

## Is this ‘it’? An outline of a theory of depressions

*É “isso”? O esboço de uma teoria de depressões*

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RESUME: A crise iniciada nos Estados Unidos em 2007, e que se espalhou pelo mundo em 2008, tem sido comparada à Grande Depressão da década de 1930. Têm em comum uma queda profunda no nível de atividade (embora na intervenção dos anos 2010 o governo tenha sido capaz de conter a queda antes que alcançasse as dimensões da década de 1930), seguida de um período em que a recuperação é incerta e frágil, como tem sido cada processo, tanto nos EUA como na Europa Ocidental. O artigo descreve uma teoria da depressão que compreende dois aspectos. A teoria baseia-se nas contribuições teóricas de Keynes, Fisher, Minsky e Leijonhufvud, propondo que o conceito de “corredor de estabilidade” pode ajudar a explicar como um choque agregado adverso inicial pode levar a uma espiral contracionista, onde a deflação da dívida é o principal mecanismo para explicar o movimento descendente da economia e por isso deve-se esperar um período de recuperação fraco e volátil para segui-lo.

PALAVRAS-CHAVE: Depressão; crise financeira; corredor de estabilidade; austeridade.

ABSTRACT: The crisis initiated in the United States in 2007, and spread worldwide in 2008, has been compared to the Great Depression of the 1930s. They have in common a deep fall in the level of activity (although in the 2010s government intervention was able to contain the fall before it could reach the dimensions of the 1930s), followed by a period where recovery is uncertain and fragile, as has been the case both in the US and in Western Europe. The paper outlines a theory of depression that comprises both aspects. The theory draws on the theoretical contributions of Keynes, Fisher, Minsky and Leijonhufvud, proposing that the concept of “corridor of stability” may help to explain how an initial adverse aggregate shock may lead to a contractionary spiral, where debt deflation is main mechanism to explain the downward movement of the economy and why one should expect a period of weak and volatile recovery to follow it.

KEYWORDS: Depression; financial crisis; corridor of stability; austerity.

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## INTRODUCTION

Many analysts (this author included) underestimated at first the potential impact of the subprime crisis initiated in the United States in 2007. By the end of 2008, however, it was already practically impossible to deny that something different from a “normal” cyclical recession was going on. In fact, it had become almost a cliché to point out that only the Great Depression of the 1930s could be compared to the contraction of manufacturing output one was witnessing in the United States, a movement that was quickly spreading to other areas of the world, most notably Western Europe.<sup>1</sup>

The fall in output levels (and the accompanying rise in unemployment rates) was contained before it could actually reach Great Depression proportions. But the Depression in the 1930s was not properly characterized *only* by the depth of output contraction. Its exceedingly long *duration* was also remarkable enough to lead many analysts, to this day, to argue that it took World War II to finally end it, ten years after the beginning of the 1929 contraction.

Measuring the duration of a depression may involve important conceptual problems. In contrast with the conventional NBER approach to date a *recession* from the moment when the output indicator falls two quarters in a row (and to date its end by an equivalent successive two-quarter rise in output), those who argue that the depression only ended with World War II have to be using other dating methods. As it is well known, growth in the United States was actually resumed in 1933 and, except for the 1937-38 recession, it was sustained until the break of the war. So, what does it mean to say that it took the war to end the depression?

If one thinks of the current situation, the same dilemma will pose itself: is the end of the United States recession, in 2009, after a relatively small contraction (compared with 1929-30) enough to dismiss the similarity proposed between the two episodes? Or, for that matter, if economies like Spain or Portugal recovered positive, albeit very low, rates of growth in 2014 and 2015 is one authorized to speak of the end of the depression in these countries? In other words, should we treat these cases as we do “normal” recessions? And what about the cases like Italy or the UK where a double dip was recorded? The mere recovery of positive rates of growth is probably not enough to believe that those economies are out of the woods.

Although the term “depression” has now become matter of day-to-day conversation, there is no accepted *concept* of depression. To propose one, in the second

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<sup>1</sup> In fact, the pioneers in the quantitative comparison between the two situations, Eichengreen and O'Rourke (2009) stressed that, if anything, the speed of contraction was greater in the United States in 2008 than it was in the comparable period after the 1929 contraction. Later, their insights were incorporated in Almunia *et al* (2010, p.4), where it was stated that “the decline in manufacturing globally in the twelve months following the peak, which we place in early 2008, was as severe as in the twelve months following the peak in 1929.”

section we offer a stylization of the 1930s depression in the United States and of the 2010s crisis in the United States and some Western European countries. Third section then develops an outline of a theory of depression based on that stylization. The fourth section concludes the paper summarizing the points made and developing some of the implications of the proposed definition.

## THE 1930S AND THE 2010S

The first stylized fact about both the Great Depression and the current crisis is that they are international phenomena. A large number of countries were hit directly and an even larger number suffered a significant impact, which, however, varied widely in depth, duration and in the changes it induced in each country's economic structure.<sup>2</sup> Most analysts dealing with the Great Depression directed their attention mainly (many times *exclusively*) to the US economy.<sup>3</sup> The Stock Exchange crash of 1929, the bank runs, the policies adopted by Herbert Hoover and, afterwards, by Franklin Roosevelt, the New Deal, and the behavior of the American economy during the 1930s, are all that matters for them. But Great Britain was arguably depressed since the mid-1920s and began to recover earlier than the United States, after abandoning the gold standard in 1931. Germany, France and Italy in the 1920s were each one of them "special" cases, particularly in the different ways they dealt with the legacies of World War I and the eventful 1920s.

If we take the American experience as paradigmatic, as most analysts do, the second stylized fact to be considered in such episodes is that the fall in output (and related variables, such as employment) is deep if governments do not act to stop it in time. American experience in the 1930s would show what happens when government action is delayed. American and European experiences in the 2010s show what happens when governments act to stop the decline at first but then change tack and pursue austerity policies.

But a third stylized fact is at least as important as the second: affected economies take a long time to fully recover, especially if one defines full recoveries by the ability of affected economies to reach pre-crisis *trend* growth. In fact, it is not even clear whether such trend can be attained without the action of some exogenous force (such as demand-push caused by World War II).

One important difference between the 1930s and the 2010s is the behavior of prices. Consumer prices in the United States crashed after 1929, and didn't recover their past levels until the war. It was such a situation that led Irving Fisher to for-

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<sup>2</sup> In Latin America, for example, the 1930s depression, after an initial period of difficulties resulting from the contraction of export of raw materials for advanced economies, ended up giving a strong push to import substitution industrialization.

<sup>3</sup> Among the notable exceptions, Kindleberger (1986). More recently, the international dimension was emphasized by those blaming the gold standard for the depression, such as Eichengreen (1992).

mulate his debt deflation theory of depressions (Fisher, 1933). Producers of consumer goods went bankrupt because deflation increased dramatically the real burden of their financial debts. Minsky adapted Fisher's concept of debt deflation to apply to securities and financial contracts markets.<sup>4</sup> In Fisher's world, debt deflation occurred because producers had to sell their goods at increasingly lower prices to be able to pay the debts they incurred in the process of production. In Minsky's world, debt deflation was due to the need by wealth holders to sell assets at increasingly lower prices to liquidate the obligations they issued in order to buy those assets. In the 2010s, consumer prices in the United States actually fell at the beginning of the crash but they quickly recovered and kept rising. Financial assets prices, in contrast, fell dramatically, and some segments of the securities markets practically disappeared, after liquidity dried up, at least until the monetary authorities intervened forcefully to stop the fall.<sup>5</sup>

A final stylized fact about the crises is that international trade is seriously affected by the crisis although in the 2010s one did not witness the adoption of aggressive protectionist policies characteristic of the 1930s.

In sum, the available data suggest that while *depth of contraction* was contained at much less dramatic levels than those witnessed in the 1930s the *duration* of the crisis and the fragility of observed recovery seems closer to the standard set by the 1930s Great Depression than to usual "normal" cyclical recessions. In contrast to what is usually assumed with respect to "normal" business cycles, the "shock" represented by the contraction in output seemed to have had *long term* effects on the level of activity, causing recoveries to be weaker and more fragile than "normal" recoveries.<sup>6</sup> For authors such as Schumpeter, for example, this would be precisely the distinguishing feature of a depression.<sup>7</sup> The same point, that is, the possibility of an economy getting "stuck" in a low level of activity for an indefinitely long period of time seemed also to be the point of Keynes's concept of *unemployment equilibrium* in *The General Theory*. A theory of depression should be

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<sup>4</sup> Minsky presented his version of the debt deflation process in many of his works. One example is Minsky (1975, p.115).

<sup>5</sup> It is much more difficult to document a *general fall* in asset prices than in goods and services. There is no general index of asset prices and in any event segments tend to be affected in highly different degrees. Nevertheless, there is a large amount of evidence contained in narratives of the 2007-2008 financial crises describing how asset-backed securities (including MBS, CDOs, CDSs, etc.) quickly lost market value forcing financial institutions to fire sell the assets they held, exemplifying what Minsky described succinctly as "selling position to make position". For an example of such narratives, see Blinder (2013).

<sup>6</sup> It is very common for business cycle theorists to assume that cyclical fluctuations are independent of long term trends in the economy both in the sense that fluctuations are not impacted by long term variables and that the latter do not suffer any impact from the fluctuations themselves. See, for instance, Kalecki (1954). Recent empirical studies, however, suggest that even "normal" recessions can have a negative long term impact on growth. See Cerra and Saxena (2007).

<sup>7</sup> Schumpeter (1939, p. 151) stated that a depression is a pathological state which could last indefinitely.

capable of explaining *both* features: the steep contraction (unless governments intervene to stop it) and the protracted period of weak recovery.

## AN OUTLINE OF A THEORY OF DEPRESSIONS

The central point of a theory of depressions must be the distinction between depressions and *normal* cyclical recessions.

It has long been accepted by most economists that activity in capitalist economies normally fluctuates. Some important economists argued that fluctuations were random manifestations of the complexity of modern market economies, where decisions are made by a very large number of units in the absence of any mechanism capable of reconciling them *ex-ante*.<sup>8</sup> The majority of analysts, however, have always seemed to believe that more systematic forces *caused* observed fluctuations. In other words, fluctuations were assumed to express the *regular* operation of fundamental mechanisms. Fluctuations *per se* might be random phenomena, but *regular* fluctuations could only be the expression of systematic causes.

The cyclical hypothesis relies on two related features supposed to be observable in fluctuations: recurrence and periodicity. Not only each phase (prosperity, recession) recurs from time to time, but they seem to do it at more or less regular time intervals. This suggests that they are elements of a larger process, the economic cycle, rather than isolated phenomena to be explained independently of each other. Whatever the correct theoretical explanation of business cycles may be, if one accepts that cycles are an *empirical* reality, a key implication is that the level of activity at any given moment cannot be explained but in reference to what happened in the preceding moment (and, in fact, also in reference to what comes next). Every stage of a cycle is nothing but a link in a chain connecting the preceding moment to the next. A cyclical recession, in this sense, is only a phase where the next prosperity is being bred. In time, a recession should engender recovery and prosperity. The alternation of phases is just an expression of *normal* capitalist dynamics.

A depression, in contrast, for those who consider it a particular phenomenon, is *abnormal*. For Schumpeter, as for Keynes, it was *permanence*, rather than *transience*, that should be taken as the distinctive feature of a depression when compared to a cyclical recession. An economy can get *stuck* in a depression, that is, one should not expect that a depression would *naturally* engender recovery and prosperity as a cyclical recession does. Being an abnormal development, a depression cannot be predicted from what happens before it nor can it be expected to spontaneously dissipate into an upswing.

Naturally, the important question is to identify the conditions under which this pathological state emerges and develops, that is, the conditions that make it pos-

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<sup>8</sup> Irving Fisher defended this view in Fisher (1932). Slutsky (1937) showed that, statistically, a movement with the appearance of a regular cycle could be generated by a number of underlying random processes.

sible for an economy to get into a depression instead of a normal cyclical recession. Right at the start, one has to face one difficulty: the relatively small number of depression episodes (compared, for instance, to cyclical recessions), which complicates attempts to look for empirical patterns. Most of the time, what is known about a depression is, in fact, not only derived from one experience, the great depression of the 1930s, but very often, as already mentioned, the experience of *one* country at that time, the United States.

By characterizing the Great Depression by the stylized facts listed in the section second, especially depth and duration, I am actually following an old tradition. But it is not enough to state that the depression comprised these two phenomena. Unless one is prepared to argue that the fact that a long period of subdued economic activity followed a big decline in output and employment is merely a coincidence,<sup>9</sup> a satisfactory theory of depressions has thus not only to explain depth and duration, but needs also to address the connection between them. Two hypotheses stand out to explain the connection. The first states that the shock represented by the original crash may change the parameters that regulated the operation of the economy. The second is that policies adopted to face the consequences of the crash, such as those identified as austerity policies, may actually prevent a full recovery from taking place.<sup>10</sup> Let us address each one at a time.

### **i. An endogenous connection through the concepts of *Corridor* and Financial Fragility**

As already stated, to build a theory of depression one needs a theoretical tool capable of distinguishing *abnormal* from *normal* developments and to identify their boundaries. This was precisely the point of the notion of *corridor of stability*, originally proposed by Leijonhufvud in the early 1970s.

The way Leijonhufvud first presented it did not seem in fact very promising. The notion of *corridor of stability* was introduced in 1972 (Leijonhufvud, 1972), to reconcile the validity of the classical notion of stable equilibrium (described by Leijonhufvud as a *full coordination path*) with the existence of disequilibrium-enhancing mechanisms, such as the Keynesian consumption multiplier. In his words:

The system is likely to behave differently for large than for moderate displacements from the ‘full coordination’ time-path. Within some range from the path (referred to as ‘the corridor’ for brevity), the system’s

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<sup>9</sup> Which is precisely what a large number of works on the Great Depression in the United States do when the crash is explained, e.g., by monetary policy decisions while the period after 1933 is explained by ad hoc intervention in market processes, like the creation of the National Recovery Administration, stimulating price fixing in the manufacturing sector, or the Wagner Act promoting unionization of the labor force. See, interviews by Ben Bernanke and James Hamilton in Parker (2007).

<sup>10</sup> We will devote more time in this paper to explore the first hypothesis because of the lower general familiarity with the concepts that support it.

homeostatic mechanisms work well, and deviation-counteracting tendencies increase in strength. Outside that range these tendencies become weaker as the system becomes increasingly subject to ‘effective demand failures’ (Leijonhufvud, 1972, p. 9).

The notion that any given system reacts differently to large and to small shocks is almost intuitive. Leijonhufvud’s way of presenting it, however, wasted much of its appeal by confining it to such a narrow theoretical framework. We will retain here only the notion that there are shocks the system can take, absorb, and move on along its *normal* path and shocks that cannot be absorbed because they disorganize the system itself and alter its dynamics. The notion of *normality* is intended to replace Leijonhufvud’s concept of full coordination time path and is taken from Keynes,<sup>11</sup> who used it to explain how agents make their decisions. Current data were assumed to be evaluated by decision-makers, when forming their expectations, using “normal” values as a reference. Agents were supposed to evaluate the meaning of available data but comparing them to *normal* values attributed to those variables.

Keynes, who inherited the notion of normality from Marshall (Cardim de Carvalho, 1990), considered past experience to be the main input to personal notions of what is normal and what is not. In this sense, it is not far-fetched to assume that cyclical fluctuations are “normal”. The occurrence of a recession, say, should not *surprise* anybody: a recession may be painful but one *expects* it to happen and to be overcome in time. Normal precautions are taken to protect against recessions. How far one protects oneself depends on the value of expected losses, an estimation assumed to be based on past experience with normal activity downturns.

We define, therefore, the corridor of stability as that range of values of the relevant variables that is recognized as normal by economic units, such that any variation of those values within the expected range can be absorbed without changing the parameters of the system. In this context, this implies: (i) that they don’t have to “revise the theories” about the workings of the economy which orient their decisions as to the precautions that are advised against unfavorable events; (ii) that the precautions they take to protect against predicted “worst scenarios” are actually enough to allow them to move on with their normal activities. When actual shocks are larger than those previously judged normal, they overcome the defenses built by agents so that the economy can no longer proceed with its regular operation. As a result, agents may feel the need to revise their theory of how things “normally” work, thereby changing the parameters that define “normality”.

The stability of the system hinges on how wide the corridor is. As has just been proposed, there are three determinants of the width of the corridor. First, there is the exposure of economic units to adverse shocks, that is, how likely it is that a given adverse shock will cause them significant losses; second, how effective are

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<sup>11</sup> The concept of normality adopted by Keynes is extensively discussed in Cardim de Carvalho (1990).

the defenses built to compensate these losses, allowing them to proceed with their strategies; and third, how the shock fits in the “theories” of the economy created by agents to orient their strategies. As none of these determinants is supposed to remain fixed through time, so the width of the corridor should be assumed to be variable.

Within such a framework, a depression begins when an adverse shock is sufficiently large to overcome the defenses built by economic units, making it impossible for them to maintain their previous patterns of behavior and/or theories of the economy. If the fall goes deep enough or inadequate reaction patterns are selected that worsen the crisis, material and expectational variables may change in such a way that after a while a new normality will be recognized, around which another corridor of stability will be created. Under circumstances like this, an *unemployment equilibrium*, with the features Keynes described it in *The General Theory*, can prevail as the new normal.<sup>12</sup>

Measuring the ability of a system to absorb shocks, the width of the corridor is in fact a measure of systemic *fragility*. In a modern entrepreneurial economy, systemic health depends on the ability to businesses to generate cash flows that validate businessmen’s profit expectations and allow them to honor their liabilities.<sup>13</sup> Making the ‘wrong’ decision may mean not only suffering losses but, under certain conditions, may lead to bankruptcy. Moreover, inability to honor debts may spread the original distress to creditors, including, in the case of firms, hired factors of production, to holders of similar classes of assets and liabilities, thereby creating cumulative pressures that could eventually compromise the economy’s ability to return to the neighborhood of its original position.

Minsky’s concept of financial fragility measures the vulnerability to shocks of such an entrepreneurial economy where production and accumulation decisions are made by businessmen. These economies are endowed with sophisticated financial markets that allow firms to spend more than their current incomes through the issuance of debt. If a unit issues debt to finance the purchase of assets in the expectation that their returns will allow to service that debt (and still leave some surplus), failure can occur in one or both of two cases: disappointment of expectations of cash inflows; a rise of cash outflows required to honor debt liabilities. One can hedge against the first disappointment by producing to order whenever possible but it can safely be assumed that the uncertainty surrounding the return of assets is the core of an entrepreneurial economy and can never be completely neutralized. To hedge against increases in the service of outstanding debt requires either not to issue any debt or to issue debt with the same maturities as the assets that are being acquired, so that no refinance will be needed during

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<sup>12</sup> More about this will be discussed in the third section, iii.

<sup>13</sup> “The fundamental speculative decision of a capitalist economy centers around how much, of the anticipated cash flow from normal operations, a firm, household, or financial institution pledges for the payment of interest and principal on liabilities” (Minsky, 1975, pp. 86-87)

the life of those assets. Of course, hedging is costly. Limiting leverage implies missing opportunities to increase returns on net worth. Capping maturity mismatches in the balance sheet implies paying higher interest rates on debt, and so on. The future being uncertain means that the wealth-holder has to decide how far it is worth to hedge, given its cost.

In this context, an *individual's* financial fragility, that is, his vulnerability to adverse shocks is rooted in (i) leverage, which exposes one to the risk of being unable to pay one's debts if revenue expectations are disappointed; (ii) mismatch between assets and liabilities that may demand refinancing of the asset position, which exposes the asset holder to the risk of being unable to roll over its debts at payable interest rates; and (iii) illiquidity of balance sheets, that is, the continuous fall in the proportion of assets held for their liquidity premia rather than for their expected returns. In the *aggregate*, financial fragility depends on one additional factor, (iv) the degree of interconnectedness among asset-holders, which may cause the inability of a unit to honor its debts to become a disappointment of cash inflows to one or more other units. Thus, for an economy as a whole, the lower leverage, mismatch between assets and liabilities and interconnectedness between units' balance sheets and the higher liquidity of balance sheets are, the more resilient the system is. Or, alternatively, the wider is the corridor of stability, meaning that the larger the adverse shocks the system is capable of absorbing.

Minsky got very close to writing down a corridor model himself. What he called domain of stability is almost exactly the same idea as the corridor of stability:

There are two basic attributes of the financial system that determine the domain of stability of the financial system: (1) the extent to which a close articulation exists between the contractual and customary cash flows from a unit and its various cash receipts and (2) the weight in portfolios of those assets that in almost all circumstances can be sold or pledged as well nigh their book or face value. A third element, not quite so basic, that determines vulnerability to a financial crisis is the extent to which expectations of growth and of rising prices have affected current asset prices and the values at which such assets enter the financial system. The domain of stability of the financial system is smaller the closer the articulation of payments, the smaller the weight of protected assets, and the larger the extent to which asset prices reflect both growth expectations and realized past appreciations (Minsky, 1982, p. 144).

The *domain of stability* allowed Minsky to distinguish between stable and unstable configurations.<sup>14</sup> When the system was recognized to be in the unstable configuration, a financial shock could generate a depression:

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<sup>14</sup> In fact, in another paper published in the same book, Minsky proposed to distinguish between three types of configurations: stable, quasi-stable and unstable. (Minsky, 1982, p. 8).

In an unstable market a slight deviation from equilibrium has widespread repercussions. Hence, once the money market evolves into such an unstable situation, a financial crisis can be expected. The collapse of a portion of the financial market results in both a loss of net worth and of liquidity by households, business firms, and other financial institutions. Even if the financial crisis is not generalized, economic units will revise their view and desire more liquidity. A tendency to use savings to liquidate debt and hence to increase the ratio of net worth to debt will arise; this has a depressing effect upon income. Thus the ‘shock’ from the financial sector can create a situation which leads to a deep depression (Minsky, 1982, pp. 174-175).

When working with the concept of corridor of stability, it is clear that stability is a *relative* property: a system is stable in the face of a given shock of a given intensity. In fact, this seemed to be Minsky’s own understanding when he stated that:

For every debt-income ratio of the various sectors we can postulate the existence of a maximum decline in income which, even if it is most unfavorably distributed among the units, cannot result in a cumulative deflationary process, as well as a minimum decline in income which, even if it is most favorably distributed among the units must lead to a cumulative deflationary process. [...] For a given set of debt-income ratios, these boundary debt-income ratios are determined by the relative size of the economy’s ultimate liquidity (those assets with fixed contract value and no default risk) and the net worth of private units relative to debt and income as well as the way in which financial factors enter into the decision relations that determine aggregate demand (Minsky, 1982, p. 7).

If a shock takes the economy out of the corridor, cumulative or disequilibrium-enhancing processes operate that may snowball until they wear themselves out or are stopped by some exogenous factor. One would expect the economy to behave in increasingly *incoherent* ways (Minsky, 1980), reducing the probability of a “normal” recovery, that is, the return to a previous trend, as one expected to happen in the case of normal cyclical recessions. The most important mechanism spreading and intensifying incoherence is *debt deflation*. When return expectations are disappointed or short term debts cannot be rolled over, and the asset holder finds himself unable to service his debts with asset revenues, he would have no alternative but to try to sell assets to liquidate debts. If the shock hit a large enough number of asset holders there could emerge a situation in which the increased volume of assets put for sale depresses their prices forcing new rounds of sales, a process which would repeat itself until their value is wiped out. Minsky used the expression “to sell position to make position” to characterize what asset holders try to do in these

circumstances: its end result is widespread financial wealth destruction.<sup>15</sup> Wealth destruction, if it is taken too far, makes “normal” recoveries impossible. Of course, while a financial collapse is developing, and in its aftermath, the “real” economy will suffer its impact both on the side of the demand for goods and services (which tend to collapse because of wealth and income effects) and because of the contraction of credit by banks and other financial institutions, which are directly hit by a debt deflation. The combination of financial and real impacts causes the deep and relatively quick fall in output and employment characteristic of output contractions observed at the start of a depression.

Disequilibrium-amplifying processes such as debt deflations, however, are not supposed to run in practice until its fuel is entirely exhausted. Historical experience has shown that other forces, especially State intervention, tend to put a floor under collapsing markets at some point. Success at stopping cumulative contractions, however, does not necessarily guarantee a prompt recovery. In fact, government policies necessary to stop a contractionary spiral may be very different from those appropriate to induce or support recovery.<sup>16</sup>

Once the contraction process is contained, in any case, agents search to identify the features of the newly-created situation that might allow them to adapt and to recover coherence.

A final word about the width of the corridor as proposed so far. The wider the corridor, the more stable the system is, that is, the more capable it is of absorbing adverse shocks. But “building” a corridor is costly and the costs rise with the extent of its width. A key factor then when building defenses against adverse shocks is how likely asset holders evaluate a future disappointment of their expectations to be. If, for instance, an economy is growing, asset prices are rising, expectations are being met so that liabilities are being honored and some surplus is being appropriated, it is only too natural that agents will question the real need for the precautions they are taking. The trade-off between gain and safety will probably be seen as excessive. Leverage will be increased, investors will finance their purchases of longer-lived assets by an increasing appeal to short-term borrowing, lower liquidity buffers will be kept, and so on. Prosperity should lead to narrower corridors, and the longer the prosperity lasted (or the stronger it was) the narrower we should expect it to become. This is nothing else than translating into the language of the corridor hypothesis Minsky’s best-known aphorism, *stability is destabilizing*.<sup>17</sup> A narrower corridor means that it takes a relatively smaller shock to take the econ-

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<sup>15</sup> One should notice that current accounting practices that consecrate the principle of mark-to-market tend to strengthen the destructive trend since it spreads the effects of the asset price falls even to those asset-holders that choose to keep them in their portfolios.

<sup>16</sup> The roles played by the State intervention in such a process will be discussed in the third section, iii, next.

<sup>17</sup> More recently, Leijonhufvud himself came to see Minsky’s model of financial fragility the embodiment of his corridor hypothesis, a long way from its original formulation (e.g., Leijonhufvud, 2009). Still, Leijonhufvud confined Minsky’s approach to the consideration of leverage alone, neglecting the other elements that are important to his financial fragility theory.

omy into a disordered state. If the corridor is narrow enough (that is, if its vulnerability is large enough), even shocks that would be irrelevant in some other circumstance may cause a contractionary spiral. In the present perspective, it is on the width of the corridor, instead of the size of the shock, that one should focus.<sup>18</sup>

## ii. An exogenous connection through the role of Government Policy

Experience has shown that governments will not just stand in the wings watching as their economies crumble. It may be useful, however, to distinguish between actions taken by governments to stop a contractionary spiral and actions taken during or after the crash to promote recovery.

The kind of catastrophic contraction just described that initiated depressions can be characterized as liquidity crises. Illiquid banks could not honor their deposit liabilities (or were feared so) in the United States in the 1930s, so depositors initiated bank runs. Illiquid investment banks and other financial intermediaries in the United States could not honor their *repo* liabilities (or were feared so) in 2007 and 2008, so creditors withheld their loans forcing them to fire sell securities in the attempt “to sell position to make position”. Contagion to other segments of the securities markets was rapid and illiquidity spread throughout the financial system. Rising liquidity preferences on the part of survivors only made things worse.

The way to stop a liquidity crisis, naturally, is to create liquidity and to direct it to the markets affected by illiquidity. As Minsky observed, *ultimate liquidity* is created and injected in financial markets by the government (the function of what he called *Big Bank*).<sup>19</sup> To cease a cumulative contraction, government authorities (including central banks) must act as market makers, that is, residual buyers for the excess supply of financial assets to sustain their prices and stop debt deflation before it bankrupts too many economic agents. In the 2007-2008 crisis, the Federal Reserve, together with the Treasury Department, in the United States created many emergency programs designed to recreate liquidity in securities markets. Similar measures were taken in the United Kingdom and Germany. When an illiquidity crisis later threatened the market for sovereign debt securities in the Eurozone, it took a public statement by chairman Mario Draghi of the European Central Bank and the creation of a (never actually implemented) liquidity support program to stop it.<sup>20</sup>

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<sup>18</sup> This point was also emphasized by Galbraith (1997, p. 90). Given the extent of leverage-supported speculation in the 1920s, the identification of the trigger for the collapse in 1929 was of secondary (or lower) importance: “This is not very important, for it is in the nature of a speculative boom that almost anything can collapse it. Any serious shock to confidence can cause sales by those speculators who have always hoped to get before the final collapse, but after all possible gains from rising prices have been reaped.”

<sup>19</sup> “The ultimately liquid assets of an economy consist of those assets whose nominal value is independent of the functioning of the economy. For an enterprise economy, the ultimately liquid assets consist of the domestically owned government debt outside government funds, Treasury currency, and specie” (Minsky, 1982, p. 9).

<sup>20</sup> Many analysts of the current crisis attribute the amplitude of the liquidity-support intervention by

Although one should not exaggerate the sharpness of the distinction, defining policies to promote recovery is something else. Once debt deflation, and its most immediate impacts on the “real” economy, is neutralized, choosing the right policies to resume and sustain growth (let alone recovering pre-crisis growth paths) is considerably more complicated.

Two schools of thought have competed for acceptance by policy makers. The first relies on the assumed existence of powerful self-adjustment mechanisms in capitalist economies. They only need to be freed from “outside” interference, such as government regulations, irresponsible fiscal policies, lax monetary policies, etc., to allow these economies to resume their natural growth paths. *Austere* macroeconomic policies and *structural reforms* to liberate markets to reduce costs of production are the core policies proposed by this school.<sup>21</sup> The opposing view, of a more eclectic origin, coalesced around the idea that these economies were in fact incapable of recovering by themselves from a crisis of such a dimension. For some, markets should not be liberalized. On the contrary, they should be reorganized and controlled even more.<sup>22</sup> Others, including Keynes, believed that outside interference was necessary but favored promotion of public works. For them, depressions occurred because aggregated demand collapsed and it had to be revived. This group tended to favor expansive fiscal policies, particularly in those cases where expansive monetary policies were prevented by adherence to the Gold Standard.<sup>23</sup>

the Federal Reserve to the lessons its chairman, Ben Bernanke, learned from his academic studies of the Great Depression. In the opposite direction, in their classic volume on the monetary history of the United States, Friedman and Schwartz (1963) stressed the importance of the Federal Reserve adopting the “wrong” policies to transform a stress into a crisis.

<sup>21</sup> Policies along these lines were followed in the 1930s in the United States, during the Hoover administration, the UK (since its return to the gold standard in 1925), pre-Nazi Germany (especially during the Bruening period), and France. Some countries, especially the UK (until 1931) and France (until 1936) were heavily constrained by their adherence to the gold standard, a constraint also felt by the United States until President Roosevelt suspended it. For general descriptions of the economic and political situation in these (and other) countries at the time, see Brendon (2002). It is interesting to note, however, that, at least in some cases, adherence to austerity policies plus reforms was fed not only by ideological faith on the self-healing virtues of capitalist economies but also by doubts about the material or technical feasibility of alternatives. See, for instance, the splendid volume organized by Peden (2004), where the Treasury View is defended against Keynes’s attacks mostly by arguing that his government spending proposals were in practice impossible to implement.

<sup>22</sup> The first New Deal, for instance, created institutions to organize both the manufacturing and the agricultural sectors to limit competition among firms that was supposed to be forcing their prices downward. An extreme case in many senses, Nazi Germany implemented reforms that went much beyond the mere cartelization of the agricultural and manufacturing sectors to actually giving control over production and pricing decisions to the government (although the goal was rearmament rather than recovery per se). On the New Deal, see Badger (1989), on Nazi Germany, the extraordinary work of Adam Tooze (Tooze, 2006).

<sup>23</sup> As Keynes argued, the implications of his General Theory were half conservative, half revolutionary. They were revolutionary to the extent that policy should be designed on the knowledge that Say’s law was false. They were conservative in the sense that markets should still be allowed to, as freely as possible, to allocate resources among concrete uses: “It is in the determining the volume, not the

In the 2010s, an intense debate has begun between the proponents of austerity policies and Keynesian proponents of expansive aggregate demand management policies. As in the 1930s, the first group prevailed (so far, at least), especially in Western Europe but also in the United States (after a brief and relatively timid “Keynesian stimulus package” was adopted in 2009). One consequence of the prevalence of the austerity and self-adjustment program has been the prolongation of the period in which those economies are to remain prostrated. Adjustment may be spontaneous perhaps but it is certainly not fast. Excesses of the past have to be purged, resistance to reform must be broken and these are processes of change that take time even if one believes they will ultimately work. Moreover, designing and implementing reforms is also time-consuming. Thus, austerity policies are expected to take time to yield its results even in the eyes of their defenders.

In sum, a government may be successful in stopping contractionary spirals and still promote austerity policies that prolong stagnation. Whether the expectations of austerity believers will ever be vindicated is, empirically, an open question. Nevertheless, whether austerity or expansive policies are chosen becomes a fundamental (although not the only one) element in the determination of what comes next, the weak and volatile growth phase of the depression.

### iii. The “New Normality” and Recovery

An out-of-corridor state, such as contractionary spiral, with debt deflation and financial panic, is obviously not a sustainable state. Extreme uncertainty can only lead to extreme caution and virtual paralysis. A disordered state does not allow decision-makers to discern the normal states they need to orient their behavior, so the economic machine breaks down and tends to stand still. Once debt deflation is stopped and panic dissipates, however, businessmen, workers, political leaders, etc., begin to formulate the new “theories of the world” that will shape their decisions and behavior.

Prominent in these theories, of course, will be the *realities* created by the crash: wide destruction of financial wealth, bankruptcies, the reality or the threat of unemployment, illiquidity, excess leverage, contraction of credit, the memory of the “excesses” of the recent past and the hardships of retribution. A crucial component of these theories is the expected behavior of the government. Governments committed to promote austerity will, at least for the short and medium terms, signal that the economy will be kept operating at low levels of activity.<sup>24</sup> The influ-

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direction, of actual employment that the existing system has broken down” (Keynes, 2013, p. 379). After the Supreme Court struck down most of his central proposals, President Roosevelt implemented some initiatives closer in spirit to Keynes’s ideas, trying to revive aggregate demand and through government programs designed to create jobs directly. See Badger (1989).

<sup>24</sup> This is not meant necessarily as a criticism here. The need for sacrifices is the declared core of austerity programs: living within the means, internal devaluation, etc.

ence of activist governments, on the other hand, will probably depend on the specific sort of policies they propose to implement.

One would expect, in such circumstances, private investors and consumers to be very cautious in their spending decisions, rising liquidity preferences, and the prominence of attempts to eliminate remaining sources of vulnerability, such as high leverage and exposure to rollover risks. It seems that Keynes had such a situation in mind when he described durable unemployment equilibrium states, apparently inspired by the situation in the 1930s:

“In particular, it is an outstanding characteristic of the economic system in which we live that, whilst it is subject to severe fluctuations in respect of output and employment, it is not violently unstable. Indeed it seems capable of remaining in a chronic condition of sub-normal activity for a considerable period without any marked tendency either towards recovery or toward complete collapse” (Keynes, 2013, p. 249).

Unemployment equilibrium states are, therefore, explained by both objective and subjective factors. On the one hand, there is the burden of actual losses and debt overhang and irreversible events, such as bankruptcies. On the other, there is a perception by economic agents that such facts shape the current and prospective operation of the economy.<sup>25</sup> Consumers have to face the heightened reality of unemployment, while trying to liquidate outstanding debts. Investment, of course, is very unlikely to recover with any particular vigor when spare capacity abounds and the future looks exceedingly uncertain. Raised liquidity preferences, of individuals, firms *and* of banks and other financial institutions drastically reduce the availability of credit.

But there is also to consider the fact that past expectations have gone spectacularly wrong. Analysts will talk about tsunamis or black swans in the attempt to express how unique and unpredictable the events, which led to the crisis, were, but at the end of the day what remains is that expectations formed in the past have been proved wide of the mark. The theories of the world which informed those expectations were shown to be wrong, forcing agents to formulate new ones. Creating theories demands discriminating among available information which factors and relationships are to be taken as permanent and which ones are accidental. With these elements in hand, one can extract possible future paths, those who are not known to face fatal obstacles (Shackle, 1969).

In contrast to past theories, which relied on some degree of actual experience, the new ones cannot but be seen as provisional. Aware of the heightened uncertainty that surrounds any theory created under these circumstances, agents are supposed to become especially alert to any new developments that can suggest adaptations or downright abandonment of theories. In such a context, agents tend to be oversensitive to current developments, and expectations can become very elastic with

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<sup>25</sup> We coincide, on this point, with the view expressed by Calomiris in his interview with Parker (Parker, 2007, pp. 211-212).

respect to new data on current or recent developments. Of course, towering among possible new information are those related to changes in policy strategies that may point either to sustained and vigorous efforts at recovery and growth resumption (e.g., the New Deal) or at continued restraint (e.g., austerity policies).

Even if the chosen policy points to stronger efforts at recovery (which was the exception both in the 1930s as it was now), the pre-crisis developments that led to the narrowing of the corridor and the impacts of the downturn under such conditions should lead to very weak and fragile growth. As Keynes suggested, effective demand should be low and remain low for a long period of time. The actual experience of heavy losses should be enough to make private agents very careful in carrying out their purchases of goods and services. The threat of unemployment should lower the propensity to consume. Investment demand should be hit particularly hard. Illiquid capital goods are exposed to high risks even in better times, but existence of ample spare capacity should maintain the impulse to invest subdued.

Generalized attempts to deleverage, from consumers, firms, banks and even governments, work as an aggravating factor reducing aggregate demand.<sup>26</sup> Only two sources of demand are left, government spending and exports. If government spending is constrained by austerity policies, only net exports (that is, exports minus imports) are left. If the crisis is widespread, however, international trade will not grow or will not grow fast enough to compensate for the fall in domestic demand. In this case, net export expansion for one country can only take place by dislodging other exporters from existing markets. In the 1930s it took mainly the form of beggar-thy-neighbor exchange rate policies and import restrictions. Currently, the same goal is pursued through what is called *internal devaluation*, that is, the reduction of the domestic cost of labor to make a country's exports more competitive. Of course, the success of such policies depends on the willingness of net importers to support the export drive of the countries searching to expand through this method as well as the reactions of displaced competitors.

But the approach outlined above does not predict merely weak recoveries, it also predicts fragile (volatile) recoveries. While private agents try to establish how much confidence should the new normality command, the behavior of the new corridor of stability remains ambiguous: the corridor should be wide, since its *objective* determinants (leverage, mismatch between assets and liabilities, liquidity of balance sheets, and interconnectedness) all point to the same direction, that is, a reduction of risk exposure; but, in the opposite direction, lack of confidence on the theories entertained by decision-makers can make them oversensitive to current developments.<sup>27</sup> One example is the disproportional impact of "news" on the level of activity in the United States and Western European countries during the current crisis.

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<sup>26</sup> This point was elaborated by Minsky in his financial fragility model. More recently, it was picked up by Koo with his concept of balance sheet recession (Koo, 2009).

<sup>27</sup> "It would be foolish, in forming our expectations, to attach great weight to matters which are very uncertain. [...] For this reason the facts of the existing situation enter, in a sense disproportionately, into

The extended duration of the period of weak and fragile recovery also makes it necessary to consider two additional groups of factors, usually ignored in models of normal cyclical movements. The first is the influence of longer-term factors such as trends in income distribution or technical progress. The destruction of financial and physical wealth (including through the bankruptcy of firms and financial institutions) and the collapse of established business procedures (including modes of financing and acceptable leverage levels) force consumers but also, and most importantly, business investors to try to look farther into the future to take their consumption and investment decisions. Of course, it does not help that this is to be done in a context of heightened uncertainty.

The second group of factors refers to political and social changes taking place after the downfall. In the 1930s as now, expenditures to maintain social safety nets are either cut (within austerity policy packages) or simply turn out to be inadequately designed to cope with the kind and amplitude of problems that emerge in a depression. The sheer duration of the crisis becomes a political problem because of the perception that the political system may not be able to respond properly to such type of challenges.

One very important question is left open: how does a depression end? In theory, since the concept of depression admits growth (even if weak and fragile), one cannot rule out the possibility of an endogenous end to the depression although it is unlikely that the economy could resume past growth paths in any relevant time horizon. Left to its “natural” development process, an economy could grow out of a depression if the recovery is sustained long enough, that is, if no significant relapse takes place for whatever reason. In contrast, there is wide agreement that the Great Depression of the 1930s was ended by exogenous factors. In the United States, the beginning of the World War is generally credited with ending the depression because of the huge aggregate demand shock it represented. Germany, similarly, ended the depression by a demand shock ultimately related to the war, given by Nazi rearmament. France and Italy never entirely recovered and Great Britain, which had begun its own depression earlier (with the return to the gold standard) began to end it when it went out of gold. The current experience does not yet produce strong enough hints of how the difficulties created by the crisis will be ultimately overcome.

## CONCLUSION

In this paper we outlined a theory of depression where the latter is conceived as a long-duration process in which an exceptionally strong downturn is followed

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the formation of our long-term expectations; our usual practice being to take the existing situation and to project it into the future, modified only to the extent that we have more or less definite reasons for expecting a change” (Keynes, 2013, p. 148).

by a protracted period of weak and fragile recovery. We proposed that a depression should be approached as a specific phenomenon distinguishing it from normal cyclical recessions. Two, non-exclusive, hypotheses have been proposed, one advancing an *endogenous* connection between the first and the second phases of a depression, the second being an *exogenous* connection, through policy choices made by governments. The endogenous connection relies on the concept of corridor, where we argued that in a depression the downturn is so strong as to disarm the mechanisms that would otherwise lead to a normal cyclical recovery. We thus proposed that one could distinguish two stages in a depression: the occurrence of a shock that cannot be absorbed by the system, and thus takes it outside the “corridor”, where the fall is amplified through mechanisms of which the most important is probably a debt deflation.

A crucial question in this proposed theory is the width of the corridor, which measures the resilience of the system in the face of adverse shocks. Relying on Minsky’s model of financial fragility, we proposed that the width of the corridor depends on the degree of leverage, the mismatch between assets and liabilities, the degree of interconnectedness among agents and the availability of liquidity buffers. Also, following his aphorism *stability is destabilizing*, we argued that the width of the corridor is endogenous, since limiting the fragility factors implies important opportunity costs for economic agents. If the width of the corridor is narrowed too much, the economy may prove itself incapable of dealing even with relatively small shocks.

The protracted period of weak and fragile growth would be explained by the violence of the crash. The destruction of wealth, financial and productive, the need to deleverage, the heightened uncertainty plus the experience of the crisis itself increases dramatically the value of all forms of hedge, raising in a particularly strong way liquidity preferences. Aggregate demand suffers directly from the fall in incomes and wealth and indirectly through increased uncertainty.

Defining properly the concept of depression is not a purely semantic problem. In fact, the concept has predictive properties. The most important among those properties (but also the one still more in need of clarification) relates to the duration of weak and fragile recoveries. It was argued that these recoveries may take an exceedingly long time to play out. But the question of how it could end, in the absence of an exogenous intervention, is still open. In the Great Depression of the 1930s, the consensus view is that it was ended by World War II. In the current crisis, political leaders in the most advanced countries seem to rely on the notion that the end may be endogenous, that is, that “reformed” economies would in time grow out of the depression. Of course, a lot depends on what one should understand by “effective recovery”. The parties that advance the argument that an exogenous intervention is required (not necessarily a war, but a forceful intervention by the State to revive aggregate demand) understand a recovery as a resumption of past growth paths (or higher). The ones proposing the gradual “reform” process seem to conceive a recovery as simply resuming growth, even if at a sensibly lower level than before.

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