

Rational Expectations and the Business Cycle

A Causal-Realist Perspective

ECON 420—DR. JEFFREY HERBENER

December 11, 2012

Authored by: Caleb S. Fuller

Introduction

The Austrian Business Cycle Theory (ABCT) has been notably criticized for failing to grapple with rational expectations critiques (see for example, Caplan,¹ Tullock 1987, Wagner 1999, Cowen 1997, and Hummel 1979). This flurry of criticism directed toward the ABCT has come in the wake of the “rational expectations revolution” (Evans and Baxendale 2008, p. 84). Predictably, the criticisms of the ABCT have themselves elicited an avalanche of replies (see for example just a few of the responses: Salerno 1989, Block 2001, and Block and Barnett 2005). The critics of the traditional ABCT contend that the Austrian economist, who normally accords judicious foresight to the entrepreneur, is inconsistent when he explains the role of the entrepreneur in initiating and perpetuating business cycles. These critics note that Austrians view entrepreneurs as economic actors who possess superior foresight regarding future market conditions (i.e. changing preferences, shifting supplies and demands). In forecasting future market conditions, the entrepreneur reaps profit or loss according to his predictive ability. At this point, the critics maintain that the entrepreneur—vaunted for his perceptive traits—should not be repeatedly fooled into making poor investment decisions by monetary intervention. This paper examines the similarities and differences between possible responses to this rational expectations criticism. In the end, we conclude that responses within the general equilibrium—or the “rational expectations revolution” framework are unsatisfactory; credit expansion changes objective features of the world, and this government intervention is what fosters repeated business cycles. The rational

¹ See Caplan’s unpublished “Why I Am Not an Austrian Economist.”

expectations critique suffers from internal weaknesses which we discuss below, but the soundest response breaks out of the general equilibrium “box.” Government tampering with the money supply is, indeed, responsible for the recurrent cycles of the modern world.

Within the general equilibrium framework of expectations, we first analyze the problem of credit expansion and its potential to be modeled as a prisoner’s dilemma. In this scenario, entrepreneurs stand to reap profit from the credit expansion process regardless of whether they possess any theoretical knowledge of business cycle theory or factual knowledge of the presence and extent of interest rate distortion. Next, we turn to a theory of “heterogeneous entrepreneurs.” Much like the capital stock, entrepreneurs are not homogenous economic actors; they differ in experience, quality, and innate ability. Additionally, the monetary intervention may incentivize those ill-suited to the entrepreneurial task to risk their capital—only increasing the diversity of individuals who bear entrepreneurial uncertainty. Taken together, a theory of heterogeneous entrepreneurs and the prisoner’s dilemma provide a way to answer the rational expectations critique—while still affirming the rationality of the entrepreneur. Third, we look at how societal institutions foster moral hazard and create incentive to take advantage of credit expansion. In the end, however, the responses offered within the general equilibrium framework are found lacking. For this reason, we turn to our final response. We conclude that the most satisfactory reply is that credit expansion alters objective features of the world, and thereby distorts productive processes in a way that does not coincide with societal preferences. No amount of accurate expectations can correct this intervention.

Summary of the ABCT

Traditional ABCT analysis hinges on widespread entrepreneurial malinvestment that occurs under a regime of artificial credit expansion. The interest rate, determined in an unhampered market by time preference, reveals consumer preference for present versus postponed consumption. As a reflection of time preference, the interest rate demonstrates the level of real savings that are available for the completion of investment projects. An interest rate suppressed by monetary policy (that is, through the expansion of artificial credit) conveys suspect information about the level of real resources which are available to begin, sustain, and finish an investment project.

The result of such monetary tampering is widespread misallocation of resources and malinvestment by the entrepreneur; he invests in long-term projects under the auspices of a discounted interest rate, but consumers have not sacrificed the resources necessary for the project. Accordingly, consumers demand a certain scarce set of resources to be employed in the production of consumer goods; simultaneously, entrepreneurs demand this same set of resources to be utilized in the production of producer goods (Garrison, 2001, pp. 67-70). This tug-of-war elicits an eventual bust—the particulars of which have been detailed in Garrison (2001). Credit expansion creates temporarily low interest rates which, when they rebound, reveal long-term investments as unprofitable (Engelhardt, 2012, p. 176).

Garrison foreshadows one argument of this paper when he asserts that macroeconomic irrationality (that is, the business cycle) does not imply individual irrationality (that is, foolish investments) (1989, p. 9). Macroeconomic dis-coordination

from an Austrian perspective does not require the irrationality of entrepreneurs as the rational expectations critique seems to suggest. Within the ABCT framework, business cycles can be perpetuated even when assuming superior entrepreneurial foresight. Before examining ways by which the rational expectations of entrepreneurs might initiate and perpetuate business cycles, we first summarize the rational expectations critique of the traditional ABCT.

The Rational Expectations Critique

Certain critics of the ABCT maintain that the theory ignores the rational expectations of entrepreneurs. This supposed shortcoming means that the theory may have particular, but not universal significance. By way of contrast, most Austrians hold that the theory is universally valid for explaining business cycle phenomena. Austrian analysis maintains that entrepreneurs earn income (profit) by more correctly anticipating market conditions than their competitors, and arranging factors of production in such a way as to better satisfy future demands. Rational expectations critics maintain that if entrepreneurs are capable of predicting future market conditions on the market, they should also be able to predict future market conditions that have been distorted via monetary intervention. That is, why does credit expansion and interest rate manipulation consistently fool the class of individuals which the market has selected precisely for their prescient abilities? Why are they unable to “correct” low interest rates via a price premium?

Hulsmann acknowledges, along with the critics, that the problem of business cycle theorizing is not simply to explain the occurrence of widespread errors and losses,

but to explain the recurrence of such cyclical activity (Hulsmann, 1998, p. 1). After all, the rational expectations critique does not maintain that a business cycle could never be precipitated by credit expansion; rather, the critics argue that entrepreneurs who operate under regimes of artificial credit should eventually “wisen up,” thus preventing the recurrent cycles which characterize modern economies. Again, the theory is insufficient for a universal theory of cycles, claim the critics.

Caplan argues that the ABCT requires that entrepreneurs possess “strange irrational expectations.” Given this, he asks why entrepreneurs, so adept at forecasting market conditions, fail so miserably at predicting government action, specifically monetary policy. He argues that the market should weed out individuals who lack the ability to make such predictions. Lastly, he maintains that entrepreneurs might not turn down lower interest rates, but that they would surely learn to make investments which will be profitable even when interest rates rebound in the future. For instance, they might structure their investments for shorter time-horizons instead of investing in distant projects which the traditional ABCT maintains (1998).

Cowen, in similar fashion, argues that the entrepreneurial mistakes of the Austrian theory must, of necessity, violate the “rational expectations hypothesis.” He notes that entrepreneurs with rational expectations will, upon occasion, choose unprofitable term-lengths for investment, but that this is no different from any other entrepreneurial error. Once we accept the rational expectations hypothesis, there is no reason to think that large numbers of entrepreneurs across industries will err systematically toward long term-length investment (Cowen 1997, p. 77). Yet, the “cluster of errors” which entrepreneurs

make is precisely what any cycle theory must seek to explain. Both critics and proponents agree that this is the crux of any business cycle theory.

Tullock argues similarly to Caplan and Cowen that the ABCT depends on the premise that entrepreneurs “never learn” that artificial interest rates are likely to rise in the future. Businessmen might be fooled by the first few rounds of credit expansion, but should eventually learn to anticipate the results of government manipulation after experiencing its destructive effects (Tullock, 1987, p. 74). Wagner likewise argues that the theory “depends on the inability of people to distinguish, in the aggregate, between an increase in personal saving and an increase in central bank holdings of government debt” (1999, p. 71). In sum, the rational expectations critique is internal rather than external to the ABCT.² Rational expectations critics maintain that internal inconsistencies, namely the rationality or irrationality of entrepreneurs, sink the explanation on theoretical grounds. From their perspective, the ABCT is discarded not for empirical, but for theoretical reasons.

Perhaps most surprisingly, Mises himself anticipated the rational expectations critique (1963, pp. 250-263). He argues that economic calculation could potentially solve the problem of malinvestment. At the very least, he seems to suggest that knowledge of correct business cycle theory might prevent entrepreneurs from making these mistakes *ad infinitum*. He does not seem to anticipate several of the responses which have emerged in

² By way of contrast, Milton Friedman criticized the ABCT on empirical—that is, external—grounds. He stated that “The Mises-Hayek explanation of the business cycle is contradicted by the evidence” (1993). Friedman did not contest the validity of the theory, but rather its ability to describe the movement of macroeconomic variables in the real world.

recent years concerning, and which this paper examines. We now turn our attention to these responses.

The Game-Theoretic Response

Austrian economics emphasizes individual human action rather than the abstract aggregates which characterize the analysis by much of mainstream macroeconomics. In the Austrian conception, the business cycle itself is initiated and perpetuated by a series of microeconomic processes undertaken by entrepreneurs, consumers, producers, and investors. Thus, the first response to the rational expectations critique begins with a microeconomic understanding of business cycle processes and market processes more broadly. The goal of this response is to determine whether the ABCT depends on the proposition that entrepreneurs are fooled *ad finitum* by credit expansion. The alternative is to maintain that a robust understanding of the ABCT allows for rational entrepreneurs who are not continually fooled; the explanation for recurrent business cycles must be located somewhere else within the ABCT framework.

The game-theoretic response to the rational expectations critique is anticipated by O'Driscoll and Rizzo.³ They note that profitable opportunities emerge from temporary situations. Artificial credit expansion is one such temporary, profitable opportunity of which entrepreneurs can take advantage. Even if entrepreneurs do indeed comprehend “macro-aspects” of a business cycle, they are unable to time the microeconomic events which reverse the unsustainable boom. Theoretical, abstract knowledge concerning business cycles is not sufficient to reap profit; instead, profit accrues to those who have

³ This was pointed out by Gene Callahan in his blog post “O’Driscoll and Rizzo Got There First” (2012).

knowledge of time and place—two particulars that are uncertain regardless of one’s theoretical understanding of “correct” business cycle theory (O’Driscoll, Rizzo, and Garrison, 1985, p. 103).

Thus, there is no need to claim that entrepreneurs are perpetually fooled by monetary tampering. To the contrary, under a regime of credit expansion, entrepreneurs face the same uncertain world of “time and place” which they always do. The cluster of errors emerges because this “time and place” has been obscured for all entrepreneurial decision makers. Instead of individual losses for entrepreneurs who fail to accurately anticipate matters of “time and place,” entrepreneurs experience widespread losses because credit expansion distorts the two economic phenomena which affect all “time and place”—money and the capital structure. That is to say that adherence to the ABCT does not require dismissal of the traditional Austrian view of entrepreneurial rationality; in fact, this perspective on rational human action bolsters the case for the ABCT. This defense of the ABCT is, in fact, consistent with rational behavior by entrepreneurs.

The fact that entrepreneurs are unable to precisely time the microeconomic processes which reverse the boom is an intuitive concept. If an investor were able to retroactively trace the path of an artificial credit boom, he would not choose to exit the market at the precise point in time at which the boom became apparent. Rather, he would exit at its peak (Evans and Baxendale 2008, p. 85). This strategy is perfectly consistent with the claim by Rizzo and O’Driscoll that entrepreneurs seek temporary, profitable opportunities. Furthermore, Garrison notes that resources can be profitably misallocated

in response to credit expansion as long these resources are then sold before the bust (Garrison, 1989, p. 12).

These explanations are consistent with the rationality of the entrepreneur who is simply availing himself of profitable opportunities whenever and wherever they emerge. Some have taken this reasoning a step further by conceiving of the situation as a commons problem which can be illustrated by the prisoner's dilemma. Operating under the assumption of rational entrepreneurship, Carilli and Dempster argue that firms care about their profits relative to other firms. When the interest rate falls, Firm X stands to increase his share of profit if all other firms refrain from increasing investment. Likewise, all firms face this same decision. The situation is a prisoner's dilemma, and increasing investment is the dominant strategy. The dominated strategy is to refrain from increasing investment altogether (Carilli and Dempster, 2001, pp. 326-327).

In this story, perfectly rational entrepreneurs act so as to increase their profits relative to all other firms. Because the risk of increasing investment is diluted among all firms, while the benefit is concentrated to each individual firm, each payoff-maximizing firm decides to increase investment. In this way, the boom is perpetuated, and the eventual bust entails losses for many entrepreneurs. Thus, the prisoner's dilemma reply is accurately categorized as a moral hazard response. Each entrepreneur knows that other entrepreneurs are also investing, and thus the risk to him is lessened. He is incentivized to behave riskily because the costs of doing so are diluted among the class of entrepreneurs. As we shall later see, this analysis does reveal internal weaknesses of the rational expectations position by arguing that credit expansion is a special case of moral hazard.

In so doing, however, it makes dubious assumptions about entrepreneurial preferences and behavior.

Heterogeneous Entrepreneurs and Adverse Selection

The prisoner's dilemma response provides a powerful internal explanation of why rational entrepreneurs invest in projects which are later revealed to be malinvestments. More recent analyses of the character of entrepreneurs who are subjected to conditions of monetary manipulation suggest that heterogeneous entrepreneurship only exacerbates the prisoner's dilemma scenario previously discussed. While entrepreneurial heterogeneity focuses on adverse selection it may, indeed, be complementary to the moral hazard response previously outlined though this is not readily apparent.

Before beginning an analysis of heterogeneous entrepreneurship specifically, we must first clarify a causal-realist perspective on entrepreneurship more broadly. The entrepreneur performs a definite function—that is, speculating on future conditions. The economics literature, however, uses the term “entrepreneur” to designate those especially keen on rearranging production in anticipation of future market conditions in order to reap a monetary profit (Mises, 1963, 253-252).⁴ Every entrepreneur invests because he believes that the market⁵ has underpriced certain factors of production relative to future output prices which those factors produce. If the entrepreneur judges more accurately than other entrepreneurs, he reaps a profit. If his judgment is lacking compared to his

⁴ Put differently, every man is an entrepreneur in the catallactic sense in that he grapples with an uncertain future by applying means to achieve his ends. See Mises p. 255. But not every man is an entrepreneur in the narrower sense of rearranging factors of production in anticipation of future profit.

⁵ While we may use the word “market,” what we actually mean are *other* entrepreneurs who have not yet taken advantage of profitable opportunities.

competitors, he reaps losses (Rothbard, 2004, pp. 509-514). Thus, this “winnowing” process ensures economizing of scarce resources. Successful entrepreneurs increase the amount of capital which they direct by continuous accumulation. This, in turn, allows them to expand and gain control over more real resources. The reverse process holds true for sub-marginal entrepreneurs; capital is gradually allocated away from them via the losses they reap.

This understanding of the entrepreneurial process vividly demonstrates why credit expansion—which, by definition, is external to the market⁶—radically alters significant components of the entrepreneurial process. Monetary policy expands the supply of available credit beyond what would exist on the unhampered market (where the quantity of credit would be determined by supply and demand alone). Specifically, credit expansion exerts an adverse selection effect by enticing “bad” entrepreneurs into the market. The very individuals whom the market process has steered away from the risky endeavor of entrepreneurship are incentivized back into the market. Thus, this facet of the theory is rightly categorized as adverse selection. Credit expansion entices entrepreneurs to enter the market who “failed” to acquire capital on the unhampered market. These are the entrepreneurs who contribute disproportionately to the “cluster of errors” which comprises the business cycle (Evans and Baxendale, 2008, p. 91).

This analysis enriches and modifies the perspective of Carilli and Dempster—which maintains that entrepreneurs remain rational economic actors throughout recurrent

⁶ Credit expansion is external to the market because all market activities are governed by profit-loss calculations which are ultimately reflections of societal preferences expressed in action. By contrast, credit expansion is infinitely profitable, and this profit cannot be arbitrated away. It is indefinitely profitable for financial institutions to extend an additional round of credit even in a climate of a rising price level because the nominal value of the account can be adjusted costlessly.

business cycles. In fact, the rational expectations critique of the ABCT is turned on its head by the adverse selection response. The ABCT does not require that “entrepreneurs become fools” as argued by the rational expectations critique; instead, an understanding of heterogeneous entrepreneurship suggests that “fools become entrepreneurs” (Engelhardt 2012). The prisoner’s dilemma exacerbates this natural tendency by increasing the total number of “players” (would-be entrepreneurs) willing to take advantage of credit expansion (Evans and Baxendale, 2008, pp. 86). In this conception, the lower interest rate acts as a two way signal: it tells the experienced entrepreneurs to leave the market and similarly encourages foolish ones to enter.

While satisfactory on its face, the adverse selection response, like the moral hazard response weakens its potential power by treating entrepreneurs as an abstract concept. It is true that the lower interest rate may indeed lower the average quality of entrepreneurs. Capitalist-lenders, however, do not just lend to entrepreneurs. They lend to projects of which the entrepreneur is just one component. When the supply of credit increases, the number of available projects increases. We return to this point later.

The Prisoner’s Dilemma and Heterogeneous Entrepreneurs

Which story is more satisfying? Is the boom-bust cycle perpetuated by a prisoner’s dilemma or is the heterogeneity of entrepreneurs to blame? Carilli and Dempster maintain that moral hazard is the linchpin of the theory; Evans and Baxendale maintain that moral hazard is of secondary importance to adverse selection.

Engelhardt further critiques Carilli and Dempster's views on several grounds. First, he argues that rational entrepreneurs care about maximizing absolute rather than relative profits. Second, he argues that rational entrepreneurs with an understanding of the ABCT might choose to exit the market once the boom begins to avoid long-run losses (Engelhardt 2012, pp. 179-180). That is, he maintains that the action set provided by Carilli and Dempster is too narrow. Entrepreneurs do not simply choose between increasing or maintaining investment; they could cease investment altogether. In short, while Carilli and Dempster call their actors "entrepreneurs," their narrow set of actions essentially precludes true entrepreneurial decision-making. At first glance, the commons problem and the prisoner's dilemma, then, seem irreconcilable with the contention that monetary policy affects the composition of entrepreneurs. One focuses on moral hazard, the other on adverse selection. The stories are similar in that both maintain the rationality of entrepreneurs who became entrepreneurs prior to the credit expansion. Nonetheless, Engelhardt faults the prisoner's dilemma response for the assumptions and limitations of the model.

There is, however, a possible reconciliation of the two viewpoints.⁷ Carilli and Dempster posit payoffs for entrepreneurs which represent relative profits and losses, that is, in comparison to the performance of other firms. These relative profits and losses accrue to rational entrepreneurs—ones that understand the Austrian Business Cycle Theory.⁸ Engelhardt's critique is reasonable: if these entrepreneurs really do possess an

⁷ Ideas for reconciliation were borne out of personal correspondence with Engelhardt (2012) and Carilli and Dempster (2012).

⁸ Because these are experienced entrepreneurs, their knowledge of the ABCT, might be purely experiential. That is, they have conducted business under prior eras of credit expansion, as well as the resultant booms

accurate understanding of business cycle theory, why do they care about relative profits? Instead, these rational entrepreneurs should cease their investment altogether. Despite the seeming inconsistency between the two stories, we can reconcile them with a few modifications. We have already noted that monetary distortion of the interest rate changes the composition of entrepreneurs; specifically, it incites fools to become entrepreneurs via adverse selection.⁹

In our analysis of heterogeneous entrepreneurs, we have seen that credit expansion changes the composition of entrepreneurs. We focus next on the fact that this credit expansion increases the sheer number of would-be entrepreneurs. The combination of the prisoner's dilemma model and the assumption of entrepreneurial heterogeneity lend powerful support to why, in contrast to the rational expectations critique, the rational expectations of entrepreneurs actually worsen the business cycle. Suppose that credit expansion incites the best entrepreneurs to exit the market and leaves the market instead saturated with inexperienced and "foolish" entrepreneurs. These foolish entrepreneurs are led directly into the prisoner's dilemma. As they follow positive feedback strategies, arbitragers may also enter the fray, fueling the bubble in the short-run. The greater the number of "foolish" entrepreneurs, investors, and arbitragers using this strategy, the greater is the magnitude of the bust as they all subsequently seek to liquidate their investments (Toby and Baxendale, 2008, pp. 85-86).

and busts. Consequently, they understand that investment undertaken under a regime of credit expansion is riskier than investment undertaken in response to a drop in time preferences.

⁹ It allows those who were unable to obtain funding on the market, to obtain funding through the alternative channel of credit expansion. By definition, we can say that these individuals are less skillful in their entrepreneurial foresight than others; if they were just as skilled, they would acquire funding and accumulate capital via the entrepreneurial process which we have described.

The conclusion is that we need not posit wise entrepreneurs who are concerned about their relative profits in order to incorporate the insights of Carilli and Dempster. Once “wise” entrepreneurs exit the market, they free capital for “foolish” entrepreneurs who would be unable to acquire funding on the unhampered market. These foolish entrepreneurs, in turn, embark on the same scrambling process which Carilli and Dempster describe. Each realizes the existence of a profitable opportunity that would not exist in the absence of credit creation. Consequently, each rushes to invest, fostering an environment of positive feedback. The bust eventually comes, revealing many investments to be malinvestments.

The Political Economy of Recurrent Business Cycles

There is yet another aspect—yielded by the institutional features of central banks and governments—that helps explain recurrent business cycles on rational expectations grounds. Carilli and Dempster argue that entrepreneurs are faced with a prisoner’s dilemma which fosters moral hazard; Evans, Baxendale, and Engelhardt lend nuance to this claim by demonstrating that monetary intervention changes the composition of entrepreneurs via adverse selection. Even *if* seasoned entrepreneurs refrain from investing, the low interest rate entices new or poor entrepreneurs to try their hand in the market. We have reconciled these views by arguing that even new entrepreneurs face a prisoner’s dilemma of sorts—the decision to invest or not. Hence, there are aspects of both moral hazard and adverse selection which perpetuate the business cycle.

Nonetheless, there remains an additional component of moral hazard which we have not yet explored. Entrepreneurs do not make decisions capital investment decisions

in a political or institutional vacuum. Like all human actors, entrepreneurs face an uncertain future. The political, legal, and institutional framework which surrounds them can either increase or decrease the uncertainty which they face. This framework, in turn, yields either “good” or “perverse” incentives. When these incentives are perverse, we describe the situation as moral hazard (Hulsmann, 2006, p. 35).

Hulsmann redefines moral hazard as the incentive of person A to use more resources than he would otherwise because he knows that person B will provide some or all of these resources against his will.¹⁰ Most importantly, moral hazard incites individual A to expropriate individual B which, predictably, incites a backlash from B. This backlash need not be actual expropriation of A; it need only be a change of behavior from what would have occurred in the absence of moral hazard (2006, p. 35). This is precisely what happens in the Carili and Dempster story. Each entrepreneur knows that other entrepreneurs will partly bear the cost of the bust. So each entrepreneur expands his investment accordingly, knowing full well that his investment may be foolish. There is, however, an additional, as of yet unexamined feature of business cycles, which serves to further dilute the risk for any one entrepreneur and instead spread it over the entire economy. To that aspect we now turn by examining the political economy of recurrent business cycles.

Most Austrian theorizing about business cycles focuses on the distortionary role that the central bank plays in manipulating interest rates, often to the exclusion of other roles played by the central monetary authority. In most modern economies, however, the

¹⁰ Note that Hulsmann’s nuanced definition correctly defines moral hazard as a result of when property rights are violated.

central bank—often in conjunction with governments—also functions as a lender of last resort.¹¹ By consistently applying the definition of moral hazard given above, it is clear that a lender of last resort fosters moral hazard. Because market participants know they can be bailed out, they labor under a systematic incentive to exceed the boundaries of prudent investment (Hulsmann, 1998, pp. 20). In an environment of government and central bank aid, moral hazard is ubiquitous. For instance, in the lead-up to the 2008 financial crisis, banks operated with low reserves, low equity ratios, and invested heavily in high risk assets (Hulsmann, 2011, pp. 108-110). These institutional features exacerbate the moral hazard component of business cycles illustrated by Carilli and Dempster.

The central bank acts not only as a lender of last resort to troubled financial institutions, but also serves to provide funds to businesses who are suffering losses in the wake of a downturn.¹² The recent financial crisis in the United States provides ample historical example of bailouts.¹³ These bailouts set a precedent for other firms, entrepreneurs, and investors about future actions that the central authorities are likely to pursue. The predictable result is incentives to over-extension of business activity. Thus, by building rational expectations into their behavior, entrepreneurs will worsen the business cycle in an environment of institutionally-induced moral hazard.

Leaving Expectations Behind

¹¹ Walter Bagehot first suggested that central banks freely lend to banks that were experiencing a shortage of funds. The most prominent example in recent memory is in the aftermath of the 2007-2008 financial crisis by the Federal Reserve Bank of the United States. Within a little more than a year of the financial meltdown, the central bank provided \$1.2 trillion to the private sector in an attempt to “restore financial stability” (Kuttner, 2008, p. 1).

¹² Only the failure of sufficiently large businesses would elicit a public outcry for funds to be dispersed by the central monetary authority.

¹³ For a fuller investigation of the bailouts in the United States, see Schmidt and Nankin 2009 for a creative illustration of U.S. government bailouts.

If the traditional rendering of the ABCT maintains that error is a necessary consequence of prior inflation, this leads to determinism. Yet, while human choices are influenced by prior events, they are not determined by them. The traditional understanding further raises the question: if an increase in the money stock is the cause of the error, then why do increases in specie¹⁴ not also cause a general cluster of errors (Hulsmann, 1998, p. 21)? To give a satisfactory response to these questions, we leave the rational expectations—and with it, the moral hazard and adverse selection responses—behind. These responses are adequate to reveal the internal weaknesses of the rational expectations criticism because they themselves incorporate rational expectations. In so doing, these replies answer the critique on its own grounds, and show that it possesses internal flaws. Nonetheless, to more thoroughly respond to the critique, we argue that artificial credit expansion alters real features of the world—and in such a way that expectations cannot correct for the distortion.

Hulsmann contends that government tampering with the money supply is the ultimate genesis of recurrent cycles—the crisis ensues regardless of expectations. Fractional reserve banking either occurs via secretive fraud or it continues because most citizens believe that the institution of fractional reserve banking actually confers societal benefits.¹⁵ In the former case, the traditional ABCT unfolds because individuals have no way to anticipate and correct for the secret theft. In the second case, when the illusory benefits of fractional-reserve banking are revealed, a crisis ensues. The crisis is a period

¹⁴ For instance, the discovery of a new gold deposit would predictably increase the money supply.

¹⁵ In reality, fractional-reserve banking cannot confer societal benefits on net. It only serves to benefit one group of individuals at the expense of others.

of time at which acting man realizes that government intervention only benefits one group at the expense of others. When some realize that they provide the largesse for others, the crisis ensues (Hulsmann, 1998, pp. 14-18). To further understand why expectations cannot correct for monetary hampering, it is important to realize that artificial credit changes real features of the world, and accurate expectations about future conditions will do nothing to alter this state of affairs. There are several reasons why this is the case.

First, an increase in artificial credit¹⁶—regardless of the interest rate attached to it—represents a pool of funds that no members of society sacrificed their consumption to establish. With the expansion of credit, an increased number of money substitutes bid for the same unchanged number of capital goods (Stefunko, 2000, p. 10). This inevitably sets in motion the war between consumption and investment which both increase. At the same time, because there is a greater pool of funds to bid away capital goods from consumers who would prefer the production of lower-order goods, malinvestment ensues.

Second, the theory of marginal entrepreneurs should inform a theory of “marginal projects.” The capitalist-lender does not lend solely to an entrepreneur or simply on the basis of his judgment of the skill of the entrepreneur.¹⁷ The extra supply of credit necessarily entails that it will be lent into “marginal projects”—that is, investment endeavors which the members of society did not deem investment-worthy prior to the

¹⁶ As always the phrase “artificial credit” refers to loans which are fiduciary, and not the result of real savings.

¹⁷ This is not to downplay the fact the capitalist-lender certainly does engage in evaluation of the skillfulness of the entrepreneur to whom he lends. In fact, this demonstrates the entrepreneurial aspect of the capitalist-lender. He must exercise his own foresight abilities in judging the creditworthiness of entrepreneur (i.e. whether the entrepreneur will reap a return that justifies the loan by the capitalist).

expansion in artificial credit. Simply put, there was not enough demand for these projects to justify them. Furthermore, as illustrated by the previous point, not only are these “marginal projects,” but the resources used to complete them will be taken from other endeavors which better aligned with societal preferences. Once more, the artificial credit introduces an inescapable tug-of-war between the higher and lower stages of production.

Third, the inevitable Cantillon effects of newly injected money will necessarily distort production regardless of entrepreneurial expectations (Shostak, 2003).¹⁸ Earlier in the paper, we outlined a brief overview of the entrepreneurial process. An understanding of this process shows us that successful entrepreneurs respond to consumer demand. As Hulsmann notes, fractional-reserve banking benefits one group at the expense of another (1998, pp. 16-18). The way which fractional-reserve banking benefits one group at the expense of another is by supplying funds by which one individual or group can express his or its demands over real resources. When this new money pushes up prices, the entrepreneurial process described above comes into play. Those who are able to demand with the new money benefit at the expense of others in society because they have sacrificed nothing to obtain the new money. Unlike an injection of specie which only occurs when the level of money demand and thus societal preferences justifies it, fractional-reserve inflation is entirely divorced from societal preferences.

¹⁸ Cantillon himself recognized the importance of the so-called “Cantillon effects” for business cycle theorizing. Cantillon offered a proto-Austrian conception of the business cycle. He recognized that the actual supply of money was immaterial, and that government distortion of the money supply was the most significant part of the boom-bust cycle. His recognition of the non-neutrality of money allowed him to correctly place emphasis on the relative price changes that occurred between producer and consumer goods. These relative price changes, in turn, resulted in distortionary production decisions (Thornton, 2009, pp. 45-47).

The Cantillon effects prove problematic for several reasons. First, it may be impossible to disentangle an increase in the prices of producer goods that is a result of credit expansion and a price increase that is a result of genuinely shifting demand within the economy. Even if the entrepreneur is “suspicious” of the price increase, prices are rising and relative prices are changing, nonetheless. He can stand on the sidelines (and potentially go out of business) or he can engage in satisfying consumer demands, regardless of whether these demands would exist in the absence of credit expansion or not. Through his entrepreneurial capacity, he actively re-arranges factors of production to take advantage of rising prices. In this situation, the entrepreneur’s participation in the market economy actually ensures that capital is squandered and sunk when the bust comes. Artificial credit necessarily introduces Cantillon effects, regardless of whether entrepreneurs are able to “correct” the interest rate through a price premium.

Conclusion

The rational expectations critique of Austrian Business Cycle Theory deserves careful reply. After all, it maintains that Austrian theorizing suffers from an inconsistency. On the one hand, Austrians assert the predictive powers of entrepreneurs. On the other hand, the business cycle theory seemingly implies that entrepreneurs are irrational or unable to accurately forecast future market conditions. While there have been myriad replies to this criticism, this paper has focused on the compatibility of those responses which center around the applications of moral hazard and adverse selection to an internal critique of the rational expectations criticism. It then concluded with a look at

why expectations miss the analytic mark altogether because of how credit expansion distorts features of the world in a way that does not accord with societal preferences.

Carilli and Dempster argue that the problem is primarily moral hazard. Entrepreneurs are confronted with a prisoner's dilemma concerning the decision to invest. As the Engelhardt critique shows, this analysis suffers from weaknesses such as the attempt to constrain the entrepreneur to only two decisions: increase or maintain investment. Weaknesses aside, the contribution of Carilli and Dempster points us toward the crucial insight of moral hazard for repeated business cycles if we assume the necessity of accounting for expectations.

Evans, Baxendale, and Engelhardt argue that adverse selection explains more than does moral hazard. The distorted interest rate induces poor quality entrepreneurs—those who couldn't obtain funding on the market—to enter. Even if the expectations of the “other” entrepreneurs are rational, these new entrepreneurs exert a disproportionate influence. We then showed that the moral hazard argument of Carilli and Dempster and the adverse selection argument of Evans and Baxendale have potential for reconciliation by adjusting several assumptions. Regardless of the quality of the entrepreneurs, they are faced with a decision about increasing investment.

For the final internal response to rational expectations, we pointed out that investment decisions do not occur within an institutional vacuum. Rather, central banks and governments can encourage reckless business expansion and imprudent business practices by their willingness to rescue troubled firms and financial institutions. When economic decision-makers possess the reasonable expectation that the state or the central

monetary authorities will assist them in the form of bailouts or other interventions, they are incentivized to make less-than-prudential business decisions.

Lastly, we eschewed expectations altogether for a more satisfactory response to the original critique. The rational expectations criticism simply misses critical parts of the Austrian Business Cycle Theory. Expectations are insufficient to correct for government tampering with the money supply. The enlarged supply of credit must go somewhere. As the new artificial money ripples throughout the economy, it causes distortions to production processes that do not align with preferences. Entrepreneurs respond accordingly to these shifts in demand and supply throughout the economy. As they do so, malinvestments are made and capital is permanently sunk. After the boom-bust cycle unfolds, the economy is relatively impoverished. Research in the area of expectations and the business cycle is ripe with opportunities. Further research in the areas of entrepreneurial expectations would be valuable. One might also compare and contrast the views of Hulsmann and Mises on the business cycle.¹⁹ Lastly, one could investigate whether Hulsmann's reply pushes the problem back a step. After all, might someone ask why people are repeatedly fooled by societal institutions that Hulsmann highlights?

Given our analysis of the ABCT and the rational expectations debate, a common theme emerges. Both the critique of the theory and some of the responses to the theory—those that take a general equilibrium rational expectations paradigm—fail to appreciate the richness of Austrian theorizing about entrepreneurs and entrepreneurship.

¹⁹ As stated earlier, Mises believed that the cycle could indeed be avoided by adept entrepreneurship. Mises also allows for the possibility of a large injection of specie on the free market being the reason for a business cycle.

Furthermore, they fail to incorporate a theory of human action more broadly conceived.²⁰ The critics conceive of entrepreneurs as robots who, correcting the interest rate with a price premium, can avoid the business cycle. Yet, no human actor has his course determined by prior events. He is free to choose among any of the means which he thinks will satisfy his ends. Carilli and Dempster, likewise, fall into this narrow conception by allowing so few options for the entrepreneurial actor. Yet the Austrian entrepreneur is not bound by the dictates of rational expectations, game-theoretic, or any other model. He bears uncertainty that is immeasurable, unquantifiable, and not subject to modeling. In his quest to satisfy the preferences of consumers, only government tampering with the money supply can repeatedly thwart the whole class of entrepreneurs. Thus, we conclude that government interference—not the entrepreneur himself—is responsible for the repeated business cycle. Only when this scourge is removed will the business cycle ever be vanquished.

²⁰ That is, what is summed up by “humans applying means to achieve ends according to ideas.”

Works Cited

- Block, Walter, and William Barnett. "On Hummel on Austrian Business Cycle Theory." *Reasonpapers.com*. N.p., 2008. Web.
- Block, Walter. "Yes, We Have No Chaff: A Reply to Wagner's "Austrian Cycle Theory: Saving the Wheat While Discarding the Chaff"." *The Quarterly Journal of Austrian Economics* 4.1 (2001): 63-73. Print.
- Callahan, Gene. "O'Driscoll and Rizzo Got There First." Web Log Post. *ThinkMarkets*. 2012. Web. 2012.
- Caplan, Bryan. "Why I Am Not an Austrian Economist." *Why I Am Not an Austrian Economist*. N.p., n.d. Web. 19 Nov. 2012. <<http://econfaculty.gmu.edu/bcaplan/whyaust.htm>>.
- Carilli, Anthony M., and Gregory M. Dempster. "Expectations in Austrian Business Cycle Theory: An Application of the Prisoner's Dilemma." *Review of Austrian Economics* 14.4 (2001): 319-30. Web.
- Carilli, Anthony. "Prisoner's Dilemma and Moral Hazard." 2012. E-mail.
- Cowen, Tyler. *Risk and Business Cycles: New and Old Austrian Perspectives*. New York: Routledge, 1997. Print.
- De Soto, Jesus Huerta. *Money, Bank Credit and Economic Cycles*. Auburn, Ala: Ludwig Von Mises Institute, 2009. Print.
- Engelhardt, Lucas. "Expansionary Monetary Policy and Decreasing Entrepreneurial Quality." *Quarterly Journal of Austrian Economics* 15.2 (2012): 172-94. Print.
- Engelhardt, Lucas. "Heterogeneous Entrepreneurs." Message to the author. 2012. E-mail.
- Evans, Anthony J., and Toby Baxendale. "Austrian Business Cycle Theory in Light of Rational Expectations: The Role of Heterogeneity, the Monetary Footprint, and Adverse Selection in Monetary Expansion." *The Quarterly Journal of Austrian Economics* 11.2 (2008): 81-93. Print.

- Friedman, Milton. "The "Plucking Model" Of Business Fluctuations Revisited." *Economic Inquiry* 31.2 (1993): 171-77. Print.
- Garrison, Roger W. "The Austrian Theory of the Business Cycle in the Light of Modern Macroeconomics." *The Review of Austrian Economics* 3.1 (1989): 3-29. Print.
- Garrison, Roger W. "HAYEKIAN TRADE CYCLE THEORY: A REAPPRAISAL." *Auburn.edu*. The Cato Journal, 1986. Web. 19 Nov. 2012. <<http://www.auburn.edu/~garriro/c4refah.htm>>.
- Garrison, Roger W. *Time and Money: The Macroeconomics of Capital Structure*. London: Routledge, 2001. Print.
- Hülsmann, Jörg Guido. "Toward a General Theory of Error Cycles." *The Quarterly Journal of Austrian Economics* 1.4 (1998): 1-23. Print.
- Hulsmann, Jorg G. "General Overview of the Magnitude of the Crisis: A Comment." *Pontifical Academy of Social Sciences* (2011): 95-117. Web.
- Hulsmann, Jorg G. "The Political Economy of Moral Hazard." *Politika Economie* (2006): 35-47. Web.
- Hummel, Jeffrey Rogers. "Problems with Austrian Business Cycle Theory." *Reasonpapers.com*. N.p., 1979. Web.
- Kuttner, Kenneth N. "The Federal Reserve as Lender of Last Resort during the Panic of 2008." *Capmktsreg.com*. N.p., Dec. 2008. Web.
- Mises, Ludwig Von. *Human Action: A Treatise on Economics*. 4th ed. San Francisco: Fox and Wilkes, 1963. Print.
- O'Driscoll, Gerald P., Mario J. Rizzo, and Roger W. Garrison. *The Economics of Time and Ignorance*. Oxford, UK: B. Blackwell, 1985. Print.

- Rothbard, Murray. "The Ludwig Von Mises Institute." *Man, Economy, and State (with Power and Market)* by Murray N. Rothbard. N.p., 2004. Web. 19 Nov. 2012. <<http://mises.org/rothbard/mes.asp>>.
- Salerno, Joseph T. "Comment on Tullock's "Why Austrians Are Wrong about Depressions"" *The Review of Austrian Economics* 3.1 (1989): 141-45. Print.
- Schmidt, Krista, and Jesse Nankin. "Donate." *History of U.S. Government Bailouts*. N.p., 2009. Web. 30 Nov. 2012. <<http://www.propublica.org/special/government-bailouts>>.
- Shostak, Frank. "The Ludwig Von Mises Institute." *Expectations and Austrian Cycle Theory*. N.p., 2003. Web. 29 Nov. 2012. <<http://mises.org/daily/1131>>.
- Stefunko, Martin. "Why Professor Tullock Is Wrong on Austrian Theory of Business Cycles." *Mises.org*. N.p., 2000. Web.
- Thornton. "Cantillon on the Cause of the Business Cycle." *Quarterly Journal of Austrian Economics* 9.3 (2006): 45-60. Print.
- Tullock, Gordon. "Why the Austrians Are Wrong about Depressions." *The Review of Austrian Economics* 2.1 (1988): 73-78. Print.
- Wagner, Richard E. "Austrian Cycle Theory: Saving the Wheat While Discarding the Chaff." *Review of Austrian Economics* 12 (1999): 65-80. Web.