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## Before 'It' Happens Again: Identifying Financial Fragility in the Financial Sector

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# Before 'It' Happens Again: Identifying Financial Fragility in the Financial Sector

Senior Project Submitted to  
The Division of Social Studies  
of Bard College

by  
John Glascock

Annandale-on-Hudson, New York  
May 2017

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John Glascock

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## Abstract

The project builds extensively on the theoretical foundations of Minsky's financial instability hypothesis. A Minskian framework is integrated with both behavioral and human rights theory. The goal is to develop a more holistic view of market dynamics which includes psychological and human rights considerations. In developing this framework, we establish an indicator that can be used to track fragility at the sector and firm levels. This work can be applied to macroprudential policy to more adequately equip regulators whose responsibility it is to tame an unpredictable market.

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# Contents

<b>Plagiarism Statement</b> .....	iii
<b>Acknowledgments</b> .....	iv
<b>Abstract</b> .....	v
<b>List of Figures</b> .....	viii
<b>1. Introduction</b> .....	1
<b>2. Theoretical Framework</b> .....	4
2.1 Minsky.....	4
2.1.1 Minskian Approach .....	4
2.2 Phases of Capitalism and Institutional Change .....	6
2.2.1 Phases of Capitalism.....	6
2.2.2 Historical Analysis .....	9
2.2.3 Financial Innovation .....	11
2.3 Systemic Fragility .....	14
2.3.1 Financing Positions.....	14
2.3.2 Margins of Safety and Debt Deflation.....	14
2.4 The Task at Hand .....	17
2.4.1 Previous Modeling.....	17
2.4.2 Linking Psychology .....	21
2.4.3 Incorporating Human Rights .....	26
2.5 Conclusion.....	29
<b>3. The Emotional-Minskian Framework</b> .....	30
3.1 Brief Survey of Existing Literature .....	32
3.1.1 ‘Old’ vs. ‘New’ Behavioral Economics .....	32
3.1.2 Heuristics and biases .....	35
3.1.3 Rationality .....	37
3.2 Emotional Finance.....	38
3.2.1 Theoretical Underpinnings .....	38
3.3 Connecting Mainstream Behavioral Insights to Emotional Finance.....	43
3.3.1 Emotional Corporate Finance: Setting the Stage for Minsky.....	45

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3.3 Minsky and Emotional Finance .....	47
3.3.1 Animal Spirits.....	47
3.3.2 Explicit Minsky Connections .....	48
3.4 Conclusion.....	51
<b>4. Human Rights &amp; Finance on the Macro Level .....</b>	<b>52</b>
4.1 Framing the Finance-Rights Relationship.....	52
4.2 History of Rights-Driven Economic Policy in US .....	54
4.2.1 Rights-based vs. Profits-based Frameworks.....	54
4.2.2 The US as a Proponent of Economic Rights .....	55
4.2.3 Financialization’s Role in Compromising Rights .....	59
4.3 New Direction for Rights Literature .....	62
4.3.1 Understanding the Existing Literature.....	62
4.3.2 Corporate Rights Framework .....	64
4.3.3 Individual Rights Framework.....	66
4.3.4 Integrating Minsky .....	70
4.4 <b>Conclusion</b> .....	72
5. The Fragility Indicator .....	73
5.1 Introducing the Indicator.....	73
5.2 Defining the Financing Stages and Margins of Safety.....	74
5.3 Data and Methodology .....	76
5.3.1 Data Sources .....	76
5.3.2 Methodology.....	77
5.4 Indicator and Findings.....	79
5.4.1 Two Measures of Safety Margins.....	79
5.4.2 Aggregate Fragility.....	81
5.4.3 Top-10 Financial Institutions.....	85
<b>6. Conclusion .....</b>	<b>89</b>
<b>Bibliography .....</b>	<b>91</b>
<b>Appendix A .....</b>	<b>97</b>
Data Table .....	97
<b>Appendix B .....</b>	<b>98</b>
Excel Code .....	98

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## List of Figures

Figure 1: Consolidation of Banking Sector .....	8
Figure 2: Maturity Mismatch .....	82
Figure 3: Interest Ratio & 1-Year Treasury .....	83
Figure 4: Year-over-Year % Change in Interest Expense and Interest Income.....	84
Figure 5: Interest Ratio - Debt Ratio (Spread) and Year-over-Year % Change .....	85
Figure 6: Top-10 Maturity Mismatch Compared to the Aggregate .....	86
Figure 7: Top-10 Year-over-Year % Change in Interest Expense and Interest Income .....	87
Figure 8: Top-10 Interest Ratio - Debt Ratio (Spread) and Year-over-Year Percentage Change in Short Term Debt .....	87

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## 1. Introduction

Hyman Minsky was considered an 'obscure' economist for nearly all his academic life. A student of Schumpeter, Minsky trained at Harvard in the classical tradition. As he developed his own academic foundations, however, Minsky becomes a Keynesian. Minsky built on Keynes' investment theory of the business cycle to establish a financial theory of investment. His early work focuses on the relationships between financial institutions and economic performance developed into a broader focus on the business cycle, which culminated with the Financial Instability Hypothesis (FIH), his most salient contribution (Whalen, 2012). Minsky uses his FIH to argue that financial fragility is endogenous in the development of a capitalist system. Minsky rejects the foundational assumptions made by the classical and neoclassical schools, which excludes him from mainstream debate.

The Great Recession brought Minsky from the fringes of economic thought. In mid-2007, with the global economy in the throes of financial meltdown, Minsky's theories were injected into the mainstream media and have persisted since (Lahart, 2007; Cassidy, 2008; Norris, 2013; *The Economist*, 2016). The FIH has also been used extensively in the academic literature to discuss the 2008 financial crisis (Davidson, 2008; Palley, 2009; Wray, 2011; Bellofiore and Halevi, 2011). Much of the debate in the academic literature attempts to define a 'Minsky Moment,' which is an inevitable contraction that the capitalist system. It is important to remember, however, that Minsky focuses more directly on the processes that lead up to a 'Minsky Moment' instead of predicting when the 'Moment' will happen.

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This paper embraces Minsky's methodological approach to develop an indicator that monitors financial fragility with empirical measures of his margins of safety concept. As safety margins narrow, firms move into a riskier financing position. Minsky identifies three financing positions: hedge, speculative, and Ponzi. The indicator utilizes quarterly balance sheet and cash flow statement data that bank holding companies (BHCs) must report to the Federal Reserve. The data shows trends across a variety of measures which demonstrate so-called tipping points into riskier financing positions (from hedge to speculative to Ponzi).

Before the indicator is developed, however, the theoretical foundations of the FIH are applied to existing behavioral and human rights theory. The behavioral literature benefits from Minskian analysis because it necessitates a divergence from neoclassical assumptions that have limited psychology's impact on macroeconomic analysis. As it currently exists, conventional behavioral research operates with the assumption that behavioral idiosyncrasies are irrational deviations from equilibrating behavior. The burgeoning field of emotional finance is introduced and incorporated into Minskian theory. The FIH offers an ideal methodology and framework to apply the psychoanalytic insights advanced in the little-known behavioral theory. Consider the integration of the two theories, labeled emotional-Minskian, a more holistic macroeconomic theory, encapsulating inevitable capitalist dynamics and the behavior that propels them.

With a holistic macroeconomic theory, the paper analyzes the existing human rights literature as it relates to finance. The rights-finance relationship has been slow to develop amongst human rights scholars and is insufficient in its current form. One reason for this slow integration is the focus on development economies. The consensus in the human rights literature is that developed countries like the US have an historical aversion to economic rights,

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emphasizing political and social rights instead. This characterization is misguided. The US has a rich history of supporting and promoting economic rights, which will be acknowledged and developed. The Minskian tradition demonstrates the gradual shift toward financialization in the macroeconomy. Recognizing foundational shifts in the macroeconomy necessitates an innovative approach to incorporating rights.

Another reason for slow development is the disparate language that the two bodies of work employ. Rights scholars construct doctrines of economic and social rights that neglect the impact of finance. There currently exist two main categories of rights-finance literature. The first, inspired by the Ruggie framework, focuses on corporate responsibility and the obligations of firms, typically multinational, to champion rights in the places they are established. The second focuses on financial relationships at the individual level. This work encompasses a broad range from considering credit as a human right to bankruptcy law. Neither of these rights-approaches elucidates the importance of finance on a macro-level. Once the paper justifies the relevancy of the rights-finance relationship, it will develop a macro-rights frame.

The paper proceeds as follows. Chapter 2 develops the Minskian theoretical framework to situate the paper within the current literature. Chapter 3 discusses the shortcomings of mainstream behavioral literature and introduces emotional finance. It advances an emotional-Minskian framework to include psychology as a driver of capitalist dynamics. Chapter 4 delineates the historical US commitment to human rights and provides the rights literature with a macro framework. The indicator is developed in Chapter 5 and includes suggestions for future research. Chapter 6 is the concluding chapter.

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## 2. Theoretical Framework

The focus here is on Minsky's Financial Instability Hypothesis and, more specifically, his margins of safety concept. After Minsky's method is introduced, various applications of his theory will be examined. The paper will then contextualize his theory in the behavioral finance literature to draw connections between the endogenous nature of fragility and the uncertainty of markets. The concluding section will introduce a macro-framework for human rights theory inspired by Minskian tradition.

### 2.1 Minsky

#### *2.1.1 Minskian Approach*

Minsky's work illuminates the inherent tendency toward instability present in the capitalist system. The most crucial aspect in understanding the dynamics of the financial sector is fragility. In this paper, financial fragility is defined as the "dependence of financial positions on refinancing and liquidation" and financial instability will be defined as the "propensity of financial fragility to affect economic processes" (Tymoigne, *Detecting Ponzi Finance : An Evolutionary Approach to the Measure of Financial Fragility*, 2010). The interrelation of these two concepts is crucial for understanding Minskian dynamics. Fragility increases as balance sheets become less liquid through the accumulation of short-term assets. The financial sector is more prone to instability as balance sheets continually deteriorate and dealings in the economy become increasingly dangerous.

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Tymoigne (2010) draws a distinction between two conceptual approaches in defining fragility. The first is a static approach which, Tymoigne argues, conflates fragility and instability in a way that severely limits the application of the framework. Bernanke and Gertler (1990), for example, define a financially fragile environment as one "in which potential borrowers...have low wealth relative to the sizes of their projects" (p. 88). The starting point of the static analysis depicts a macroeconomy that is already unstable in the Minskian definition. The static approaches' most evident conceptual shortcoming is its assumption that increased assets on the balance sheet of potential borrowers signals financial health. Fragility builds in times of economic growth and ultimately produces instability.

Tymoigne introduces the evolutionary approach, built on Minskian foundations. Minsky argues that during tranquil years, lenders become more comfortable with borrowers' past repayment history and are confident about future cash flows because of economic growth that skews lenders' perspectives (Minsky, 1980). This is the essence of the evolutionary approach. It attempts to identify increasing fragility to alert policymakers to the possibility of crisis before it happens. Instead of trying to forecast a 'Minsky Moment,' where an economy is already unstable, the evolutionary approach maintains the importance of monitoring balance sheets to ensure that fragility does not go unrecognized.

Minsky, in establishing the foundations of the evolutionary approach, is intensely critical of neoclassical assumptions. Extending Keynes' analysis, he studies the economy as a financial economy. The Minskian analysis departs dramatically from the neoclassicals in that it acknowledges the importance of financial relationships. There is no room for financial fragility in the mainstream doctrine because the economy is studied in real terms, whereas Minsky maintains the importance of nominal financial obligations.

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The FIH emphasizes the idea that instability develops from inherent fragility. Neoclassical theory is deficient in its "emphasis upon the interactions that make for equilibrium and not upon endogenous disequilibrating processes" (Minsky, 1986, p. 115). He acknowledges that economic units with more aggressive financing positions are susceptible to exogenous changes in financial markets, such as interest rate moves. The exogenous 'shocks' would not have such negative effects on firms, however, if the firms maintained more prudent financing positions. Financing decisions made by firms that create a dangerously fragile environment are endogenous in nature and must be approached as such. In a capitalist system, "units have to take positions" on future debt commitments "in an uncertain world," which will eventually lead to human error and miscalculation (Minsky, 1980a, p. 515). The FIH, unlike neoclassical theory, can be applied to any capitalist system with complex financial arrangements.

This paper lies firmly in the evolutionary approach. The rest of the theoretical framework will center on the work that has grown from Minskian foundations. The theoretical framework will also demonstrate where this paper fits into the Minskian tradition. Minsky's two approaches to economic analysis will be distinguished in the next few sub-sections. The first approach delineates an arc of capitalism, explicating capitalist phases across different eras and examining institutional evolution. His second approach is focused on periodic instability that is identifiable in every historical stage of capitalism.

## 2.2 Phases of Capitalism and Institutional Change

### *2.2.1 Phases of Capitalism*

Minsky hoped that his assessment of capitalism would shift mainstream economic thought toward a more realistic treatment of economic issues. Economic analysis must include

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institutions that can prevent financial collapse and any analysis that excludes them "throws no appreciable light on real world economies" (Papdimitriou & Wray, 1998, p. 208). Institutional presence is the first major distinction between pre- and post-World War II varieties of capitalism. The impositions made by institutions on the post-war economy prevented the debt deflation process that was inevitable in the pre-WWII laissez-faire era.

Minsky primarily focuses on the financial structures of a particular economic environment. The two main eras of capitalism are commercial capitalism<sup>1</sup> and money-manager capitalism<sup>2</sup> with three broader financial stages: industrial, financial, and managerial (Minsky & Whalen, 1997). The pre-WWII industrial finance stage, with its proliferation of resource dependent projects like railroads and factories, created demand for more complex finance arrangements. As the financial stage evolved without institutional oversight, financial fragility dramatically increased and led to the Great Depression. Managerial finance grew with the development of regulatory institutions established by the New Deal. As the managerial financing structure took shape, money-manager<sup>3</sup> capitalism emerged. The tendency of actors to engage in increasingly speculative endeavors this marks this most recent era of capitalism (Minsky & Whalen, 1997).

Money-manager capitalism relies heavily on financial arrangements that require "expensive, long-lived capital assets," which necessitates institutions that can constrain instability (Papdimitriou & Wray, 1998, p. 210). It is evident that private institutional structures which respond to changes in profit-seeking activity shapes capitalist development (Whalen,

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<sup>1</sup> External finance used primarily to finance production or transportation of goods.

<sup>2</sup> Financial markets and arrangements are dominated by institutional investors.

<sup>3</sup> Money-manager capitalism is understood to be a concentration business at the corporate level, a concentration of financial assets on the books of financial intermediaries, and attention to money-manager performance which creates incentives for riskier gambles. It is like 'financialization' and 'casino capitalism.' (Wray 2011)



2012). Ideally, regulatory institutions would be established with the ability to actively monitor adequate safety margins as opposed to reacting to adverse conditions after margins wear thin. Unfortunately, however, deregulation, lengthy periods without depression, and historical government intervention have reduced the perceptions of risk and gradually fostered a fragile environment (Wray, 2011). The era of money-manager capitalism has been accompanied by staggering developments in the financial sector which has escalated fragility.

One of the most compelling developments of the contemporary financial sector is consolidation. This paper will reexamine Minsky's financial sector analysis in this era of unprecedented financial sector consolidation. Figure 1 shows that the number of total banking institutions has fallen dramatically since the late-1980s, as total assets in the financial sector have increased dramatically. This figure suggests that fewer financial institutions yield more influence in the broader financial sector. As fragility increases among fewer institutions, it can permeate easily throughout the sector. It is argued here that the substantial consolidation of market power leaves the financial sector, and thus the broader economy, more vulnerable to shifts in market sentiment.

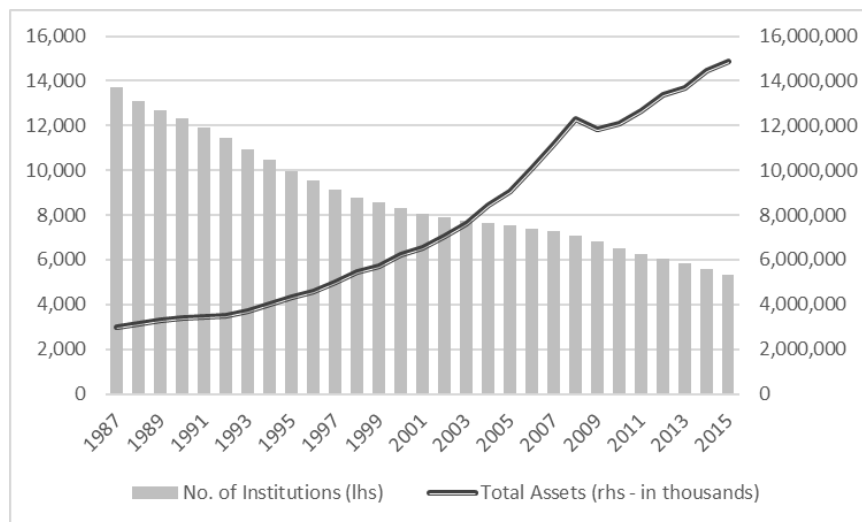


Figure 1: Consolidation of Banking Sector

The paper will show that sector concentration increases sector fragility because with fewer firms, the financing positions of the largest firms weigh considerably more on the health of the sector than in a more diffuse sector. The Minskian framework suggests that the current finance structure of money-manager capitalism is a crucial aspect of the broader macroeconomy. If the financial sector becomes unstable, it could very well jeopardize other parts of the economy. The United States, with other developed economies, may be transitioning into a new era of economic structure, evidenced by increasing concentration of market power that further alters the foundations of the finance markets.

### 2.2.2 Historical Analysis

Before we apply a Minskian lens to the financial sector in an era of consolidation, we will examine existing applications of the FIH to previous financial crises. It is important to contextualize this work to see the evolution of economies in a Minskian framework. Isenberg (1988), for example, applies the theory to the Great Depression time-period to examine whether the FIH can explain the most detrimental economic crash in modern history. The author uses contemporaneous financial data to calculate the financing positions of firms in the 1920s.<sup>4</sup> At the end of her paper, Isenberg concludes that "the story of debt that emerges from this historical period portrays a somewhat different picture than that hypothesized by Minsky" citing, among other things, matching terms of debt maturity and relatively low debt-equity ratios (Isenberg, 1988, p. 1055)

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<sup>4</sup> It is useful to include here the formulas that Isenberg uses in her analysis. She categorizes the stage of finance for a given unit where  $AQ$  = anticipated quasi-rent from gross profit,  $PC$  = contracted debt service,  $AQ_i(y)$  = income portion of quasi-rents, and  $PC_i(y)$  = income (interest) portion of loan. A unit is considered to be in **hedge** if  $AQ_i > PC_i$  ( $i=1, \dots, n$ ); **speculative** if  $AQ_i < PC_i$  ( $i=1, \dots, m$  is small),  $AQ_i > PC_i$  ( $i=m+1, \dots, n$ ), and  $AQ_i(y) > PC_i(y)$  ( $i=1, \dots, m$ ); and **Ponzi** if  $AQ_i < PC_i$  ( $i=1, \dots, n-1$ ),  $AQ_i >> PC_i$  ( $i=n$ ),  $AQ_i(y) < PC_i(y)$  ( $i=n, \dots, n-1$ ), and  $AQ_i(y) >> PC_i(y)$  ( $i=n$ ).

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One plausible reason for Isenberg's conclusion is that the economy had not yet transitioned into the stage of money-manager capitalism. Minsky acknowledges capitalism as an evolving system, which sees institutions reorganize based on profit opportunity. He "used to say that there are as many varieties of capitalism as Heinz has pickles" (Minsky, 1991, p. 10). The pre-WWII, Great Depression era is characterized as laissez-faire capitalism, which somewhat limits Isenberg's analysis. As discussed above, the financing structures of the pre- and post-war economies were very different.

The first significant instance of a post-war financial crisis is the Credit Crunch of 1966. Wray (1999) argues that the crisis can, indeed, be analyzed in the context of Minsky's FIH. Before explicitly connecting the Credit Crunch to the FIH, Wray defines the mechanics of a bank's liabilities (deposits), horizontal leveraging, and high-powered money, which build the foundation for an increasingly complex financial system. Wray argues that the 'robust'<sup>5</sup> post-war financial environment is Minskian because financial innovation allowed for increased leverage ratios without increasing reserves. As threats to banks' profit margins and the uncertainty of interest rates increased, financial institutions pulled out of the government bond market, which required the Fed to intervene as lender-of-last-resort. While a "minor speed bump on the road to Minskian fragility," the Credit Crunch created an incredibly precarious environment (Wray, 1999, p. 425). Scholars utilize the FIH to explain more recent crises as the complexity of the modern financial system intensifies.

Kregel (1998), for example, explains the Asian Financial Crisis of 1997 using the FIH. His analysis connects Minskian theory to the qualitative financial and political relationships in Asia at the time as opposed to Isenberg's data-driven approach. The confluence of both

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<sup>5</sup> A robust environment can be understood as a relatively stable financial environment with conservative financial practices that manifest in hedge financing positions.

endogenous factors – tendency toward Ponzi finance – and exogenous factors – change in interest and exchange rates – lead to a debt deflation process, which Kregel identifies as Minskian in nature (Kregel, 1998). In terms of recovery, Kregel sees the IMF's treatment of the Crisis as inadequate and argues that it was a stock problem, where "firms and banks tried to liquidate their stocks of goods and assets to liquidate their foreign exchange debts" (Kregel, 1998, p. 14). This distinction is important in that it helps one distinguish between a debt crisis and a debt deflation process.

As discussed in the Introduction, there has been a proliferation of Minskian analysis following the Great Recession. A separate catalog would have to be written to provide an appropriate survey of this literature. There is an abundance of literature in the Minskian tradition as well as literature from opposing schools that focus more on exogenous factors. Many neoclassicals, for example, argue that fragility can be attributed to the inadequate decisions of regulatory bodies. The conversation is complex but, again, too vast to succinctly encapsulate.

### *2.2.3 Financial Innovation*

In every explanation of previous crisis that financial innovation is a driving factor in fragility. Innovation is discussed in the context of institutions and financial instruments. Institutionally, innovation leads to changing dynamics of firm construction. On the product level, innovation is evident in the evolving financial instruments produced by firms in times of increased profit-seeking activity. As money-manager capitalism has developed, the financial sector has witnessed unparalleled innovation on the institutional scale in the proliferation of mega banks and the product scale in instruments like asset-backed-securities.

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A consequence of market consolidation is the increasingly ruthless pursuit of market share. As banks consolidate, the largest banks jockey to maintain or improve their position among their behemoth peers. One of the most expedient ways to accumulate market share is to pioneer profitable financial instruments. Product-level financial innovation is rampant in a euphoric environment where market participants anticipate perpetual expansion. Under the condition of uncertainty, lenders must make decisions based on norms and historical performance, which, in a euphoric economy, will skew a borrower's ability to repay.<sup>6</sup> Liability structures may become vulnerable because of innovation, making it likely that some debt agreements will not be met (Minsky, 1986).

Economic euphoria paired with intense market concentration leads to an environment where competitors adopt the most recent innovations, disseminating the innovations throughout the market. As an innovation becomes normalized in the system, it has the potential to increase fragility. Mortgage securitization is a perfect example of an immensely profitable innovation that financial institutions had to engage with to maintain or increase market share (Lim, 2008; Kregel, 2008; Wray, 2007). In the current form of money-manager capitalism, the firms at the top cannot risk passing on an innovation as smaller firms try to gain market relevance. The indicator developed in the last section of this paper will attempt to demonstrate the transmission of innovation through changes in liability structure.

To keep pace with innovation, firms typically increase leverage in a process that Minsky calls layering. Layering leaves firms vulnerable to changes in market conditions that may increase uncertainty and lead to instability. The vulnerability stems from the nature of the layers, which typically take the form of collateralized short-term assets (Kregel, 2007). Balance

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<sup>6</sup> 'Borrowers,' in this usage, include larger banks that issue debt, since they are beholden to those investors who accumulate such debt.

sheet liquidity erodes as layering accelerates and "the importance of the uninterrupted flow of receipts increases" because one firm's inability to make debt payments can have a very swift contagion effect which could trigger a debt-deflation process (Minsky, 1972). As firms engage in increasingly speculative activity, layering has the potential to make firms dangerously illiquid (Kregel, 2008; Papadimitriou & Wray, 1999). The illiquidity is typically overlooked and unchecked in times of expansion because the accumulation of debt is considered necessary for market competitiveness.

The Minskian tradition offers crucial insights in the way that innovation inevitably affects liquidity at the firm and sector levels during times of stability. It indicates that financial innovation has shifted the financial sector's business orientation during the money-manager capitalism era. Banks began to adopt the "originate and distribute" financial model, commonly known as securitization, in the early 1970s (Cowan, 2003). Securitization is one the most destabilizing aspects of the new financial system. It can be classified as "market-oriented" as opposed to "bank-based," which means the firms that organize the financing (origination) do not hold the loans on their balance sheets (distribution) (Wray, 2008). Free market proponents argue that this process shifts risk off bank balance sheets and diversifies risk in the market. This mainstream attitude illuminates Minsky's assessment of complacency in the marketplace.

It can be argued that the development of the "originate and distribute" model has exacerbated fragility by transforming banks' traditional functions. Securitization has brought with it unsustainable practice that regulators overlooked or ignored during the transformation process (Crotty, 2009). For example, complex financial arrangements allowed banks to guarantee credit worthiness without assessing a potential borrower (Wray, 2008). Untenable in many respects, these types of practices proved to intensify fragility to the point of

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destabilization that ultimately led to the most recent devastating recession. Equipped with an understanding of the arc of capitalism, the next section will rigorously define Minskian financing regimes. Fragility stems from the development of more risky financing regimes and are identifiable at every capitalist stage.

## 2.3 Systemic Fragility

### *2.3.1 Financing Positions*

Minsky's FIH is more than institutional change and product innovation. Within each stage of capitalism, Minsky identifies three distinct financing stages: hedge, speculative and 'Ponzi' finance. Each stage of finance situates an economic unit's cash commitments and liabilities. As firms (sectors) transition from one stage to another (hedge to speculative and speculative to Ponzi) their balance sheets become more illiquid and the firm (sector) becomes more vulnerable to changes in economic conditions.

A unit that is hedge financed expects to meet all its cash commitments with the cash flow from its capital assets. In the states of speculative and Ponzi finance, however, an economic unit is not expected to meet some or most of its cash commitments over a short-term period. Ponzi financed units expect debt burdens to rise (Minsky, 1986). A financing position can be identified in a firm's margin of safety. The narrower the margin, the more aggressive the position and the more unprepared a firm is to combat a debt deflation process.

### *2.3.2 Margins of Safety and Debt Deflation*

One of Minsky's most important contributions is his "margins of safety" concept. These margins can be understood as an economic unit's excess of cash flows needed to meet contractual liabilities. Minsky identifies three margins: cash in portfolios, excess of cash receipts over commitments, and excess of present value receipts over payments (Minsky,

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1977).<sup>7</sup> Financial fragility becomes more dangerous as margins of safety erode. Erosion of safety margins represents decreasing available liquidity. Thin margins increase fragility because reactions to poor news may become increasingly erratic as firms realize that their safety margins are inadequate (Kregel, 2008). The financial economy is destabilized by the ordering of debt repayment when debtors do not have sufficient margins to meet commitments.

Margins of safety are crucial to financial stability because a firm that is in a hedge finance position with sufficient margins of safety can meet its obligations in the case of an adverse market move. Minsky makes it clear that as capitalism has evolved throughout history, firms have been incentivized to decrease their safety margins to remain competitive. This is glaringly true in the contemporary financial landscape. Financial innovation has the tendency to narrow safety margins, which increases the likelihood of a debt deflation process. This paper will examine Minsky's analysis of capitalism's evolution and emphasize the margins of safety concept throughout.

As we have seen, Minskian theory outlines an evolutionary process of fragility that results in full-blown instability. The most dangerous manifestation of financial instability is a debt deflation spiral. Minsky relies heavily on Fisher's theory of debt deflation, – an environment where debts increase and prices fall – particularly in the case of prolonged periods of sustained growth that lead to fragility (Minsky, 1986). Minsky's FIH explains the origins of a debt deflation process and suggests a policy framework to prevent 'It' from happening again.

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<sup>7</sup> Wray (2010) elaborates more on this definition. He maintains that all economic units must take financial positions while maintaining safety margins. Minsky's 'cash in portfolio' margin can be seen in balance sheets as asset liquidity. The more liquid the balance sheet, the larger the margin of safety. The 'excess of cash receipts margin' is essentially the expected net income generated by asset ownership. Finally, the 'present value' margin is net worth for a given expected income stream. The safety margins increase as the value of assets increases with respect to liabilities. The three margins are each important for balance sheet health.

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It is important to understand margins of safety in the context of a debt deflation cycle to fully grasp the theory.

One of the most important aspects of Minsky's theory is his assertion that lender-of-last-resort institutions, like the Federal Reserve, play a crucial role in preventing full-blown debt deflation. Preventing debt deflation, however, sets "a groundwork for a subsequent burst of expansion followed by inflation" that leaves the economy vulnerable to another cycle of fragility (Minsky, 1986, p. 281). As previously discussed, expansion leads to complacency and competitiveness that shaves banks' safety margins. Narrow margins of safety make it difficult for institutions to absorb losses, which predictably set the stage for a debt deflation spiral.

Another important concept that connects to margins of safety is the role financial institutions take in the transformation of the maturity of financial assets. As a financial institution attempts to match lenders to borrowers, it exposes itself to maturity mismatches that arise from difference term preferences (Kregel, 2007). It is assumed that lenders (savers) prefer more liquid short-term assets and borrowers (investors) prefer longer-term liabilities. These alternative preferences mean that bankers must get creative in the transformation process, which often means adjusting liquidity preferences. Institutions can issue short-term liabilities against longer-term assets, which makes the bank's balance sheet more illiquid and narrows safety margins (Kregel, 2007)

In the normal capitalist process, margins of safety decrease as financial institutions get more comfortable lending against riskier assets that are perceived to be safe (Kregel, 2007). The current regulatory framework misses this building fragility and intervenes as firms cannot protect themselves against debt deflation. Our indicator will focus on the three margins of safety defined above to identify the shifts in firm's liquidity preferences.

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It is crucial to understand fluid sensitivities to exogenous changes. An institution with an aggressively illiquid balance sheet will be more sensitive to changes in the short-term interest rate, for example. Interest rate sensitivity relates to safety margins because a rate surprise, among other surprises, may create a situation where a bank is too illiquid to meet its obligations. In the regulatory framework that Minsky describes, the lender-of-last-resort intervenes as banks realize that their balance sheets are too illiquid. Instead, a monitoring process using the margins of safety concept, should be utilized to detect firms that would be unable to protect against debt deflation.

## 2.4 The Task at Hand

The paper will now be situated in the existing theoretical framework. First, we will show attempts at modeling fragility. Second, we will introduce behavioral economic theory to connect Keynesian uncertainty and Minsky's theory of financial investment more explicitly. In the concluding sub-section, we will return to the Minsky's institutional analysis and introduce a macro-human rights framework that should be considered when developing policy.

### *2.4.1 Previous Modeling*

Opposed to the historical analysis, the authors who focus on modeling the FIH use Minsky's theoretical framework to develop either mathematical models or indices to act as indicators that signal increased financial fragility. There are two authors, Keen (1995, 2007, 2013) and Tymoigne (2010, 2011), who have attempted to model Minsky's FIH most rigorously. Keen's papers amend an existing model to include a financial fragility framework and Tymoigne develops indexes on the macro level.

In his first attempt at modeling the FIH, Keen introduces a real finance sector and extends Goodwin's 1967 model of trade cycle (Keen, 1995). Keen runs various simulations

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with results that align with Minsky's hypothesis. Particularly important in the simulation is evidence that a strong government is necessary to mitigate fragility. The model also demonstrates the rise in financial sector earnings, the stabilization of non-financial business incomes, and the fall in worker income, which allowed for a prediction of the most recent financial crisis (Keen, 2007).

In 2013, Keen added a monetary element to his macroeconomic model as an extension of his real qualitative model. It is, like his first attempt, a very mathematical approach, which gives results that "are more extreme than our actual economic situation" (Keen, 2013, p. 225). Despite the extreme results, the model does provide important insights on the role of government spending and the heroic nature of many mainstream assumptions. In both 1995 and 2013, Keen rejects Minsky's own method of utilizing the multiplier-accelerator model as a foundation for modeling fragility (Keen, 2013). While Keen's approach seems to yield more compelling results than Minsky's modeling attempts, it is still somewhat unsatisfactory.

Tymoigne takes a different approach from Keen and attempts to develop indexes that act as fragility indicators. His first attempt at an index is focused on detecting Ponzi finance in the household sector. He calculates aggregate household cash flows to develop an index that depends on the growth of home prices and household debt (Tymoigne, 2010). The paper uses the evolutionary approach discussed above and illustrates the tendency of capitalist economies to become increasingly fragile.

In 2011, Tymoigne expands on his first paper and develops a fragility index that can be applied to the household, non-financial nonfarm, and financial business sectors. This index is weighted by attempting to "figure out which of the variables is able to more accurately measure refinancing risk and/or liquidation risk," which leaves the process open to different

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interpretations and a level of arbitrariness (Tymoigne, 2011, p. 12). Tymoigne's index construction is certainly useful in developing the theoretical macro framework, but it is unable to narrow in on the sources of fragility in a particular sector as fragility builds. Both Tymoigne and Keen, in their attempts at modeling Minsky's FIH, emphasize that the first step in adopting a new economic model is rejecting the assumptions that are evident in mainstream thought.

There are other models in the Minskian tradition that focus on institutional dynamics. The indicator developed in this paper will focus more narrowly on identifying FIH financing cycles, but the models of institutional change help to contextualize changing financing positions. Nasica & Raybaut (2005), for example, introduce a measure of fiscal policy to identify stability. They focus on the role of regulatory institutions and conclude that the economy is most stable when the countercyclical deficit constraint is sufficiently flexible. Similarly, Kapeller & Schutz (2014) introduce institutional dynamics in a stock-flow consistent model to illustrate Minsky-Veblen cycles. The authors pull from Veblen, Minsky, and Keynes to formulate a model based in institutionalist theory. They argue that as income inequality increases, demand for consumer credit increases, which breeds Minskian fragility (Kapeller & Schutz, 2014). The institutionalist connection is insightful because it demonstrates further the inevitability of fragility in a capitalist economy.

There are also models that seek to identify fragility but do not fit as well in the FIH framework, including (Goodhart, Sunirand, & Tsomocos, 2006). This model may be more aligned with the 'textbook Keynesian' tradition with its acceptance of rational agents and homogeneous preferences. The model is mathematical and attempts to find identify fragility on the aggregate level by measuring household and nonfinancial business defaults. The authors do assign difference risk/reward preferences for commercial banks to account for different

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portfolio preferences. An important aspect of the paper is the acknowledgement that a specific equilibrium – Monetary Equilibrium with Defaults and Commercial Banks (MEDCB) - can exist where “default and financial instability manifest themselves as equilibrium phenomena entirely consistent with the proper functioning of markets” (Goodhart, Sunirand, & Tsomocos, 2006, p. 125). The mathematical processes explained in the paper are outside the scope of this section, but the theoretical implications are important.

While the model is mathematically rigorous, we do not agree with some of the assumptions made and, most importantly, do not agree with the definition of financial fragility. Goodhart et al. considers fragility as the point at which a substantial proportion of economic agents default on debt obligations which decreases profitability in the banking sector (Goodhart, Sunirand, & Tsomocos, 2006). This does not fit in the evolutionary framework that Minsky proposes and misappropriates the fragility language. The model’s examination of contagion could potentially be useful for this paper if the authors adopted an evolutionary framework where fragility increases with financial innovation and the acceptance of innovation by competitors in the financial sector.

Despite the Goodhart example, there are models that may fit into a Minskian analysis without an explicit connection. Gennaioli et al. (2012) develop a model of financial innovation that is more aligned with our theoretical framework. The main thrust behind the model is that investors desire investments with safe cash flows and that as the demand for (and price of) these investments increases, financial intermediaries are incentivized to innovate. Financial institutions then present the innovations to investors as instruments that are safe, which leaves investors and institutions vulnerable to risks with low probabilities. The safer these assets are perceived to be the more they are collateralized, which increases fragility and thus

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susceptibility to changes in the broader economy. This view of innovation fits in our theory because it assumes that financial institutions must innovate to remain competitive. When innovation happens in the context of market tranquility as investors are seeking safe assets, fragility becomes increasingly inevitable.

Our approach is in this Minskian tradition as it rejects the notion of efficient markets and instead recognizes the endogenous nature of fragility. We will use public information filings to identify the sources of growing fragility more precisely as it develops. The financial sector is a perfect vehicle for this analysis because it is very concentrated. The intense competition requires that sector participants adopt the new instruments to maintain market share. The level of concentration in the sector is important because one firm's financing decisions could easily make the sector more vulnerable to changes in market perception. Before we develop the model further, we will briefly discuss the behavioral aspects that will allow us to explain fragility more thoroughly.

#### *2.4.2 Linking Psychology*

Our model hopes to offer realistic applications with the inclusion of behavioral theory. Minsky builds extensively on Keynes' theories of market psychology. The financial market, like the broader macroeconomy, is a social system that depends on decisions of people involved in financial processes. The inevitability of overconfidence and complacency are among the most crucial aspects of inherent instability that makes the capitalist system cyclically vulnerable to paralyzing crisis.

Despite the importance of psychology in Minsky there is not much written that directly connects Minsky's fragility framework and the tenets of contemporary behavioral economics. This paper will use various behavioral theories to explain the endogenous nature of fragility more rigorously as it is revealed through firm- and sector-level data. Some of the most relatable

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insights in the behavioral economics literature are cognitive dissonance; over-confidence, under-reaction; irrelevance of history; and under saving. These theories have mostly been applied on the individual consumer level. Firm decision-making, especially firms in an increasingly concentrated sector that jockey for market share, can be analyzed using behavioral corporate finance.

The issue with the mainstream behavioral literature is its use of the ‘rational man’ as a basis from which to judge ‘irrational’ behavior associated with the insights mentioned above. To integrate behavioral insights on a structural level, free from the mainstream rational/irrational distinction, ‘emotional finance’ is introduced. Emotional finance is a burgeoning offshoot of contemporary behavior theory, first introduced by Taffler & Tuckett (2005). These authors apply Freudian psychoanalytic to the unconscious decisions made by investors in an uncertain environment. Among the vital contributions of emotional finance are the development of investment narratives and the state of market confidence. Section 3 will examine emotional finance more rigorously, connect the insights to mainstream behavioral theory, and incorporate the merged theory into a Minskian understanding of economic dynamics. This integration is named the emotional-Minskian framework and represents a holistic understanding of macro dynamics.

Minsky acknowledges that most models of instability (including his own early data analysis<sup>8</sup>) are insufficient for real-world application because they do not consider uncertainty. Fragility builds most rapidly when uncertainty is overlooked or inaccurately accounted for by mathematical calculation in financing decisions during economic expansion. Minsky explains this phenomenon as the ‘economics of euphoria’ (Minsky, 1972; *See* Shiller (2000) for a more

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<sup>8</sup> Minsky, in a prepared report for the Federal Reserve Board (1972), acknowledged that even his early models of the FIH were not as realistic as they should be since before was not explicitly accounted for.

contemporary example of the concept). For Minsky, the Credit Crunch of 1966 is a prime example of the consequences of an economy in a euphoric state – defined by "a belief that the future promise[s] perpetual expansion" (Minsky, 1972, p. 7). The belief of perpetual expansion, or at least prolonged expansion without severe contraction, can tempt financial officers and investors to become riskier in their financial decision-making.

More generally, economic euphoria creates an environment for financial innovation to take place. The confluence of euphoria and innovation creates a particularly unstable environment. As the market becomes more comfortable with the idea of perpetual expansion, investors will take the opportunity to acquire assets with increased profit potential "by engaging in liquidity-decreasing portfolio transformation" (Minsky, 1972, p. 10). With enlarged risk appetites, investors may also be drawn to innovations in the market that tend to "induce capital gains, increase investment, and increase profits" (Minsky, 1986, p. 199). Innovation makes rational sense, as it is traditionally defined, when investors assume that markets will function efficiently, but ultimately creates a new market where both asset holders and potential borrowers depend on the "continued normal functioning" of the market (Minsky, 1986, p. 243). Emotional finance helps to explain the processes by which investment narratives are formed and reaffirmed in a market environment with ubiquitous uncertainty.

Minsky returns to uncertainty in the marketplace as a main driver that moves the economy from fragile to unstable to crisis. One of the attributes of financial vulnerability, as he defines it, is "the building into the financial structure of asset prices that reflect boom or euphoric expectations," which crumble in a state of crisis (Minsky, 1972, p. 60).<sup>9</sup> Uncertainty

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<sup>9</sup> The other two phenomena that contribute to financial vulnerability are 1) the growth of financial – balance sheet and portfolio – payments relative to income payments; and 2) the decrease in the relative weight of outside and guaranteed assets in the totality of financial asset values.

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clearly plays a crucial role in the eventual demise of assets priced in euphoric conditions because the realization of an uncertain future is flattening for investors who, for a prolonged period of time, were nearly certain of future economic outcomes.

In the Minskian perspective, the contemporary economic paradigm – money-manager capitalism - "has led to a heightening of uncertainty at the firm and plant level" (Minsky, 1996, p. 363). In this current economic system, highly leveraged funds seek maximum return in an environment that systematically underprices risk, which eventually hurts those firms with relatively conservative investment strategies (Wray, 2011). To compete, firms with more conservative financing structures must become more aggressive to increase profitability. As risk becomes increasingly overlooked and the opportunity for market share narrows, firms must adapt. Minsky fused market psychology and competitive tendencies to develop an "economic theory which explains why our economy is sometimes stable and sometimes unstable" (Minsky, 1980, p. 210).

The psychological element of fragility cycles is important in both understanding the tendencies of the modern financial sector and justifying regulation. In applying emotional psychology to financial institutions, we will remain consistent with Minsky's structural approach. For example, heuristics like anchoring, availability, and over-confidence affect markets at the macro-level through asset valuation and risk assessment (Tversky and Kahneman, 1974). These heuristics and biases can be useful in explaining market dynamics, but only if they are applied within an emotional finance framework. Emotional finance frees the mainstream behavioral literature from assuming an identifiable point of equilibrium.

There is some existing integration of behavioral economics and the FIH to explain how markets can be negatively affected. Asset valuation, for example, is vulnerable to shifts in

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market psychology because "for Minsky, as for Keynes," it "is not an objective process, since it is conducted under uncertainty" (Dow, 2008:253). This idea will be explored more thoroughly when we explain how the indicator can be utilized to understand market psychology. The specific elements of behavioral economics will be discussed at length in the later section.

Behavioral theory also uses the FIH to justify macroprudential policy reform (Dow, 2011). The financial market is vulnerable to psychological shifts that come with innovation and increased uncertainty in expected profits, which leads to an environment where a debt-deflation process is possible. While some argue for the introduction of systemic risk into existing financial models, Minsky argues that, while predictable, structural cycles do not have a determinant timeline because of the erratic nature of market psychology (Dow, 2011). Ponzi finance is so dangerous because it is impossible to forecast the moment when a given firm will need to be liquid, especially after a sustained period where increased profitability comes at the expense of dangerously narrow margins of safety. Minsky did not portend a model that indicated macro psychology.

The indicator will look to identify narrow safety margins which can be explained by the prevailing market sentiment at a given point in time. Regulators can use the indicator in conjunction with market-focused psychological analysis to better understand where the financial sector. If, for example, firms have decreasing safety margins, but regulators and market commentators maintain a generally positive outlook, there will be greater urgency for firms to give more liquidity cushion. We will now discuss the ways that institutions charged with maintaining financial stability can be theoretically constructed with human rights considerations.

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### *2.4.3 Incorporating Human Rights*

Incorporating human rights in the framework is important because it provides a valuable analytical lens for regulators. Rights considerations imbue the cost of fragility on both the societal and individual levels. Assume, for example, that each individual has a 'right to life.' The complexities of a right like this are debated endlessly, but for simplicity a right to life has both a negative and positive rights element. The negative element is the right to against murder and the positive element is access to the resources that are necessary for life – namely food, water, clothing, healthcare, and shelter.

In the current capitalist structure of developed economies, a person must purchase most the elements that help ensure an appropriate livelihood. By extension, the capitalist structure necessitates either an income or safety net that allows for the continued purchase of these elements of livelihood. In many cases, individuals and families must finance rights that are too expensive for present incomes like housing, healthcare, and education. Understanding that human rights language can be applied in a broad sense is crucial for our framework.

'Human rights' is a general term with theoretical foundations that are continually debated (Nussbaum, 1997; Sen, 2005). As such, the term is often associated with a doctrinal abstractness that limits the applicability of the language. This is evident in the term's near-complete absence from the finance literature. It may seem initially that the analysis of financial fragility is not conducive to the inclusion of human rights theory and language. Scholars who discuss fragility miss a crucial opportunity to integrate specific human rights language into the literature. Similarly, human rights thinkers, especially those focused on social and economic rights, should be willing to consider the relationships that people and communities have with the financial system. Dowell-Jones & Kinley (2011) share this view and establish areas of overlap in each body of literature.

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There does exist a growing literature that considers rights in relation to finance. The theoretical underpinnings of the literature have critical shortcomings that must be acknowledged and rebuked. Currently, corporate based rights theory and individual-relationship theory limit the applicability of human rights within the macro financial market place. Integrating a macro approach with Minskian inspiration provides human rights scholars with a vital foundation for understanding the implications of the rights-finance relationship.

As alluded to above, there are many possible definitions of 'human rights,' which is another deterrent to rights-finance integration. Rights, in this specific framework, are protected by an institutional apparatus meant to serve the well-being of a given polity. Any individual who is a member of said polity should have his or her well-being protected. For the purposes of establishing rights in a financial fragility context, 'well-being' can be measured by the extent to which the financial system affects the people connected to it. People are worse off as the financial sector becomes increasingly fragile and are the worst off during times of instability.

Nearly every person in a modern economy is tied to the financial system, whether it be through a direct loan, a job at a firm that depends on stable financial conditions, among myriad different arrangements. Incorporating this definition of rights into the financial literature may seem unnecessarily complex considering the interconnectedness of the financial system. In the context of financial fragility, however, the well-being of one country's population is very similar to that of another.

The role of political institutions in regulating institutions and monitoring fragility provides some common ground for rights and finance scholars. The current impetus on political institutions to regulate the financial sector with rights-motivations is muted, however. This near absence of rights justifications on the macro level, in the US in particular, stem from

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a mischaracterization of the historical relationship between the US and economic rights (Whelan & Donnelly, 2007). It is important to understand the progressive historical stances that US government bodies have taken to protect citizens from adverse economic conditions. As the economy has transformed its financial networks, the justification for rights-based policy has been forgotten. If change is to come, rights scholars must alter their views of the US relationship with economic rights. Once an accurate history is comprehended, rights scholars will be able to adapt frameworks as the economy evolves.

In the current macroeconomic environment, it is the duty of Big Government<sup>10</sup> to recognize the increasing financial fragility. With the Great Recession as an example, the regulatory bodies of the United States had the responsibility to detect fragility to protect the US population from the consequences of crippling recession. The fragility was not anticipated and the reverberations of collapse continue to be painful. Foreclosures and sustained credit damage followed the 2007 crash. Not only was the right to shelter compromised, but the ability to finance and enjoy rights was compromised in the wake of financial turmoil. If the fragility had been detected and quelled, US citizens would have been better protected from financial turmoil.

The theoretical connections presented between rights and finance will be significantly expanded on in Section 4. The main goals of the human rights section are to utilize the financial fragility theory to justify Big Government's role in financial markets with rights-based policies and to progress the rights-finance relationship.

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<sup>10</sup> We use the term "Big Government" as Minsky (1986) does. Our usage, however, will always include regulatory bodies that are established by government, independent or otherwise.

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## 2.5 Conclusion

This chapter presents the theoretical underpinnings that will be applied throughout. Minsky's FIH will be expanded upon in later chapters in very different contexts. Minsky's organic open-system methodology is not bounded by unwieldy mathematical models developed using ineffectual assumptions. The next two chapters will demonstrate the potential of the FIH to transform conventional thinking across multiple academic fields. The extension of Minsky's theory is not to diminish its validity, but to expand the reach of the macro frame. The next chapter establishes psychology's role in explain market dynamics and develops the emotional-Minskian framework.

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### 3. The Emotional-Minskian Framework

Psychology has had a long and, at times, strenuous, relationship with economics and finance. This section will briefly trace the development of behavioral psychology, specifically, and its integration into both economics and finance. As mentioned in the Introduction, the contemporary literature focuses too narrowly on micro-level analysis. Once the literature is surveyed, the most compelling arguments from the literature will be integrated into a macro-level Minskian framework. Behavioral economics does not seem to have a natural connection to Minsky on first consideration. Much of the behavioral debate focuses on repeated individual action, while Minsky develops an extension of Keynesian macroeconomics. The integration of mainstream behavioral economics may appear Hicksian<sup>11</sup> in nature. Instead of relying on micro-foundations, however, this paper will use the behavioral insights help explain the endogeneity of fragility at a structural level. An emphasis is placed on narrative building and the ways in which structural dynamics reinforce narratives.

It is important to understand the processes by which financing decisions are made because these financing decisions manifest in either hedge, speculative, or Ponzi regimes. Kregel (2008) argues that the endogenous evolutionary process of fragility must be based on something more than euphoria alone because bankers are “neither gullible nor irrational” (p. 4). This paper agrees with Kregel and provides a more rigorous understanding of the underlying mechanisms of euphoria and its role in perpetuating fragility.

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<sup>11</sup> John Hicks developed the IS/LM curve after Keynes’ seminal *General Theory*, which gave Keynes’ macroeconomic approach ‘micro-foundations.’ The synthesis of classical and Keynesian economics is a distortion of pure Keynesianism that both Minsky and this writer reject.

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Managerial decisions to take certain financing positions, for example, are based on narratives that are emotionally motivated conceptions of future financial conditions. In times of economic growth and stability, the market develops a confidence based on prevailing narratives that financial innovations will continue to increase profit margins. Margins of safety weaken as riskier investment narratives are reaffirmed by success in the recent past. Understanding the persistence of riskier narratives despite increasingly illiquid balance sheets offers important insight to the drivers of Minskian fragility. In formulating this explanation of Minskian theory, we will utilize some of the more prominent findings in contemporary behavioral research, including aspects of cognition like heuristics and biases. Instead of applying them to the consumer, however, this paper will apply theories like these to the aggregate financial sector.

This chapter introduces ‘emotional finance,’ a growing subfield of behavioral economics and finance. Emotional finance builds on Freudian principles and lends itself more directly to explain capitalist dynamics in Minskian terms. The psychoanalytical approach to emotional finance diverges from more popular behavioral economics because it demonstrates the endogenous nature of fragility and does not assume rationality, in the traditional sense, at any stage. Aspects of heuristics and biases explained in micro-behavioral analysis will be extended to the emotional finance macro-analysis.

The first section establishes a distinction between ‘old’ and ‘new’ behavioral economics. New behavioral economics is considered the mainstream literature. Its prominence necessitates additional sub-sections to examine its main insights, namely the development of heuristics and biases, and its treatment of rationality. Once the mainstream literature is situated, the chapter will introduce emotional finance. From there, the chapter will attempt to reconcile

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the findings of the mainstream behavioral literature with emotional finance theory. The concluding sub-section draws explicit connections from emotional finance theory to Minskian economic analysis.

### 3.1 Brief Survey of Existing Literature

#### *3.1.1 'Old' vs. 'New' Behavioral Economics*

Before the decision-making processes of financial managers are considered, the foundations of behavioral economics and finance must be established. The traditional integration of psychology and economics has centered on investor behavior to explain deviations from the 'rational' models of expected utility theory and the rational expectations hypothesis. In framing the psychological approach in the terms of economic rationality, instability is treated as "an aberration, with respect to an equilibrium path" (Dow S. , *Cognition, Market Sentiment and Financial Instability: Psychology in a Minsky*, 2011, p. 6). While this treatment is problematic for appreciating Minskian dynamics, it must be understood.

The most famous behavioral economic literature measures cognitive abnormalities as deviations from the rational choice model, a pillar of neoclassical theory. The baseline consideration of a purely rational actor acknowledges the possibility for rational man. While the pioneers of contemporary behavioral economics research (Kahneman, Tversky, Shiller, etc.) tend to reject the reality of purely rational thinking, there are those who contend that certain actors have the resources and abilities to act 'rationally' (Arrow, 1986). The work of most behavioral economics, however, has served to augment the neoclassical view of a rational agent. This brand of behavioral economics comprises the newest aspect of a broader incorporation of psychology into economics. An in-depth understanding of the historical roots of behavioral economics will illuminate the connection to a Minskian framework.

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There are myriad examples in the literature of authors who survey the shifting paradigms in behavioral theory. From a taxonomy of behavioral thought (Barberis & Thaler, 2003) to the development of behavioral corporate finance (Baker, Ruback, & Wurgler, 2007; Baker & Wurgler, 2011) to defining emotional finance's role (Fairchild, 2012). These surveys are all useful in contextualizing the motivations behind the current behavioral literature. The most interesting survey in this immediate context, however, elucidates the broader shifts in behavioral theory that have, in recent decades, led to a more complete integration into economic literature.

Sent (2004) presents a comprehensive survey of 'Old' and 'New' behavioral economics that gives the reader insights into the historical development of the field. The pioneers of old behavioral economics like George Katona, P.W.S. Andrews, Neil Kay, and Herbert Simon introduce behavioral studies into economics as early as the 1950s and are mostly unfamiliar or unpersuasive to neoclassical economists. Sent divides this early approach to behavioral studies into four thought groups, each represented by one of the authors above.

. Katona led a group that studied attitude and the influence of attitude on decision making. Andrews studied uncertainty and coordination with a group at Oxford; Kay led a Stirling University cohort focused on eclecticism and integration. Simon and his colleagues focus on bounded rationality, which maintains that one person never has all the information necessary to make a 'rational' decision. The theory of bounded rationality also argues that people have 'cognitive limits' (Simon, 1972). This means that even if an agent did have all of the information necessary to make a 'rational' decision, the agent would not be able to effectively utilize all of it. Bounded rationality is most pertinent to the discussion here and will

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be expanded on later in the section. Each of these approaches, however, diverged from the prevailing focus on utility theory and maximization.

Sent argues that these early attempts to incorporate behavioral studies into economics were rejected partly due to their explicit efforts to break from mainstream economic thought (Sent, 2004, p. 742). The four largest bands of initial behavioral researchers formulated arguments just as the neoclassical synthesis and rational expectations hypothesis were augmenting their positions as the economic norm. To understand the field as it most commonly exists today, we must explore the transition period between the older and more contemporary schools that Sent outlines.

Sent identifies Daniel Kahneman and Amos Tversky as the pioneers of behavioral economics and finance as we understand it today. The work by these two psychologists acted as a catalyst for behavioral applications in economic theory and won Kahneman a Nobel Prize in economics.<sup>12</sup> Their three most influential contributions are heuristics and biases, framing effects, and prospect theory (Sent 2004). These elements will be incorporated into emotional finance later, but are important to mention in the transition process. As acknowledged above, behavioral economists may reject the reality of a rational man, but the implicit assumption in much behavioral research holds that a person can actively fight against 'irrational' processes detract from a purely 'rational' decision-making process. Indeed, Kahneman reveals that "the rational-agent model was [his] starting point and the main source of [his] null hypothesis" (Kahneman, 2003).

As the findings of behavioral studies became too convincing to ignore, neoclassical economists looked for ways to incorporate the theories into their existing models. The theories

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<sup>12</sup> Tversky had died by the time Kahneman won the prize. Michael Lewis has written a fantastic book called *The Undoing Project* that outlines the relationship and work of the two men.

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surrounding the psychological aspect of economic decision-making have been studied extensively through finance and saving behavior (Sent, 2004, p. 749). These elements of finance have vast datasets that demonstrate the fallibility of human judgment when considering the economic man as a baseline. Sent argues that economists have embraced new behavioral economics and psychological insights because of mathematical difficulties in modelling attempts, among a few other reasons (Sent, 2004).

One can argue that neoclassicals have adopted the behavioral insights of Kahneman, Tversky, in ways that have support, not diminish, their theoretical foundations. Behavioral theory, after all, can be framed as a path toward sustainable equilibrium. In this way, new behavioral economics is mostly incompatible with a Minsky framework that focused on structural dynamics. This paper will, however, use some of the insights of new behavioral economics in concert with older theories in a way that is consistent with a broader, Minskian approach. Before this integration is possible, however, the underpinnings of mainstream behavioral theory must be appreciated. The next sub-section will briefly discuss the development of heuristics and biases. This will be followed by the mainstream's treatment of rationality in decision-making.

### *3.1.2 Heuristics and biases*

The concept of heuristics and biases are the cornerstone of mainstream behavioral analysis. Cognitive psychologists consider heuristics and biases to be systemic outgrowths of the decision-making process. They are paramount in capturing the 'irrationality' that appear in behavioral models.

The behavioral finance literature grows directly from the work in behavioral economics. Tversky & Kahneman first introduce heuristics and biases in 1974. Their ground-

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breaking paper has been cited over 41,000 times<sup>13</sup> and has set the groundwork for modern integration of psychological theory into economics. Heuristics “reduce the complex tasks of assessing likelihoods and predicting values to simpler judgmental operations” and biases are interpretations of information that generate heuristic thought (Tversky & Kahneman, Judgment under uncertainty: heuristics and biases, 1974, p. 1124). The concept of heuristics is related to bounded rationality in that it recognizes that people must make accommodations for limited mental capacity. The initial heuristics that the authors present are representativeness, availability, anchoring and adjustment.

The representative heuristic is typically used when probabilistic judgements are required. In developing representativeness, Tversky & Kahneman (1974) observe that extraneous details can influence assessments of probability in uncertainty. The availability heuristic demonstrates that people include information that is most easily accessible in their probabilistic assessments (Tversky & Kahneman, 1974). Anchoring is the act of assigning importance to the first information that is given and influences probabilistic assessment as individuals adjust from the anchor (Tversky & Kahneman, 1974).

Biases feed into the processes of heuristic decision-making and have been developed extensively in the behavioral literature. Included in this literature is the field of behavioral finance, which applies heuristics to financial markets. Barberis & Thaler (2003) present a comprehensive summary of the biases most applicable to financial markets including overconfidence, wishful-thinking, and belief perseverance. These all demonstrate the deviations from the expected utility framework that financial economists have long relied on to understand investors’ decisions-making process.

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<sup>13</sup> According to Google Scholar’s metrics.

Research has demonstrated that individuals are typically overconfident in their judgements (Barberis & Thaler, 2003). This means that people are less likely to revisit initial assessments even as information changes. Related to overconfidence is optimism and wishful-thinking, which positively skew peoples' perceptions of their own abilities (Barberis & Thaler, 2003). Indeed, wishful-thinking can compound overconfidence, which can make change ever more difficult. Belief perseverance is the diplomatic way of describing stubbornness. Research finds that once ideas are developed, they are clung to despite changing environments (Barberis & Thaler, 2003). These biases will be important when integrating mainstream behavioral finance and emotional finance.

It is important to acknowledge here that 'rational' economic agents are assumed to make probabilistic assessments based on Bayesian probabilities (Albert, 2003). Behavioral economics and finance demonstrate that people have a difficult time assessing these probabilities, but imply that improvement is possible. The treatment of rationality in the mainstream literature is vital to understand to develop an alternative case.

### *3.1.3 Rationality*

The question of rationality in the behavioral literature is a crucial one. Mainstream literature assumes that deviations from 'rational' models are explained by 'irrational' behavior. Kahneman and Tversky (1974, 1986) do expose decision-making processes as characteristically 'irrational' in the economic sense of the word. The heuristics and bias discussed in the preceding section imply limitations to rational thought.

Barberis & Thaler (2003) define rationality as in two ways: "First, when [agents] receive new information, [they] update their beliefs correctly..." and "Second, given their beliefs, agents make choices that are normatively acceptable" according to expected utility theory (p. 1055). These postulates of rationality are crucial in mainstream economics because

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they allow for models which are believed to predict economic market conditions. Rationality is crucial for establishing a point of equilibrium in markets, which is the guiding pillar of neoclassical theory.

While behavioral scholars recognize that rationality, as it is traditionally conceived, is limited, there is a necessary belief that agents can improve their decision-making. The belief is necessary for the integration into an economic theory that is fundamentally flawed. One of the central issues with behavioral economics and finance as they presently exist is the assumption that irrationality can be consciously corrected.

The next section introduces emotional finance, which disposes of the rational/irrational distinction and focuses on the influence of the unconscious. This treatment of investor behavior provides for a more realistic understanding of market behavior and develops a groundwork for macro integration.

## 3.2 Emotional Finance

### *3.2.1 Theoretical Underpinnings*

As discussed above, the assumption in mainstream behavioral literature is that individuals can minimize or eliminate heuristics and biases to become a truly rational agent (DellaVega, 2009; Dow S. , Cognition, Market Sentiment and Financial Instability: Psychology in a Minsky, 2011). It is difficult to apply the mainstream behavioral theory to financial decision makers on a macro level. Extrapolating the biases described in new behavioral economics is an irresponsible reduction of general market forces. For this reason, the new behavioral approach to decision making is unsuited to explain Minskian dynamics on its own. This section will build instead on Herbert Simon's theory of 'bounded rationality' and explore the growing field of emotional finance. Emotional finance provides deeper insight to the ways that financial

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decision makers develop convictions which augment capitalist dynamics driven by innovation and complacency in times of stability.

Emotional finance connects to Simon's bounded rationality because it emphasizes the connections between conviction building and group behavior. A 'rational' actor will choose the optimal financing decision based on every piece of necessary information. Bounded rationality suggests, however, that even if a person did have access to all of the relevant information, there are cognitive limits that would restrict its processing (Simon, 1972). This implies that financial decision makers, on the aggregate, develop convictions not from their perfectly objective independent analysis, but from peer activities.

Emotional finance provides a psychoanalytic framework to financial markets in that it attempts to explain how market participants formulate investment ideas unconsciously. The authors' psychoanalytic framework offer a very different explanation of market moves than do financial economists. Their focus is on aspects of the unconscious mind such as 'psychic reality' and 'phantastic objects.' Psychic reality<sup>14</sup> can reinforce decisions to hold risky or overvalued financial products because market confidence makes them "highly desirable in a compelling or hard to resist way" (Taffler & Tuckett, 2005, p. 6).

A phantastic object "is a mental representation of something...which in an imagined scene fulfils the protagonist's deepest desires to have exactly what she wants exactly when she wants it" (Tuckett & Taffler, Phantastic Objects and the financial market's sense of reality: A psychoanalytic contribution to the understanding of stock market instability, 2008, p. 395). Phantasy in financial markets drives investors and managers to seek financial products that

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<sup>14</sup> "Psychic or psychical reality is 'a term often used by Freud to designate whatever in the subject's psyche presents a consistency and resistance comparable to those displayed by material reality; fundamentally, what is involved here is unconscious desire and its associated phantasies' [Laplanche and Pontalis, 1973, p.363]" (Taffler & Tuckett, 2005, p.6, note 8).

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will provide the highest returns. Fantasy plays a crucial role in the construction of narratives which embolden market confidence. This theory explains the desire in the financial sector to innovate and distribute financial products as often as possible to enhance market influence. In an era of consolidation, the psychic realities and fantasies of the top few firms can push an entire sector into increasing fragility.

Phantastic objects excite investors and financial decision makers, whether it be new asset classes, new financial instruments, or new ways of doing business. Tuckett & Taffler (2008) argue that when phantastic objects embed themselves in the thinking of financial decision makers, they alter perceptions of reality and possibilities. This is a historic phenomenon that led to outlandish predictions of the Dow Jones hitting 40,000 in 1999 (Shiller, 2000) and the real estate market expanding in perpetuity in 2007.

When the financial markets succumb to phantastic objects, it necessitates action by those in the markets who might not accept the phantasy. As the phantasy is validated by increasingly impressive returns, actors who have remained prudent may alter their perceptions and adopt the phantasy. Neglecting to adopt the phantasy can be detrimental in the short run and, thus, inspires changes in asset allocation (Tuckett & Taffler, 2008). Changing asset allocations can lead to changes in balance sheet composition, which eventually narrow safety margins. Fantasy also manifests in risk management, a process that has become accepted by the financial community despite the fact that it projects past performance into an uncertain future. This is another structural element of unconscious thought manifested at the macro level that magnifies capitalist dynamics (Tuckett & Taffler, 2008).

Tuckett (2009) argues that the cyclical market behavior driven by the belief in phantastic objects – and the eventual loss of confidence in them – is endogenous to the financial

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system. He argues that “involvement in financial markets necessarily lets loose thoughts, feelings and behaviors that cannot be successfully contained and mitigated,” despite current belief in risk management and analytical ability (Tuckett, 2009, p. 1). Most important for Tuckett is that the implications of emotional finance are interpreted correctly. He argues that it is not useful to categorize behavior as irrational or rational because it implies that emotions and rationality are “intrinsically opposed” (Tuckett, 2009, p. 9). It also necessitates that observers assess decisions “not from the viewpoint of the actor in the situation he found himself when making the decision but from the viewpoint at its outcome” (Tuckett, 2009, p. 19). Tuckett promotes emotional finance as a way for commentators and, more importantly, regulators to understand the psyche of financial markets to inspire proactive measures to combat highly charged emotions.

Taffler & Tuckett (2005) use their theory of emotional finance to explain the rampant over-valuations that preceded the Dot com crash of 2001. In their psychoanalytic perspective, they argue that “investors became caught up *emotionally*” in their market activity, making ‘rational’ analysis impossible (Taffler & Tuckett, 2005, p. 2, original emphasis). Financial decisions are driven by emotions that are amplified by group dynamics. It is important to remember that the original application of the theory is focused on retail and institutional investors who actively buy and sell stocks. When applied more generally, the theory helps to explain the gradual shifts in financing stages that increase fragility in the financial markets.

Tuckett & Taffler (2012) substantiate their theory in a survey to fund managers. They interviewed fifty-two managers, most of whom managed at least \$1 billion to better understand the role of emotions in the day-to-day operations of a finance professional. The respondents had a combined \$503 billion under management and, on average, had fifteen years of

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experience as a portfolio manager (Tuckett & Taffler, 2012, p. 12). This approach was extremely unique as surveys are not a common technique used to examine the financial markets. The findings of their survey substantiated the emotional finance theory in impressive ways.

The most momentous finding through the survey analysis was the manager reliance on story-telling. The authors found that managers develop stories to generate the confidence and assurance needed to make decisions in a highly uncertain environment. They also use stories to attract investors and to give the impression that there exists an information gap which they are privy to (Tuckett & Taffler, 2012, p. 44). In some ways, the managers are susceptible to the availability and confirmation biases. Tuckett & Taffler (2012) mention that managers are reaffirmed in their financing decisions when they hear new information that aligns with their story, which is a classic example of confirmation bias. Once the story is given time to percolate, it typically takes a drastic market move to sway the manager that the story might be misguided.

Tuckett and Taffler also attempt to change the popular narrative when it comes to the specific emotions that drive market participants. Instead of the conventional ‘greed, fear, hope’ drivers, the psychoanalysts prefer “*excitement* (at the prospect of gain), ...*anxiety* (at the prospect of loss) ...and *denial* (of ambivalence)” (Tuckett & Taffler, 2012, p. 95, emphasis added). In each case, the preferred emotions of the emotional finance scholars develop unconsciously. These new emotional drivers also allow observers and regulators to understand more holistically the ways that investment decisions are made.

Chong & Tuckett (2015) build on the theoretical and applied work discussed so far. They adopt the term ‘ontological uncertainty,’ which problematizes economic action itself, utilizing tools from sociology to address conviction development (Chong & Tuckett, 2015, p.

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312). Their analysis incorporates the emotions that Tuckett & Taffler (2012) introduce in exploring emotional conflict and the ability of narratives to resolve these conflicts. Understanding the drivers of emotional decision making in the face of uncertainty is a vital component of emotional finance.

To operate in an environment of ontological uncertainty and to combat emotional conflict financial actors rely on ‘conviction,’ the belief state of individuals, and ‘confidence’, the belief state of the collective (Chong & Tuckett, 2015, p. 310). The culmination of emotional finance theory, with its emphasis on emotions and investment narratives, is a heterodox theory of financial markets that bolsters Minskian analysis. Managers constantly look for indications that reaffirm their convictions by observing the prevailing confidence that the market has. The foundations of narratives, convictions, and confidence are dynamic in nature and magnify the fragility inherent to capitalist systems as narratives persist.

Emotional finance reframes the role of emotion in decision-making to accommodate the unconscious formation of beliefs in certain financing positions. Instead of assuming that economic actors periodically stray from the ‘rational’ course of action, emotional finance provides an understanding of decision making at a systemic level. That is not to argue, however, that the insights of new behavioral economics are fruitless. Contrarily, some of the mainstream insights are crucial in understanding market psychology once unconscious motivations become conscious justifications for narratives. The next sub-section will utilize new behavioral economic insights to bolster the emotional finance literature.

### 3.3 Connecting Mainstream Behavioral Insights to Emotional Finance

While behavioral finance and emotional finance are substantively different in theoretical motivation, there exists common ground. As narratives are formed and reaffirmed with

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conviction and confidence, agents must consciously rationalize decisions. This rationalization process includes the utilization of biases like wishful-thinking and belief perseverance. Since the emphasis here is on the importance of emotional finance, the definition of biases is different.

Wishful-thinking and optimism have a different context in emotional finance. Instead of distorting heuristic processes, these ‘biases’ serve to reaffirm narratives and support convictions. The relationship is not limited to these two examples. Any number of traditionally conceived biases can influence the perception of economic action. This relationship is not explicit in the emotional finance theory, but it exists.

The focus on narrative-bolstering cognitive processes is important and should be considered in the emotional finance literature. If emotional finance scholars reframe biases in the context of conviction and the relationship of market confidence, their theory may be more compelling to scholars aligned with mainstream behavioral finance. One of the most exciting aspects of emotional finance is that it has not yet been adopted by any particular economic theory. This gives it the latitude to further develop in an economic context.

The rest of this section will briefly establish the integration of behavioral and emotional finance to lay the foundations for an emotional-Minskian framework. Fairchild (2012) develops a theory of emotional corporate finance, which builds on the existing literature in behavioral corporate finance. Behavioral corporate finance applies the findings of behavioral finance to the institutional study of corporate finance (Baker & Wurgler, 2011). This is important for studying behavior in a Minskian context because it focuses on the processes by which managers make financing decisions. Section 3.2 repeatedly referenced the importance of

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emotional finance in understanding managerial decisions that contribute to Minskian dynamics. Fairchild formalizes this line of thinking with emotional corporate finance.

### *3.3.1 Emotional Corporate Finance: Setting the Stage for Minsky*

The most useful application of the emotional finance theory in this context is understanding the ways in which financial decision makers develop convictions for investment decisions. Their investment decisions shape balance sheets and alter safety margins. Steps toward understanding managerial decisions have been taken in behavioral corporate finance. Behavioral corporate finance asserts that managers are typically overly optimistic and loss-averse in ways that distort financial decision making (Heaton, 2002; Tekin, 2016).

Fairchild (2012) delineates the evolution the development of behavioral corporate finance. BCF focuses heavily on the biases of overconfidence and optimism/wishful-thinking when analyzing managerial financial decisions at the institutional level. The prevailing wisdom is that overconfidence at the managerial level has a weighty impact on investment appraisals (Fairchild, 2012). Fairchild argues that the emotional finance phantasy concept can be used to understand the source of overconfidence and other biases on a structural level. He develops this argument into a theory of emotional corporate finance that lends itself to Minskian theory.

In his model of emotional corporate finance, Fairchild maintains that a manager's phantasy is reinforced for as long as the financing decision is successful. Due to the constraints of bounded rationality, the manager must construct a narrative drive by phantasy that enables a financial decision in an uncertain environment. Managerial phantasy is crucial in understanding the subconscious decision making that supports decisions for financial projects (Fairchild, 2012).

The relationship between subconscious and conscious biases is important to consider. Just as investors develop convictions based on narratives, managers must constantly reaffirm

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their investment decisions. In this way, they fall victim to the confirmation bias or belief perseverance.<sup>15</sup> This is not to argue that there exists a ‘rational’ alternative, but to recognize that managers will be more inclined to reaffirm their decision based on evidence that is inconclusive. For example, most market agents believed that the chances of widespread default in the mortgage market were infinitesimal, thus reassuring managers that the accumulation of mortgage backed securities were the right investment decision. In this case, a narrative was formed around a subconscious phantasy that managers could not divorce themselves from because of market confidence.

Fairchild’s emotional corporate finance provides theoretical underpinnings for this endeavor. His theory provides an explicit link between the role that phantasy plays at the institutional level. Pixley’s work demonstrates the applicability of emotional corporate finance. She wrote before both Tuckett, Taffler, and Fairchild, but her work is important in corroborating the theories developed by these authors.

Pixley (2004) takes a similar approach to Tuckett & Taffler (2009) in examining the role of emotion in financial decision-making. She too conducts survey research on market participants and theorizes that on the role of trust and distrust at the institutional level. Pixley’s work makes sense in a Minskian framework because it focuses on institutions that are characteristic of any capitalist system. Emotional finance deals directly with aspects of investor mentality and market structure that do not have the same potential to be eradicated as individual heuristics and biases.

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<sup>15</sup> This occurs when people (managers) garner a false-sense of safety in their decisions despite evidence that runs contrary to their decision (Barberis & Thaler, 2003).

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### 3.3 Minsky and Emotional Finance

#### 3.3.1 *Animal Spirits*

It is important to reiterate at this point that an underlying theme of this paper is to reexamine Minskian dynamics in an era of consolidation. The psychological factors in financial markets are amplified when larger firms have the ability to develop convictions that drive market confidence. Fewer firms wielding more influence on the broader financial sector has important economic implications that we will discuss when we introduce the indicator. Here, we will weave together emotional finance, emotional corporate finance and Minskian theory.

Sheila Dow has written extensively on the integration of psychology into a Minskian/Keynesian macro framework. She appears to be one of the only authors writing on the explicit connections between emotional finance and Minsky. Dow has also written on macroeconomic methodology (1998) and the philosophical foundations of economics (1990, 2009). It is important to acknowledge her other work because its influences are clear in her analysis of psychology. This is particularly helpful when examining her analysis of ‘animal spirits.’

Keynesian ‘animal spirits’ have been revisited in the economic literature in recent decades, prompted by the proliferation of behavioral economics. Keynes developed the concept of animal spirits to explain economic functioning in an environment of future uncertainty (Keynes, 1936). The concept has been revived by prominent behavioral scholar like Akerlof & Shiller (2009) who argue that understanding animal spirits are crucial to macroeconomic theory. In the mainstream behavioral tradition, however, Akerlof & Shiller use animal spirits to explain deviations from equilibrium. The authors imply that these deviations are driven by biases like overconfidence and wishful-thinking. While the injection

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of a Keynesian concept is welcomed, the effectiveness of the contribution is muted by neoclassical assumptions.

This view is shared by Dow (2013) who argues that the original definition of animal spirits differs from the way the term is commonly understood. An accurate definition of animal spirits includes the acknowledgement that the role of optimistic expectations play in investment decisions and includes “a willingness to ignore the uncertainty surrounding these expectations” (Dow, 2013, p. 116). This original conception of animal spirits has applications in both emotional finance and Minsky. Indeed, for Keynes and Dow, animal spirits play an important role in an open and organic economic system where reason and evidence are not sufficient to justify decision making (Dow, 2013). This speaks directly to the formation of narratives and the persistence of conviction.

The comprehension of Keynesian animal spirits also plays an important role in structural development. Dow & Dow (2011) apply animal spirits to innovation in the banking sector. They identify a shift in the financial sector beginning in 1960 where banks proactively compete for market share, which drives innovation within the sector (Dow & Dow, 2011). This is consistent with a Minskian framework and speaks directly to the relationship between fragility and emotional finance. As Dow & Dow point out, “market sentiment as conventional wisdom may be said to draw on animal spirits,” which can quickly solidify in a structural environment marked by intense consolidation (Dow & Dow, 2011, p. 15). The inclusion of the financial sector in the discussion of animal spirits is thus justified and encouraged.

### *3.3.2 Explicit Minsky Connections*

The logic theoretical foundation for animal spirits in the financial sector is Minskian. The discussion of animal spirits implies a connection to Minsky since his theory of fragility is an extension of Keynesian thought. Since mainstream behavioral theory is ill-equipped to

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incorporate the original conception of animal spirits into a macro framework, emotional finance is needed.

As mentioned previously, instability is misunderstood in the conventional literature. Dow (2010) offers a compelling reason for analyzing behavior in a Minskian context, citing his “uncertainty-based epistemology” that can take full advantage psychological insights in formulating a more accurate theory of instability (p. 262). Minskian dynamics are crucial for explaining cyclical market moves and provide an ideal vehicle for behavioral insights. This is especially true of structural-level insights that remain burdened with neoclassical assumptions.

In determining the optimal behavioral insights, Dow maintains that emotional finance is the best fit. She argues that it is possible to employ emotional finance theory in a mainstream cognitive framework, but makes the most sense within a “Keynesian/Minskyan environment where there [are]...only conventionally-established assessments based on reason and evidence...which are vulnerable to shifts” (Dow, 2011, p. 241). Dow’s delineation of Minskian cycles explained by psychology is so effective that we include it in its entirety:

*“First, sentiment underpins both cognition and action and cannot easily be separated from them, so that no theory is complete without it. This is inevitable given the understanding of the open-system nature of the subject matter, which precludes ‘true’ risk assessment. Reason and evidence (understood in a way conditioned by social convention) can only go so far, and market participants must rely also on (socially-conventional) heuristics and ‘market sentiment’. Euphoric market sentiment is applied to the pursuit of financial gain builds on the dominance of phantasy on the part of some market leaders. As asset prices rise, confidence in (over-optimistic) expectations grows, reducing uncertainty and the anxious emotional state which that produces. But that anxiety increases after the bursting of the bubble: conventional expectations are confounded, increasing uncertainty and distrust increases. The turnaround requires enough of a willingness to act in spite of that uncertainty – an expression of animal spirits” (Dow S. , Cognition, Market Sentiment and Financial Instability: Psychology in a Minsky, 2011, p. 242).*

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An emotional-Minskian framework provides a necessarily holistic understanding of the relationship between inevitable capitalist dynamics and the psychological processes that guide them.

This holistic approach is imperative in understanding the way that market sentiment drives capitalist dynamics when extensive consolidation is present in the financial sector. If the largest banks drive the trends for aggregate financing positions, then the psychology of their leaders must be understood. Dow (2011) outlines the way that financial leaders have overwhelming influence in the financing decisions of the broader financial markets. These frontrunners also rely on phantasy to dominate their actions in a rising market. Particularly interesting in her line of argumentation is contextualizing financial markets within social norms and reflexivity.

Reflexivity is the a person's understanding of his or her self in relation to a particular social norm framework (Soros, 2014). Financial leaders who understand their influence can perpetuate convictions about market directions, leading to justifications for riskier financing positions. Pixley's (2004) work suggests that this phenomenon can happen on the firm level as well, with phantasies permeating an entire organization. This phantastic feedback loop helps explain why stability can be destabilizing as firms and market leaders become more comfortable taking risks in times of economic growth.

Incorporating the two theories provides a comprehensive understanding of market drivers. It is imperative, however, that the integration of psychology not be interpreted as a way to deterministically model economic cycles (Dow, 2010). The psychological insights of emotional finance offer a deeper understanding of market cycles, but do not purport the ability

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to time the ‘moment’ that confidence declines. It would be disingenuous to explain Minskian cycles with a theory that claimed an ability to time a debt-deflation spiral.

### 3.4 Conclusion

This section has demonstrated the key role that behavioral literature has in constructing a rounded macroeconomic theory. The shortcomings of mainstream scholars, compounded by inadequate neoclassical theory, require a sharp divergence from conventional wisdom. An emotional-Minsky framework provides the necessary foundation for a reformulation of orthodox thought.

The next section will demonstrate the ability of Minskian theory to accommodate human rights, another field with theoretical shortcomings. The human rights argument presented requires a reframing of rights solutions in a macro frame. The holistic macroeconomic theory presented in this section bolsters the opportunity to create an explicit rights-finance relationship.

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## 4. Human Rights & Finance on the Macro Level

### 4.1 Framing the Finance-Rights Relationship

There exists a growing human rights literature that considers the rights implications of a complex financial sector. This integration is crucial for the development of comprehensive rights-based policy. Traditionally, scholars conflate financial markets with ‘real economy’ markets like manufacturing and labor.<sup>16</sup> This approach may have been sufficient in the immediate post-war period, but as financial markets augment the most recent phase of capitalism – money-manager capitalism – academics must acknowledge the financial market and its growing complexities. Financial institutions no longer act solely as intermediaries and the repercussions of their transforming business models must be recognized.

It is encouraging to see rights-scholars broaden their approach to account for the shift in capitalism. There is a vital focus, however, that is missing in the current methods. The research largely emphasizes micro-level solutions to human rights problems stemming from modern capitalism. Some prevailing literature, for example, outlines rights-conscious business models that multinational corporations should implement to combat rights violations like endemic poverty. As this literature extends into finance, it charges financiers to hold businesses to a higher rights-standard before investing.

There are two fundamental issues with this approach. The first is the lack of a straightforward extension of the corporate-based approach for dealing with businesses in

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<sup>16</sup> As conceived in mainstream economic theory.

developed countries with established political institutions. It is difficult to argue that corporations in developed nations should promote human rights ideals because that responsibility is typically bestowed unto their political institutions. Human rights, as they are generally conceived, operate on the international level, with little accommodation for country-specific rights philosophies. While international pressure has the potential to cajole a domestic impetus to align with international standards, there are areas of recalcitrant conflict. This pervasive circumstance of human rights theory imposes a narrow financial focus on developing economies.

The development focus misses the historical promotion of economic rights in developed countries. This history is relevant in places like the US, where ideological shifts in economic theory have facilitated rampant financial expansion in its economy. Financialization has changed the very essence of economic function and rights scholars, to this point, have not kept pace with the change. This is not to bequeath blame unto rights-scholars. Indeed, economists, regulators, and financial specialists have failed to understand the magnitude of change borne by recent economic developments (see: financial crisis of 2007-2009). Rights-scholars and economists alike, however, must reframe their understanding of the modern capitalist system.

This chapter outlines the lengths to which US political institutions have championed economic rights since the New Deal. Sovereign governing bodies have an inherent obligation to promote the well-being of its citizens. This obligation includes extending economic rights into the financial sector as the economy transforms.

The second fundamental issue of the current literature is the focus on micro-level change. Scholars focusing on micro-level solutions (e.g. corporate responsibility, consumer

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credit, wage levels, etc.) omit macro-frames. Analyzing the economy in a macro-frame provides insights into the systemic tendencies of the system. One should not discuss access to credit, for example, without understanding financial fragility. Financial inclusion is important, but with a system prone to collapse, inclusion can be counter-productive in the long run. Rights scholars must understand the language of economic theory and work to strengthen a system that is innately fragile.

Advocacy work centered on business responsibility and inclusion is important to the livelihoods of people everywhere. Suitable employment and living wages are instrumental to rights theory. Even with living wages, however, there is research that shows people must take on debt to finance rights like healthcare, housing, and education. In an environment of complex and ubiquitous financial relationships, people are exposed to the negative repercussions that come with financial collapse. Minsky offers a structural economy theory that scholars can integrate into rights theory. Once capitalist dynamics are understood, micro-level solutions will be more effective and, most importantly, more sustainable.

## 4.2 History of Rights-Driven Economic Policy in US

### *4.2.1 Rights-based vs. Profits-based Frameworks*

As mentioned previously, US economic theory oscillates between rights- and profit-based frameworks. Hirsch & Morris (2010) present these historical changes in a law context, but the ideas apply directly to understanding the long-term US rights-finance relationship.<sup>17</sup> They identify six stages where the framework changes. Between 1776-1820, the prevailing sentiment was that corporations existed by the “will of the government,” enabling stricter

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<sup>17</sup> Since the article is a law context, the suggestions that the history that the authors delineate discusses responsibility for financial collapse and liability for product failure. This context is somewhat outside of our scope, but insights concerning the motivations of regulation are pertinent for this paper.

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government oversight<sup>18</sup> (Hirsch & Morris, 2010, p. 71). This attitude changed between 1820-1890 motivated by economic liberalism. The years between 1890-1920 developed a rights-based framework, only to revert to profits-based between 1920-1932. A profits-based framework is characterized by laissez-faire policies where a rights-based framework makes a concerted effort to establish an apparatus resembling the modern social safety net (Hirsch & Morris, 2010).

The most relevant historical shift begins after the Great Depression with the advent of Roosevelt's New Deal. The most recent era of a rights-based economic theory in the US takes place during 1932-1970. This era represents "a modest return of populist sympathies" and "increased inquiry into corporate social responsibility and the stakeholder primacy movement" (Hirsch & Morris, 2010, p. 71). The profits-based model manifests between the years 1970-2009, with overwhelming belief in the ability of markets to provide optimal social outcomes. This most recent era is marked by zealous deregulation and rapid financialization. One can argue that institutions such as the Consumer Finance Protection Bureau (CFPB) mark the beginning of a return of a rights-based framework. The indicator developed in this paper can help regulators bolster the rights-based framework by monitoring financial fragility to promote prolonged stability. Before that relationship is established, however, it is important to understand the historical influence that the US has wielded in promoting rights-based economic policy.

#### *4.2.2 The US as a Proponent of Economic Rights*

The overwhelming depiction of the West, and the United States in particular, in recent human rights literature is that political and civil rights have been historically prioritized above

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<sup>18</sup> Government oversight during this time period did not have to focus so intently on financial relationships during this time period because the economy was in a dramatically different stage.



economic and social rights. This narrative is shaped by the rhetoric of the Cold War and neglects the rights motivations of the New Deal. Indeed, there exists “widespread perception among human rights scholars and activists of Western hostility, or at best indifference, to economic and social rights,” which Whelan & Donnelly (2009) dub the “myth of Western opposition” (p. 909-910). The authors argue that the West promoted economic and social rights in the post-war development of an international human rights regime as domestic values shifted in the wake of the Great Depression.

Whelan & Donnelly’s (2009) focus on the West necessitates a survey of Europe, but we are most interested in their treatment of US policy. The most telling motivation of US support for economic rights is the formation of the ‘welfare state’ at the domestic level. FDR, as early as 1932, called for an economic declaration of rights and perpetuated that sentiment through 1944 when he “suggested that in addition to the rights and freedoms protected by the original bill of rights, the nation had already begun to accept a number of self-evident *economic* truths” (Whelan & Donnelly, 2007, p. 925). It is important to remember that this timeframe motivates a return to a rights-based economic framework and the acknowledgement that unregulated industry compromises the possibility of prolonged economic stability. This sentiment inspires the arguments presented in the present work.

Borgwardt (2005, 2008) and Katznelson (2013) also share the view that the economic-rights-motivation for the New Deal is undeniable. Borgwardt argues that FDR’s ‘Four Freedoms’ speech “reflected an expanded notion of stability in early 1940s America, growing directly out of the devastating impact of the Great Depression,” (Borgwardt, 2008, p. 9). FDR’s inclusion of economic stability as a right, demonstrated a concerted effort by policymakers to account for, both domestically and abroad, the economy as a driver of rights. This implies

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government involvement to safeguard the rights of its citizens, including those rights associated with economics. Not only is this a trademark of a rights-based economic framework, it is applicable to a modern economy built on financial complexity.

The Four Freedoms speech and the rhetoric it inspired also demonstrates how the consideration of economic rights amended the “traditional American conceptions of the national interest” which “resulted in an ideological transformation in mid-1940s America” (Borgwardt, 2008, p. 12). This is consistent with Whalen & Donnelly (2009) and the argument that FDR framed economic rights as a second Bill of Rights. Borgwardt also echoes the idea that the US played an integral role in promulgating economic rights on the international scale, a foundation upon which we will build (Borgwardt, 2005). FDR’s speech demonstrates the governmental intent to ensure the livelihood of every US citizen. There are many interpretations of the speech that extend to the international arena, but it will be analyzed in a domestic policy lens for our purposes. The New Deal was a policy intended to provide economic and political security. FDR’s policies ensured a safety-net for those who the market could not provide.

In *Fear Itself*, Katznelson (2013) recounts Schlesinger’s representation as a two part response to the crisis. The first, most relevant part of the policy, took measures to first “prevent starvation, ameliorate suffering, and jolt the capitalist economy from the Second New Deal’s long-term measures of economic regulation and social policy” (Katznelson, 2013, p. 35). FDR and Congress recognized the importance of taking steps to secure the well-being of the citizenry to match previously attained living standards. They focused first on the most basic aspects of well-being in the short-term with aspirations to prevent an economic and political crisis of similar magnitude in the future. The short-term alleviation paired with long-term

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structural reform is what makes the New Deal such a monumental piece of legislation. These aspects also demonstrate the deep roots of the responsibility that US government feels to protect its citizen's well-being.

The myth of Western opposition is predicated on the Western reluctance to submit to quasi-judicial international monitoring, nineteenth century opposition, aggressive market advocacy in the Reagan-Thatcher era, and the attention paid to civil and political rights in the 1970s (Whelan & Donnelly, 2007). Whelan & Donnelly maintain that human rights literature perpetuating the myth of Western opposition did not surface until the mid-late 1970s. This suggests that scholars analyzed more current debates in a Cold War West vs. East and North vs. South framework, projecting a Western aversion to economic rights backwards (Whelan & Donnelly, 2007). The overarching argument that the US has long been a proponent of economic rights is undeniable. There is, however, some validity to the argument that focuses on the short-comings of the welfare state through the profits-based shift in the 1970s.

Most intriguing for this paper is Whelan & Donnelly's argument that the deregulation fervor of the Reagan era did not seriously threaten the broader welfare state. They cite increased government spending, social security transfers, and social expenditure as a percentage of GDP between 1970 and 1995 as evidence that the historical tendencies of US domestic policy to accommodate economic rights remain in-tact (Whelan & Donnelly, 2007, p. 944, note 132). This argument represents a gap in considering the explicit finance-rights relationship. Implicit in the Whelan-Donnelly, Borgwardt, and Katznelson arguments is that the economies of the New Deal and Reagan eras are comparable. The proliferation and transformation of financial institutions and products that mark the Reagan era necessitate more nuanced comparisons of social safety net structures.

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The historical significance of increased social spending is important to Whelan & Donnelly's broader argument, but they neglect the rapidly developing financial system that transformed business transactions and rights protection. The argument that "selective, largely incremental, retrenchments [of the welfare state] that have usually been undertaken only reluctantly and regrettably" has merit, but overlooks the growing weight of an increasingly complex financial sector (Whelan & Donnelly, 2007, p. 945).

Financial complexity became increasingly problematic as ideological shifts gave way to the phenomenon of financialization. As financialization transformed the US and global economies, New Deal social policies gradually disintegrated. To understand the ramifications that social safety-net degradation had on rights, we will survey the change in the economic and financial landscape. As businesses offered fewer benefits and government spending became tighter, people had to rely on the credit markets to sustain their lifestyles. Lack of supervision and regulation put those whose credit reliance increased at a severe disadvantage, especially in times of growing fragility and instability. The next sub-section characterizes financialization as a departure from New Deal-era rights-motivated policy.

#### *4.2.3 Financialization's Role in Compromising Rights*

Financialization, defined previously as the originate-and-distribute business model, is crucial for understanding the modern economy and its rights implications. There is intense debate focused on the effects of financialization on individual rights. This paper believes that the investigation into these rights outcomes are important, but in a different frame. We will briefly survey where the rights literature has incorporated financialization and interpret it on a macro scale. The integration of a macro-rights-finance framework into rights-based economic policy is the next logical step in the historical trajectory of US domestic policy.

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Hacker (2004) develops the idea of ‘risk privatization,’ which maintains that social policies that mitigate salient risks faced by citizens have devolved overtime. This has manifested in a process by which “most potent threats to income are increasingly faced by individuals and families on their own, rather than by collective intermediaries” (Hacker, 2004, p. 244). Hacker’s line of argumentation is in the same vein as the bankruptcy literature that will be discussed later, but inspires contemplation of the mechanisms by which political structural change can negatively affect the rights of a population by increasing the vulnerability to financial fragility. The welfare state can be considered broadly as insurance against income loss. If, as Hacker argues, the structural reforms that started with a profits-based economic model in the 1970s gave the welfare state a more residual role, then there is an immediate need for monitoring fragility (Hacker, 2004). If fragility is not identified in the modern economy, the negative rights repercussions of financial collapse can be devastating to individuals, families, and communities.

Growth is prioritized over social protection in a profits-based economic framework. Mainstream economic theory postulates that market expansion will drive socially optimal scenarios. As alluded to above, the Reagan era ushered a simultaneous retrenchment of the traditional welfare state and a transformation of the financial system. As banks garner more autonomy, increasing amounts of loans are issued with the belief that growth is inevitable and unbounded. With a gradual decline in traditional welfare, people feel comfortable in their ability to take on debt to finance consumption, but also in financing rights such as housing. The attitudes of complacency and optimism turn quickly as banks recognize the issues with their balance sheets and demand loan repayment. The most recent crisis highlights the possibility of a contractionary transmission from the financial to real economy. As

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unemployment rises, incomes are lost on a macro-scale and, as a result of the residual nature of the welfare state, rights are compromised. The structural political changes that were inspired during the era of financialization fueled the most negative aspects of the structural tendencies of the economy.

To further substantiate the argument above, we examine the development of occupational welfare in the post-war era. Between 1950-1973, the period deemed ‘the long boom,’ the US unemployment rate sustained historic lows, fueled by robust economic growth (Cutler & Waine, 2001). During this time, corporations provided benefits for their employees, such as pension and healthcare benefits, known more broadly as occupational welfare. This type of welfare received criticism from liberal politicians as an unsubstantial welfare substitute and from conservatives for being paternalistic (Cutler & Waine, 2001). Cutler & Waine argue that the financialization –or, prioritizing shareholder value guided by financial criteria – played a crucial role in the deterioration of occupational welfare and, thus, sizable portions of the US welfare apparatus.

Analyzed in a Minskian lens, the long boom was a time of general stability which gradually bred fragility. As growth rates and profits declined post-1973, the US adopted “neo-liberal interventions designed to restore” the rates of profits observed in the post-war era (Cutler & Waine, 2001, p. 100). This dynamic represents the structural relationships between politics and the financial system. Occupational welfare, despite the debates surrounding it, served to bolster the welfare sentiment championed by FDR in the 1940s. The policies of the long-boom represented complacency on the part of policymakers who anticipated continued stability, which would preserve the grand-bargain made between the US government and corporations. Contested as it might have been, occupational welfare was a welcomed

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alternative for those on the right who did not want increased government social spending (Cutler & Waine, 2001).

As profits continued to decline, however, the government was ill-equipped to fill the welfare void as corporations rescinded benefits. There examples in the literature of the negative effects that financialization had on aspects of life such as retirement and housing. Lulled by complacency and optimism, regulators allowed for people to enter financial markets that were undergoing unprecedented change. The stinginess of corporations from 1973-on resulted in an ever-increasing number of Americans relying on the stock market to augment retirement savings (Soderberg, 2007). An increasing reliance on financial markets also manifested in housing markets with the dismantling of the housing welfare system (Rolnik, 2013). Exposure to the financial markets left many people vulnerable to the negative effects of fragility, culminating in the great financial crisis.

The negative rights consequences of financialization and a profits-based framework are evident in recent decades. This development has inspired a large body of research which aims to combat compromising rights policies as they develop in the modern economy. Most of the solutions in the current literature, however, is inadequate because of the absence of a macro framework. Despite the recent developments, the literature would benefit from a historical view of the United States' historical promotion of rights at the macro level.

## 4.3 New Direction for Rights Literature

### *4.3.1 Understanding the Existing Literature*

The modern capitalist system, with complex financial markets and consumer reliance on debt, can significantly compromise rights as fragility builds. There exists a growing understanding in the human rights literature that financial dynamics are important to understand on a technical

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level. For example, there are authors who consider access to credit as a fundamental human right (Yunus, 2009). There are also authors who recognize the current US bankruptcy laws as potentially compromising to rights (Warren, 1987) and those who identify the issues of financialization in the housing market (Aalbers, 2016).

Despite the trend of including finance, there persists a fundamental misunderstanding in the human rights literature of finance's role in the macroeconomy. Each of these authors cited above identifies a rights-based issue with the modern economy and offer solutions without considering macro dynamics. The section will introduce the work of Dowell-Jones & Kinley periodically to highlight the absence of financial considerations at the macro level.

This jump to micro-applications of human rights theory is premature. Financial inclusion at the individual level, for example, is crucial for individual wealth building and community development. Inclusion into a system with systemic tendency towards fragility and instability is, however, counterproductive. Ours is a macro-approach, by which the financial system and broader economy are monitored in the Minskian tradition for long-term stability, which ultimately fosters sustainable financial inclusion. The macro insight is similar to the micro-approach in that it recognizes credit as crucial for modern economic participation, which can include securing rights. The efficacy of credit to support rights is outside the scope of this paper and we do not argue against credit as an institution or against credit as an avenue to obtaining certain rights. The fundamental issue here is understanding the broader financial system and taking steps to make it compatible with policy in a rights framework.

In its current form, the financial system touches everything from healthcare to education to shelter to retirement. If a developed country with a complex financial system claims to be a human rights champion, it must take responsibility of monitoring its financial

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system to prevent a financially-driven contraction. Individuals and communities are exposed to the risks associated contractions once they form a financial relationship with an intermediary. These relationships can be fostered directly (loans) or indirectly (pension funds, employment, etc.). Fragility can be detrimental to the maintenance of rights regardless of the relationship's nature. An important issue in the current literature is loan issuance to an individual who is unqualified. It is a whole different issue – and the one focused on here – when there is a universal complacency in the financial sector which breeds systemic fragility and magnifies the negative effects of default.

To effectively situate the rights solution suggested here, it is important to appreciate the existing literature and its shortcomings. The ideological disconnect between finance and rights literature is stressed in the following sub-sections. The first sub-section surveys the corporate rights framework, which emphasizes corporate social responsibility. The second focuses on individual financial relationships. Each attempt to solve the problems of the modern rights-finance relationship by suggesting changes to the existing apparatus. The issue is that the existing apparatus is not fully understood, which overlooks the fundamental challenge of financial fragility.

#### *4.3.2 Corporate Rights Framework*

The literature inspired by the corporate rights framework highlights the disconnect between finance and rights scholars in a very specific way. Much of this literature is inspired by the so-called Ruggie framework which stresses the importance of a rights-centric compliance structure for multinational corporations (Dowell-Jones & Kinley, 2012). This approach is focused on individual business practice, which requires a much narrower analytical scope.

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This particular micro-level framework considers the direct impact that financial relationships and business involvement have on rights. These frameworks are an outgrowth of the economic and social rights movement and relate more directly to the transmission of financial developments on the individual consumer – or client – level (United Nations; Swiss Federal Department of Foreign Affairs, 2004). One approach within this framework is to provide a rights-based compliance structure intended to hold financial actors accountable for their relationship to businesses. The motivations of the research are similar, in recognizing the need to “identify how social risk, particularly human rights risk, can be translated into a format that is digestible” and applicable to modern financial processes (Roca & Manta, 2010, p. 5). The ultimate focus is different than in the macro approach because it looks to identify the areas further down the business chain “where the financial services supplier potentially enables other business activities that abuse human rights” (Roca & Manta, 2010, p. 17).

This work is critical in holding corporations, and the financiers who facilitate their business, accountable, but it neglects the broader macro dynamics that fuel structural fragility. Consumers remain at risk of losing their ability to bolster rights if responsible and sustainable businesses find their financial relationships deteriorating as bank balance sheets become increasingly illiquid. Frameworks like the environmental, social, and corporate governance standard (ESG) also miss this point. The UN spearheaded a financial sector initiative where it asked corporate and financial leaders for feedback concerning the implementation of regulations that require boardroom practices to align with ESG ideals. As is the case with many of these conversations, the private-sector participants stressed the importance of having a quantifiable rights framework to ensure continued client satisfaction (United Nations; Swiss Federal Department of Foreign Affairs, 2004). The corporate aversion to socially responsible

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investing is understandable in this environment of mass-consolidation and it is important to understand the mechanisms by which a transition process is possible.

Directly appealing to businesses for stronger rights-resolve is important, but is incomplete without an appreciation for structural debt cycles. Dowell-Jones & Kinley (2012) argue that the financial repercussions of the most recent financial crisis are not fully understood if rights scholars understand finance exclusively through the lens of the Ruggie Framework. Arguing on an international scale, the authors maintain that the global finance system contains within it “the power and wherewithal to improve the lot of the world’s poor and marginalized,” (Dowell-Jones & Kinley, 2012, p. 217). These others take a positive approach to the ability of financial markets to empower individuals. While the broader argument against the narrow corporate rights frame, there space to improve Dowell-Jones & Kinley’s call to incorporate rights.

The integration approach offered by Dowell-Jones & Kinley is similar to the individual-based rights finance framework. There is an abundance of work that advocates socially responsible and sustainable financing to individuals the same way that the previous work appeals to business financing. Instead of emphasizing the residual ways that individuals are affected by firms that lack a rights-framework, there exists a swath of authors concentrating on the direct relationships that financial institutions engage consumers. This approach targets unsavory lending practices, bankruptcy laws, and access to credit. We argue that this advocacy work is most directly related to the urgings of this paper, but with fundamental differences.

#### *4.3.3 Individual Rights Framework*

The subprime mortgage meltdown inspired literature on the ethicality of home loan practices leading up to 2007. The conversation around subprime practices constitutes what UNEP defines as client-level considerations. Reinvigorated in the aftermath was the debate about

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rights-based vs. profits-based economic framework (Hirsch & Morris, 2010). The evolution of this framework is crucial for this paper's rights-based argument, but not in the context of direct loan origination. Hirsch & Morris introduce the questions surrounding ethics and law in response to the most recent credit crisis and ask compelling questions concerning the nature of the responsibilities of lenders who burdened clients with insurmountable levels of debt.

Organizations like the Center for Responsible Lending added to the censuring of BHCs and other loan origination institutions. These advocacy organizations charged lenders like Countrywide with abusing their power by employing tactics like predatory lending, selling dangerous products, and having weak government institutions, among other denunciations (CRL, 2007). These are damning charges and have a crucial place in advocacy circles. For example, around 90% of mortgages issued to subprime borrowers between 2004-2006 were adjustable rate (Kregel, 2008). This presented a severe retraction when interest rates, and thus repayment rates, increased and borrowers lacked the ability to repay. Those borrowers considered subprime were foreclosed on and sustained considerable damage to their ability to take loans on in the future. Most importantly for this paper, the lending habits of these loan originators made their balance sheets increasingly precarious, which regulators missed completely.

The rights-inspired literature spurred after the housing crisis is part of a longer tradition of client-level activism. There are many examples of this activism manifesting in the fight for affordable housing, affordable education, and affordable healthcare. A survey of this literature is another endeavor entirely as it is both expansive and tangential, in that most of these arguments relate more directly to the traditional conception of economic and social rights.

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Relating more directly to the nature of a finance-rights relationship, however, is bankruptcy and the question of access to credit as a human right.

Bankruptcy can be crippling for consumers and holds a prominent place in the rights-finance literature. The structure of bankruptcy policy is a vigorously debated topic in law (Warren, 1987; Baird, 1987; Flint, 1991). While most of these articles are too technical in scope there are important ideas in related law-focused papers that apply to this paper. One of the most pertinent is a paper published in 2001 which found that an estimated “half a million middle-class families turned to the bankruptcy courts for help following an illness or injury in 1999” (Jacoby, Sullivan, & Warren, 2001, p. 377). Pardo & Lacey (2005) discuss the growing financial burden of student debt in the United States and the financial hardships that can accompany the debt. The technical mechanisms of bankruptcy are outside the scope of this paper, but the insights that these arguments provide are invaluable. Indeed, bankruptcy is seen by Jacoby, Sullivan, & Warren (2001) as a type of social safety net that prevents the complete financial collapse of individuals trying to secure rights like healthcare, education, and housing.

For the purposes of this paper, the most insightful aspect of the current rights-finance relationship to come from these law reviews is the fact that people must enter the credit system to sustain a certain standard of living. These studies were conducted on middle-class Americans who can more easily obtain credit because of their incomes. This raises an important question in the rights literature: should access to credit be considered a human right?

The argument in this literature hinges largely on wealth building and financial inclusion. As we have seen, however, credit plays a vital role in securing rights. If middle-class Americans rely on credit then surely US citizens in lower income brackets should have access to credit as well. Scholars like Muhammed Yunus – the 2006 Nobel Peace Prize recipient –

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argue that financial inclusion centers on access to credit markets. Yunus is most known for his work on microcredit in the international sphere (Yunus, 2004; Yunus, 2011)<sup>19</sup>. He wrote a paper in the aftermath of the financial crisis, arguing that “the theoretical framework of capitalism that is widely accepted today is a half-built structure” prone to poverty and lack of basic rights (Yunus, 2009). To bolster capitalism for social purpose, he argues that the global business should develop socially-oriented goals and should establish ways for poverty-stricken individuals to own some of these business, This, of course, implies access to credit to ensure long-term ownership.

There are others, however, who believe that credit should not be classified as a human right. Gershman & Morduch (2011) argue that credit access is an intervention that can bolster rights, but can dilute the urgency of other rights if elevated to universal standing. They also argue that credit can do more harm than good under certain circumstances, and reframe the access debate by focusing on combating discriminatory practices in credit markets (Gershman & Morduch, 2011). The debate around credit access is complex, but both sides acknowledge that credit is used by individuals to secure rights.

This debate has inspired others to argue that credit should be made safer through regulatory oversight. Bar-Gill and Warren’s (2008) comprehensive article outlines the shortcomings of current credit regulation and offer an alternative that creates a regulatory branch of an existing agency “like the FRB or FTC,” which wields more authority over consumer credit products (p. 98). The authors argue that regulators should scrutinize credit products with the same motivations that drive food and consumer good regulation. This is compatible with our approach with the suggestion of an additional regulatory body, and an

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<sup>19</sup> The efficacy of the microcredit and microfinance model for development is also heavily debated.

application of the indicator to household consumption. The approach is still based on the direct relationship between consumers and credit, however, which diverges from our approach.

#### *4.3.4 Minsky Integration*

A macro-level analysis of the rights-finance relationship provides a more holistic framework for combating fragility and the devastating effects that it can have on rights. Dowell-Jones and Kinley encapsulate our main criticism of the approaches outlined above: “the integration of [human rights and finance] has so far been shallow and narrowly focused around a few key areas that are most easily comprehensible to those without specialist financial knowledge” (p. 183). In essence, the micro-level approach amounts to a patchwork system that does not account for the structural tendencies of finance.<sup>20</sup> These client-level approaches have the potential to be effective, but will become sustainable once financial dynamic are understood and adopted by the human rights community.

In this context, we adopt a definition of human rights as, at their core, “fundamentally matters of welfare” (Dowell-Jones & Kinley, 2011, p. 184, note 5). This understanding of rights puts pressure on ‘Big Government’ to ensure that it provides for its people the basic necessities to flourish, in accordance with a country’s founding principles and international standards. Reconciling these two sets of ideals can be difficult and we will examine more carefully the history of the rights-finance relationship in the US in the next section. The responsibility is important to understand for our purposes here.

The US Census Bureau reports a 14.3% increase in Americans living under the poverty line in 2009 (Dowell-Jones & Kinley, 2011, p. 186). This dramatic increase coincided with the collapse of a financial system that held \$1,100 trillion, 18 times world GDP, in notional

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<sup>20</sup> To be fair, there are aspects of the micro-approach that address other structural issues such as discrimination, but neglect to include the broader financial apparatus.

derivative exposure alone. Financial sector growth of this magnitude must be considered proactively by domestic government institutions on the macro-level. It is clear that the “exponential growth in the size of financial markets and the simultaneous increase in complexity have led to a system that is at its core remote from any inherent code of shared social values,” which is reflected in financial legislation (Wachenfield, Aizawa, & Dowell-Jones, 2016). In the current political and academic environment, there exist “powerful tendencies in both the economic and human rights fields to oversimplify the complex notions in the other field,” with some scholars claiming an inherent incompatibility (Dowell-Jones & Kinley, 2011, p. 187). While we consider claims of incompatibility as bizarre, there are clear failings in both fields to understand and incorporate the ideals of the other.

This paper argues that finance is neglected in human rights literature because, among other issues, the technical jargon is a significant barrier that makes identifying pathways for integration difficult. The lack of human rights considerations in finance largely stems from the inability of financial decision makers to step outside of their training and identify other ways that ‘value’ can be created or qualified. For human rights to inject itself into the financial conversation, there must be an active effort to demystify the financial system and understand the macro mechanisms that can help change. There is much work to be done in reconciling the “linguistic incongruity” between the two fields, but we believe Minskian language is the perfect vehicle (Dowell-Jones & Kinley, 2012).

As discussed, the human rights literature focuses too narrowly on financial relationships and misses the broader macro picture. There is also too narrow a focus on instability as the point at which human rights should be considered. Dowell-Jones & Kinley do speak to the dangers of innovative financial products like derivatives, as well as the

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processes of increasing risk and procyclicality as leading to a higher likelihood of instability. Instability, however, should not be the point at which policymakers start to recognize danger in the financial markets. The underlying driver of increased risk and procyclicality is stability. It is in times of economic growth that regulators should fortify rights.

Wachenfield, Aizawa, and Dowell-Jones (2016) propose a critical question for the nature of the rights finance relationship: who is the financial system designed for? (p. 25). As we have argued, financial relationships drive everyday life in the modern economy and are relied on by people everywhere to secure rights. Regulators must reorient themselves to understand the ways in which the financial system can be designed to bolster rights and curtail fragility. To augment rights in times of financial stability is to ensure the health of financial positions in large BHCs and other loan originators. With healthy balance sheets and minimized risk, regulators can work indirectly to safeguard livelihoods on a macro-scale. If we agree that the financial system should be designed for the best interest of the people, then we would do well to acknowledge that building fragility is an impending sign of possible rights impediment.

#### 4.4 Conclusion

In the Minskian tradition, the discussion of human rights is couched in the responsibilities of Big Government. As long as people must depend on credit to finance rights, the government must ensure stable credit markets. Integrating capitalist dynamics and human rights considerations bestows unto government the responsibility to monitor fragility in the pursuit of adequate rights protections. If fragility manifests in a debt-deflation cycle, political institutions fail in rights terms. The most efficient way to employ the micro-based solutions surveyed above is to first stabilize the macroeconomy. The next section will outline our indicator, which monitors fragility in the financial sector.

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## 5. The Fragility Indicator

### 5.1 Introducing the Indicator

To this point, the paper has developed a broad theoretical framework with Minskian applications in both the behavioral and human rights literature. Chapter 3 develops the emotional-Minskian framework. Understanding behavior at the macro-level allows policymakers and academics alike to explain capitalist structural dynamics at an institutional level. Emotional finance demonstrates that narratives are necessary for financing activity, which are driven by convictions derived from group ideas.

The integration of Minskian ideas into human rights theory may seem fanciful but we identify tangible avenues for intersection. The emotional-Minskian framework is utilized to provide a macro perspective of financial markets to human rights scholars. Current micro-based rights literature neglects the importance of capitalist dynamics. An understanding of fragility and financial structures provide human rights theory with options beyond its current conceptual bounds.

This section will introduce empirical analysis to Minsky's margin of safety concept. Changes in safety margins indicate when moves into the three financing stages. Margins of safety refer to the liquidity of a BHC's balance sheet. This translates directly to the level of portfolio safety with BHC holdings. As balance sheets become more illiquid investors who hold equity or debt issued by the company have increasingly risky portfolios. Since the analysis

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centers on the financial sector, we can also discern the safety of the credit markets. This analysis can be applied to the aggregate financial sector and to individual firms.

The indicator has implications for the emotional-Minskian framework and for human rights. Equipped with the indicator, regulators can observe narrowing safety margins, which provides insight for the prevailing market sentiment. With enough time, regulators can fine-tune the indicator to react to psychological drivers before the financial sector slips into Ponzi finance. Rights advocates can also use the indicator to call for ‘Big Government’ action. As the financial sector becomes increasingly fragile, the greater the change for infringement of rights.

This chapter will first define the three distinct financing stages as Minsky does. These stages are observed in every phase of capitalism that Minsky identifies. The stages are more susceptible to riskiness, however, in the current money-manager phase, marked by the extensive consolidation of the most powerful financial institutions. Once the stages are identified, we will outline the strategy used to empirically analyze the shift in stages and the change in safety margins. Through historical trend analysis, gradations of financing positions are identified where firms (sectors) slip into riskier states of existing financing positions. This is not exactly a tipping point, but it sets the groundwork for future research. The most cogent findings will be presented, which motivate suggestions for operational approaches.

## 5.2 Defining the Financing Stages and Margins of Safety

The three financing stages and the margins of safety concept are defined briefly in the Theoretical Framework. It is useful to reiterate and expand on those definitions here to incorporate them more explicitly into the indicator. Minsky argues that the three financing regimes – hedge, speculative, and Ponzi – exist in every stage of capitalism. As firms (sectors)

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move from hedge to speculative to Ponzi, the firm (sector) becomes increasingly fragile. A firm (sector) is a hedge unit when “expected income cash flows are sufficient to meet all the payment commitments on the outstanding liabilities” (Minsky, 1986, p. 226).

A move into speculative financing is characterized by the expectation that income will exceed payment commitments that mature in the longer term, but short term income will only cover interest (Minsky, 1986). Speculative finance involves maturity mismatch where long term positions are financed with short term debt. This paper extends Minsky’s idea that commercial banks are never in hedge positions due to the nature of financial institutions to BHCs (Minsky, 1986, p. 230). Minsky recognizes speculative financing as natural in the economic process, and as a financing regime that can have positive impacts on employment and investment. Speculative finance becomes dangerous, however, as stability persists and managers cling to overly optimistic narratives.

Speculative finance becomes Ponzi finance as short-term interest expense cannot be met by available cash and debt must be issued to cover the cost (Minsky, 1986). As the proportion of Ponzi financed units increases in a sector, the chance of a debt deflation spiral dramatically increases. These Ponzi financed units become increasingly more dependent on macroeconomic conditions to ensure successful debt rollover. A shift in market confidence can trigger a debt-deflation spiral as firms are unable to meet their short-term obligations.

An effective way to analyze the shift in financing regimes is to calculate the margins of safety. Minsky argues that business in the US economy “is carried on within a system of borrowing and lending based on margins of safety,” which makes an empirical analysis of safety margins all the more necessary (Minsky, 1986, p. 33). In times of stability and consistent investment success, the acceptable standard for safety margins diminishes dramatically. BHCs,

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in particular, can use growing levels of leverage without obstruction from regulators because of success demonstrated in the immediate past. This is especially true in a profits-based economic policy framework where policymakers place exorbitant faith in the ability of financial growth to drive well-being higher. This sentiment also confirms narratives constructed by investors and managers who see sustained success as an affirmation of investment decisions.

The indicator uses the interest expense and interest income to measure cash flows over different periods as well as debt issuance and debt repayment to understand the ways in which BHCs debt composition changes. It supplements the changes in flows with a maturity mismatch calculation which demonstrates the gradual change in balance sheet composition. The next section will discuss methodology for compiling and analyzing data.

## 5.3 Data and Methodology

### *5.3.1 Data Sources*

The data used to observe safety margins is publicly available on regulator websites. Converting the data to uniform excel format across quarters is the most difficult part in the process. In developing this section, we constructed a multitude of datasets to find the most applicable filing information. First, we looked at Call Reports, required by the Federal Financial Institutions Examination Council (FFIEC), which collects balance sheet and income statement data on BHCs. This data is available through the Federal Deposit Insurance Corporation (FDIC) and FFIEC websites. Call Reports provide useful information on the composition of BHC assets and liabilities at the firm level. Call Reports document the balance sheets of commercial banks, which were gradually incorporated into BHCs as the money-manager capitalism stage progressed. To analyze the broader financial sector, the Uniform Bank

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Performance Report (UBPR), which aggregates the Call Report data by asset level was considered. We focused on the largest asset class, which the FFIEC deems as BHCs with at least \$10 billion of assets.

The FR Y-9C filings that BHCs must submit to the Federal Reserve were also surveyed. These filings provide similar information to the Call Reports, but are available at an institutional level, which makes manipulation more feasible. The issues with these three datasets are the lack of cash flow information and the date constraints, with each set going back to 2001. While these datasets were useful to understand the changing nature of BHC balance sheets, it did not give us the full picture. Since Minsky identifies financing stages in both stock and flow terms, we looked for a dataset that included cash flow information. In the interest of observing trends across multiple business cycles, data with longer time-horizons is necessary.

This led us to the Chicago Fed website<sup>21</sup> where the FR Y-9C and FR Y-9LP data is reported quarterly in the same data file. Some of the balance sheet data reported in the FR Y-9C dates to 1986. The analysis at 1990, however, because that is when the FR Y-9LP reports include cash flow statements for BHC parent companies. To obtain the data, one must download the zipped files by quarter and convert them from .txt to .xls format. We mention this because it is a strenuous process that can impede future research. The Chicago Fed should make the data more accessible to allow greater ease of access for students and academics.

### *5.3.2 Methodology*

To analyze the data, we pull the relevant information from each quarterly spreadsheet into a primary spreadsheet for manipulation. The analysis begins with the aggregate financial sector analysis. The next stage of analysis narrows the data to the top-10 financial institutions,

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<sup>21</sup> Data can be found at <https://www.chicagofed.org/applications/bhc/bhc-home>.

as measured by total assets.<sup>22</sup> The narrower scope allows for analysis in a consolidated market that is vastly different than the one that Minsky writes about in 1986. The data manipulation process is consistent, since the same variables and techniques are used regardless of analysis scope. For the aggregate and top-10 analysis, we sum all of the values reported for each data point. This allows us to obtain a comprehensive understanding of the growth of the financial sector as well as the largest banks. Since the data is sorted by total assets, the names of the largest banks change throughout the analysis. We are not focused on the sway of one institution, but rather the influence that industry leaders have on the broader sector.

The first analytical point focuses on the ‘maturity mismatch.’ A BHC has a maturity mismatch on its balance sheet as long term assets are financed increasingly by short term liabilities. This becomes problematic when market confidence shifts and BHCs must repay outstanding debts. In a debt deflation cycle, the prices of long term assets fall, which makes it more difficult to meet short term debt obligations. To calculate maturity mismatch, we use the definitions of “long term assets” and “short term debt” as expressed in the UBPR Supplementary Manual (2014). Short term liabilities is divided by long term assets to create a ratio that represents maturity mismatch. Long term assets are total loans and leases net of unearned income, debt securities maturity in over one year, equity securities, and real estate owned<sup>23</sup>. Short term debt are borrowings with remaining maturities of one year or less, including commercial paper. A list of the exact data used can be found in Appendix A.

The other crucial aspect in identifying financing stages is cash flow. The flow data reported in the FR Y-9LP is a point of intent focus. This data demonstrates the ability of BHCs

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<sup>22</sup> Due to time and data constraints, an analysis at the individual firm level is left for further research. The process by which individual data can be used with the indicator is included in Appendix B.

<sup>23</sup> Real estate owned is not reported until Q1-2001 and it comprises less than 1% of long term assets when factored in.

to meet their contractual obligations. The main data trends are derived using the total interest income and total interest expense. The relationship between these two flows provides an understanding of ability of banks to pay their obligations. At the firm level, interest income represents the income earned on loans and securities held, while expense represents obligations to investors who hold debt issued by the firm. The total sum each reporting BHC's total interest income and total interest expense is used for the aggregate analysis. In addition to interest income and expense, we include the total debt issued and total debt repaid by each bank. It is difficult to know the proportion of BHC debt that is held by other BHCs, but we do know that the sector is very interconnected, which can cause ripple effects when defaults occur.

To detect trends, we use basic analytical techniques like year-over-year percent change and simple division. It would be outside of the Minskian tradition to employ complex mathematical methods that would rely on a battery of assumptions. Instead we utilize simpler techniques to analyze fundamental changes in liquidity and cash flow. This allows for constant regulator supervision to ensure that BHCs do not exceed certain levels of illiquidity or lag behind in their payment commitments. The preceding sections relay the findings and explanations on the aggregate level and for the top-10 institutions.

## 5.4 Indicator and Findings

### *5.4.1 Two Measures of Safety Margins*

The aggregate and top-10 findings provide insight for constructing two empirical measures for the margins of safety concept. The first focuses on the comparative rates of growth for interest expense and interest income. This first measure focuses on flows and ability to meet debt obligations. It is expressed as a simple year-over-year percentage calculation

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$$\frac{[IE_{(q)} - IE_{(q-4)}]}{IE_{(q-4)}}$$

using quarterly data where  $IE$  is interest expense and  $q$  is the specified quarter. The same equation is used to calculate the interest income by replacing  $IE$  with  $II$ .

In general, when

$$\frac{[IE_{(q)} - IE_{(q-4)}]}{IE_{(q-4)}} > \frac{[II_{(q)} - II_{(q-4)}]}{II_{(q-4)}}$$

BHCs are approaching Ponzi finance. BHCs are assumed to start as speculative finance units since and can never be considered hedge. We hesitate to characterize any relationship observed by this definition as a definitive tipping point into Ponzi financing. Even as growth rates of  $IE$  increase at a greater rate than  $II$  growth, the interest ratio suggests that BHCs are able to meet payment commitments. The interest expense and interest income data are not sufficient in for identifying tipping points because BHCs' loan portfolios are extremely complex. It is fair to argue, however, that as  $IE$  growth outpaces  $II$ , BHCs ability to meet cash commitments is increasingly compromised. The last part of this section will briefly discuss ways to improve the indicator.

The second measure calculates the spread between the Interest Ratio and the Debt Ratio where  $DI$  is the cash flow from debt issuance and  $DR$  is the cash flow from debt repayment

$$\left(\frac{II}{IE}\right) - \left(\frac{DI}{DR}\right).$$

The spread is important because it expresses the stress place on BHCs as their Interest Ratio falls. A declining spread indicates that the Debt Ratio exceeds the Interest Ratio which implies a rising debt burden with decreasing ability to pay. We suggest that a negative spread may indicate a tipping point from speculative to Ponzi finance. The only reservation with this

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suggestion is the fact the spread has been positive since Q3-2009. A positive spread does not necessarily suggest a safe balance sheet. Indeed, high spreads are a function of the interest rate. Spreads that are inflated due to low interest rate environments may disguise growing fragility. Continued monitoring using this method will demonstrate the degree of fragility as interest rates rise.

At this point, we hesitate to fully endorse the indicator's ability to identify distinct tipping points. The indicator does, however, effectively identify increasingly risky positions within speculative finance. This insight provides gradations within financing positions, which emphasizes the nuance that exists within each financing stage.

Future research on empirical safety margin analysis can include elements from more recent reporting requirements that were developed in response to the Great Recession. This includes more granular information on balance sheet composition, like risk weighted capital and precise reporting of derivative exposure. This data exists sporadically throughout the timeframe analyzed here and do not offer insights into the dynamics expressed in reported data across multiple cycles. The indicator in its current form substantiates the margin of safety concept in the long run. Some findings on the aggregate and top-10 levels will now be analyzed.

#### *5.4.2 Aggregate Fragility*

The data shows clear trends in the BHC balance sheet composition and the cash flow relationships in times leading up to crisis. The findings presented in this section will first establish the changes in balance sheet composition on the aggregate level. From there, cash flow data will be analyzed. Once fragility in the aggregate is understood, the influence from the largest financial institutions will be analyzed. For clarity, the dark shadings represent

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financial contraction that affected the US economy directly and the light shading represents periods that briefly influenced the financial sector like the Asian Financial Crisis and the Long Term Capital Management collapse.

**Error! Reference source not found.** shows the aggregate maturity mismatch of BHC balance sheets between Q3-1990 and Q4-2016. The time series demonstrates the proportion of short term debt to long term liabilities, peaking from Q2-2000 to Q4-2000 before the 2001 crash and Q3-2008 during the most recent financial crisis. On the liabilities side, the fluctuations are primarily drive by changes in commercial paper and money borrowed set to mature within the year of the reporting date. The most influential assets are net loans and leases and securities maturing in five years or more.

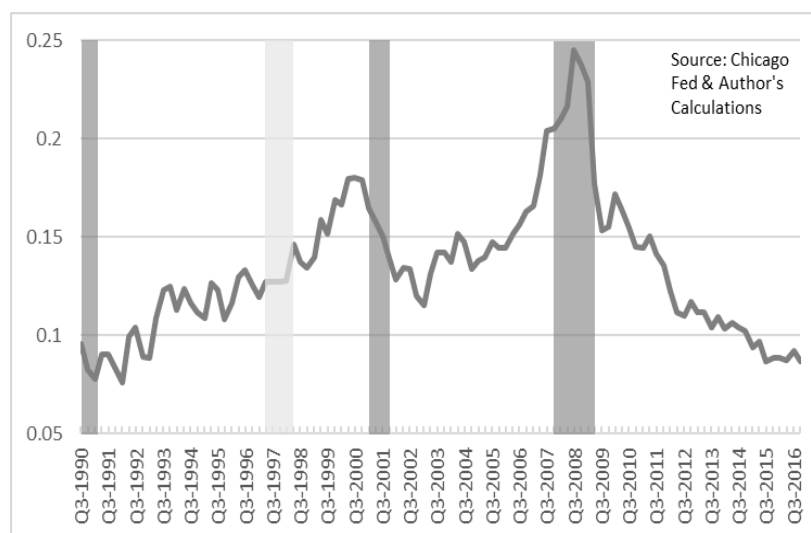


Figure 2: Maturity Mismatch

These trends follow the Minskian intuition that financial institutions actively finance long-term asset accumulation by issuing short term debt. The also demonstrate an increased willingness to lend in times of expansions. In each of the most recent crises banks had to liquidate a high proportion of long term assets, driven by severe declines in net loans and leases. The average year-on-year (YoY) percent growth for net loans and leases over this timeframe is 5.9%. The average YoY growth in the eight quarters leading up to the Dot com

crash in Q1-2001 was 18.7%, with rates slowing to as low as 0.97% during the contraction. BHCs began to recognize danger as early as Q1-2006, almost two years before Q4-2007, the reported start date of the recession,<sup>24</sup> with an average growth rate of -30.7%. The loss of net loan and leases on the balance sheet has a significant impact on interest income.

Figure 3 shows the relationship between the interest ratio – defined as total interest income over total interest expense – and the one-year Treasury bond interest rate. The bond is reported as a percentage and appears on the figure as a decimal. The short term interest rate has demonstrable influence on the Interest Ratio (Ennis, Fessenden, & Walter, 2016). The spread between the Interest Ratio and short term interest rate may mask growing illiquidity of BHC balance sheets. The maturity mismatch, as calculated above, remains low, but the composition could change dramatically as interest rates rise.

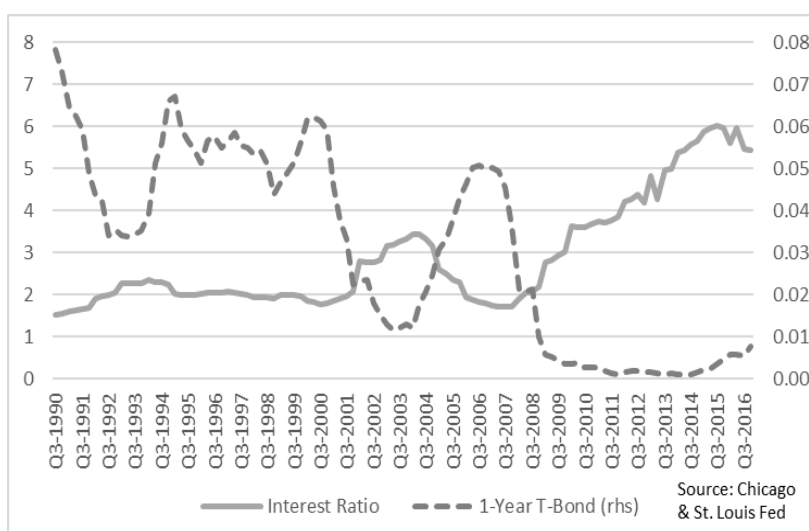


Figure 3: Interest Ratio & 1-Year Treasury

<sup>24</sup> According to the National Bureau of Economic Research (NBER) Business Cycle Dating Committee.

Understanding the relationship between balance sheet composition and the Interest Ratio enables an informed use of the indicator. Figure 4 expresses the first element of the indicator. The results show that in times preceding crises, the growth of interest expense outpaces that of interest economy. This relationship exists in Q3-1994, which may be explained by the Tequila crisis. Notice the period between Q4-2004 and Q2-2006 where interest income and interest expense had similar negative growth rates. This was probably an early indication of financial stress. The curve relationship does not have an inflection point until Q4-2007, however, which is when the magnitude of financial distress manifested. It is important to acknowledge that interest expense declines rapidly during crises, which is likely a function of asset liquidation.

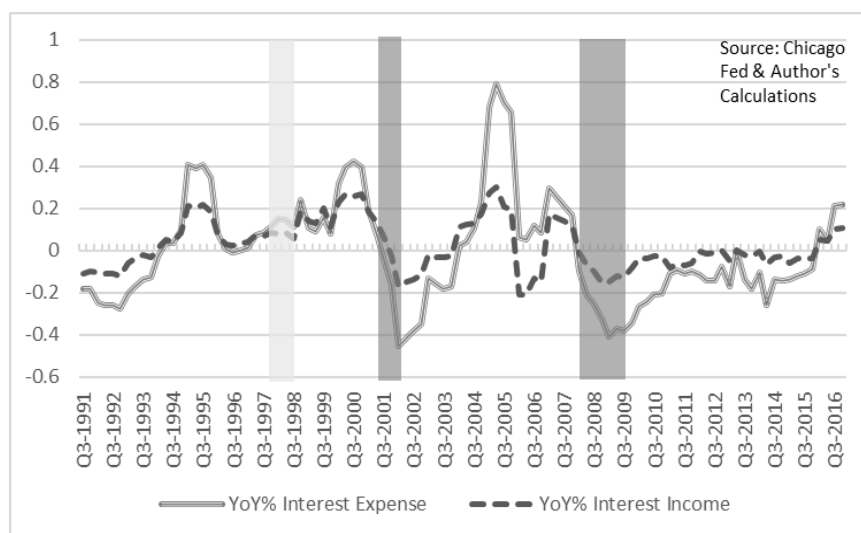


Figure 4: Year-over-Year % Change in Interest Expense and Interest Income

The growth relationship between interest expense and interest income offers some insight into the ability of banks to cover cash commitments. This insight is bolstered in **Error! Reference source not found.**, which illustrates the spread relationship that is expressed in the second element of the indicator. The spread between the Interest and Debt ratios goes negative in the quarters preceding crisis, suggesting that the indicator is effective in demonstrating

increased fragility. In addition to the spread, Figure 5 includes the YoY percent change of short term debt accumulated by BHCs. There exists a generally inverse relationship between the two, suggesting that as the Interest Ratio falls (income declining more than expense), BHCs must issue debt (increasing Debt Ratio), which is supplemented by short term liabilities. Figure 5, in tandem with Figure 4, illustrate the relationship between cash flows and balance sheet composition. While tipping points cannot be identified conclusively, there is a clear representation of increased fragility.

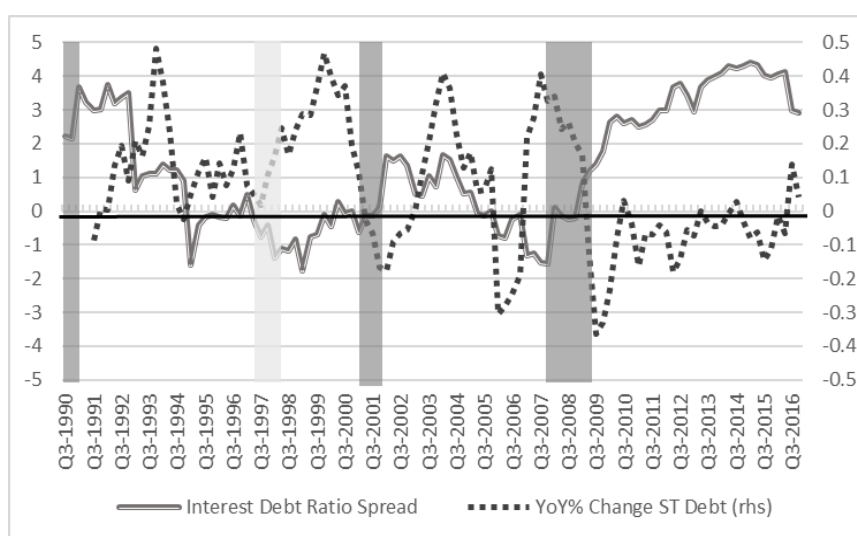


Figure 5: Interest Ratio - Debt Ratio (Spread) and Year-over-Year % Change

#### 5.4.3 Top-10 Financial Institutions

The top-10 financial institutions change overtime, due to consolidation and innovation. We identify the top-10 financial institutions by asset class in each reporting period. This allows for a dynamic analysis that shifts with the asset concentration. The same methodologies are employed for the top-10 institutions as in the aggregate analysis. This sub-section will briefly discuss the differences between the top-10 institutions and the aggregate financial sector.

Figure 6 compares the maturity mismatch among the top-10 financial institutions to the aggregate sector. Top-10 financial institutions have a larger proportion of short term liabilities

to long term assets than does the rest of the sector. This suggests that the top-10 institutions drive innovation and the adoption of new financial instruments that may not be reported to or understood by regulators (Nersisyan & Wray, 2010). Since assets are so heavily concentrated on the balance sheets of these outsized institutions, an adverse move in market sentiment can create an environment of instability in the broader sector.

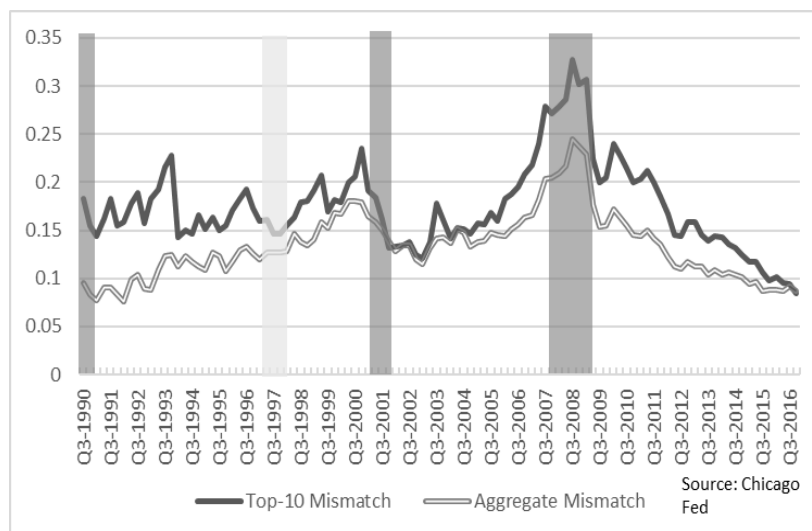


Figure 6: Top-10 Maturity Mismatch Compared to the Aggregate

**Error! Reference source not found.** illustrates the YoY percent change in interest expense and interest income for the top-10 BHCs. This relationship is similar to the one observed in the aggregate. While the inflection points occur at similar time periods, the rates of both growth and decline appear sharper than the rates in the aggregate. The decline in interest expense and interest income between Q4-2004 and Q2-2006 are not quite as dramatic as that observed in the aggregate. This could be a reason as to why the manifestation of the increasingly fragility did not occur until Q4-2007 as the curves reached an inflection point. This suggests that fragility among the top-10 institutions drives aggregate sector fragility.

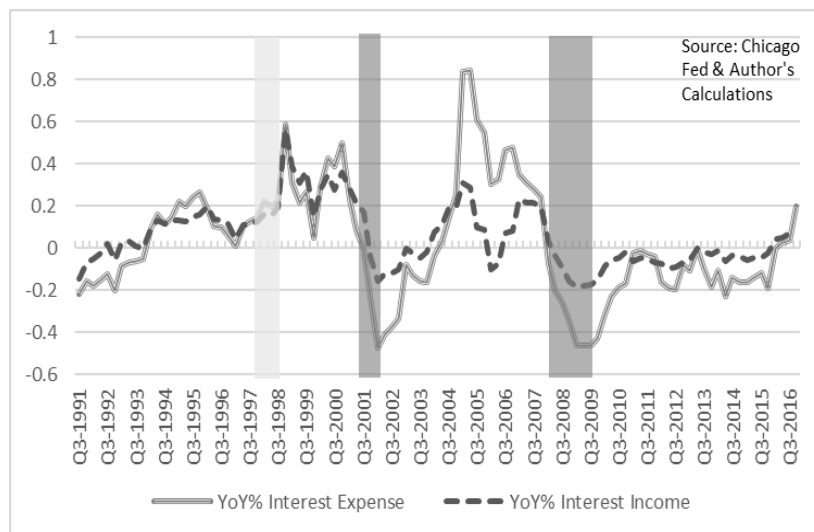


Figure 8: Top-10 Year-over-Year % Change in Interest Expense and Interest Income

Figure 8 expresses the spread relationship and the YoY percent change in short term liabilities for top-10 institutions. Again, the top-10 institutions appear to drive fragility in the aggregate. Particularly interesting in this graph is the magnitude of short term debt growth. In Q1-1999, for example, the peak YoY growth for top-10 institutions tops 80%. The corresponding peak in the aggregate analysis occurs in Q4-1999 and is around 49%. This suggests that the largest institutions rely more heavily on short term debt, as discovered in the maturity mismatch analysis, and that the largest institutions have the ability to move the sector.

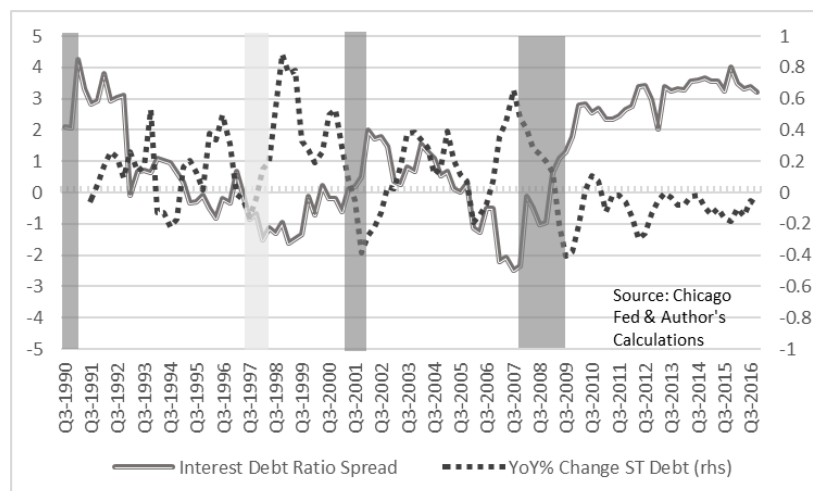


Figure 7: Top-10 Interest Ratio - Debt Ratio (Spread) and Year-over-Year Percentage Change in Short Term Debt



The findings generated with the indicator provide insights for BHC moves into fragility. It is not argued that explicit tipping points can be identified, but a shift into increasing fragility can be observed. The relationship between top-10 financial institutions and the aggregate financial sector is as expected, with consolidation at the upper levels of asset classes perpetuating fragility.

Use of the indicator has been alluded to repeatedly throughout this paper. With the elements of the indicator explicitly stated, regulators can utilize the indicator as a policy tool. The indicator's findings can be partially explained by the emotional-Miskian framework. As the spread relationship moves negative, for example, regulators can understand the prevailing market narratives. This allows for responsible policy measures to curb fragility without jolting markets. Rights advocates can also utilize the indicator to understand macro dynamics and promote sensible rights-focused action. The use of the indicator is a step toward long-term micro-level solutions.

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## 6. Conclusion

This paper has extended the theoretical foundations of Minsky's financial fragility hypothesis to include psychological elements and human rights motivations. The difficulty in presenting the emotional-Minskian framework as a viable alternative is the established belief of rationality in the financial marketplace. This is a headwind to the framework on both economic and behavioral fronts. Continued work to amend existing behavioral paradigms with the emotional-Minskian framework would do well to provide a more holistic and representative understanding of the macroeconomy as it presently operates.

Human rights scholars are close to effectively integrating rights and finance, but must reexamine their analytical scope. Minskian theory provides a unique way of understanding financial markets and their relationship to the real economy, which encourages the incorporation of rights-ideas. Perhaps most important in the Minskian framework is the recognition of credit (and debt) as central to economic functioning. In an era when rights are entangled at every stage with continued market stability, human rights scholars, and those they advocate for, benefit from this understanding.

In developing this broad theoretical framework, an indicator to monitor financial fragility is advanced. The development of the indicator is important. With increasingly granular financial data available at the firm and sector levels, the indicator would benefit from more sophisticated construction. We have demonstrated that the changes in safety margins can be discerned from financially reported data. There are baselines established in this paper that can be developed to track fragility on a quarterly basis.

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Minskian insights should be limited to economics and finance. While their foundation will always reside under the broader umbrella of the ‘dismal science,’ we have taken steps to apply his insights along broader theoretical lines. We hope that this broader theory of financial markets resonates with scholars outside of this immediate domain.

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## Appendix A

### Data Table

<b>Data Name</b>	<b>Data Code in Spreadsheet</b>	<b>Filing Report</b>
Total Assets	BHCK2170	FR Y 9-C
Total Interest Income	BHCK4107	FR Y 9-C
Total Interest Expense	BHCK4073	FR Y 9-C
Commercial Paper	BHCK2309	FR Y 9-C
Other Borrowed Money Maturing in Less Than One Year	BHCK2332	FR Y 9-C
Debt Maturing in Less Than One Year	BHCK6555	FR Y 9-C
Total Loans & Leases, Net of Unearned Income	BHCK2122	FR Y 9-C
Securities Maturing in 1-5 Years	BHCK0384	FR Y 9-C
Securities Maturing in 5+ Years	BHCK0387	FR Y 9-C
Other Real Estate Owned	BHCK2150	FR Y 9-C
All Other Off-Balance Sheet Liabilities	BHCK3430	FR Y 9-C
Noninterest Income	BHCK4079	FR Y 9-C
Loans Secured by Real Estate	BHCK1410	FR Y 9-C
Cash Flows from Financing: Issuance of Debt	BHCP6600	FR Y 9-LP
Cash Flows from Financing: Repayment of Debt	BHCP6604	FR Y 9-LP
Cash & Cash Equivalents	BHCP6775	FR Y 9-LP

Precise definitions for each data point exist on the Federal Reserve Board's Micro Data Reference Manual (MDRM). The MRDM Data Dictionary Search is found at: <https://www.federalreserve.gov/apps/mdrm/data-dictionary>.

## Appendix B

### Excel Code

The following code demonstrates how the data is pulled from the data files for each quarter once the data is converted into .xls format as discussed above. Each file is sorted manually by reported total assets in descending order.

#### Aggregate Fragility

The SUM INDEX MATCH function is used as follows:

```
=SUM(INDEX('[Quarterly Data File.xls]Sheet1'!$A$1:$DDD$6000,0,MATCH("Data Code", '[Quarterly Data File.xls]Sheet1'!$A$1:$DDD$1,0)))
```

Once the data for each code is summed, the values are copied and pasted into a different spreadsheet that populates the data as values, disposing of the cumbersome formula. Notice the large range in the lookup\_range syntax. This accommodates the varied columns that the a given Data Code can be found as reporting standards change.

#### Top-10 Fragility

The SUM INDEX MATCH function is used as follows:

```
=SUM(INDEX('[Quarterly Data File.xls]Sheet1'!$A$1:$DDD$11,0,MATCH("Data Code", '[Quarterly Data File.xls]Sheet1'!$A$1:$DDD$1,0)))
```

The code is very similar to the aggregate fragility code. The only difference is the smaller lookup\_range syntax, which narrows the operation to the top-10 institutions.

#### Firm Fragility

The INDEX MATCH MATCH function can be used as follows:

```
=INDEX('[Quarterly Data File.xlsx]Sheet1'!$A$1:$DDD$6000,MATCH("Name of Institution",'[Quarterly Data File.xls]Sheet1'!$A$1:$A$6000,0),MATCH("Data Code",[Quarterly Data File.xlsx]Sheet1'!$A$1:$DDD$1,0))
```

