   A parallel mediation regression model was tested, comparing the effect of career background (CAREER) on loan decisions (LOAN), as mediated by the intervening variables of risk propensity (RP)

5. Attach any additional information which may be useful to the reviewers.

6. Comments:

See full-text version of this section on next page

I/we certify that the approved protocol and the approved method for obtaining informed consent was and will continue to be followed.

Mark S. Fellhauer	11/10/2025	John P. Orr, PhD	11/10/2025
Principle Investigator	Date	Faculty Advisor (if necessary)	Date

Periodic Review and End-of-Project Form

A larger text version of the **Report Progress** section:

4. Summarize results:

The original study called for testing whether career background (presence or absence of banking experience) influenced loan decisions in private lending (PL). A professional PL group initially supported participating in the study, until COVID upheaval reduced their membership by 80%. Thus, IRB granted me permission to use vetted business professionals as proxies for the PL practitioners.

A Qualtrics survey was deployed by Prolific crowd-sourcing service from Oct. 12 to Nov. 1, 2024. A pool of 2,388 potential subjects yielded 855 responses. After culling for severe missing data, and screening for basic qualifications and banking experience, a group of 355 was identified for hypothesis testing: 214 business degree holders with banking experience, and 181 entrepreneurs without banking experience.

A parallel mediation regression model was tested, comparing the effect of career background (CAREER) on loan decisions (LOAN), as mediated by the intervening variables of risk propensity (RP) and individual entrepreneurial orientation (IEO). The model was tested in R studio software. Results of the hypothesis tests:

- H1: Direct path of CAREER on LOAN was non-significant ($\beta = 0.08$, $p = .14$).
- H2: Mediated path IEO and LOAN was non-significant ($\beta = -0.02$, $p = .810$).
- H3: Mediated path RP and LOAN was significant ($\beta = 0.21$, $p = .0046$).
- H4: Mediated path CAREER and IEO was significant ($\beta = -0.17$, $p = .001$).
- H5: Mediated path CAREER and RP was significant ($\beta = -0.28$, $p = .001$).

Recommendations for future research include compiling a group of actual PL professionals for further studies and exploring opportunities for PL in the office-building conversion arena.

REVIEW

ACTION TAKEN:

- ◯ No further review required
- ◯ Further review required by _____ (or upon request).

REVIEWER(S)

Primary Reviewer	Date	Co-Reviewer	Date
Chairperson, IRB	Date		

SAVE THIS FORM to your computer

EMAIL this form and all additional forms indicated above to the Webster University Institutional Board at irb@webster.edu.

If IRB responds to this report, we will include completed version of this page.

Periodic Review and End-of-Project Form

APPENDIX B.

COMMUNICATIONS WITH AMERICAN ASSOCIATION OF PRIVATE LENDERS (AAPL) AND SURVEY RECIPIENTS

Appendix B: Communication with AAPL

From: Chrissey Breault [mailto:CBreault@aaplonline.com]
Sent: Thursday, June 21, 2018 6:20 PM
To: Mark Fellhauer <mfellhauer@Fandbfin.com>
Subject: RE: Membership

So sorry I didn't get back to you sooner than this! I hope I didn't mess you up too horribly.

My responses are below……..

Chrissey Breault

Director of Marketing & Member Services / Editor-in-Chief

American Association of Private Lenders / Private Lender magazine

7509 NW Tiffany Springs Pkwy, Suite 200

Kansas City, MO 64153

P: 816.398.4047/ aaplonline.com /F: 913.599.0380

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From: Mark Fellhauer <mfellhauer@Fandbfin.com>
Sent: Monday, June 18, 2018 9:43 AM

FellhauerFnlDiss_Text_Nov3

To: Chrissey Breault <CBreault@aaplonline.com>
Subject: RE: Membership

Good Morning Chrissy,

I wanted to circle back, regarding the research. I am submitting a paper for publication at the Midwest Academy of Management, and I was curious what are some of the challenges that you see decisions makers in this space face?

I'm actually going to break into a little of that in the answers to the next 2 questions! When we are gearing up for our annual conference each year, the conversations really start to flow! What we hear is that they want help with raising capital, understanding regulatory changes, keeping up with technology (if I text a borrower, is that a binding contract?), market fluctuation and the availability of inventory, state level licensing requirements, SEC requirements – many have been launching funds over the past couple of years. And, because most of the time when we're talking to a lender they are the 'money guy' they don't understand marketing their business (or building their own professional influence) plus what they can and can't say when they do promote themselves.

What we (my Chair and I) are primarily concerned with is the decision making process, and how many lenders decide what is a good project versus a "no so good project."

This is a tough one. It varies based on the lender, location, capital position, etc. For someone who wants to 'become the bank' they need to understand how to take calculated risks. Having a grasp on construction costs, zoning and permit issues, market trends (right down to the neighborhood level) is critical during the evaluation of a proposed deal. The truthful joke is that borrowers all lie. That doesn't mean they should assume that every borrower is behaving fraudulently (although it does happen,) they have to verify and/or run numbers themselves. If the lenders focus on how a loan will improve operating cash flow for the person they are lending they can create a win-win scenario. Finding a qualified borrower is something that seems to be a continual struggle that we hear about. When they find one, they hold on tight!

The benefit of using a private lender is that it's supposed to be easier to get qualified to receive a loan – less red tape and documentation than traditional banks, right? But they still have to find ways to verify that borrower is who they say they are and had the means to repay their debt without having to leverage the assets that were put on the table to begin with. In one of our courses, we talk about the 5 C's of underwriting: credit, character, credentials (specifically with the new 'HGTV' crowd of investors) cash, collateral. But, really it could be up to the individual making the loan to use all of that information, some of it, or none of it.

In addition, as this is still a growing industry, and becoming more structured, what role is the AAPL serving? Is it more so a networking, best practices, or is it something larger? I believe it is the latter, given the code of ethics.

The networking and best practices are just tactics for the bigger picture. When the original founders of AAPL set down their path, they saw need for a national organization that would help the private real estate lending space be self-regulating. With the banking scandals and failures that filled the news (and still do) and the traditional banking system losing trust, it was a major opportunity to change the perception of private lending. The vision is to reshape the real estate finance industry and for private lenders to be viewed as viable alternatives to borrowing and investing.

To achieve that vision, a new set of standards were created as a professional expectation, source of credibility, and method to combat fraud – that's where the Code of Ethics comes into play.

By providing education and key information, we can increase the visibility of every member. By an industry uniting, we can start walking down the path of addressing the dragon of increasing regulations with lacking framework that continues to grow – and hurts private lenders.

I attached the working draft to give a little insight, as to the direction of my research.

Let me know what I can do to help!

Have a good day,

Mark

Mark S. Fellhauer, Ph.D (ABD), MBA | Business Analyst

F&B Financial Group

Chief Lending Officer | RezCap Funding

12412 Powerscourt Dr, Ste. 20 **|** St. Louis, MO 63131

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NMLS: 299552

COMPANY NMLS: 221646

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From: Chrissey Breault [mailto:CBreault@aaplonline.com]
Sent: Friday, February 16, 2018 1:24 PM
To: Mark Fellhauer <mfellhauer@Fandbfin.com>
Subject: RE: Membership

Hello again!

I love Chris! He’s a great guy. I’m glad to learn you guys are working together!

This has definitely been a crazy space to learn. Linda and I don’t have any background in real estate or finance. The closest I came to this world was when I was in hotel management and that was closer to the property management/short term lease stuff. Not even close to what we do here at AAPL. But, we can run/grow an organization and get the right people together to build a better space for everyone involved and that’s all we want to do!

One of our ultimate goals for this year was to identify the areas of research that we need for industry stats – especially when it comes to identifying who is doing what and where. It doesn't exist. It's been on our wish list for a few years now but as we grow and continue to work without a ton of resources, that keeps getting pushed lower on the ("right now!") priority list. I still push and people keep asking but it's a big project to take on! We're not looking for behavior like you are – so that will be interesting to see what comes of that, too! In the future, it would be interesting to see who those projects could marry together.

IRB approval!? You are big time! 😉

We're happy to help get things going for you. Just keep me in the loop as the project progresses so I can be sure to coordinate our other communication efforts in line with the survey…. and allow myself enough time to get it all put together for you!

Glad to hear you want to join as well! That's always a bonus and will be a stronger case to push for survey responses. I can help you with membership whenever you want. Tim is also around if you want to work with him.

Enjoy your weekend!

Chrissey Breault

Director of Marketing & Member Services / Editor-in-Chief

American Association of Private Lenders / Private Lender magazine

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From: Mark Fellhauer [mailto:mfellhauer@Fandbfin.com]
Sent: Friday, February 16, 2018 11:10 AM
To: Chrissey Breault <CBreault@aaplonline.com>
Subject: RE: Membership

Hi Chrissey,

Thank you for following up!

And of course, I completely understand. My major area of research is decision theory, and more toward behavioral economics. The research pertains the role of past experiences in current lending decisions, and I originally was going to center on commercial banks. However, the problem that I had was that most commercial bankers do not make these decisions independently. Long story short, while working at F&B (which one of my best friends owns), he wanted me to assist him in starting a hard money platform. We saw a lot of deals in our footprint that just could not get done, and felt that we were missing out. In response, we launched RezCap in January. When we had everything in beta, our software provider (Chris at lendingWise) asked if we were attending the conference, and that is how we found you.

I had no idea how robust this area of lending is.

The more I learned about private lending, the more I thought it would fit in with my research, and figured I would see if anyone has done any sort of research along these lines. Given that I am also

planning on attending the conference next year, I figured I would ask and see if you wanted me to present the research, etc.

My goal is to have the questionnaire out this summer, and actually defend the Dissertation this Fall, which is in line with conference. I am actually in the Hard Money Lending business, along with completing my Doctorate, so I am not a "pure academic," if that makes sense.

This will have IRB approval, etc. from Webster.

Whatever I can do to help, let me know. I know we are planning on joining the association as well.

Thanks again, and have a good weekend!

Best,

Mark

Mark S. Fellhauer, MBA, CRPC, ABD

Business Analyst- F&B Financial Group | Chief Lending Officer- RezCap Funding

12412 Powerscourt Dr, Ste. 20 **|** St. Louis, MO 63131

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From: Chrissey Breault [mailto:CBreault@aaplonline.com]
Sent: Friday, February 16, 2018 10:49 AM
To: Mark Fellhauer <mfellhauer@Fandbfin.com>
Subject: FW: Membership

Hi Mark!

I'm so sorry I'm so late to the party here!

I've come to the conclusion that my spam filter hates me.

Luckily, the three of us here at AAPL actually talk to one another so I was able to get to you sooner rather than…. never.

You are extremely ambitious!

We'd love to help you out with the survey.

I do have to tell you that we've attempted this before for a group from UCLA Anderson School of Management and we received nothing. So, honestly as much as we love to help we also move forward cautiously. With just three of us running the association and me being the person who handles

everything marketing/communications and magazine related we are spread very thin. Not to sound harsh, but we have to be sure that the time involved is worth the effort.

Also, I attempt surveys with this bunch and we get very minimal engagement (the curse of all associations!)

I can probably find a way to keep it in front of those who don't respond for a little bit. We'll see what we can do with the project deadlines you have. Thinking out loud, maybe I can engage some of our strategic partners to help out.

If you still want to chat a little more about what we can do with those preliminary thoughts, just let me know!

Chrissey Breault

Director of Marketing & Member Services / Editor-in-Chief

American Association of Private Lenders / Private Lender magazine

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From: Linda Hyde
Sent: Thursday, February 15, 2018 11:02 AM
To: Chrissey Breault <CBreault@aaplonline.com>
Subject: FW: Membership

From: Mark Fellhauer [mailto:mfellhauer@Fandbfin.com]
Sent: Tuesday, February 13, 2018 11:06 AM
To: AAPL Contact <contact@aaplonline.com>
Subject: Membership

Good Morning!

I am part of a newly formed Hard Money Lending Company (RezCap), and I wanted some information regarding joining.

Additionally, I am a Doctoral Candidate at Webster University. I am the final part of my Dissertation, and my research centers around Decision Theory. My sample set if private lenders. I was curious who I could talk to about having the AAPL members take the survey, and could report the results at the annual conference in November, during a break out session. The benefit of this, to members of the association, on the surface would be some insight of the impact of past experiences on future decisions. The initial sample set was commercial bankers, but I decided that private lenders would grant more insight.

Let me know if this is something of interest, and who I can have a conversation about it with, to further explain the direction of the research, etc.

I am looking forward to becoming a member.

Best,

Mark

FellhauerFnlDiss_Text_Nov3

Mark S. Fellhauer, MBA, CRPC, ABD

Business Analyst- F&B Financial Group | Chief Lending Officer- RezCap Funding

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APPENDIX C.

APPL NEWSLETTER

WITH STUDY RECRUITMENT STORY

AAPLAUSE

Webster University and AAPL Partner on Research Study

Industry professionals are invited to contribute to academic research exploring risk attitudes and decision-making in private real estate lending.

Researchers at Webster University, a private, non-profit institution founded in 1915, have created a survey to identify the relationship between risk appetite and entrepreneurial orientation in private-lending decisions. AAPL has partnered with the university to deliver the survey to industry professionals.

Private lending is an increasingly significant sector within financial services, but it has largely been ignored in academia. This study will be the first test of a new cross-discipline model between strategic management and finance.

Leading the study are Mark Fellhauer, a candidate for a doctorate in management, and John Orr, project chair and emeritus professor of management at Webster University.

"We are pleased to partner with Webster in this first foray of academic research into the private lending industry," said Linda Hyde, managing director of AAPL. "We've worked closely with Mark and John in reviewing the survey and its applicability to private lending decision-making."

The anonymous, 20-minute survey will be administered online through Qualtrics and includes a decision-making scenario on commercial real estate lending.

Participant emails will be quarantined from responses to preserve anonymity during data collection, analysis, and study publication.

The survey will be open through April, with initial summary of findings released at the end of May. Survey participants will the receive the summary by email.

In addition to contributing to graduate dissertation research, the results of the study will be used by Webster University professionals at academic conferences, in journal papers, and in other associated academic presentations. In partnership with Webster, AAPL will share relevant findings with its membership.

TO PARTICIPATE, GO TO AAPLONLINE.COM/WEBSTER-STUDY.

APPENDIX D.

SURVEY MATERIALS FOR OFFICE SCENARIO

Appendix D.- Qualtrics Survey

Private Lending Survey_Prolific_Final_10.12

Survey Flow

Standard: Informed Consent (1 Question)

Branch: New Branch
If
If Welcome to the Private Lending Research Study! I am conducting research on Decision Making in... I do not consent. I do not wish to participate Is Selected

EndSurvey:

Block: Qualifying Questions (9 Questions)

Branch: New Branch
If
If Do you consider yourself an entreprenuer? No Is Selected

EndSurvey:

Block: Office Scenario (6 Questions)
Standard: Risk Propensity Questions (5 Questions)
Standard: EO Questions (4 Questions)
Standard: RP Questions (2 Questions)
Standard: EO Questions (5 Questions)
Standard: RP Questions (5 Questions)

Page Break

Start of Block: Informed Consent

Q76 Welcome to the Private Lending Research Study! I am conducting research on Decision Making in Private Lending as part of my Doctor of Management degree at Webster University. As a graduate of a business program or entreprenuer, you are qualified to help me understand the underlying processes. If you choose to participate, you will be asked to complete the following survey. The survey asks general questions about you and your views on industry activities, and presents you with a short decision scenario on a hypothetical loan. Please be assured that your individual responses will be kept anonymous. The survey should take you around 2-8 minutes to complete, and you will receive a report on the study results for your participation. Your participation in this research is voluntary. You have the right to withdraw at any point during the survey, for any reason, and without any prejudice. If you would like to discuss this research, please e-mail me or phone me at the below contact points: If you have questions or concerns about your rights as a research participant, you can contact the Webster University Institutional Review Board at irb@webster.edu. Sincerely, Mark S. Fellhauer Principal Investigator fellhama@webster.edu 314-277-6972 John P. Orr, PhD Associate Professor Emeritus Faculty Supervisor johnorr06@webster.edu Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible on a mobile device. By clicking the button below, you acknowledge that your participation in the study is voluntary, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

- ○ I Consent (1)
- ○ I do not consent. I do not wish to participate (2)

End of Block: Informed Consent

Start of Block: Qualifying Questions

Q77 Do you have a business degree (finance, accounting, marketing general business, or a similar degree)?

- ○ Yes (1)
- ○ No (2)

Display this question:

If Do you have a business degree (finance, accounting, marketing general business, or a similar degr... = No

Q79 Do you consider yourself an entreprenuer?

- ○ Yes (1)
- ○ No (2)

Q79 Please enter your Prolific ID

_____

Q1 Please identify your gender.

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

Q2 Please select your ethnic background.

- ○ American Indian or Alaska Native (1)
- ○ Native Hawaiian or Pacific Islander (2)
- ○ Asian (3)
- ○ White (4)
- ○ Black or African American (5)
- ○ Prefer not to say (6)

X→ X→

Q3 Please Identify your year of birth:

▼ Before 1940 (1940) ... 2003 (2002)

Q59 What was your highest level of education attained?

- ○ High School Diploma (1)
- ○ Bachelor's Degree (2)
- ○ Master's Degree (3)
- ○ Doctorate Degree (4)

Q60 How many years have you been with your current firm?

▼ 1-5 years (4) ... More than 15 years (7)

Q74 What is the size of your firm?

- ○ < 1mm in revenue (1)
- ○ 1mm to 5 mm in revenue (2)
- ○ 5mm to 10mm in revenue (3)
- ○ 10mm to 15mm in revenue (4)
- ○ 15mm to 20mm in revenue (5)
- ○ > 20mm in revenue (6)

End of Block: Qualifying Questions

Start of Block: Office Scenario

Q29 Request for Grasslands Loan Extension Grasslands LLC has a $4 million private equity loan at 8% interest through your partnership. Your colleague approved the loan six months ago. The loan finances refurbishing of an office building on the edge of an economically depressed area. The depressed area is part of a government-subsidized economic development program.

Q63 What is the loan amount?

- ○ $6,000,000.00 (1)
- ○ $2,000,000.00 (2)
- ○ $20,000,000.00 (3)
- ○ $4,000,000.00 (4)

Q29a Grasslands owns the building, which has an appraised valuation of $2 million. Grasslands has asked for an extension on the loan. Grasslands was supposed to make monthly interest only payments of $27,000.00 with the remaining balance of $4 million payment due in T8 along with an additional interest payment. Here is the payment ledger: Grasslands says the reason for the delays is that the primary potential tenant has backed out. The reason: the federal government has delayed funding for the economic development program.

---

*

Q64 Why has XYZ's primary tenant backed out of the lease?

- ○ Cash Flow (1)
- ○ Bankruptcy/ insolvency (2)
- ○ Federal government delayed development funding (3)
- ○ Found a better location (4)

Q29b

Grasslands primary business is the development of light manufacturing sites. Financing for these sites came from traditional commercial banking loans. The senior principal of Grasslands has a credit rating of 700, and has an in-force personal guarantee. Please answer the following questions.

Q73 Based on information presented, what is the Probability that you would extend this loan in time period T7?

	0 10 20 30 40 50 60 70 80 90 100
I would not extend this loan ()	

End of Block: Office Scenario

Start of Block: Risk Propensity Questions

Q28 Please read the following statements involving business decisions and planning. Then select the response which best describes your attitude

Q6 I like to take bold action by venturing into the unknown

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q7 I am willing to invest a lot of time and/or money on something that might yield a high return.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q8 I tend to act "boldly" in situations in which risk is involved.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q9 I often like to try new and unusual activities which are not typical, but which are not neccessarily risky.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

End of Block: Risk Propensity Questions

Start of Block: EO Questions

Q10 In general, I prefer a strong emphasis in projects on a unique, one-of-a-kind approach, rather than revisiting tried and true approaches used before.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q11 I prefer to try my own unique way when learning new things rather than doing it like everyone else does.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q12 I prefer experimentation and original approaches to problem solving rather than using methods others generally use for solving their problems.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q13 I usually act in anticipation of future problems, needs or changes.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

End of Block: EO Questions

Start of Block: RP Questions

Q14 I tend to plan ahead on projects

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q15 I prefer to "step up" and get things going on projects rather than sit and wait for someone else to do it.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neither agree nor disagree (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

End of Block: RP Questions

Start of Block: EO Questions

Q16 Please read the following statements regarding personal views on business. Then, select the point on the response bar which best reflects your view.

Q17 Taking risks makes life more fun.

- ○ Strongly Disagree (1)
- ○ Disagree (2)
- ○ Somewhat Disagree (3)
- ○ Neutral (4)
- ○ Somewhat Agree (5)
- ○ Agree (6)
- ○ Strongly Agree (7)

Q18 My friends would say that I'm a risk taker

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neutral (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q19 I enjoy taking risks in most aspects of my life

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neutral (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q20 I would avoid taking a risk if it meant business might get hurt.

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neutral (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

End of Block: EO Questions

Start of Block: RP Questions

Q66 Do you have commercial banking experience?

- ○ No (1)
- ○ Yes (2)

Q22 Taking risks is an important part of my life

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neutral (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q23 I commonly make risky decisions

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neutral (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q24 I am a believer in taking chances

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neutral (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

Q25 I am attracted to, rather than scared, by risk

- ○ Strongly disagree (1)
- ○ Disagree (2)
- ○ Somewhat disagree (3)
- ○ Neutral (4)
- ○ Somewhat agree (5)
- ○ Agree (6)
- ○ Strongly agree (7)

End of Block: RP Questions

APPENDIX E.

R CODE BASE FOR DATA ANALYSIS

Appendix E. R Code Base for Data Analysis

This Appendix contains the code utilized to perform selected statistical analysis of the hypothesized relationships. The first block of code is the overall descriptive statistics.

```
#*************************** Tests of the data
*********************************************

# Install and load required packages

install.packages(c("psych", "ggpubr", "factoextra", "parameters"))

library(psych)        # For KMO test

library(ggpubr)       # For T-test visualization

library(factoextra)   # For Bartlett's test

library(parameters)   # Alternative KMO/Bartlett functions


# Load data (assuming your dataset is named 'data')

## 1️⃣ T-Test Comparison

t_test_result1 <- t.test(DEPNDT ~ RP , data = data)

#Could not run the t test, due to more than 2 groupings of the data. An ANOVA was ran instead.

anova_result <- aov(DEPNDT ~ RP, data = data)

summary(anova_result)

anova_result <- aov(DEPNDT ~ EO, data = data)

summary(anova_result)



t_test_result2 <- t.test(DEPNDT ~ EO , data = data)



t_test_result3 <- t.test(DEPNDT ~ ENT, data = data)


print(t_test_result1)
```

```
print(t_test_result2)
print(t_test_result3)

# Boxplot visualization
ggboxplot1(data, x = "RP", y = "DEPNDT", add = "jitter")
ggboxplot2(data, x = "EO", y = "DEPNDT", add = "jitter")
ggboxplot3(data, x = "ENT", y = "DEPNDT", add = "jitter")

**********************************Printing out ANOVA
SUMMARY*************************************************************
# RP ANOVA
# Convert ANOVA summary to a data frame
anova_table <- as.data.frame(anova_summary[[1]])  # Extract first table from summary

# Convert to a flextable for Word export
anova_flex <- flextable(anova_table)

# Create a Word document
doc <- read_docx() %>%
  body_add_par("ANOVA Results", style = "heading 1") %>%
  body_add_flextable(anova_flex) %>%
  body_add_par("Generated in R", style = "normal")

# Save to Word file
output_path <- "ANOVA_Results.docx"
print(doc, target = output_path)

# Message confirming export
```

```
cat("ANOVA results successfully saved to:", output_path)




anova_result <- aov(DEPNDT ~ EO, data = data)

# Extract ANOVA summary as a data frame
anova_table <- as.data.frame(summary(anova_result)[[1]])

# Rename columns for readability
colnames(anova_table) <- c("Df", "Sum Sq", "Mean Sq", "F Value", "P Value")

# Convert to flextable for Word export
anova_flex <- flextable(anova_table) %>%
  theme_vanilla() %>%  # Apply a clean theme
  autofit() %>%  # Adjusts column widths automatically
  bold(part = "header") %>%  # Bold headers
  align(align = "center", part = "all")  # Center-align all text

# Create a Word document
doc <- read_docx() %>%
  body_add_par("ANOVA Results", style = "heading 1") %>%
  body_add_flextable(anova_flex) %>%
  body_add_par("\nGenerated in R using flextable & officer", style = "Normal")

# Save to Word file
output_path <- "ANOVA_ResultsEO.docx"
```

```
print(doc, target = output_path)

# Confirm export
cat("ANOVA results successfully saved to:", output_path)
```

```
**********************************************************************************
**************************************
# 2 Kaiser-Meyer-Olkin (KMO) Test
# Select relevant variables for factor analysis (modify column names as needed)
selected_vars <- c("EO", "RP", "ENT", "DEPNDT")

# Compute KMO test
kmo_result <- KMO(cor(data[, selected_vars], use = "pairwise.complete.obs"))
print(kmo_result)

# 3 Bartlett's Sphericity Test
bartlett_result <- cortest.bartlett(cor(data[, selected_vars], use = "pairwise.complete.obs"), n =
nrow(data))
print(bartlett_result)
```

********** Mediation Analysis **********

```
# Load required package
```

```
install.packages("lavaan")  # Run this if you haven't installed it yet

library(lavaan)


# Load your dataset

data <- UNION_Recode_2272025  # Update file path if necessary

data$RP <- rowMeans(data[, c("RP1", "RP2", "RP5", "RP6", "RP7", "RP8")], na.rm = TRUE)

data$EO <- rowMeans(data[, c("EO1", "EO2", "E3", "EO4", "EO5", "EO6", "EO7", "EO8",
"EO9", "EO10")], na.rm = TRUE)




# Define the parallel mediation model

mediation_model <- '

  # Direct effect

  DEPNDT  ~ c*ENT


  # Mediation paths

  EO  ~ a1*ENT

  RP  ~ a2*ENT

  DEPNDT  ~ b1*EO + b2*RP


  # Indirect effects

  ind1 := a1 * b1  # Indirect effect via EO

  ind2 := a2 * b2  # Indirect effect via RP

  total := c + (a1*b1) + (a2*b2)  # Total effect

'


# Fit the model with bootstrapped standard errors
```

```
fit <- sem(mediation_model, data = data, se = "bootstrap", bootstrap = 5000)

# Display results with fit indices, R² values, and standardized estimates
summary(fit, fit.measures = TRUE, standardized = TRUE, rsquare = TRUE)

# Install required packages if not installed
install.packages(c("lavaan", "officer", "flextable", "tidyverse"))

# Load libraries
library(lavaan)
library(officer)
library(flextable)
library(tidyverse)

# Fit SEM model (assuming 'fit' is your lavaan model object)
summary(fit, fit.measures = TRUE, standardized = TRUE, rsquare = TRUE)

# Sample size
n <- lavInspect(fit, "nobs")

# Extract model fit indices
fit_indices <- fitMeasures(fit, c("chisq", "df", "pvalue", "cfi", "tli", "rmsea", "srmr"))

# Convert fit indices to a table format
fit_table <- tibble(
  "Fit Index" = c("Chi-Square", "DF", "p-value", "CFI", "TLI", "RMSEA", "SRMR"),
  "Value" = round(c(fit_indices["chisq"], fit_indices["df"], fit_indices["pvalue"],
```

```
                fit_indices["cfi"], fit_indices["tli"], fit_indices["rmsea"],
                fit_indices["srmr"]), 3)
)

# Create flextable for model fit indices
fit_flextable <- flextable(fit_table) %>%
  theme_vanilla() %>%
  set_table_properties(layout = "autofit")

# Extract parameter estimates
params <- parameterEstimates(fit, standardized = TRUE) %>%
  select(lhs, op, rhs, est, se, z, pvalue, std.all) %>%
  rename(
    Predictor = lhs,
    Relationship = op,
    Outcome = rhs,
    Estimate = est,
    "Std. Error" = se,
    "z-value" = z,
    "p-value" = pvalue,
    "Standardized β" = std.all
  )

# Create flextable for parameter estimates
params_flextable <- flextable(params) %>%
  theme_vanilla() %>%
  set_table_properties(layout = "autofit") %>%
```

```
  autofit()

# Extract R-squared values (handling potential issues)
r2_values <- tibble(
  Variable = names(inspect(fit, "r2")),  # Get variable names
  R2 = as.numeric(inspect(fit, "r2"))   # Extract R2 values
)

# Manually compute Adjusted R²
r2_values <- r2_values %>%
  mutate(
    k = case_when(
      Variable == "DEPNDT" ~ 3,  # Number of predictors for DEPNDT
      Variable == "RP" ~ 1,  # Number of predictors for RP
      Variable == "EO" ~ 1,  # Number of predictors for EO
      TRUE ~ 1
    ),
    Adj_R2 = round(1 - ((1 - R2) * (n - 1) / (n - k - 1)), 3)
  ) %>%
  rename("R²" = R2, "Adjusted R²" = Adj_R2)

# Create flextable for R-squared values
r2_flextable <- flextable(r2_values) %>%
  theme_vanilla() %>%
  set_table_properties(layout = "autofit")

# Create a Word document and add tables
```

```
doc <- read_docx() %>%
  body_add_par("Table 1: Model Fit Indices", style = "heading 1") %>%
  body_add_flextable(fit_flextable) %>%
  body_add_par("\n") %>%
  body_add_par("Table 2: Parameter Estimates", style = "heading 1") %>%
  body_add_flextable(params_flextable) %>%
  body_add_par("\n") %>%
  body_add_par("Table 3: R-Squared & Adjusted R-Squared Values", style = "heading 1") %>%
  body_add_flextable(r2_flextable)

# Save the document
print(doc, target = "SEM_Results.docx")

# Confirmation message
cat("SEM results exported to 'SEM_Results.docx' successfully! 🎉")


#*********************************************************************
Direct & Indirect Effect Code ***************************************

# Load lavaan if not already
library(lavaan)

# Extract estimates with bootstrapped CIs and standardized coefficients
est <- parameterEstimates(fit, standardized = TRUE, ci = TRUE, level = 0.95)

# 1. Direct Effect: ENT → DEPNDT
```

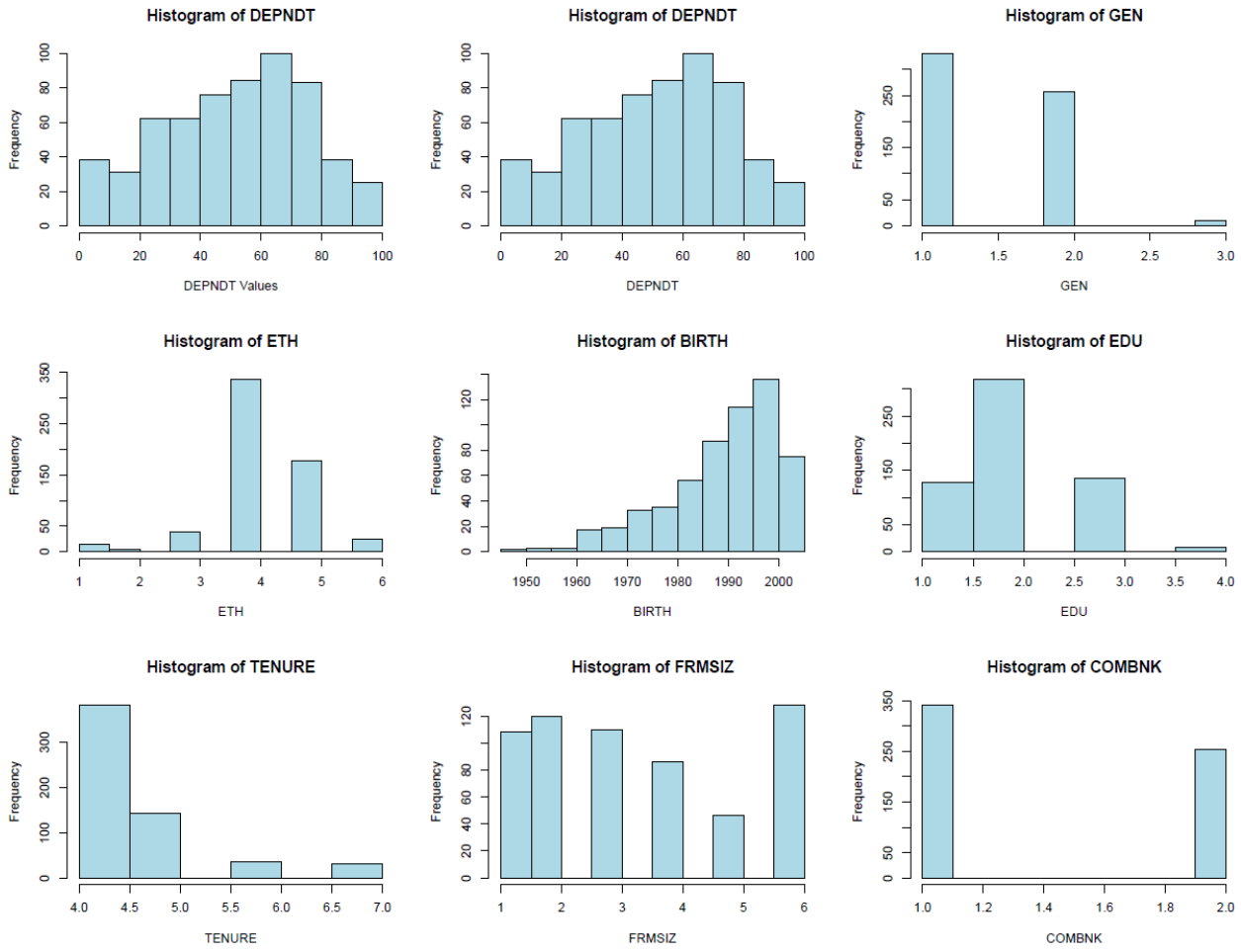
```
direct <- subset(est, label == "c")
direct_effect <- data.frame(
  effect = direct$est,
  se     = direct$se,
  t      = direct$z,
  p      = direct$pvalue,
  llci   = direct$ci.lower,
  ulci   = direct$ci.upper,
  c_cs   = direct$std.all
)
rownames(direct_effect) <- "Direct effect of ENT on DEPNDT"

# 1. Direct Effect: RP → DEPNDT
direct <- subset(est, label == "b2")
direct_effect <- data.frame(
  effect = direct$est,
  se     = direct$se,
  t      = direct$z,
  p      = direct$pvalue,
  llci   = direct$ci.lower,
  ulci   = direct$ci.upper,
  c_cs   = direct$std.all
)
rownames(direct_effect) <- "Direct effect of RP on DEPNDT"

# 2. Indirect Effects via EO and RP
indirect <- subset(est, label %in% c("ind1", "ind2"))
```

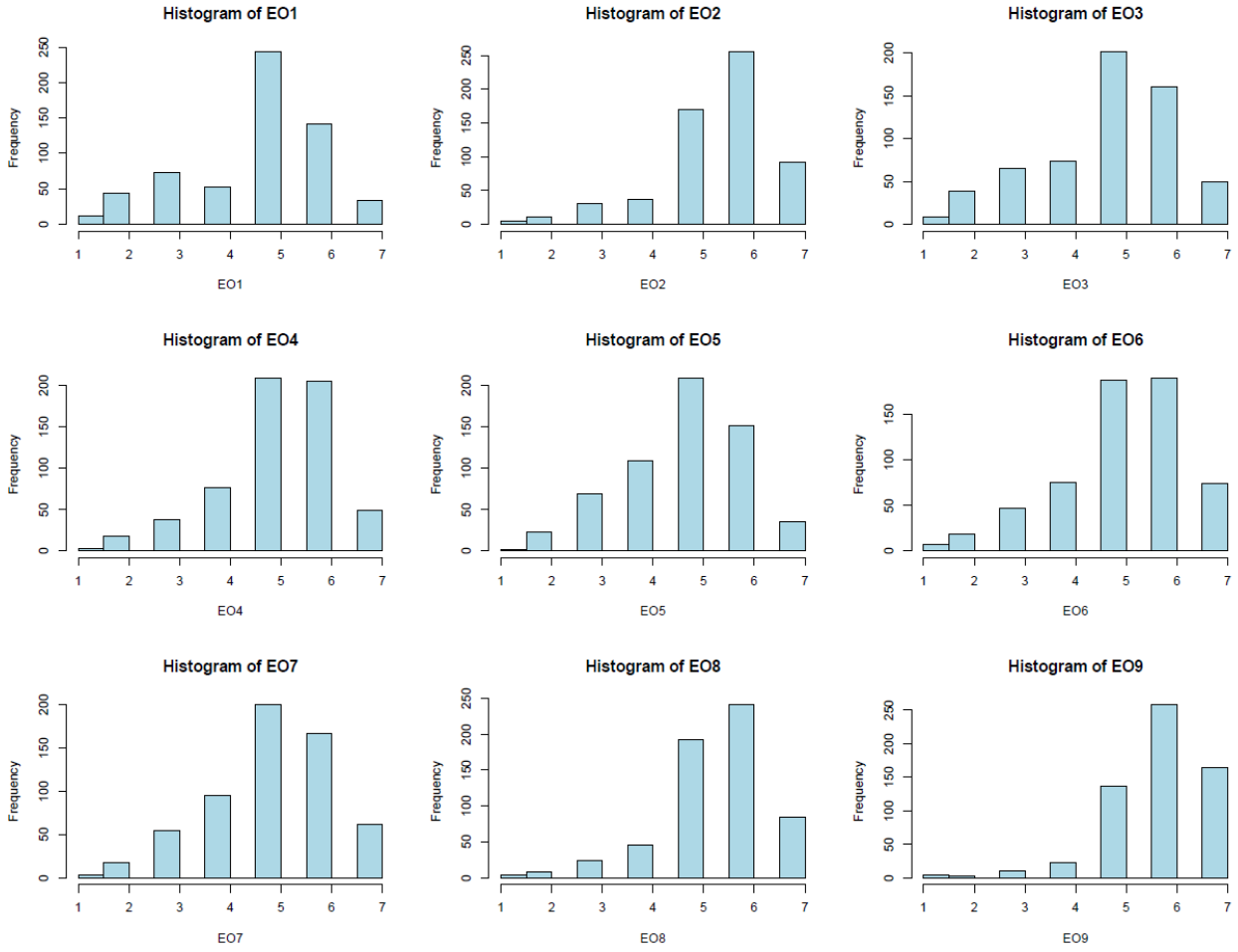
```
indirect_effects <- data.frame(
  effect = indirect$est,
  se     = indirect$se,
  t      = indirect$z,
  p      = indirect$pvalue,
  llci   = indirect$ci.lower,
  ulci   = indirect$ci.upper,
  c_cs   = indirect$std.all
)

# Safe row naming
if (nrow(indirect_effects) == 2) {
  rownames(indirect_effects) <- c("ENT → EO → DEPNDT", "ENT → RP → DEPNDT")
} else {
  rownames(indirect_effects) <- indirect$label
}

# 3. Total Indirect Effect
total_indirect <- subset(est, label == "total_indirect")
total_indirect_effect <- data.frame(
  effect = total_indirect$est,
  se     = total_indirect$se,
  t      = total_indirect$z,
  p      = total_indirect$pvalue,
  llci   = total_indirect$ci.lower,
  ulci   = total_indirect$ci.upper,
  c_cs   = total_indirect$std.all
```

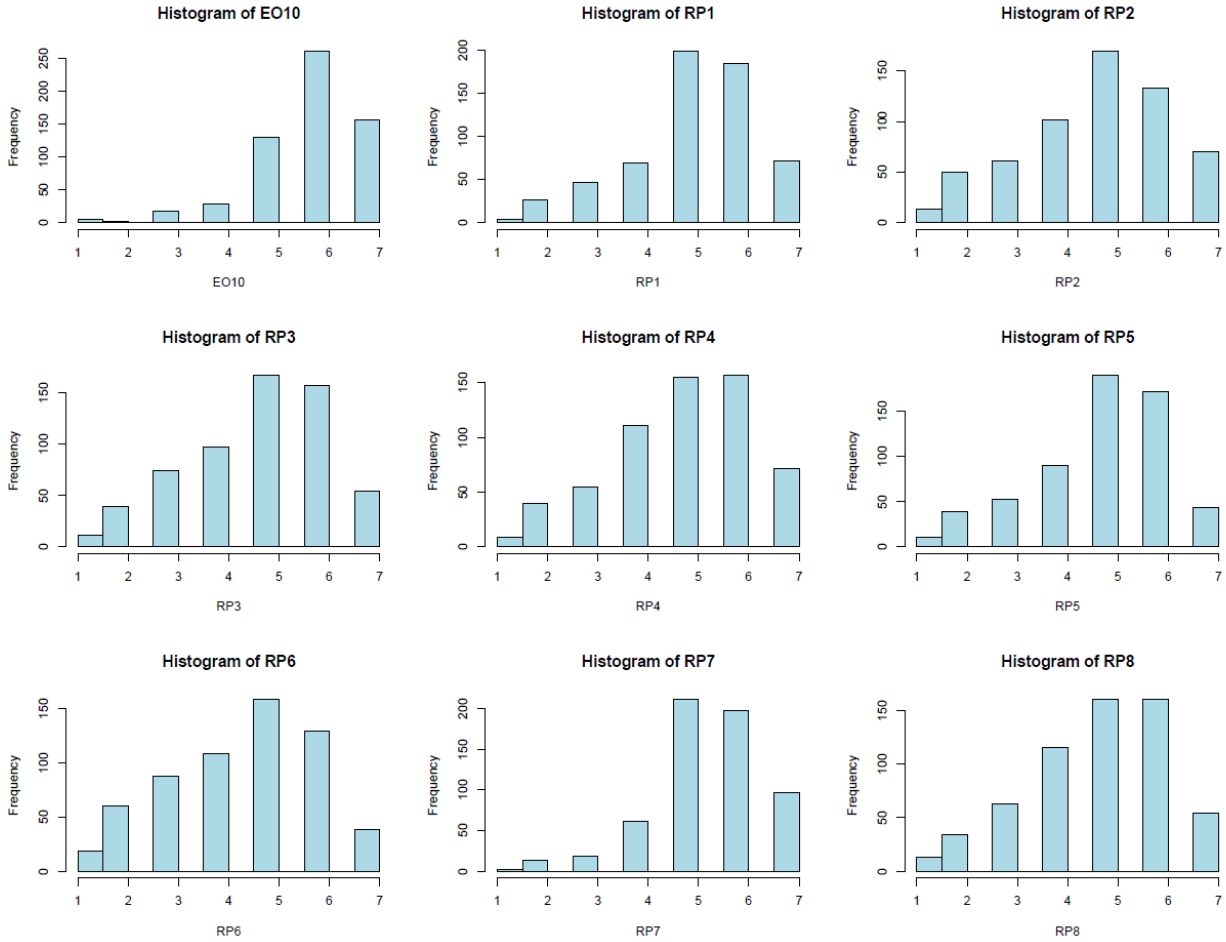
```
)
#rownames(total_indirect_effect) <- "Total Indirect Effect"
if (nrow(total_indirect_effect) == 2) {
  rownames(total_indirect_effect) <- c("ENT → EO → DEPNDT", "ENT → RP → DEPNDT")
} else {
  rownames(total_indirect_effect) <- indirect$label
}

# 4. Total Effect of ENT on DEPNDT
total <- subset(est, label == "total")
total_effect <- data.frame(
  effect = total$est,
  se     = total$se,
  t      = total$z,
  p      = total$pvalue,
  llci   = total$ci.lower,
  ulci   = total$ci.upper,
  c_cs   = total$std.all
)
rownames(total_effect) <- "Total Effect of ENT on DEPNDT"

# Show tables
direct_effect
indirect_effects
total_indirect_effect
total_effect
```

APPENDIX F.

VARIABLE HISTOGRAMS


Histogram of DEPNDT
Frequency
DEPNDT Values
Histogram of DEPNDT
Frequency
DEPNDT
Histogram of GEN
Frequency
GEN
Histogram of ETH
Frequency
ETH
Histogram of BIRTH
Frequency
BIRTH
Histogram of EDU
Frequency
EDU
Histogram of TENURE
Frequency
TENURE
Histogram of FRMSIZ
Frequency
FRMSIZ
Histogram of COMBNK
Frequency
COMBNK


Histogram of EO1
Frequency
EO1
Histogram of EO2
Frequency
EO2
Histogram of EO3
Frequency
EO3
Histogram of EO4
Frequency
EO4
Histogram of EO5
Frequency
EO5
Histogram of EO6
Frequency
EO6
Histogram of EO7
Frequency
EO7
Histogram of EO8
Frequency
EO8
Histogram of EO9
Frequency
EO9


Histogram of EO10
Frequency
EO10
Histogram of RP1
Frequency
RP1
Histogram of RP2
Frequency
RP2
Histogram of RP3
Frequency
RP3
Histogram of RP4
Frequency
RP4
Histogram of RP5
Frequency
RP5
Histogram of RP6
Frequency
RP6
Histogram of RP7
Frequency
RP7
Histogram of RP8
Frequency
RP8