Quart J Austrian Econ (2008) 11:60–68
DOI 10.1007/s12113-008-9031-9

Austrian Business Cycle Theory: A Corporate Finance Point of View

Paul F. Cwik

Published online: 29 July 2008
© Ludwig von Mises Institute 2008

Abstract The Austrian business cycle theory (ABCT) has been criticized for not being a true theory of the business cycle. The main emphasis of the ABCT has been on the theory of the upper-turning point—the artificial expansion of credit, the manipulation of interest rates, the malinvestments committed by entrepreneurs and then the credit crunch and/or real resource crunch. The paper provides an illustration (from a corporate finance point of view) of how a company, by following market signals, will launch a project that is a malinvestment. The paper then demonstrates how a company can take a failing component from another business and turn it into a viable operation via the liquidation process. This paper then demonstrates how the Austrian theory can make superior recommendations for policies (through the usage of the liquidation process) to help stimulate economic recovery.

Keywords Austrian theory · Upper-turning point · Austrian analysis · Austrian Economics, Business Fluctuations · Cycles, Bankruptcy · Liquidation

Introduction

The Austrian theory of the business cycle is a bit of a misnomer. The theory has primarily focused on the causes of the downturn through the upper-turning point.[1] For example, the two classic Austrian works on the Great Depression, Lionel Robbins (1934) and Murray Rothbard (1963), focused on the events through the early 1930s. The liquidation and recovery phases have received little attention. Since the revival of Austrian analysis (in the early 1970s), research on the recessionary phase has remained scant.

[1] See Garrison (2001, p. 240) and Yeager (1997, p. 232). See also Yetter and Cochran (2004, pp. 1–2).

P. F. Cwik (✉)
Economics, Mount Olive College, Mt. Olive, NC, USA
e-mail: pcwik@moc.edu

According to traditional Austrian business cycle analysis, the malinvestments that are built up during the artificial boom need to be liquidated in order for sustainable growth to occur. As Rothbard states,

> The "depression" is then seen as the necessary and healthy phase by which the market economy sloughs off and liquidates the unsound, uneconomic investments of the boom, and reestablishes those proportions between consumption and investment that are truly desired by the consumers. The depression is the painful but necessary process by which the free market sloughs off the excesses and errors of the boom and reestablishes the market economy in its function of efficient service to the mass of consumers. Since prices of factors of production have been bid too high in the boom, this means that prices of labor and goods in these capital goods industries must be allowed to fall until proper market relations are resumed (1978, p. 85).

What happens during the liquidation phase may be as important a topic to analyze as the cause of the downturn. To many, it may be more important. The general public might say, "Sure it was the expansion of credit that caused our problems and we promise not to do that again, but we don't care about that now. Just tell us how to best get out of this mess." The economist who simply states that we should, "Let the markets work," opens himself up to attack. Supporters of government interventionism could very easily claim that capitalism caused the recession and reject putting faith into the very system that caused this problem. The first response by an Austrian would be to argue that the recession was not the fault of the market; the Austrian would thus fall into a trap. The Austrian would now be off topic and would lead back to the public's statement, "We don't care about that now. Just tell us how to best get out of this mess." I contend that this is precisely what happened during the great business cycle debates in the 1930s. The Keynesians said that they had a plan for recovery, while the Austrians said little more than "let the market work."

While little attention has been given to the recession phase of the business cycle, it does not mean that Austrians have nothing to say or add to the discussion. The Austrians, too, should have a plan for recovery. However, before such a plan can be constructed, the liquidation phase of the business cycle and how it becomes a recovery needs to be examined in detail. The purpose of this paper is to trace the course of the business cycle from a corporate finance point of view, showing how the downturn can only become a recovery through the liquidation process. The standard Keynesian and Monetarist prescriptions lack the ability to identify the problem (malinvestments) and thus cannot offer suitable solutions for economic recovery.

The Unsustainable Malinvestment Boom

The initial action that begins the business cycle is the artificial lowering of the interest rate by the central bank. Let us suppose that the central bank lowers the interest rate from 5% to 4%, a 20% reduction. From the point of view of the firm,

the change will affect the present value of both its working capital and its fixed capital.[2]

The value of working capital[3] is the following:

$$P_{WK} = P_{input} \cdot \left(1 + \frac{i}{t}\right), \tag{1}$$

where P_{input} is the direct cost for labor and materials,

i is the rate of interest, and
t is the turnover rate of working capital.

Thus, the percentage change in the present value of working capital when i becomes i' is:

$$\dot{P}_{WK} = \frac{i' - i}{t + i}. \tag{2}$$

With a 20% reduction of interest rates (from 5% to 4%) and with a turnover rate of 3, there will be a reduction in the cost of working capital of 0.328%. Machlup (1935) explains that this is not a surprising result because there are three fractions at work: (1) the rate of working capital to total direct cost, (2) the interest rate on working capital, and (3) a fractional decrease in the interest rate.

The impact that a change of the interest rate has on the present value of fixed capital is much more significant. Suppose that the firm has a unit of capital equipment that produces a stream of net revenue, $R - P_{WK}$, over the next n years. The discounted present value[4] of the fixed capital equipment would be:

$$PV_{FK} = \frac{R - P_{WK}}{1 + i} + \frac{R - P_{WK}}{(1 + i)^2} + \ldots + \frac{R - P_{WK}}{(1 + i)^n}, \tag{3}$$

or

$$PV_{FK} = \text{Net R} \times \left(\frac{(1 + i)^n - 1}{i \cdot (1 + i)^n}\right). \tag{4}$$

Thus, the percentage change in the present value of fixed capital is:

$$\dot{PV}_{FK} = \left(\frac{i}{i'}\right) \cdot \left(\frac{(1 + i)^n}{(1 + i')^n}\right) \cdot \left(\frac{(1 + i')^n - 1}{(1 + i)^n - 1}\right) - 1. \tag{5}$$

The impact of the change in interest rates from 5% to 4% changes with the longevity of capital equipment. If $n=1$, the impact is only 0.962%. If $n=5$, the impact is 2.826%. With $n=10$ or 20, the impact is 5.040% and 9.052% respectively.

[2] This analysis follows that of Machlup (1935).

[3] Working capital is the outlay made for wages, materials, etc.

[4] Technically, the net present value of a project is "net" of the initial outlay. What I am calculating is the discounted present value of the future net revenue streams. Therefore, it is technically not a Net Present Value calculation.

It is clear that the impact of the change in interest rates has a significantly greater impact on fixed capital than on working capital. It becomes a simple capital budgeting decision. Thus, with the reduction in the interest rate, firms will not only invest to expand production, they will expand the most in the longest lived fixed capital goods. Firms will also expand working capital in order to support the expansion of the fixed capital. Together, these are the malinvestments that are built up during the boom phase of the business cycle. The funds are made available through the artificial credit expansion conducted by the central bank. Finally, output expands as these investments come on line.

Suppose that a firm is considering a 10-year project upon the "stand alone principle." The cost of materials, wages, etc. is $983.61. The interest rate is currently at 5%. If the turnover rate of working capital is 3 times a year, the outlay of working capital per year is P_{WK}=$1000.00. Further suppose that the revenue from the project is $1040.00 per year and the purchase price of the capital equipment for the project is $324.44. When the present value of the project is calculated, it is $308.87, which is below the outlay for the fixed capital equipment. In other words, the project has a net present value of −$15.57. Thus, the firm does not choose to engage in that project.

Now suppose that the central bank lowers the interest rate from 5% to 4%. Consequently, the present value of the project is $324.44, the same as the price of the fixed capital equipment. The (marginal) firm will now invest in the project.

During the course of the artificial boom, malinvestments are built up. As the firms compete for resources, input prices are driven up. The central bank has a decision to make: either halt the monetary expansion or expand the money supply at a faster rate. The central bank may choose to halt the expansion and increase interest rates out of a fear of rising price levels. The effect of this policy is a credit crunch. If, instead, the central bank continues along an expansionist policy, input prices rise and effect the real resource crunch.

The Crunch

When the crisis hits, there are two problems facing the entrepreneur: increasing interest rates and rising input costs. With an increase in interest rates, there is an impact on both working capital and fixed capital. Continuing with the example above, suppose that the interest rate increases by 25%, from 4% to 5%. The effect this change will have on the above firm is a 0.329% increase in the cost of working capital. Assuming that input and output prices are constant, the increase of the rate of discount on the future cash flows from the fixed capital will diminish the value of that capital equipment. For capital equipment that has only another year of longevity, the impact is a change of −0.952%. If n=5, the impact is −2.748%. With n=10 or 20, the impact is −4.798% and −8.301% respectively. The longer lived the capital equipment, the greater the impact.

While the impact is significantly greater on fixed capital than on working capital, the impact of a change in the price differential between inputs and outputs has an even greater effect on the profitability of the firm. From Eq. 1, we can see the impact

that the price of the input has upon working capital. Thus, the percentage change in the value of working capital when P_{input} becomes P'_{input} is:

$$\dot{P}_{WK} = \frac{P'_{\text{input}} - P_{\text{input}}}{P_{\text{input}}}. \tag{6}$$

In other words, the percentage change in the cost of the input is the same as the percentage change in the amount of working capital outlay for production. For example, suppose that the project witnesses a cost increase in labor and materials by 10%. That would directly translate into a 10% increase in the amount of working capital needed to maintain production.

Such an increase in the cost of inputs reduces the profitability of the firm to a greater extent than the increase in interest rates. Once the firm has purchased the fixed capital (and assuming that it was paid up front and not financed), the cost of the outlay is sunk and is not relevant to the output decision of the firm. Thus when the firm is considering the size of output, the only factors that are considered are the revenues against the size of the working capital outlays. Thus, the level of profit (net revenue) for the project would be the same as the discounted present value of the fixed capital. Therefore the percentage change in the present value of the project, when only the prices of the inputs change, would be:

$$\dot{PV}_{\text{project}} = \frac{P_{WK} - P'_{WK}}{\text{Rev} - P_{WK}}. \tag{7}$$

Using the example presented above, suppose that after 1 year, interest rates return to 5% (from the artificially lowered rate of 4%) and that input prices increase 1%. The new price of a firm's inputs is P'_{input}=\$993.45. At an interest rate of 5% and a turnover rate of 3 times per year, the working capital outlay is P'_{WK}=\$1010.00. If we assume that revenue is held at a constant \$1,040.00, the present value of the project is \$213.23. The present value of the project has dropped over 30.96%. 80.75% of the loss (or 0.25 of the 0.3096 loss) is due to the 1 percent increase in the price of the inputs. 15.50% of this loss (or 0.04798 of the 0.3096 loss) is due to the change in the interest rate from 4% to 5%. The remaining 3.75% of the loss (or 0.01162 of the 0.3096 loss) is due to the fact that 1 year has elapsed. (If the profit margin is smaller, the percentage decrease in profit is greater.) Such a drop causes the firm to experience an economic loss (if not an accounting loss as well). To stop the loss, the firm must liquidate the fixed capital (the malinvestment).

The Liquidation Phase

So far we have observed that during the expansionary phase of the business cycle, firms have an incentive to expand production due to the reduction of interest rates. The rate reduction has an impact on both working and fixed capital investments; however, the effect is greater on fixed capital. During the crunch phase of the business cycle, we have seen that both interest rates and input prices rise. The change in interest rates has the smallest effect on working capital, while the change of input prices has a largest effect on the profitability of the project, even larger than the impact the interest rate increase has on fixed capital.

When interest rates and input prices rise, the firm is able to scale back the amount working capital and inputs it employs, but can be literally stuck with the fixed capital equipment. During the recession, although the firm may be experiencing an accounting profit, the important fact is that it is experiencing an economic loss—the rate of return of the project is below that of the opportunity cost of the funds. In the example above for the next year, the firm has an outlay of $1010.00 and will receive only $1040.00. This is a rate of return of 2.97%, well below the 5% rate of interest in the rest of the market. The firm is losing ground if it continues along this course. Thus, the firm will have to liquidate the project if only to take the proceeds and put them in the bank at the 5% rate of interest.

A firm that purchases the fixed capital equipment from this first firm will view this as a new investment decision. Thus at a 5% interest rate, a 9-year project that has a net return of $30.00 per year will have a present value of $213.23. It is at this price that the project and the capital equipment will be sold to the new company. The first firm sells at a loss and may end up going out of business. The second firm will be able to make a normal rate of return on the fixed capital equipment because the purchase price is so low. This liquidation process is how the malinvestments are converted into new fixed capital equipment and is necessary for normal economic growth to occur.

Implications

There are five important implications that can be derived from the above analysis. The first implication is that increasing interest rates, without increasing input prices, might not be enough to cause a downturn. The percentage change in the profitability of the firm seems disproportionately small relative to the impact of the changes in input prices. We have seen the Fed cut back on monetary growth when inflation (for both final goods and input goods) is high and such actions have preceded a recession. However, there is a new Fed policy which is to cut back on monetary expansion long before the effects of inflation reveal themselves in prices. Cwik (2004, 2005), and many others, have shown that typically the yield curve inverts 4 to 5 quarters prior to a recession. In the USA the yield curve was inverted between January 2006 and May 2007 and there is still uncertainty of a recession on the horizon. If this relationship is broken, then a possible reason may lie with the lack of increases in input prices. Since June 2004, the Fed has increased the Fed funds target rate, which according to the typical Austrian theory should lead to a credit crunch. However, the crunch has not happened (yet). This paper contends that increasing input prices play a more significant role in the crunch and the recessionary phases of the business cycle than increasing interest rates do. Put simply, without rising input prices, the inverted yield curve is not leading the economy to a recession like it has in the past.

It is important to note a complication to determining input prices is that as businesses fail, the demand for inputs falls. However, those firms that supply the inputs may also fail, thus decreasing the supply available. This analysis shows that the price of the inputs cannot by determined *a priori* based upon failing businesses.

The second implication is that the analysis (explaining how fixed capital equipment has to be sold-off at reduced prices in order to transform the malinvestments into legitimate capital equipment) does not seem to explain the duration of the recession phase. There are two stumbling blocks that tend to reduce the smooth transition of the fixed capital into productive structures. The first is that capital is not an amorphous mass, a homogeneous blob of "K." Capital goods have differing degrees of specificity, complementarity and substitutability. It is not simply a question of lowering the price and then plugging the machine into another production process. The project in the example illustrated above was self-contained, but in the real world, such projects are rare. Typically, a firm's projects need to be integrated into other existing firms. Austrians have long argued that merely investing capital does not lead to economic growth, but correctly arranged capital structures guided by the market process are the mechanism for growth. Rearranging prices is simply not enough to pull an economy out of a recession. Some of the more specific capital may have to be thrown away—scrapped—if no other firm could make a profit from it. A liberalization of merger and acquisition laws could improve the situation. Furthermore, the elimination of other obstacles found in bankruptcy laws could help expedite the transfer of malinvestments into productive ventures.

The third implication (and also second stumbling block) is that savings are needed in order to facilitate this transformation process. In order for the second firm to purchase the capital equipment from the first firm, the purchaser will need the funds to complete the transaction. Newly created credit will only start the boom/bust cycle again. Increasing real savings (a reduction in consumer goods in favor of investment goods) expedites the transformation process. This observation means that in order to stimulate an economy, savings need to be increased. A government interested in helping an economy out of a recession has to then do the following: first, not interfere with the price adjustment process; second, not reinflate the money supply; and finally, try to increase the amount of savings in the country. It could do this through liberalizing its laws to allow for increased savings to flow in from abroad and it could also cut taxes on domestic savers. By increasing the amount of savings, the amount of malinvestments that could be transformed into profitable investments increases. Increasing the amount of savings available for investment can shorten the duration of a recession.

The last two implications are that expansionist fiscal policies and expansionist monetary policies will not pull an economy out of a recession. Expansionist fiscal policies are designed to keep aggregate demand high. Such policies cannot pull an economy out of a recession, because any increase in aggregate demand will also put pressure on input prices to rise. The problem illustrated above is that after the crunch phase, the return on capital has fallen considerably. In order to maintain profitability by increasing output prices, the output prices have to either keep pace with or outstrip the increases in the input prices. The situation is escalating inflation coupled with falling levels of output as evidenced by the late 1970s and early 1980s. The output levels cannot be maintained due to the real resource crunch that is pressuring input price increases.

Expansionist monetary policies designed to cure a recession through the stimulation of investments also cannot pull an economy out of a recession, since

they ignore the malinvested capital. The malinvested capital is locked into unproductive arrangements and must be released through the liquidation process. The case study of the failure of employing both expansionist fiscal and monetary policy prescriptions is the Japanese economy since 1990.[5]

To summarize the implications of the corporate finance point of view:

1. Increasing input prices are needed to cause an economic downturn, not just increasing interest rates.
2. Fixed capital equipment has to be sold-off at reduced prices in order to transform the malinvestments into legitimate investments.
3. An increase in savings will expedite the transformation process.
4. Expansionist fiscal policy cannot pull an economy out of a recession.
5. Expansionist monetary policy cannot pull an economy out of a recession.

Conclusion

Of all the implications presented above, perhaps the most significant point is that the Austrians were correct to spend so much energy explaining the cause of the business cycle. It is only an understanding of the cause that allows us to determine the best policies to follow to generate an economic recovery. If the government follows policies that are contrary to the Austrian prescription, the situation will not only fail to improve, it will worsen. The lesson is that if input prices are rising (a real resource crunch), we will have a recession—even if output prices stay up (through Keynesian policies) and the Monetarists keep interest rates from rising (or maybe push them lower). The only way out of the recession is through the painful but necessary liquidation process.

The best means to transform malinvestments into viable economic activities is by increasing savings. This means that one of the government's most effective policies is to cut taxes on savers. Those who are savers are usually labeled as "the rich." Unfortunately, the prescriptions of "get government out of the market" or a "tax cut for the rich" tend not to be politically popular.[6] Nevertheless, it is the duty of the economist to present the truth. The economist cannot state that the government should do nothing. Such a policy was tested in the early 1930s. The modern economist needs to present the case that the government caused the recession and only by removing the government from the equation can the economy truly recover.

Acknowledgement I would also like to thank those at the 2007 Austrian Scholars Conference who gave insightful comments, particularly G.R. Steele, Peter Kerr, Michael Owen, and an anonymous referee for their careful review of the paper.

[5] See Powell (2002) for an excellent survey of the failure of both Keynesian and Monetarist policies.

[6] However, the idea of "tax cuts are for the tax payers" has had some success.

References

Cwik, Paul. 2005. "The Inverted Yield Curve and the Economic Downturn,"*New Perspectives on Political Economy: A Bilingual Interdisciplinary Journal* 1(1): 1–35.

_____. 2004 "An Investigation of Inverted Yield Curves and Economic Downturns," Ph.D. dissertation, Auburn University, found at: http://www.mises.org/etexts/cwik-dissertation.pdf.

Garrison, Roger. 2001. *Time and Money: The Macroeconomics of Capital Structure* New York, N.Y. Routledge.

Machlup, Fritz. 1935. "The Rate of Interest as Cost Factor and as Capitalization Factor," *The American Economic Review* 25(3): 459–65.

Powell, Benjamin. 2002. "Explaining Japan's Recession,"*Quarterly Journal of Austrian Economics* 5(2): 35–50.

Robbins, Lionel. 1934. *The Great Depression* Freeport, R.I. Books for Libraries Press.

Rothbard, Murray. (1978), 1996 "Economic Depressions: Their Cause and Cure," *The Austrian Theory of the Trade Cycle and Other Essays*, complied by Richard Ebeling with an Introduction and Summary by Roger Garrison, pp. 65–91.

_____. (1963), 2000. *America's Great Depression*, Auburn, Ala.: Ludwig von Mises Institute.

Yeager, Leland. 1997. "The Significance of Monetary Disequilibrium," *The Fluttering Veil*, Indianapolis, Ind.: Liberty Fund, pp. 217–51.

Yetter, Noah, and Cochran, John P. 2004. "Capital in Disequilibrium: An Austrian Approach to Recession and Recovery" Working Paper, Ludwig von Mises Institute, found at: http://www.mises.org/journals/scholar/cochran5.pdf.