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Theories of Finance and Financial Crisis - Lessons for the Great Recession

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Abstract

This paper presents an overview of different models which explain financial crises, with the aim of understanding economic developments during and possibly after the Great Recession. In the first part approaches based on efficient markets and rational expectations hypotheses are analyzed, which however do not give any explanation for the occurrence of financial crises and thus cannot suggest any remedies for the present situation. A broad range of theoretical approaches analyzing financial crises from a medium term perspective is then discussed. Within this group we focused on the insights of Marx, Schumpeter, Wicksell, Hayek, Fisher, Keynes, Minsky, and Kindleberger. Subsequently the contributions of the Regulation School, the approach of Social Structures of Accumulation and Post-Keynesian approach, which focus on long-term developments and regime shifts in capitalist development, are presented. International approaches to finance and financial crises are integrated into the analyses. We address the issue of relevance of all these theories for the present crisis and draw some policy implications. The paper has the aim to find out to which extent the different approaches are able to explain the Great Recession, what visions they develop about future development of capitalism and to which extent these different approaches can be synthesized.

Key words: theories of crisis, Marxian, Institutional, Keynesian, capitalism, finance, financial crisis

JEL classification: B14, B15, B24, B25, E11, E12, E13, E32

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1. Introduction*

Economic thinking has produced a large variety of models which explain financial crises and their effects on economic development. These models belong to different paradigms, and even within each paradigm there are numerous possible approaches. The aim of this paper is to give an overview of different models which explain financial crises and which are considered to be important in their respective fields. Such an overview helps to understand the financial crisis and the Great Recession, which were triggered by the subprime mortgage bubble in the United States, in the first decade of the twenty-first century. It is the nature of a synthesis paper that it cannot do justice to all individual contributions in the area discussed. Literature in the field of finance and financial crises is especially vast. We try to cover all the important streams of thinking, crystallise the key arguments and judge their relevance for understanding the present scenario.

It must be noted that there are economic approaches that are not suited to explaining financial crises. Assuming efficient financial markets and rational expectations leads to the conclusion that markets are always in an optimal equilibrium and financial crises will not occur. These approaches have fundamental problems for understanding money and integrating financial crises into their models. The puzzling and somewhat strange point is that these economic models have been widespread and played an important role in justifying the deregulation of financial markets from the 1970s onwards. Given their continued dominant position in mainstream economic thought, we will discuss these approaches shortly in section two.

Section three will give an overview of a broad range of theoretical approaches analysing financial crises from a mainly medium-term perspective. In the centre of these models are national boom-bust phases which lead to financial crises. In this section, economic models that explain financial crises in a more narrow sense are discussed. At the centre are neoclassical approaches in the tradition of Knut Wicksell or Friedrich von Hayek and Keynesian approaches from, for example,

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Hyman Minsky. Contributions by economists like Joseph Schumpeter, Irving Fisher and behavioural finance are also part of the section.

Section four covers mainly models that analyse long-term changes and distinguish between different phases of capitalist development. Many of these models include society as a whole in their analyses, referencing institutional settings and power relationships between different classes. The forerunners of such models – several authors in Marxist tradition – are firstly presented. Then the more contemporary approaches, specifically the Regulation School, the Social Structures of Accumulation approach and the Post Keynesian approach are discussed.

The models of finance and financial crises discussed above do not focus on the international level. In the globalised world with basically free capital flows, this is not sufficient. Therefore, section five discusses international financial crises and their interaction with national financial crises. This section also deals mainly with medium-term instabilities and resulting financial crises.

In section six, a summary is presented and general conclusions are drawn.

2. Models unable to explain financial crises

One of the fundamental assumptions of neoclassical thinking is the division of the economy into a real and a monetary sphere. The idea is that in the part of the model covering the real sphere, almost all important economic phenomena can be solved without taking money into account. Within the real sphere, real GDP growth, employment, real wages, rate of return of capital, income distribution, investment, savings, etc. can be determined. Arthur Pigou (1949), one of the great opponents of John Maynard Keynes, pointedly expressed this view in his book *The Veil of Money*. The monetary sphere, as a veil, determines the price level and the nominal expressions of real variables, whereas the real sphere remains the centre of the economy. Money is considered to be neutral. However, the traditional stream of neoclassical thinking, which can be called Monetarism I, considers money as a potential short-term disturbing factor. In this vision, money is not neutral in the short-term, but neutral only in the long-term. After World War II, Milton Friedman (1969) became the most famous neoclassical economist arguing in this tradition. Earlier neoclassical economists in this tradition, like Irving Fisher or Friedrich von Hayek, also contributed to theories of financial crises (see below). From a neoclassical perspective, one of the problems of this approach is that money cannot be neutral in the long run if it is not neutral in the short run. As soon as changes in the real sphere take

place in periods during which money is disturbing the real sphere, the long-term equilibrium also depends on these disturbances and money can no longer be considered neutral.

A second and more radical stream of thinking in the neoclassical paradigm, Monetarism II, avoids this problem by assuming that the economy is always in equilibrium, given by the real sphere, and money is neutral in the long- *and* short-term. Undoubtedly, such an approach is more theoretically consistent than the traditional neoclassical approach, but the price of such consistency is a model that has no explanatory power of phenomenon present in existing economies. Why, after the 1970s, such castrated models began to play such a key role in mainstream economic thinking is one of the central puzzles of the history of economic thought. These types of models are, among many other things, unable to explain financial crises – in spite of the fact that financial crises are as old as capitalism itself. It is not without irony that economists who believe in these theoretical approaches were influential in shaping financial market regulations in the past. In what follows, these radical approaches will be shortly presented.

The Efficient Market Hypothesis (EMH)

The EMH gained relevance in the early 1970s as a building block for the analysis of financial markets. It is based on Eugene Fama's (1965, 1970) interpretation of efficiency in asset markets where stock markets are taken as the archetype of an asset market. The EMH basically resumes the random walk hypothesis of Bachelier (1900) who argued that, in stock markets, expected returns of speculators are nil. Fama (1970:383) defined the efficient market as “a market in which prices always ‘fully reflect’ available information” and he identified several conditions which are needed for the market to be efficient. These are: the absence of transaction costs, homogeneous expectations, and that information is freely available to every market participant.

The weak form of the EMH means that there is no possibility to look at past patterns of price movements to speculate successfully in the long run. Empirical tests for this have been done, either by searching for randomness properties in past security price movements, or by attempting to predict future prices based on past data.¹ In the latter case, the success of prediction of future price movement would indicate non-randomness and thus invalidate the EMH. Overall, the results were in favour of the randomness hypothesis, i.e. in support of the weak form of the EMH.

The semi-strong form of the EMH states that it is not possible to earn any systematic profit from using publicly available information. As soon as new information becomes available, asset

¹ See, Alexander (1961), Fama (1965), Godfrey, Granger and Morgenstern (1964), Granger and Morgenstern (1963).

prices will immediately adjust. Empirical studies have here focused on measuring how quickly, and to which information, prices react.² Not only was a very rapid price adjustment to publicly available information confirmed, but also the anticipation of public announcements. The semi-strong form of EMH is also a weak form of EMH.

Finally, the strong form of the EMH means that market prices reflect even non-public information. Here, it is assumed that insider knowledge cannot be kept secret. Unlike in the first two cases, empirical tests for the strong form of the EMH have produced mixed results (Shleifer 2000).

The key assumption is that at least in the case of a weak and semi-strong EMH, asset prices reflect fundamentals of the neoclassical world. In the most radical case, all market participants have the same expectations, which are based on the same information. Some agents may have incorrect expectations, but as long as the mistakes show a normal distribution around the price given by fundamentals, wrong expectations have no effect on market prices. Finally, even if a bigger group of market participants have inaccurate expectations well-informed experts act as arbitrageurs, bringing the asset price to its fundamental value.

Empirical research influenced by behavioural finance has found many stock market anomalies which are not compatible with the EMH and which show that asset prices do not reflect neoclassical fundamentals (Shleifer 2000). For example, *value stocks* (stocks of established companies) tend to produce higher investment returns over longer horizons relative to *glamour stocks* (stocks of start-ups, stocks of companies in new dynamic industries, etc.). Or, when shares of a company are included in a stock price index, the price of these shares suddenly increase. It is also doubtful whether arbitrage is sufficient to guarantee a price according to fundamentals when a large group of investors have misguided expectations. As soon as arbitrage becomes risky – for example, if it becomes unclear when the price will move back to its fundamental value – arbitrage does not compensate the effects of “irrational” investors.

Problems of the EMH reach beyond empirical questions of the type discussed above. Behavioural finance, for example, has found that decisions depend on the framing of the decision process; investors often base their decisions on a very short history of stock price development which may be caused by stochastic volatility, or investors may follow the herd of investors, assuming that market leaders or the majority of people will know what will happen (see the debate on behavioural finance below).

² See Fama, Fisher, Jensen and Roll (1969), Ball and Brown (1968), as well as a review of other empirical studies provided by Lev (1974).

From a Keynesian perspective, in a world of uncertainty, asset prices depending on fundamentals of a real sphere simply do not exist. Under uncertainty, different investors will most likely have different expectations. Even if they have the same information, investors will use different models to explain the world; they may obtain the information in a different framing and may decide differently, etc. Let us, for example, assume that 10 per cent of investors expect that stock prices will increase by 20 per cent, 50 per cent of investors believe stock prices will stay the same and 40 per cent believe stock prices will fall. If the 10 per cent have sufficient funds (can take large amounts of credit), stock prices will increase by 20 per cent and all stocks will end up in the hands of the optimistic 10 per cent of investors. If funds of the 10 per cent are limited, stock prices will only minimally increase. Will the equilibrium price in the stock market reflect fundamentals? Or does the unchanged price expected by the 50 percent correspond to fundamentals? Or the price expected by the pessimistic 40 percent? We simply do not know. An asset market is efficient in the way that it is always in equilibrium – given certain expectations. It may also be efficient in the way that past stock price developments do not tell much about future developments. But stock prices do not reflect fundamentals as even experts disagree about future stock price developments. In a world of uncertainty, fundamentals do not exist, as the future does not exist today and cannot be detected. The future depends on historical development and the latter on, for example, stock price expectations. This leads to the possibility of self-fulfilling prophecies. In such a theoretical approach, stock prices have no anchor in the fundamentals of a real economy. Bubbles become possible, or even likely, and with them financial crises (Herr 2011b).

Rational expectations hypothesis (REH) and the New Classical Model

The rational expectation hypothesis is a macroeconomic version of the EMH. It also assumes, in the simplest case, homogenous expectations of all agents based on fundamentals in the real sphere. In case some agents are “irrational” and do not follow fundamentals, their mistakes are normally distributed around correct expectations. Last but not least, agents with correct expectations ensure that overall expectations are ruled by fundamentals. Rational expectations cover not only asset prices, but all kinds of economic variables from the future price level to the expected real GDP growth.

The basis for rational expectations goes back to John Muth (1961), who argued that expectations are essentially the same as the predictions of the economic model. Using a market for a product with a usual downward sloping demand and upward sloping supply function, he assumed that rational agents *expect* the equilibrium price in the market and that price is immediately realised.

In case of a shift of one of the functions – let us say a new technology, which allows a firm to produce more cheaply – the market immediately jumps from the old equilibrium to the new one – now with the lower price and higher quantity – as soon as the information about the new technology becomes known.

Muth's argument has an enormous mythological power, especially after the Keynesian revolution, which stressed the role of expectations. The rational expectation approach assumes that expectations are identical with the equilibrium solution of the economic model. This implies that expectations disappear as an independent variable for economic models, making rational expectations very attractive for model builders. If they assume rational expectations, then expectations are, in substance, removed from the model. Indeed, on an abstract level of modelling, there are only two possibilities to handle expectations in an analytically correct way. They can become endogenous, as in the case of rational expectations, or they can become exogenous, as in the Keynesian paradigm (Hahn 1981). Rational expectations assume an ergodic world with the same happening in the future as in the past. Time is understood as in physics. In a non-ergodic or Keynesian world, with historical time, what happened in the past does not need to happen in the future (Davidson 1991).

Since the early 1970s, rational expectations began to be systematically applied to macroeconomics. Lucas (1972) used – as in the EMH – a stochastic model and combined it with rational expectations. Economic agents expect economic variables according to fundamentals of the real sphere. Concrete developments follow a random path around the expected equilibrium value. Thus, future fluctuations around the mean are the result of unpredictable shocks whereas volatilities are taken from past data. Changes in technology, for example, are a potential source of such volatilities leading to the Real Business Cycle Model (Kydland and Prescott 1982). Other sources can preference changes by households in evaluating leisure time, leading to changes in employment.

Rational expectations and stochastic processes were imposed on the traditional neoclassical model to create the New Classical Model with the result that economies are always in equilibrium given by the real sphere. Economic optimisation in the model is based on the analysis of representative firms and households. The microfoundation of macroeconomics became the battle cry of the new approach. In such an approach, money is neutral in the long *and* in the short term. In Monetarism I, based on the money illusion, an increase of money supply could lead to a short- to medium-term increase of output and employment. In the New Classical Model, macroeconomic policy has no affect at all. It is, for example, no longer possible to systematically “fool” economic agents by changing the money supply, as the economy always immediately jumps into the new

equilibrium. The New Classical Model carried out, rather successfully, the intention of Lucas to complete the euthanasia of macroeconomics and base mainstream economic models on microeconomic optimisation of representative economic agents and rational expectations (Lucas 1981).

The economic policy conclusions based on the New Classical Model align with the Washington Consensus developed in the 1980s. Macroeconomic counter-cyclical policies and macroeconomic “fine-tuning” are to be avoided, while structural policies and institutional reforms to liberate markets, including financial markets (through privatisation, deregulation, liberalisation, etc.), lie at the heart of recommended policies. The New Classical Model provided the scientific foundations for the neo-liberal policy strategies adopted since the early 1980s.

It is obvious that the EMH and the New Classical Model, with their cornerstones of rational expectations, are not able to explain financial crises. In these approaches money has no role, and uncertainty, in the Keynesian sense, does not exist. While these approaches do not help to understand financial crises, they do help to understand why financial markets became so liberalised, which contributed, after 2008, to bringing the world economy to the brink of a global meltdown.

New-Keynesian and the New Consensus Model

New-Keynesian economists took over the concept of rational expectations and microeconomic optimisation of a representative firm or household to analyse macroeconomic processes. The key difference between New-Keynesian theory and the New Classical Model is that prices can be sticky in the short-term or markets do not work perfectly because of a lack of information, which prevents complete contracts. New-Keynesians are especially proud that the stickiness of prices can be explained by optimisation at the micro level. For example, costs of price changes in catalogues prevent immediate adjustment of prices to fundamentals. Wages can be sticky because negotiating wage contracts every month would entail high transaction costs and is thus avoided. Working and credit contracts are not complete and allow room for shirking and cheating, which leads to certain distortions. Such distortions prevent markets from immediately jumping to an equilibrium given by fundamentals. Unemployment, for example, can result from such imperfect markets (Mankiw 2008, Mankiw and Romer 1991).

The New Consensus Model developed from this kind of New-Keynesian analysis. It assumes that, after an economic shock, prices adjust slowly and the slow price adjustment is to be explained on a microeconomic level in the framework of an inter-temporal model. During the adjustment

period to the long-term equilibrium given by fundamentals, unemployment, or other distortions, will occur. This gives room for monetary policy, which is understood as interest rate policy to shorten or even avoid unemployment or other distortions (Woodford 2009). Financial crises, asset price bubbles, boom-bust phases or cumulative processes with over-indebtedness of economic units have just as little place in this approach, as in the New Classical Model.

3. Medium-term approaches to finance and financial crisis

In this section, different approaches attempting to explain medium-term boom-bust phases and financial crises are presented. It is not the aim of this section to summarise all developments in the literature. Certain contributions to the debate, which seem to us to be of key importance, have been selected for review. The analysis includes Karl Marx, Joseph Schumpeter, three economists in the neoclassical tradition (Knut Wicksell, Friedrich von Hayek and Irving Fisher) and Keynesians (John Maynard Keynes, Hyman Minsky and Charles Kindleberger). All of these approaches are comprehensive in the sense that they present overall models of boom-busts, however, each stresses partly different points. Behavioural finance, in the tradition of Daniel Kahneman, Amos N. Tversky and, more recently, Robert Shiller, substantially contributes to the understanding of boom-bust cycles. However, behavioural finance does not deliver a comprehensive economic model of a boom-and bust phase. This implies that behavioural finance contributes only to certain aspects of finance and financial crises.

In order to simplify the comparison of the different approaches, several questions are asked:

- a) What triggers a boom phase? Financial crises are the result of an unsustainable boom or bubble before the crises. It seems to be important to find out which factors can provoke a boom-phase that ends in a bust.
- b) What is the role of the credit system? Boom phases are always accompanied by credit expansion. It is important to find out which role the credit system plays in different approaches.
- c) Which fragilities build up during the boom phase? A common point between the approaches is that, during a boom or bubble, feedback processes lead to increasing fragility.
- d) What triggers the crisis (end of the boom) and how does a financial crisis develop? While the question centres on the causes of a boom's end, it may be even more important to analyse which feedback mechanisms exist during a crisis period. The factors that turn a normal financial

crisis into a situation which leads to a cumulative economic and financial meltdown will also be discussed.

e) What policy conclusions can be drawn?

i. Trigger of the boom

Karl Marx was one of the earliest writers to observe that economic and financial crises occur regularly under capitalism, and that money and credit play a crucial role in this. In Volume I of *Capital*, Marx (1867) developed his version of the logical genesis of money. He analysed the different functions of money and, like Keynes, pointed out the rationality of money hoarding in certain scenarios. Of special interest is the circular flow of capital. In a capitalist production process, money is invested in capital goods and labour to produce products, which then can be sold for profit. The income-creation process in a capitalist economy is $M - C \dots production \dots C' - M'$ with M as money invested, C goods needed for production, C' produced goods with a higher value than C , and M' as money flowing back including profit. In Volume III of *Capital*,³ Marx (1894) added the credit system and came to $(M - M) - C \dots production \dots C' - (M' - M')$ with $(M - M)$ as the credit relationship between financial capital as creditor and firms as debtors and $(M' - M')$ symbolising the debt service including interest. Thus, production, as well as employment, is subordinated to the rhythm of money advanced in production processes, whereas the production process is framed in credit relationships. For Marx, capitalist development is a permanent up and down, as money advances in production processes are not stable. In Volume III, his more comprehensive but unfinished analysis, Marx argued that the business cycle very much depends on history. The destruction of production capacities during a crisis helps to improve conditions for a new upswing, but the trigger of a boom cannot be explained in any mechanical way.⁴

According to *Joseph Schumpeter* (1939, 1942),⁵ a capitalist system is characterised by cyclical processes of “creative destruction” based on waves of entrepreneurship. Schumpeter, as Marx, argues that the dynamic character of capitalism stems from its permanent creation and destruction during its process of change. Also following Marx, Schumpeter stresses the incentive of extra profits (quasi-rents) of first movers and the punishment of bankruptcy in cases of lack of innovation. Entrepreneurship is a social category and can only develop in an environment of social stability and

³ Volume II and III of *Capital* were edited by Friedrich Engels based on manuscripts. Marx only was able to finish Volume I. The other volumes of *Capital* are unfinished and it is unclear to which final analysis Marx would have come.

⁴ Rudolf Hilferding (1910) presents the role of finance in a boom-bust cycle very much drawing on Marx. We stick here to Marx as Hilferding at this point goes not much beyond Marx.

⁵ We give the sources here and do not always repeat them in further sections.

relatively low uncertainty. There is always a stock of existing new technologies, potentially new products, etc. that entrepreneurs can draw on. The typical entrepreneur is the manager, but a government official or a union leader can also become an entrepreneur. A phase of high entrepreneurship and investment, in Schumpeter's estimation, is triggered by exogenous factors, and given by the occurrence of one or more of the following five cases: a) introduction of a new good; b) introduction of a new method of production; c) opening of a new market; d) conquest of a new source of supply of raw materials or half-manufactured goods; e) a new organisation of any industry.⁶ As Marx, Schumpeter argues that the elimination of unprofitable firms during a crisis is a precondition for a new boom, which also requires relative economic stability to be triggered.

Knut Wicksell (1898) introduced cumulative processes in economic thinking which were based on the interaction between two rates of return (see also Detzer and Herr 2014). The first rate is the natural rate of interest. For Wicksell, who followed the neoclassical dichotomy between a real and monetary sphere, the natural rate of interest is determined by fundamentals of the real sphere. The second rate is the interest rate on money given by the central bank.⁷ As soon as the money rate of interest deviates from the natural interest rate, a cumulative process is triggered. If the money interest rate is below the natural rate, a cumulative inflationary process starts. Cumulative deflation results from money interest rates above the natural rate. To avoid cumulative processes, the central bank has to set the interest rate according to the level of the natural rate. More precisely, the money interest rate has to follow the natural rate. The latter, in Wicksell's approach, can be potentially unstable, forcing discretionary monetary policy to react and adjust the money interest rate to the natural rate. Changes in the natural rate must be considered as exogenously triggered by technical progress or preference changes.

Building on Wicksell, *Friedrich von Hayek's* (1935, 1939) description of a cumulative investment dynamic also depends on the interaction between the natural rate of interest (given by the real sphere) and the money interest rate. As soon as the money interest rate is below the natural interest rate, an unsustainable investment and credit boom is triggered. With a lower interest rate, investment increases as, following neoclassical assumptions, more capital-intensive production become profitable.⁸ For Hayek, a lower money rate of interest, set by the central bank via the

⁶ Schumpeter also had the idea that monopolies could take over a kind of planning and in this way stabilise economic development.

⁷ The distinction between the natural rate and the market rate of return has parallels to the classical distinction between the natural price as the long-term equilibrium price and the short-term market price of goods moving around the natural price.

⁸ Following Wicksell and the Austrian School, production becomes more roundabout which implies a reduction of the marginal productivity of capital. Using the time span of production as a measure of capital intensity was a failed attempt to avoid the problems of measuring capital in the usual neoclassical macroeconomic production function.

discount rate, does not only increase investment, it also increases the price of capital goods. The result is that the supply of consumption goods, from which production deviates, shrinks before new consumption goods, stemming from the new investment, are produced. Since individuals do not intend to reduce their consumption, prices of consumption goods will increase as well. Hayek assumes that many different factors, depending on the specific historical constellation, can trigger a boom phase. It is very difficult, at least in the beginning, to find out whether an investment boom reflects fundamentals or is an “artificial” one, based on a money interest rate that is too low.

Under the impact of the Great Depression, *Irving Fisher* (1933), a neoclassical economist who formulated the modern version of the quantity theory of money in the 1920s, developed a crisis model that became one of the key elements of many future models of financial crises. The most common triggers of an expansion, he argued, are new opportunities to invest with the prospect of better-than-average profits. Examples are new inventions, new industries, discoveries of new resources, or the opening of new markets. Easy monetary policy, in the form of an overly low interest rate, can also trigger an unsustainable expansion.

In his early publications, *John Maynard Keynes* still argued within the neoclassical paradigm. In his *Treatise on Money* (1930), he explained, as Wicksell and Hayek, economic dynamics by the difference between a natural rate of interest and the money interest rate. It was only later that Keynes (1936, 1937a) abandoned the concept of the natural interest rate. In a monetary production economy (Keynes 1933), there is no place to distinguish between a real and a monetary sphere. The neoclassical dichotomy was substituted by the idea of a hierarchy of markets, with asset markets at the top and labour markets at the bottom (Herr 2014). Keynes explicitly followed Marx with his idea of a circular flow of capital. Much of his theoretical work consisted of explaining what determines money advances in production processes and why these advances are unstable or insufficient for full employment.

According to Keynes, the investment decision, and thus money advances, in production processes depends on the interaction between the expected rate of return on investment in production processes (expressed in an interest rate, sometimes also called an internal rate of return) and the money interest rate.⁹ If the expected rate of return on investment in production processes is higher than the money interest rate, investment takes place; in the opposite case, there will be no investment. In contrast to neoclassical economists, Keynes assumes that expansion processes do not

⁹ Keynes (1936, chapter 11), not very clearly, called the internal rate of return “marginal efficiency of capital”. The latter has nothing to do with the marginal productivity of capital, which is behind the natural interest rate.

automatically lead to inflation. As long as unused capacities exist and production costs do not increase, increasing investment can lead to higher output and employment without inflation. Of course, under certain conditions, expansion phases can be transformed into inflationary booms.

For Keynes, uncertainty plays a central role. Under uncertainty, all future events are unknown, even in a probabilistic sense. This implies that past developments can be a very poor guide to understanding what will happen in the future. Investment decisions depend on animal spirits. The latter are close to Schumpeter's entrepreneurship and include the specific history and confluence of the economic, institutional, social and political situation, at a certain period of time. For economic models, the expected rate of return on investment must be considered as exogenous, as well as the start of an investment boom.

Keynes' analysis is close to what later came to be known as behavioural finance. He assumed a certain "state of confidence" (1936) or a "conventional judgment" (1937a). These concepts show that expectations are not created by independent, isolated individuals but are part of a social process. In many cases, managers, bankers, private wealth owners, etc. have a similarly optimistic or pessimistic attitude. For Keynes, it was important to stress that in a positive state of confidence, the expected rate of return on investment is high and, *at the same time*, creditors expand credit at low interest rates, thus promoting a strong investment dynamic.¹⁰

Hyman Minsky (1975, 1982, 1992) further developed the Keynesian paradigm. Keynes did not write systematically about financial crises and kept the analysis of indebtedness in the background. The finance motive of Keynes (1937b and 1937c) delivers elements of an endogenous money supply, but Keynes' approach is insufficient (see Lucarelli 2013). Minsky made credit and indebtedness a specific topic. He distinguished between creditor's and debtor's risks. While both risks are influenced by the general state of confidence in the economy, creditor's risk depends on the indebtedness of borrowers in relation to their equity, and debtor's risk depends on the ex-ante uncertain cash flow to earn the revenues to service the debt in relation to the ex-ante fixed debt service. Both risks play an important role in Minsky's model of economic dynamics and financial crisis. They allow for both expectations of future returns and balance sheet constellations to be taken into account.

Whereas Keynes argued that expectations, triggering an expansion, were given exogenously, Minsky's tries to give an explanation for an endogenous trigger of an expansion. During a sustained period of conservative investment, he argues, creditors' and debtors' risks decrease and this will

¹⁰ Michal Kalecki also stresses the role investment and aggregate demand. However, money and finance in Kalecki's work play only an unimportant and accommodating role (Sawyer 2007).

sooner or later trigger a boom. As economic agents during the first phase of the boom typically become less risk averse and their profit expectations are fulfilled, they become even more encouraged and a boom is underway. Without doubt, decreasing leverage increases the likelihood of a new boom, but it would be wrong to assume Minsky followed any mechanical model of a business cycle. There can be periods of low indebtedness and at the same time economic stagnation (Koo 2008).

Charles Kindleberger (1996) and *Kindleberger and Robert Aliber* (2011) explicitly follow Minsky in their theoretical account. *Kindleberger*, however, follows a historical perspective that allows him to find many different triggers for each major boom episode. In his view, the onset of an expansion usually begins with a major exogenous shock, a displacement, which alters the economic outlook in at least one important sector of the economy.

The clear conclusion to be drawn from this review is that exogenous factors trigger a boom phase, which later can potentially lead to a financial crisis. Of the aforementioned authors, only Minsky tried to model an endogenous start of a boom. However, his explanation cannot be accepted as a general model.

ii. *The role of the credit system*

An interaction between productive capital and financial capital is one of the essential features in *Marx's* analysis of the business cycle. The existence of credit increases money advances in production processes to levels which would not be possible without credit. The role of banks, in *Marx's* analysis, is not merely one of intermediation between deposit holders and debtors of banks, but also one of creation of new credit and credit money. Stock market companies are considered as a socialisation of the means of production within a capitalist economy. In more advanced capitalist systems, managers substitute for traditional capitalists, who own their own company. Owners become functionless rentiers, fundamentally altering corporate governance. As managers in firms and banks do not invest their own money, they will act in a much riskier fashion than a traditional capitalist. This further pushes a credit driven expansion.

The banking system plays a crucial role in financing innovation in *Schumpeter's* approach. It creates credit ad hoc or, as in the German version, “out of nothing”. Without such ad hoc credits, entrepreneurs cannot realise their innovation. This makes the banker the ephor of economic development. The banking system is thus of vital importance when it comes to economic development. However, investment undertaken by innovative entrepreneurs creates a secondary

wave of investment, as normal firms follow the innovative ones and also want a share of the high extra profits earned by innovative firms. At a certain point, follower firms have to invest in new technology, new products, etc. to avoid the danger of being pushed into bankruptcy. Credit expansion and economic boom, for Schumpeter, are two sides of the same coin. As the credit system can provide finance almost limitlessly, the danger exists that credit “leaks” into purposes other than new innovative investment.

Wicksell, like Schumpeter stresses the endogenous character of credit and money supply. As long as the money interest rate is below the natural rate, the banking system will create credit and stimulate an expansion process. For *Hayek*, the credit system is very elastic and creates money *ex nihilo* (Hayek 1935). Accordingly, this has the negative consequence that the credit system can finance an artificial investment boom, which is not sustainable in the long-run. In his view, it is the introduction of credit money into the economic system which leads to the failure of the price mechanism to coordinate saving and investment and to realise the natural rate of interest. The problem is that bankers do not and cannot know which of their given credits amount to good investment and which amount to artificial unsustainable investment. Dysfunctional credit expansions are, for this reason, difficult to avoid. *Fisher* mentions the role of easy monetary policy for over-borrowing and over-speculation during a boom. However, he did not systematically incorporate the role of the banking sector in the description of the upswing.

Keynes did not explicitly analyse the role of credit in economic development. In the *General Theory*, Keynes (1936) assumed money supply as exogenously given whereas hoarding and dishoarding determines credit supply (Herr 2014). Later (Keynes 1937a, 1937b, 1937c) faint elements of endogenous money supply were introduced. In the *Treatise* (Keynes 1930) money supply is implicitly endogenous, but Keynes was not very clear about this. Richard Koo (2008) argues correctly that Keynes somehow neglected to carefully analyse credit relationships. It was *Minsky* who put credit, debt and the balance sheet of economic units in the centre of his analysis. According to Minsky, a boom is always linked to high expansion of credit based on low lenders’ risk as well as low borrowers’ risk, both stemming from optimistic expectations and, at the beginning, low debt quotas. During a boom phase the credit system swells like a bagpipe and all economic units become more indebted and increase their leverage. Minsky thought there was a ceiling to bank lending, based both on current regulations and factors influencing lenders’ risk. However, innovations could lift such a ceiling and allow for higher indebtedness than otherwise possible. Similarly, *Kindleberger* saw credit expansion as a precondition for a boom phase. He actually pointed out that credit institutions are also affected by euphoria.

In summary, there is a great consensus among the different approaches that a boom phase is stimulated and closely linked to credit expansion created by the financial system. While diverse in their methodological reasoning, each approach tends to follow the idea of an endogenous money supply.

iii. Build-up of fragility

Marx put forth in each of the three volumes of *Capital* an explanation of why periods of growth will eventually undermine themselves. In Volume I, Marx developed a business cycle model without an active role for money. In this model, periods of expansion lead to lower unemployment and via the higher market power of workers to increasing wages and a profit squeeze. Marx follows at this stage of his analysis the Classical arguments that wages determine profits as a surplus and investment can only come out of profits as savings. Lower profit then leads to less investment and triggers a crisis with increasing unemployment. Due to this condition, the bargaining power of workers erodes and profits rise again. This then triggers a new upturn (see also Goodwin 1967).

Marx's (1885) second account of a crisis in *Capital* Vol. II relates to the possibility that not all of the surplus value can be sold, as consumption demand is insufficient to maintain output growth. This can occur, for instance, in a situation where income inequality becomes so large that demand falls relative to output. During an expansion phase, profits increase more rapidly than wages, and this "mismatch" within the income distribution causes a limitation of final demand for goods (see also Evans 2004, Crotty 1986).

In *Capital* Vol. III, Marx analyses several fragilities that develop during an expansion. First, an expansion phase is accompanied by speculation. The value of shares - or *fictional capital*, as Marx referred to stock market capitalisation - typically increases sharply during an expansion phase and stimulates speculation. Second, during an expansion phase, firms and speculators become more highly indebted. Third, during later stages of an expansion, firms' productive capacities strongly increase and demand becomes insufficient. In addition, costs increase and reduce profits. The prices of labour and raw materials are particularly likely to rise given the high demand for both. Fourth, credit conditions for borrowers change in the last phase of a boom. Interest rates rise for firms and for speculators, reflecting higher credit demand and more cautious lending practices.¹¹

¹¹ Marx (1894) argues, as later especially Schumpeter, that capitalists permanently increase productivity to earn extra profits or survive in competition. He assumes a specific type of technological development which in the long-run increases constant capital in relation to variable capital. He called this the tendency of the organic composition of capital

Schumpeter made a distinction between the primary wave (innovative entrepreneurs start to invest) and the secondary wave (the mass of enterprises follows). The second wave tends to accompany and amplify the first wave. The role of banks is important in both the primary and the secondary wave, but whereas in the first wave credit supports capitalist development, in the latter case bank lending can become overly expansionary. Over-lending can lead to a deeper financial crisis at a later stage than would otherwise be the case. Schumpeter repeatedly argues that it is the function of bankers as ephors to enforce responsible lending during an upswing. They need to identify successful business ventures and should not lend to businesses which become obsolete. During the secondary wave, stock prices tend to increase and spur further speculative activity. Schumpeter argued that the extension of credits to speculators and to consumers can become an important source of financial fragility.

Wicksell's cumulative inflation process will not stop as long as the money rate of interest is below the natural rate. The cumulative process is based on high investment, higher consumption and higher wages all financed by an endogenous money supply. For *Hayek*, the build-up of instability begins when investment, triggered by a too low interest rate, does not reflect a corresponding increase in intended savings (intended savings could actually even fall given the low rate of interest). During a boom, more and more “artificial” investment is created which contradicts the long-term equilibrium given by the real sphere. A higher level of artificial investment brings about a higher level of economic fragility.

For *Fisher*, the fragility of the economy increases when a boom phase leads to over-investment and over-indebtedness. Short-term speculation may add to asset price bubbles. Fisher includes a number of feedback mechanisms in his model. High investment, for example, leads to high income creation, high consumption demand, high employment, and this can stimulate further investment. Asset price bubbles stimulate speculation and further asset price increases. During these processes, expectations become more optimistic and over-confidence spreads. Fisher repeatedly stresses that over-confidence as such is not the problem, but the combination of over-confidence with increasing debt. Unfortunately, in an upswing, both are highly correlated.

Keynes does not, as mentioned, analyse problems of debt and financial crises. However, he contributed in several ways to understanding cumulative processes. One channel of a cumulative process is that conventional judgement becomes more and more optimistic. The beginning of an

to rise. As only variable capital (labour) can produce value this must, so the argument goes, sooner or later lead to a falling profit rate, crisis and stagnation of capitalism. The law of a falling profit rate does not hold as productivity developments are possible which also reduce constant capital in relation to variable capital.

expansion path supported by the goods market multiplier leads to positive developments with higher real GDP growth, higher employment and capacity expansion. In contrast to neoclassical approaches, such a development does not lead to an artificial increase of investment or capacities, but to higher production and employment. Rising asset prices also stimulate consumption via positive wealth effects.

Keynes had a clear understanding that asset prices are not ruled by fundamentals. In *The General Theory* (1936), he analysed how speculative asset markets can lead to destabilising asset price inflations and deflations. The actions of speculators depend upon their expectations of the expectations of other investors. It is, said Keynes, like a beauty competition in which the winner is the one who guesses best which of the beauties is considered the most beautiful by most of the people taking part in the game. The outcome is a self-reflecting system which becomes relatively independent of economic development. Asset markets become reflexive and, at the same time, influence long term developments of the economy.¹²

In the *Treatise on Money*, Keynes (1930) stresses two instability processes. First, a booming economy can lead to the combination of demand inflation (excess demand in a situation of full capacity utilisation or bottlenecks) and wage inflation. The latter is typically a reaction to demand inflation, which reduces real wages in a situation of increasing employment, and triggers higher nominal wage increases. This results in a potentially cumulative demand pull and cost-push inflation in a framework similar to the one developed by Wicksell. Second, excess demand in a constellation of full capacity utilisation leads to additional undistributed profits. The more these profits are used for further investment or luxurious consumption by households participating in profits, the higher the profits will become. They become like the *widow's cruse* (Keynes 1930: 125), which is filled over and over again as profits are taken out (see also Kalecki (1943) for this effect).

It was mentioned above that Keynes' theory especially used elements that were later extended by behavioural economics and especially behavioural finance. Based on empirical and experimental evidence, *Daniel Kahneman* and *Amos Tversky* (1974, 1979) analysed the role of psychology in economic decision-making. Their research conflicted with neoclassical models of microeconomic decision-making and supported, likely without even knowing in many cases, the original ideas of Keynes. They classified cognitive errors into: overconfidence (individuals overestimate their information and abilities), optimism and wishful thinking (unrealistic rosy views and planning fallacies), representativeness (drawing strong inferences from a small number of cases),

¹² Soros (2008) makes a similar argument.

conservatism (high likelihoods are overestimated while low likelihoods are underestimated), belief perseverance (once people have formed an opinion, they cling to it too tightly and too long), and anchoring (people are influenced by an initial anchor value and adjust insufficiently to further information). Furthermore, availability of information influences individuals' decisions. For instance, people choose information which is easier to recall without any guarantee of its correctness. Errors can be both cognitive and emotional. It was also discovered that individuals act in groups. Groups, for instance, tend to share group emotions. Individuals begin to identify with, and act like, the group. Groups sometimes follow certain actions – even extreme ones – which alone would not be taken. This is the basic explanation of *herding behaviour*, which plays a central role as a feedback mechanism in the development of bubbles as well as panic during financial crises (for an overview of behavioural finance see Andrei Shleifer 2000).

Robert Shiller (2005, 2012) explains the role of herding as a strong feedback mechanism. Herding behaviour can, for instance, be caused by information cascades. Decisions of a group of individuals are taken in sequence. Even if all individuals have the same information, every additional individual in the sequence also possesses information about the decisions already made by other individuals. Individuals assume that those individuals who already made their choice may have possessed additional information and base their decision on sound knowledge, even if this is not true. Storytelling is another reason for herd-like behaviour. People are influenced by stories about hot stocks or financial gurus telling them where to invest. Stories can trigger not only asset price inflations, or booms in general, but they can become a justification for very high asset prices, in spite of the fact that they are largely overvalued. Newspapers and TV channels concentrating on financial news, etc. become important in reading tea leaves and satisfying investors' desires to listen to stories.

Minsky follows Keynes by arguing that a real economic expansion can lead to an exuberant demand development and inflationary processes. However, according to Minsky, the core of financial instability is the increase in debt quotas during an expansion process. One feedback mechanism is that higher asset prices during the expansion increase the value of collateral and, in this way, stimulate the increase of credit demand *and* credit supply. During an expansion phase, the financial conditions of enterprises, financial institutions, speculators etc. typically deteriorate. Driven by positive expectations and speculation, the financial system moves from, as Minsky calls it, hedge financing (the most stable situation, where expected income allows investors to pay back both the interest and principal), to speculative financing (investors expect to pay interest from future revenues, but not the principal), to Ponzi financing (investors rely on future debt in order to pay interest). During an expansion phase, economic units move into an ever more risky constellation as

the economy becomes more and more fragile. Following Keynes' argument of the widow's curse, high investment leads to high undistributed profits. However, this effect does not prevent higher leverages, as profits are not distributed equally in the enterprise sector and profits can be devoted to lavish lifestyles by profit receivers, destroying the possibility of financing investment out of profits.

Kindleberger gives particular attention to psychological factors in his historical analysis. During the rise of a bubble, expectations become usually overoptimistic and lead to self-fulfilling price movements, especially in asset markets. Obtaining credit during a boom is easy as lenders have become overoptimistic as well. The number of participants in asset markets and leverages increase when the average man in the street joins the speculators. Towards the peak of the bubble, euphoria becomes widespread and misbehaviours more common. *Kindleberger* thus emphasises widespread herding behaviour as an important feedback mechanism during a bubble. This is also in line with the arguments in behavioural finance, to which *Kindleberger* adds the role of greed and fraud in speculative markets.

It is worthwhile to mention the *Monetary Circuit theory* which draws on Marx's analysis of the circuit of capital, but also includes some Keynesian arguments (Graziani 1990, 2003, Bellofiore and Seccareccia 1999, Gnos 2006). The proponents of the circuit approach emphasise the endogenous nature of money and stress money creation as part of a credit expansion. Firms borrow money from banks (newly created credit money) to acquire labour and intermediate goods in order to initiate a production process. Firms make a deliberate decision on how much to produce, based on their expectations of future revenues. Income is created and flows to households, which can consume or save. Savings can be used to purchase securities, issued by firms, or to holding bank deposits. A distinction is made between *initial finance* and *final finance*, with the former indicating the amount of initial bank lending to firms, and the latter representing liquidity which flows back from households (either consumed or saved via purchasing firms' debt instruments) to firms. In case of deposit holding by households, firms will be forced to increase the stock of debt vis-à-vis banks. Over time this leads to an accumulation of *financial capital* by banks which also then get a share of the surplus.

In summary, fragility finds its expression in higher indebtedness of economic agents and unsustainable increases of asset prices. Herding-based psychological properties of humans and socioeconomic behaviour play an important role in explaining the development of instabilities. Inflationary processes in the goods market also drive instability.

iv. *Trigger of the crisis and crisis development*

Marx argues that the credit system leads to a substantial aggravation of crises or can become a cause of crises, itself. The squeeze in profitability toward the end of a boom, caused by increasing production capacities, rising labour and raw material costs and increasing interest payments, does not lead simply to a slowdown in growth, but rather results in a sharp economic contraction. The over-expansion of credit, provided by the financial system, which also grants loans for speculation, usually reaches its zenith in the final stages of the upturn and suddenly come to a stop. Banks decide to curtail the expansion of credit due to fears for their own liquidity position. During a crisis, there is a widespread inability to sell goods and services, a breakdown in commercial credit and a desperate need for credit to meet payment commitments. Panic and a general tendency to hoard money can lead to an enormous escalation of the crisis. Investment projects are abandoned, workers laid off and the market is flooded with a wave of bankruptcies. One can also add the huge losses of speculators to this dramatic scenario, many of whom have used borrowed money to buy shares and other assets at peak prices. All the three classes – productive capitalists, workers, and financial capitalists – face immense problems in loss of income and mounting debt. In the absence of a lender of last resort, a sharp economic downturn with falling wages and prices, and ultimately deflation, is unavoidable.¹³

Schumpeter identifies the upper turning point of the boom with the appearance of new products on the market after an extended period of building up capacities. The prices of these products fall and terminate the boom. A depression follows which *may* develop into a financial crisis. During the course of adjustment, obsolete businesses using older methods of production and/or who do not offer new products will be liquidated. This process of creative destruction leads to a new stage of development. *Schumpeter*, as *Marx*, thus regards a crisis, with the collapse of enterprises, as something intrinsic to capitalism. Usually, the upper turning point in the stock market will tend to precede the slowdown or fall in output and employment. This is because stock prices adjust more quickly than other prices. For this reason, *Schumpeter* argues, people tend to mistakenly attribute the cause of crises to stock market crashes.

For *Schumpeter* (1939), a deep financial crisis is an exacerbated downturn caused mainly by faulty banking practices due to misguided lending during the boom. *Schumpeter* distinguishes between a *primary depression* and a *secondary depression*. A primary depression is inevitable and part of the normal capitalist development process. A secondary depression pulls the economy into a prolonged crisis as all the misdirected lending and investments also need to be liquidated. Moreover,

¹³ In Volume III of *Capital*, Peel's Bank Act is fundamentally criticised (see *Marx* 1894). This act forced the Bank of England to back central bank money with gold and led to insufficient refinancing by the central bank in crises.

during the secondary depression it is likely that vicious spirals and psychological effects such as pessimistic expectations will lead to the collapse of healthy firms and the destruction of productive capacities which would otherwise survive.

In *Wicksell's* approach, the boom phase comes to end when the artificially low money interest rate adjusts back to the natural interest rate. It is not the absolute development of the money interest rate that is important, but its relation to the natural rate. *Hayek* argues similarly when he stresses that the turning point from boom to bust is triggered by higher interest rates and the decision of banks to restrict credit to firms. More costly and restricted credit can be triggered by monetary policy and/or changing expectations of banks. Many investment projects, which are, at the time of weak credit markets, only partially completed, will be abandoned. These projects, as well as already finished ones that were based on too low money interest rates, simply cannot earn the rate of return according to the natural rate of interest. The process of liquidating unsustainable production capacities could be postponed if banks continue to keep the rate of interest low. According to *Hayek*, this is not an optimal strategy because it only postpones the inevitable crisis and even worsens it. The longer that banks artificially maintain the money interest rate below the natural interest rate, the greater the misallocation of capital will be when the crisis occurs. During a depression, unemployment, as well as idle capital, will coexist until the lengthy process of liquidation is completed.

In *Fisher's* explanation of financial crises, many factors can lead to the end of a bubble. A strong boom with substantial asset price inflation is important, which in combination with high debt, creates a dangerous situation. A downturn can spiral out of control, especially when it leads to goods market deflation. There are three basic feedbacks in his debt-deflation theory.

Firstly, the *asset-price-deflation feedback theory* argues that economic units, becoming aware of being over-indebted, try to liquidate their debt by selling assets. Decreasing asset prices result in falling collateral and a reduction in wealth and, ultimately, in liquidity and solvency problems. This leads to further distress and asset sales.

Secondly, the *finance to real economy feedback* states that goods market demand is reduced due to a lack of credit, negative expectations, negative wealth effects, decreasing employment, etc. This leads to losses in the enterprise sector, further bankruptcies and a collapse of investment demand. The result is a progressive reduction of output and employment. Fire sales gain even more importance. The asset price deflation continues and further deteriorates the net worth of economic units, increases over-indebtedness and leads to even more bankruptcies, unemployment etc. This second feedback strengthens the first.

Thirdly, the *real debt effect*, also called the Fisher-Effect (Tobin 1980), is the strongest and most famous mechanism.¹⁴ This enormous feedback mechanism is triggered when a lack of goods market demand (due to low investment, low consumption demand, unemployment, etc.) and an increase in goods market supply (due to fire sales, also of goods) lead to goods market deflation and increases the real debt burden or, in other words, increases the real interest rate. Goods market deflation makes the situation extremely difficult for all debtors. It leads to mass bankruptcies of firms, households and speculators – in essence, of all debtors operating in the domestic currency of the economy. A reduction in nominal interest rates, even to zero, is insufficient to counteract deflation. Negative nominal interest rates are not possible as potential creditors always have the option to hoard money. Expectations of a deflationary process stimulates money hoarding. Consumption demand decreases when goods, like cars, etc. are expected to be cheaper in the future. Firms stop investing, as they must take into account that their competitors will purchase investment goods more cheaply in the future. At this stage of the crisis, all feedback mechanisms work together and the economic structure not only shakes - it collapses.

Keynes (1936) argues that a sudden collapse of the expected rate of return on investment and/or an increase of the interest rate caused by restrictive monetary policy can stop a boom. He thought that a collapse of the expected rate of return, caused by changing expectations, is a more likely trigger for the end of a boom than restrictive monetary policy. In his *Treatise on Money* (1930), following Marx, Schumpeter and Hayek, he identified it as a critical point for further expansion when the wave of investment that had initially started the boom leads to a noticeable increase in goods market supply. However, he rejected any mechanical explanation for the end of a boom. A downturn leads to a cumulative shrinking of goods market demand, income and also to an erosion of confidence. The widow's curse becomes a *Danaid's jar*, as any attempt by the enterprise sector to reduce losses by cutting expenditures leads to additional losses. This effect alone pushes enterprises towards a critical financial situation. Demand deflation, leading to enterprise losses, is combined with cost deflation as soon as nominal unit-labour costs start to fall, under the pressure of unemployment. The interaction between demand deflation and cost deflation must be seen as an additional strong vicious cycle during a contraction phase.

Behavioural finance makes clear that during a contraction process, herding becomes an important feedback mechanism. It was found that "good news" and "bad news" have asymmetrical effects. "Bad news" changes behaviour more than "good news". This explains why, during financial

¹⁴ Tobin (1980) compares the Fisher-Effect with the Pigou-Effect or similar effects which argue that deflation increases the real value of net monetary domestic wealth in an economy. The Pigou-Effect must be considered as a gentle breeze compared to the storm of the Fisher-Effect.

crises, herding is even stronger than during a boom. Panic becomes a frequent ingredient of financial crises.¹⁵ The market follows the logic, as Keynes (1936:155f.) explained, of the game of Musical Chairs where everybody tries to secure a chair before the music stops. Such behaviour creates strong cumulative processes expressed in fire sale, liquidity hoarding and extreme credit rationing.

The turning point from boom to bust can, according to *Minsky* (1986), be caused by one of the following three events: a) The central bank raises interest rates to keep inflation in check. b) Perceived lenders' risk and borrowers' risk, which decrease during the first phase of an expansion because of optimistic sentiments, increase during an expansion process because the leverages of debtors increase. Sooner or later this development must lead to the end of the credit expansion. c) There can also be an external trigger, for example an expectation shock which can be caused by myriad of causes. With the end of the expansion, debtors with Ponzi schemes first find problems in fulfilling their obligations. Liquidity and solvency problems quickly spread to the rest of the economy, as well. Investment collapses, enterprises realise losses, unemployment increases, the danger of a deflationary process rises, etc. In short, a downward spiral is initiated along the lines of the Keynesian paradigm. *Minsky* supports Fisher's debt deflation argument and clearly sees the fatal effects of deflation.

Kindleberger argues that any event may end a bubble, be it a failure of a single institution, the emergence of fraudulent behaviours, or any single piece of bad news that investors interpret as a signal that the bubble will not go on. Monetary policy can also put an end to a bubble. From here, *Kindleberger* takes on the views of Fisher, Keynes and *Minsky* and puts them in the context of his historical analyses.

The *Monetary Circuit* theory argues along the same lines. A crisis can occur if: (i) Firms cannot get credit from banks for new projects because of banks' unwillingness to lend, caused by changing expectations. (ii) Based on changing expectations, households increase their liquidity holding (keep more deposits) and reduce credits to firms and banks do not give additional finance to compensate reduced household's credit and firms are forced to deleverage. (iii) Firms decide not to take credits, deleverage and reduce the level of production. In the latter case we have a shift in the expectations of firms.

In summary, all approaches stress that an expansionary period – or, more specifically, a bubble – leads endogenously to increased economic fragility, which can come to an end by a myriad of

¹⁵ Humans show here the same behaviour as some animals, for example mice or ants. In panic, for example, behaviour is copied, individuals attempt to move faster than normal, interactions between individuals become physical, better options are overlooked. For example in a room with two doors most individuals run in panic to one door (*Hamilton* 1971).

factors. Increasing indebtedness during the expansion phase is stressed by all versions of financial crises as a key factor. Almost all argue that restrictive monetary policy can be a potential factor stopping an expansion phase. Also, almost all argue that investment develops in waves and the economy comes to a critical point when new capacities are built up and demand becomes insufficient. All approaches discussed here agree that the end of an expansion phase, comparable to its start, greatly depends on historical developments and does not follow a mechanical cycle model. A whole host of objective and subjective feedback mechanisms are discussed which explain why a contraction phase can spiral out of control and end in a deep systemic financial crisis with high social and economic costs: more specifically, the destruction of monetary wealth, productive capital, growth and employment. Among the objective feedback mechanisms are the destruction of equity, wealth and collateral during an asset price deflation, losses of the enterprise sectors as the result of a collapse of investment, and the increase of the real debt burden during a demand deflation and cost deflation. Subjective feedback mechanisms include herding and, in the worst case, panic.

v. *Policy implications*

Marx considered periodic crises as intrinsic features of capitalism, which could thereby not be avoided. *Marx* saw periodic crises as a key for capitalism to reproduce itself, because each downturn prepared the grounds for a new period of capitalist expansion through weakening of the bargaining power of workers, the abandonment of obsolete production technologies and the closure of the least efficient units. He did, however, note that it might be possible for the government to ameliorate the impact of the crisis. In particular, monetary authorities would be able to do so by acting as a lender of last resort.

Schumpeter opposes the idea of government interventions in stabilising the economy, at least as a means to prevent all crises. The economic system should be left, at least to a certain extent, undisturbed during a crisis and given time to liquidate old and obsolete companies. If a strong secondary wave of investment has taken place then government interventions, with the aim of saving less innovative companies, can actually prolong the crisis and reduce the innovative power of the capitalist system. *Schumpeter* puts strong emphasis on responsible lending practices, especially by bankers. In fact, he attributed many of the failings of capitalism to the inability of bankers to do their job properly, lending too much to households and/or enterprises with no innovative power. This leads him to the conclusion that the central banks ought to monitor and supervise commercial banks with respect to their balance sheets and lending practices (*Schumpeter* 1939).

Both *Wicksell* and *Hayek* place discretionary monetary policy at the centre of their policy recommendations. In contrast to Wicksell, who was one of the founders of the Swedish School and who had many points in common with Keynes, Hayek was against stabilisation policies. He argued, for instance, that the Great Depression in the United States in the 1930s was the result of excessive investment during the 1920s, fuelled by overly loose monetary policy (Hayek 1934). Moreover, he thought that lax monetary policy actually prolonged the boom and could lead to a lengthy and deep depression. With regard to his policy recommendations, Hayek advocated the stabilisation of the price of a standard basket of commodities, a concept today known as inflation targeting (Seccareccia 1994). He did not think, however, that interest rate policy would be strong enough in achieving the price level target. He was in favour of direct credit volume controls.¹⁶ In his book *Denationalization of Money*, Hayek (1978) made a radical proposal to restructure the financial order. He recommended the abolishment of central banks and recommended that money be issued by private commercial banks. He assumed that the competition between private monies interacting via free-floating exchange rates would create sufficient pressure on individual banks not to inflate their money.¹⁷

From the experience of the Great Depression, and its management under the Hoover administration in the USA (1929–1933), and based on his debt-deflation analysis, *Fisher* (1933) argued that the best policy is to avoid bubbles in the first place. In case a bubble did form, and the economy fell into a deflationary trap, Fisher supported policies to reflate the economy. In case of deflation it “would be as silly and immoral to ‘let nature take her course’ as for a physician to neglect a case of pneumonia” (Fisher 1933: 348). To reflate the economy means to increase money supply. Fisher did not support expansionary fiscal policy or other government interventions in the economy. To prevent hoarding of liquidity or to stabilise the velocity of money and make monetary policy efficient, Fisher (1933a) supported the idea of stamped money, and the idea that hoarded liquidity should permanently lose some of its value due to government administrative intervention (Pavanelli 2004).

Keynes argued for a regulated type of capitalism with stabilising institutions and government interventions in many areas (for an overview, see Dullien et al. 2011, 2012). Driven by animal spirits, investment for Keynes was too unstable to keep it completely in private hands. Keynes (1936: 378) argued that “a somewhat comprehensive socialisation of investment will prove the only means of securing an approximation of full employment”. He argued strongly for large government sectors,

¹⁶ He supported a gold standard with direct multipliers connecting gold reserves to credit volumes (Hayek 1937).

¹⁷ Hayek’s proposal to denationalise money has some fundamental shortcomings. Firstly, it is likely that the competition between private monies leads to deflation. Secondly, which institution should take over the function of a lender of last resort. Thirdly, a world with many private monies would increase uncertainty about exchange rate movements in an extreme way as well as transaction costs (see Herr 1992).

including publicly owned enterprises, and for all versions of partially public owned organisations to stabilise investment (Keynes 1926). He recommended a relatively equal income distribution to keep consumption demand sufficiently high. Of course, active monetary and fiscal policies also play an important role in keeping an economy stable. The nominal wage level, as the anchor for the price level, should develop in such a way so as to lead to a low and stable increase of unit-labour costs. Keynes did not clearly define how a national financial system should look. However, there are several elements which seem to be important. Firstly, asset markets were considered to be potentially disturbing for economic development. Keynes wanted to reduce speculation, for example, by a substantial government transfer tax for turnover in asset markets (Keynes 1936: 160). He saw even “the euthanasia of the rentier, and, consequently, the euthanasia of the cumulative oppressive power of the capitalists to exploit the scarcity-value of capital” (Keynes 1936: 376). Keynes finally recommended a system with fixed but adjustable exchange rates and international capital controls.

Minsky followed Keynes with his idea of a regulated type of capitalism. A strictly regulated financial system is not sufficient to stabilise a capitalist economy. To stabilise the banking and financial sectors without stabilising the industrial and commercial sectors would still leave the economy vulnerable to business cycles and crises. Similar to Keynes, he proposed a large and active government to maintain stability. His policy recommendations include a high proportion of public employment and public employment policies during recessions, effective minimum wages to prevent wage and price deflation, and an activist central bank which is involved in controlling financial innovation and the structure of the financial system (Minsky 1986). The government should act as an “employer of last resort” (Wray 2007) to guarantee full employment. The central bank should take over the function of a “lender of last resort” in a comprehensive way. Minsky also favours industrial policy with the aim of supporting labour-intensive productions and enabling it to coexist with capital-intensive industries. Overall, he supports Keynes’ idea of the socialisation of investment.¹⁸

4. Financialisation and long-term approaches to crises in capitalism

The models in this section have a long-term horizon and distinguish, like Polanyi (1944), different phases of capitalism. The section presents authors who come from a Marxist and Post-Keynesian

¹⁸ In Minsky’s view, American capitalism cannot be progressive unless there is some comprehensive socialization of several facets of investment activity (Crotty 1986). He argued for instance that railroads, nuclear power generation etc. should go back to public ownership.

tradition. In the first sub-section, several early contributors in the Marxist tradition – Rudolf Hilferding, Rosa Luxemburg and Paul Sweezy – who stressed different long-term developments of capitalism, are shortly presented. In the second sub-section the Regulation School, the Social Structures of Accumulation and Post Keynesian approaches are discussed and compared.

The forerunners: selected authors in Marxist tradition

Hilferding (1910) begins his analysis by summarising and systemising Karl Marx (1894). Additionally, he observed profound changes in the financial system occurring since the late 19th century, focusing his analysis on Germany, in particular. The rise of large corporations and an increasing concentration of industrial capital, both understood as endogenous developments in capitalism, coincide with a period of profound concentration in the banking sector, according to Hilferding. This transformation stimulates cartelisation and promotes closer ties between industry and banking. The effects of such tighter relationships are twofold: on the one hand, the industry enjoys greater financial security, but on the other hand, banks progressively come to own more and more industrial capital. For Hilferding, this fusion between large banks and big industrial groups brings about a new phase of capitalism. He describes it as the rise of *finance capital*, which is also the title of his major work, published in 1910. According to Hilferding, these large groups will be relatively successful in insulating themselves from business cycle fluctuations by passing the burden onto smaller units of capital. Over time, finance capital comes to dominate the entire national capital. Hilferding saw this as the last stage of capitalism.

It is worthwhile noting that Schumpeter (1942) stressed the same point, following Marx and Hilferding, that economies of scale and scope will lead to ever larger companies. He concluded that these oligopolies and monopolies, together with the state, would lead to a kind of half-planned economy with reduced instability and a lower likelihood of crises. This would also, however, most likely lead to a reduced innovative power of the economic system as well. Owners, in such a system, would become parasitic rentiers and the centre of power would be concentrated around a manager class.

Luxemburg (1913) in particular focused on the realisation of surplus value which is only possible if aggregate demand for goods and services is sufficient. She argued that, in the long term, capitalism will suffer from a lack of demand. Her critique of Marx was that he did not emphasise the major question of where the demand comes from to guarantee that the ever-expanding output produced under capitalism will be sold. Luxemburg's answer is that a capitalist economy can only

prosper if there are countries or regions which are non-capitalist and which can serve as external markets and close the gap of demand. Luxemburg describes how external markets were created by capitalist economies through violent colonial expansion. Colonies could be used, on the one hand, as a source of raw materials and cheap labour and, on the other hand, as markets for capitalists' products. If external expansion is no longer possible, capitalism will, in her estimation, start to stagnate.

Luxemburg used Marx's reproduction schemes of Volume II of Capital to try to show how such new markets need to exist because domestic consumption, both by workers and capitalists, can never be sufficient to purchase the entire output. Later, her analyses were criticised by several Marxist authors; most notably Paul Sweezy (1942) who correctly showed that a lack of demand is possible but not inevitable in all circumstances. In spite of analytical weaknesses, Luxemburg was one of the first economists stressing the role of demand for economic development. Later, Keynes and Kalecki elaborated the role of demand in a more consistent way.

Sweezy (1942) saw capitalism as a system prone to economic stagnation, unemployment and depression because wages are too low to guarantee sufficient aggregate demand. Thus, under-consumption becomes a key feature of a capitalist economy. The only ways to overcome this tendency for stagnation are rising wages (which is contrary to the logic of capitalism), Keynesian-type government expenditure including an extended welfare state (yet it is debatable, if not impossible, that such a welfare state can exist under capitalism) or imperialism or fascism. Though influenced by Kalecki and Steindl, Sweezy later turned away from an under-consumption hypothesis and stressed inadequate investment as a key factor for insufficient aggregate demand (Baran and Sweezy 1966). In the 1970s and later, Sweezy focused on the increasingly expanding financial sector and supported Minsky's ideas of financial instability (see Sweezy and Magdoff 1977).

Approaches of different historical regimes of capitalism

This section is dedicated to authors who think of capitalism developing in phases which can span over several decades. The following approaches, which are partly overlapping, are presented: the Regulation theory, the Social Structures of Accumulation approach, and the Post Keynesian approach represented by Cornwall, Steindl and Minsky. In order to take a comparative perspective, the following four steps are taken: First, we will sketch the basic structure of the approaches in order to highlight how each of them views the interaction between social institutions and the economy, and the related dynamic regarding the development of the institutional structure and the associated

economic development. A historical perspective of different phases of capitalist development, as identified by these approaches, will be presented thereafter. Subsequently, we will tackle the question of how these approaches view the structural break in the 1970s which led to the emergence of a finance-dominated style of capitalism. It should be noted that the terminology chosen in the different approaches is not homogenous. However, as will be seen below, each of the approaches provides some ideas about the regime shift towards what is now widely called *financialisation*. Finally we will outline the respective views on the consequences of financialisation for long-run economic and social development, including the crisis of this phase of capitalist development.

i. Basic structure of the approaches

The *Regulation School* originated in France in the early 1970s and the main contributors are Michel Aglietta (1976) and Alain Lipietz (1987) who adopted a predominantly Marxian approach, and Robert Boyer (2000, 2005, 2010, 2013) representing a more Keynesian view. It asserts that society, and economic activities within it, is characterised by a network of social relations between various social groups, as well as institutions, norms and conventions. Jessop (1997:291) describes the mode of regulation as “an emergent ensemble of rules, norms, conventions, patterns of conduct, social networks, organizational forms and institutions which can stabilize an accumulation regime”. A key point is that social relations are inherently contradictory given different interests and conflicting claims of different groups. However, according to the Regulation School, a specific constellation in society and the economy can allow for a relatively long-lasting capitalist expansion (Brenner and Glick 1991). The transition from one mode of development to another fundamentally changes institutions, is creatively destructive, and is shaped by conflicts between different classes and interest groups. It can, therefore, take years for a new coherent mode of development to be established and it is not possible to be certain of the outcome— this will, in other words, depend on the historical socio-economic context.

The *Social Structures of Accumulation* approach was developed in the United States, especially by David Gordon, Michael Reich and Richard Edwards during the late 1970s and the early 1980s, and mainly concentrates on the US (see Gordon 1981, 1995, Gordon et al. 1987, and also McDonough et al. 2010). Similar to the French Regulation School, the Social Structure of Accumulation approach examines the interaction of a potentially unstable accumulation process with social institutions which “tame” the instability of capitalism and allow for longer periods of stable and rapid growth. However, a period of stable and high growth is finally undermined by endogenous

processes, which then give rise to systemic crises and a new accumulation regime. The Social Structure of Accumulation approach assumes the ability of capitalism to reinvent itself after a period of prolonged stagnation and/or crisis.

Post-Keynesian approaches, based on Keynes's work as interpreted by Joan Robinson, Richard Kahn, Nicholas Kaldor and others, as well as on Michal Kalecki's contributions, is built on the principles of a "monetary theory of production", where money and monetary policies are not neutral, neither in the short nor in the long run. Monetary production economies are characterised by the conflict over the distribution of the social product and by power relationships affecting the outcome of this distribution conflict. Economic and social processes take place in "historical time". Expectations, under the conditions of "fundamental uncertainty" regarding future events therefore have an important role to play to understand economic behaviour and the creation of institutions which emerge in order to cope with uncertainty. The institutional structure is thus extremely important, also in providing a stable monetary and financial system, and in containing and moderating the distribution conflict and accelerating conflict inflation. Since monetary production economies are demand-constrained in the short and in the long run, those institutions affecting private consumption and investment expenditure are of importance for short- and long-run economic performance, as are the institutions and regulation of government stabilisation policies.

Interestingly, the Regulation School, and in particular the Social Structure of Accumulation approach provide endogenous mechanisms of institutional change, basically arguing that existing regimes are undermined by their success which sets in motion certain processes which make the regime finally collapse. In the Post-Keynesian approaches, institutional changes seem to be contingent on exogenous shocks, changing power relations and economic policy failures, without following a definite "law of motion".

ii. *Phases of capitalist development*

The *Regulation School* describes four modes of development in historical context (Brenner and Glick 1991). The first one took place throughout the 19th century in the US and parts of Europe and lasted until the early 20th century. This mode of development was characterised by a competitive mode of regulation imposing an extensive regime of accumulation with an increasing workforce and intensification of work. The second mode of development could be observed in the first decades of the 20th century (including the inter-war period), in the US in particular. It was a competitive mode of regulation, conflicting with the new intensive regime of accumulation which massively increased

production and the potential for mass production. The third mode of development – *Fordism* – was an intensive regime of accumulation with high productivity increases, high demand creation and oligopolistic and monopolistic economic structures and allowed for a prolonged period of high growth from the end of the World War II until the 1970s. The fourth mode of development describes the most recent period, which has taken several forms in various developed countries. In the case of the US and the UK there is, however, a consensus in naming it the *finance-led growth regime*.

The *Social Structure of Accumulation* approach also distinguishes four distinct periods in the history of capitalism (see Kotz 2011, McDonough et al. 2010). The *Competitive Social Structure of Accumulation* from the mid to late 19th century was characterised by predominantly small and medium-sized firms, dominance of trade in international economic relations and a laissez-faire government. The *Monopoly Social Structure of Accumulation* refers to the period from the late 19th century until the Great Depression in the 1930s. Here, the oligopolistic market structure became dominant and trade unions began to gain relevance. The *Regulated Capitalist Social Structure of Accumulation* was formed by the end of World War II and lasted until the *Great Stagflation* in the 1970s. Internationally, the US became the strongest country economically and the US dollar a hegemonic currency. The major characteristics of this period are the capital-labour accord (a compromise between big companies and trade unions which is stronger than ever) and a Keynesian welfare state. Finally the *Global Neoliberal Social Structure of Accumulation* was formed in the early 1980s and lasts until today. Instead of the capital-labour accord, there is a dominance of capital over labour. Other major characteristics of this type of capitalism are deregulation and unrestrained markets in an increasingly globalised world. Also, a separation of the financial from the non-financial sector takes place where the financial sector – in which speculation is ever more present – gains power and ceases to primarily support industrial development.

Post Keynesian contributions have focused on the two most recent phases: (i) the *Golden Age* period from the 1950s until the early 1970s, the characteristics of which are described similarly to the other approaches presented above; and (ii) the *finance-dominated capitalism* – or *neoliberalism*, as in Cornwall and Cornwall (2001) – where Post Keynesians in particular have developed comprehensive analyses of the “macroeconomics of financialisation”.

Minsky’s (1996) account is distinct insofar as he based his analysis on the changes in the role of finance in the economy. He distinguished between the 19th century Commercial Capitalism, in which traditional banking operations such as making short-term commercial loans and issuing

deposits took place, from the early 20th century Finance Capitalism,¹⁹ where investment banking superseded commercial banking activities, bringing a fundamental change in the nature of capitalism and making it much more unstable (Tymoigne and Wray 2014, chapter 1). The demise of Finance Capitalism is marked by the Great Depression. After World War II, a new type of capitalism emerged – the *managerial welfare-state capitalism* (also called paternalistic capitalism). The institutional structure, which was based on the New Deal, among other things, acted as a constraint on the liberties of financial institutions. This regime brought several decades of prosperity and tranquillity, but these were exactly the factors that encouraged greater risk-taking behaviour and ultimately led to the *Money Manager Capitalism after the 1970s*.

In sum, the three approaches partly distinguish different historical periods. However, they all agree that the regime after World War II came to an end in the 1970s/1980s and a new finance dominated system developed. Below we will focus on this regime shift and describe how the respective authors view the most recent phase of capitalist development.

iii. The regime shifts towards finance-dominated capitalism

Aglietta (1976), the proponent of the *Regulation Theory*, analysing in particular the developments in the United States and France, named the period of prosperous economic development after World War II with strong productivity increases and extraordinary growth of mass consumption the *Fordist accumulation regime*²⁰. Fordism was based on an unprecedented compromise between capital and labour (Boyer 2010). In addition, the Fordist era was characterised by a Keynesian welfare state (Jessop 1997). The principles of the Keynesian welfare state included securing full employment by macroeconomic demand management, under the conditions of relatively closed economies, and influencing the distribution of income via collective bargaining regulations so that economic growth could be sustained by rising effective domestic demand, based on income increases. Reduced income inequality, mass consumption based on income, and high investment with high productivity increases, created a virtuous cycle. Since the mid' 1960s, due to a much slower productivity growth and also a rising labour militancy, the Fordist regime became unsustainable, eventually ending in a major crisis in 1974-75.

In the United States, following the erosion of the Fordist regime, a wave of international trade liberalisation, financial deregulation, a transition to a more flexible labour market and a wave of

¹⁹ Minsky goes here much along the lines of Hilferding.

innovation in, for example, computer technology, took place. All of these factors contributed to the reduction of the bargaining power of trade unions whereas the power of the financial system increased. Managers started to respond more and more to the demands of the financial sector and could ignore union demands. A new social compromise emerged where shareholders acknowledge the power of managers, and managers adopted the principles of shareholder value corporate governance. The interests of workers or other stakeholders were not represented in this new social compromise. This new alliance triggered and allowed a new genuine accumulation regime (Boyer 2010).

The finance-led growth regime has been characterised by higher labour market flexibility and wage moderation. At the heart of this regime of accumulation is the stock market. The more dominant the principle of shareholder value corporate governance became, the more the management focused on boosting the prices of shares to increase bonus payments and to avoid take-overs (Aglietta and Breton 2001). The new finance-led accumulation regime also led to high dividend payments even when firms realised no profits, to maintain high returns on equity to satisfy (institutional) investors and prevent shareholders from selling shares. Higher dividend payments and exorbitantly high management salaries shrank the portion of profits which could be reinvested. This ultimately reduced growth and the dynamism of the economy.

The post-war period was also extensively analysed in the *Social Structure of Accumulation approach*. Gordon et al. (1987) outline four factors that were crucial for the prosperous development in the United States after World War II: firstly, a balanced capital-labour accord where, on the one hand, the workers were granted job security and rising real wages, while, on the other hand, the unions were not strong enough to squeeze out profits and influence management decisions in an important way; secondly, the international hegemony of the USA (Pax Americana); thirdly, the government assured welfare state provisions, such as health care and social security; and fourthly, oligopolistic competition and a dominant role of US multinational companies in the world market limited the inter-capitalist rivalry and reduced competitive pressure on US corporations.

Over time, however, the conditions in each of the above four aspects changed. High employment rates increased workers' demands as the cost of job losses plunged; the military power of the US was challenged by the late 1960s / early 1970s; the citizen movements began to spread, in particular against government military decisions; and foreign competition began to increase and intensified the pressure on US businesses. The wave and danger of unfriendly domestic takeovers and mergers and acquisitions increased pressure on companies. For the Social Structure of Accumulation approach, the profit squeeze, resulting from the increased power of labour in the face

of high employment in the 1960s, best explains the erosion of the post-war system (Gordon et al. 1994, Nilsson 1996, 1997, Kotz 2011).

Kotz (2011) describes five key features of the Global Neoliberal Social Structure of Accumulation approach formed during the early 1980s. Firstly, the capital-labour compromise of the post-war period was replaced by the increasing dominance of capital over labour. Secondly, the role of the government has been reduced and waves of privatisations and deregulations in various sectors have taken place. Thirdly, unrestrained competition among firms and price wars reflected the return to free market ideas. Fourthly, the economy has seen an increasing separation of the financial from the non-financial sector, with the former becoming progressively innovative and speculation-oriented. Finally, the globalisation of trade and capital movements, off-shoring and labour market deregulation all followed as features of an unrestrained market at the core of neoliberal ideology. One of the major consequences of the new social coalition and of the new practices in the financial system was massive debt creation in the private household sector. Increasing household debt has been a result of stagnating real wages for large parts of the working population. The financial sector provided credit to finance consumption by relaxing borrowing constraints. Over time, increasing leverage ratios and massive debt accumulation, both by corporations and households, has undermined the financial stability of the system. All this happened in an environment where there was little provision for risk and, at the same time, creditworthiness standards deteriorated.

According to Cornwall and Cornwall (2001), the *Golden Age* was founded on the “social bargain” between capital, labour and the state, which was made possible due to a shift of political power towards social democratic and labour parties and of economic power towards trade unions. The consensus among economic and political actors was to focus on the achievement of full employment via appropriate aggregate demand management. Furthermore, the United States acted as an international hegemon thereby providing stability and an environment favourable to high employment, high growth and low inflation on an international level. Cornwall and Cornwall (2001) argue that the Golden Age period came to an end because of the erosion of the “social bargain” in several countries: persistently low levels of unemployment resulted in increasing wage demands which, however, were not accompanied by increases in productivity. Inflation rates began to rise and governments sacrificed full employment targets in favour of low inflation and competitiveness considerations, following the collapse of the Bretton Woods system and the deregulation of international financial markets. The institutional changes that enabled the rise of the new regime increased the relative power of business and established a political constraint to full employment.

Whereas Cornwall and Cornwall (2001) focus on the “social bargain” and the transition from the Golden Age constellation towards neoliberalism without explicitly mentioning the role of finance and financialisation, Josef Steindl’s (1979, 1989) earlier analysis explicitly addresses those forces leading to the dominance of finance. More importantly, Steindl argued how the Golden Age changed in the 1970s to stagnation because of “stagnation policy” in the major capitalist economies. These are policies associated with monetarism and indicate a shift of power from industry to banks, or from the non-financial sector to the financial sector. This occurred in the course of national and international financial market liberalisation and rapidly increasing financial activity. Steindl draws on Kalecki’s (1971, Chapter 12) *Political Aspects of Full Employment*, in which Kalecki argued that, although governments might know how to maintain full employment in a capitalist economy, they will not do so, because of capitalists’ opposition. Whereas according to Kalecki (1971:144), the opposition of the capitalist class towards full employment policies will give rise to a “political business cycle”, Steindl (1979:9) argues that business opposition towards full employment policies gave rise to a “political trend” which caused, or at least contributed to stagnation.

Minsky (1986) also argued, in describing *money-manager capitalism*, that the last decades led to a concentration of financial power in the hands of money managers while worsening inequality in the economy and society. Therefore, consumption increasingly has to be supported by borrowing. However, this increases financial fragility due to increasing debt-income ratios of households.

In the more recent Post Keynesian literature, the new regime is referred to as “finance-dominated capitalism” or, simply, financialisation. In terms of theoretical and empirical work regarding financialisation, Post Keynesian contributions have been much more extensive and comprehensive than the other two approaches, as well as more macroeconomically founded.²⁰ The consensus among Post Keynesian authors is that the effects of financialisation have been the following (see Hein 2012, chapter 1):

a. With regard to distribution, financialisation has been conducive to a rising gross profit share, including retained profits, dividends and interest payments, and thus a falling labour income share, on the one hand, and to increasing inequality of wages, including top management salaries and thus of personal or household incomes, on the other hand.

b. Regarding investment in capital stock, financialisation has caused increasing shareholder power vis-à-vis firms and workers, the demand for an increasing rate of return on equity and bonds

²⁰ These contributions are based on detailed empirical case studies of the development of financialisation and its macroeconomic effects by, for example, the contributions in Epstein (2005), and by Krippner (2005) and Palley (2008, 2013), Herr and Kazandziska (2011) for the US, by van Treeck (2009b) and van Treeck et al. (2007) for Germany as compared to the US, and by Stockhammer (2008) for Europe.

held by rentiers, and an alignment of management with shareholder interests through short-run, performance-related pay schemes, bonuses, stock option programmes, and so on.

c. Regarding consumption, financialisation has generated an increasing potential for wealth-based and debt-financed consumption, thus creating the potential to compensate for the depressing demand effects of financialisation.

d. The liberalisation of international capital markets and capital accounts has allowed for rising current account imbalances at both global and regional levels. It also simultaneously created the problems of foreign indebtedness, speculative capital movements, exchange rate volatilities and related currency crises (Herr 2011a).

iv. *The recent crisis and consequences for the long-run development*

According to the *Regulation School* (Boyer 2013) the financial crisis, which broke out in the USA in 2007, was triggered by the occurrence of three deflationary processes that paralysed the US financial system: the bursting of the real estate bubble and the consequent fall in real estate prices, which increased the debt burden of households; the losses of the financial system due to the loss in value of mortgage-backed securities and other assets; and, as a consequence, increased risk-aversion of banks and other financial institutions, which stopped giving credit. Only responses from governments and, in particular, central banks, have prevented serious goods and labour market deflations and a collapse of the economy. Boyer follows the analysis of Fisher's (1933) debt-deflation theory of great depressions to a striking degree.

There seems to be no clear agreement on whether the end of the finance-led regime has come. On the one hand, considering the massive amounts of debt in the US economic system, the accumulation regime in the US can most likely no longer rely on a credit driven expansion. On the other hand, in the aftermath of the financial crisis there was, paradoxically, a strong resilience of the power of finance. The majority of the costs of the crisis have been shifted away from the financial sector and towards the taxpayer. Similarly, despite major discussions about regulating the financial system, successful lobbying has prevented any significant attempt at regulation (Boyer 2013).

According to the *Social Structure of Accumulation approach*, the underlying cause of the crisis of the present regime is not to be found in a profit squeeze and a falling rate of profit, as in the last phase of the regulated capitalist model after World War II, but rather in the weak growth of mass income and, as a consequence, mass consumption. The problem of a lack of consumption demand characterised the Global Neoliberal Social Structure of Accumulation regime for an extended period.

However, the model was able to postpone the problem for several decades: due to an increasingly speculative financial sector which also financed consumption demand, but, also, because of a series of large asset bubbles which stabilised demand (Kotz 2011). Unlike the crisis of the regulated post-war system, which was characterised by a long and slow decline, the crisis, starting in 2007 and leading to the Great Recession in 2009, occurred with a sudden economic collapse, which seems to be followed by a long period of stagnation. During the prolonged period of stagnation, new actors and institutions may emerge, forming the institutional framework for a new period of expansion.

Post-Keynesians have presented different models examining the long-run growth and stability effects of financialisation.²¹ “Profits without investment” regimes, as found by Cordonnier (2006), or “contractive” regimes may emerge (see also Boyer 2000). These regimes involve a considerable systemic potential for medium-run instability due to the financial structure of the corporate sector of the economy and capital accumulation. “Profits without investment” regimes seem to have prevailed during the pre-2007 crisis financialisation period.²² Within this regime, a distinction can be made between two broad groups of countries. The first group followed a debt-led consumption boom type of development in the face of low investment in capital stock and re-distribution at the expense of labour incomes, making use of the increasing potential for wealth-based and debt-financed consumption generated by financialisation. The second group of countries followed the mercantilist export-led strategy in response to a redistribution at the expense of labour income and stagnating consumption and investment demand. The financial crisis, which was triggered by over-indebtedness problems of private households in the US, the leading “debt-led consumption” economy, could thus quickly spread to the “export-led mercantilist” economies through the foreign trade channel (collapse of exports) and the financial contagion channel (devaluation of financial assets), in particular. This explains the Great Recession in 2009 in all developed countries.

The profit without investment regime, especially the debt-led consumption regime, seems to be exhausted. The danger of long-term stagnation, like that experienced by the Japanese after the bubble in Japan in the second half of the 1980s, looms overhead. Many economists in a broader Keynesian camp argue that the insufficient reform of the financial system, together with insufficient consumption demand caused by increasing income and wealth inequality, make long-term stagnation likely (see for example Dullien et al. 2011, Hein 2012, Krugman 2012, Palley 2012, Stiglitz 2012).

²¹ See for example Hein (2012, Chapter 3), Hein and van Treeck (2010), Godley and Lavoie (2007, Chapter 11), Lavoie (2008), Skott and Ryoo (2008a, 2008b) and van Treeck (2008).

²² See Hein (2012, Hein and Mundt (2012) van Treeck (2009a, 2009b), van Treeck et al. (2007), van Treeck and Sturm (2012).

5. International approaches to finance and financial crises

Most of the approaches presented above do not take into account international finance and financial crises. However, in a world of globalised international capital flows, financial crises cannot be understood without considering the international level. Since the 1970s, balance of payment crises, including large exchange rate movements and foreign over-indebtedness, have become more frequent and intense and domestic asset price bubbles, in many cases, were interlinked with international capital flows. In this section, approaches to analyse international crises are shortly discussed. It does not, however, claim to give a comprehensive overview. In the first sub-section, approaches of external financial crises, from the perspective of one country, are presented. The second sub-section discusses instabilities of the international financial system as a whole.

Perspective of one country

Without international capital flows, international financial crises are not possible. Simply put, if there are no international capital flows, international credit relationships are not possible. This explains why in the 1950s and 1960s, with regulated international capital flows, international financial crises were rare. The following models assume unregulated international capital flows. This explains why models of financial crises only became broadly discussed from the 1970s onwards. First, models of exchange rate crisis are discussed, and second, boom-bust cycles of individual countries are outlined.

i. Destabilising exchange rate movements

In a first generation of models, under the assumption of fixed exchange rates, countries suffer from sudden speculative attacks and the breakdown of the fixed exchange rate regime (see Krugman 1979, Flood and Garber 1984). According to these models, the explanation for such attacks can be found in domestic policies that are not compatible with fixed exchange rates. The typical case is an expansionary fiscal policy financed by the printing press in a small country, which pegs its exchange rate to a large, stable currency. This policy combination, the argument goes, is not compatible with fixed exchange rates. Following the neoclassical quantity theory of money, an increase of domestic money supply leads to domestic inflation, which becomes higher than in the rest of the world. Assuming rational expectations (see section two above), economic agents believe in the purchasing-

power-parity theory, which makes the nominal exchange rate dependent on the relation between the domestic and foreign price level (domestic and foreign inflation rate). As soon as economic agents become informed about increases in money supply, capital exports trigger an exchange rate crisis because, for rational agents, it is clear that the currency must devalue. As portfolio shifts are potentially enormous and central bank reserves are limited, the fixed exchange rate regime must collapse and the new equilibrium exchange rate is realised.

Rüdiger Dornbusch (1976) developed an exchange rate model based on the neoclassical purchasing-power-parity model and rational expectations under a regime of flexible exchange rates. Combining the interest rate parity, which is realised through arbitrage, with rational neoclassical exchange rate expectations, the spot exchange rate depends on the foreign and domestic interest rate and the expected exchange rate.²³ When interest rates are given, an expected depreciation (appreciation) will lead to an immediate depreciation (appreciation). If, in a neoclassical model under the assumption of rational expectations, domestic money supply in a small country doubles, then based on the purchasing-power-parity model, the future and spot exchange rate will also immediately double. Dornbusch further argued that, even in a neoclassical model, as soon as international financial markets react faster than goods markets, exchange rates will overshoot and, only after a lengthy adjustment process, the long-run equilibrium exchange rate will be realised.

There is overriding agreement that all versions of the purchasing-power-parity model fail to explain exchange rate movements (see for example Krugman and Obstfeld 2011). And even a correlation between increasing money supply and inflation, as in countries with very high inflation rates, does not support the purchasing-power-parity model. In such cases, exchange rate movements drive the inflationary process and lead to an increase of domestic money supply via a depreciation-wage-price spiral (see Robinson 1938, Bilson 1979, Fischer et al. 2002).

Maurice Obstfeld (1986) built an exchange rate model which includes some Keynesian thoughts. He argues that, in a system with fixed exchange rates, the extent to which a government subordinates domestic economic policy to the requirements of the exchange rate regime remains open. For example, a country might be forced to follow increasing foreign interest rates to defend the exchange rate, despite not having any domestic inflationary development. Such a policy is costly with respect to domestic growth and employment. When costs become too high, the government will

²³ With the spot exchange rate (e), foreign interest rate (i_F), domestic interest rate (i_D) and the expected exchange rate (e^e), it holds: $e = \frac{1+i_F}{1+i_D} e^e$. With the dominance of capital flows changes of the expected exchange rate will lead to corresponding changes of the spot exchange rate. This follows the logic of asset markets.

let the fixed exchange rate regime collapse. The outcome of this approach is that several equilibriums are possible according to the expectations of speculators and the political preference and decisions of the government. These types of models also include the logic of self-fulfilling prophecy. If the majority of wealth owners expect devaluation and attack the currency, such an attack drives the costs to defend the exchange rate to such a high level that the government abandons defending it.²⁴

In the end, there is no economic model that can explain exchange rate movements endogenously. Dornbusch and Frankel (1988: 157) discovered early on that most of the action of exchange rate movements is found in the error term in any econometric analysis. Political developments, coordination of macroeconomic policies, the role of a country in the global political and military system, among many other factors, obviously play an important role in exchange rate determination (Herr 2011a, 2013). In a system of flexible exchange rates, changes of expectations lead to unstable capital flows and exchange rate movements. High current account imbalances and deep economic shocks become likely. Exchange rate shocks can trigger changes in output and employment, inflationary and deflationary waves, and they can change the real value of debt in foreign currency and deepen financial crises.

ii. International boom-bust cycles

There are a number of authors discussing international boom-bust cycles (see for example Kaminsky and Reinhart 1999, Williamson 2005, and for historical analyses Kindleberger 1996, Kindleberger and Aliber 2011). Such cycles are characterised by a period of high capital inflows in a country with subsequent sudden capital outflows, which leads to a financial crisis. International boom-bust cycles have many similarities with national boom-bust cycles. International and national boom-bust cycles can become interlinked. International boom-bust cycles can develop under any exchange rate regime. What follows is a stylised description of such boom-bust cycles.

Exogenous events, as in national boom-bust cycles of asset markets, trigger positive expectations about the development of a given country, leading to higher capital imports in that country. An exogenous event can be a change in government, a technological revolution, a period of

²⁴ An example is the pound sterling crisis within the European Monetary System in 1992 when the United Kingdom left the fixed exchange rate system. At a certain point of time it was economically and politically too costly for the UK government to defend the fixed exchange rate which came under pressure especially after the increase of interest rates in Germany. Theoretically the exchange rate could have been defended; however, the UK government decided not to do so.

good economic development, etc. Institutional changes like the deregulation of international capital flows can also trigger a wave of high capital inflows.

A period of high capital inflows is usually combined with high domestic GDP growth and generally positive economic development. When international investors have positive expectations, domestic economic agents usually also see a rosy future. A conventional judgement, supported by story-telling, enables a country to “emerge” in the eyes of investors. Investment in production is high, as animal spirits are high and financing easy, the goods market multiplier increases, consumption demand and unemployment falls. Asset prices start to increase. Capital imports support these developments by foreign investment in domestic asset markets and allowing cheap financing for domestic investors and speculators. As in a domestic bubble, a number of feedback mechanisms strengthen the domestic boom. There is herding as more and more international investors come to believe that the country is on an excellent development path. Increasing asset prices invite foreign speculators. There are also all of the domestic feedback mechanisms discussed in section three.

Objective and subjective factors lead to more and more fragility. The increased flow of foreign credit leads domestic economic agents to become more highly indebted. In difference to the purely domestic bubble, however, part of the debt of domestic units is foreign debt. High net capital imports lead to high current account deficits. High capital inflows may increase the external value of a currency, reduce the competitiveness of the domestic industry, and in this way create a current account deficit. High net capital inflows may also keep the exchange rate unchanged and simply finance higher imports, which results from higher GDP growth. Herding, over-confidence and ignorance of the warning signs of fragility push the current account deficit, the domestic asset price bubbles and foreign debt to unsustainable levels. In addition, purely domestic instabilities develop. For example, the booming economy overheats and a demand- and cost-push inflation can develop.

Many domestic or international factors can bring the boom phase to an end. For example, restrictive monetary policy can cause a domestic asset price bubble to burst and change expectations of domestic and foreign agents. In light of high current account deficits, international investors may become sceptical about the stability of the exchange rate or the capacity of the country to pay back foreign debt. In any case, during the bust phase capital inflows stop, capital flight of foreign and domestic economic agents is triggered, and the external value of the currency collapses. Panic can lead to extreme herding and exchange rate reactions. If the depreciation triggers a depreciation-wage-price spiral, the central bank may follow a very restrictive monetary policy to fight against the external and internal loss of the value of its currency. The outcome is a sharp stabilisation crisis. Depending on the situation in the country, these developments can end up in a deep and long crisis.

The USA, after the deregulation of international capital flows and the breakdown of the Bretton Woods system, is an example for a sequence of internationally destabilising boom-bust cycles. The collapse of the US-dollar at the end of the 1970s, triggered by US capital flight, stimulated US-inflation and led to an erosion of the international role of the US-currency. In 1979, the Federal Reserve followed an extremely harsh and restrictive monetary policy which led to a sharp recession in the USA and the world economy. Then, after the election of President Ronald Reagan in the 1980s, high capital inflows pushed the USA towards high current account deficits, together with an appreciation of the US-dollar. Beginning in 1985, capital imports of the US-dollar decreased, private capital inflows to the US dried up and the US-currency sharply depreciated, combined with a sudden stock market crash in 1987. In the early 1990s, the US-current account was almost balanced. In the 1990s a new boom phase started, triggered by the new-economy revolution, which started in the USA. High net capital inflows again pushed the USA to high current account deficits. This boom phase came to its end in 2000 with a stock market crash. From then until 2007 new bubbles in the stock and, increasingly, the real estate markets developed in the US, combined with increasing capital inflows to the US and even higher US current account deficits (see Herr and Kazandziska 2011).

In developing countries, boom-bust cycles based on international capital flows are much more harmful than in developed countries. The main reason is that developing countries are only able to receive foreign credit, denominated in foreign currency. This reflects the low quality of currencies in developing countries in relation to the world's leading currencies, like the US-dollar or euro, and has been referred to as an original sin with which developing countries have to live (Eichengreen and Hausmann 2005). During a boom phase of high capital imports, a currency mismatch is created as economic units taking foreign debt often have revenues in domestic currency but have to pay back principle and interest in foreign currency. Relatively low foreign interest rates in foreign currency, compared to domestic interest rates, can lead to exploding capital inflows and a high stock of short-term foreign debt. During the boom phase, the financial system then typically builds up a high maturity and currency mismatch. The currency mismatch can be typically found in the non-financial sector of the economy and the maturity mismatch in the financial sector. It has to be taken into account that a currency mismatch can be much bigger than shown by current account deficits and net foreign debt. For example, enterprises or the government can become indebted in foreign currency

and the inflow of hard currency is used to finance capital exports by private households. Gross foreign debt plus domestic debt in foreign currency are thus important.²⁵

This leads to externally triggered financial crises in developing countries which were analysed by many economists (see for example Diaz-Alejandro 1985, Kaminsky and Reinhart 1999, Chang and Velasco 2000, Williamson 2005). Such crises became widespread after the 1970s – for example the Latin American crisis starting in 1982 in Mexico, the Mexican crisis in 1994, the Asian crisis in 1997, the Russian crisis in 1998, the Argentinian and Turkish crises in 2001, the crisis of the Baltic states and Hungary in 2008 – just to mention a few of the crises. These crises all follow the same pattern. A sharp real depreciation in a country with high debt in foreign currency ultimately leads to an increase of the real debt burden of debtors in foreign currency. The outcome is a liquidity crisis and a solvency crisis, which cannot be combated by the central bank, as the latter cannot create foreign currency. This mechanism is comparable with the destructive power of a deflation. High foreign debt in foreign currency and a sharp depreciation leads more or less automatically to twin crises, meaning simultaneous exchange rate and financial system crises, which enforce each other. As a rule, twin crises are more costly in terms of GDP and employment loss, long-term stagnation and increase of poverty than isolated exchange rate and domestic financial crises. This shows the privilege of countries like the USA and some other developed countries which can accumulate foreign debt in domestic currency.

There are different explanations as to why countries are able to accumulate high stocks of foreign debt which create currency and maturity mismatches during a boom phase. It has been argued that government guarantees give incorrect incentives (Burnside, Eichenbaum and Rebelo 2004) or debtors and lenders expect to be bailed out by governments (McKinnon and Pill 1996, Corsetti, Pesenti and Roubini 1998). However, all argue that herding behaviour plays an important role, especially during the bust phase (Radelet and Sachs 1998).

²⁵ Dollarisation which became widespread can aggravate currency mismatches. Among other things dollarization means that part of domestic monetary wealth is held in domestic foreign currency deposits. Banks can use these deposits to give domestic foreign currency credits which in many cases must be added to the currency mismatch in a country (Herr 2008).

Global Perspective

i. Global boom-bust cycles

Williamson (2005) and especially Kindleberger (1973) and Kindleberger and Aliber (2011) discuss global boom-bust cycles. This means that during a global boom phase, capital flows from the capitalist centres to the periphery and then, suddenly, back to the centres. During the phases in which money flows back to the centres, a number of peripheral countries suffer from twin crises. Since the deregulation of international capital flows in the 1970s, the world economy has experienced several boom-bust cycles. During the first boom phase in the second half of the 1970s, capital mainly flowed to Latin America. At that time, other parts of the developing world still had strict capital controls. The bust came in the early 1980s, together with the very restrictive monetary policy in the USA at the end of the 1970s and led to a lost decade in Latin America. In the early 1990s, a huge new wave of capital swept into Asian and transition countries, which had opened their capital accounts. The so-called Tequila crisis in Mexico in 1994 only interrupted this boom cycle for a short time. The boom phase continued until the Asian crisis broke out in 1997. In the 2000s, a new wave of increasing capital flows to developing countries started, which came to an end with the Great Recession in 2009.²⁶ The very low interest rate in the developed world in the years after the Great Recession again led to increased capital flows to peripheral countries.

In this context Kindleberger (1973) stressed the need for an international lender of last resort. When the Gold Standard, which was re-established in a modified and uncoordinated manner after World War I collapsed in 1931, international capital from all over the world flowed back to the United States. This was the clearest sign that the United Kingdom had lost the hegemonic position it had possessed before World War I. What was missing in the 1930s was a country or an international institution which stabilised the world economy. What would have been needed was an international lender of last resort which gave anti-cyclical credit to crisis countries. Crisis countries did not only receive no help, the United States, already the economically leading country, closed its market to products from crisis countries. Kindleberger held the absence of an international lender of last resort especially responsible for the Great Depression and the deep and long-lasting stagnation in the 1930s (see also Dodig and Herr 2014).

²⁶ Within the European Monetary Union in the 2000s, a boom-bust cycle also developed. Capital flowed mainly from Germany and some smaller countries to peripheral countries of the monetary union and after the Great Recession back.

ii. Hegemonic and multi-currency systems

There is a debate about the structure of the international monetary system where a distinction is made between a hegemonic monetary system and a multi-currency standard (see for example Kindleberger 1981 and 1986, Eichengreen 1985, Herr 1992, Herr and Hübner 2005, Fields and Vernengo 2012, Herr 2013, Cohen 2013).

Different national monies have different *qualities*. The latter depend not only on low inflation and external stability. Factors like the size of the currency area or the size, liquidity and sophistication of financial markets in the currency are also important. Economic policies favouring the rich – be they in the tax system or through financial regulation - also play a role. The quality of money also expresses the international role of the country, its economic and military power, etc. At the top of the currency hierarchy, there are the world's key currencies, at present the US dollar and the euro. These currencies not only fulfil all domestic monetary functions in their home countries, they also take over international functions. At the bottom of the hierarchy, there are many currencies of poor quality in the eyes of economic agents, those that only partially fulfil even domestic currency functions. Hegemonic currency systems and multi-currency systems can be distinguished. In a hegemonic currency system there is an unchallenged currency at the top of the currency hierarchy issued by a hegemonic country. The latter has the incentive to provide a stable world economy as an international public good, for example, in stabilising international capital flows and exchange rates and to help countries undergoing a currency crisis by taking over the function of an international lender of last resort (Kindleberger 1986). Examples of hegemonic currency systems include the Gold Standard before World War I under the dominance of Britain and the Bretton-Woods system after World War II under the dominance of the USA. There is no guarantee, however, that a hegemon will provide international public goods. A hegemon can also exploit its powerful position and, in this way, destabilise the world economy. The US policy in the last phase of the Bretton Woods system can be interpreted in such a way (Kindleberger 1981).

In a multi-currency system, more than one currency takes on international functions. In such a constellation, currency competition can become very intensive. Governments or central banks can actively fight for a dominant position of their national currency. Even more importantly, economic agents stimulate competition between currencies. They can choose between different alternatives and shift wealth according to their expectations from one currency to another. As soon as a country issuing an international currency does not meet the expectations of wealth owners, capital will be transferred to competing currencies. Large capital flows between key currencies, volatile exchange

rate movements and high current account imbalances become likely. In general, a multi-currency system with flexible exchange rates turns the foreign exchange market into a market without anchor, or even a casino, increasing worldwide uncertainty.

In recent decades, the world economy has developed from a hegemonic currency system into a system where the US-dollar has lost its absolute dominance. The US-dollar is still clearly number one, but in many areas the euro has become a competitor (ECB 2013). Both, the US-dollar and the euro are produced by countries or currency areas which are in an unstable economic or even political constellation. Thus, international investors have to choose between two handicapped currencies. The debate about hegemonic and multi-currency systems comes to the overall conclusion that the USA has lost the ability and willingness to create a stable worldwide financial and currency system. There are competitors for the US-dollar, especially the euro, which intensify the international currency competition, however, without challenging the US-dollar as number one in the world currency system. This constellation increases the level of uncertainty in the world economy, including the likelihood of fast and substantial changes in expectations, unstable capital flows, excessive exchange rate fluctuations, huge current account imbalances, asset bubbles and financial crises.

Policy implications

Boom-bust cycles, reinforced by and linked with international capital flows, lead to economically and politically costly twin-crises. From this background, it is no surprise that there is no empirical relationship between capital account liberalisation and economic development in developing countries.²⁷ Countries, like China, with capital controls have performed better than most countries with unregulated international capital flows (Herr 2008). Neoclassical arguments that international capital flows optimally allocate savings worldwide and, in this way, increase world growth while smoothing consumption in developing countries, have no theoretical or empirical base. The argument that international capital flows – like barking dogs – force governments to enact prudent policies is also doubtful. Financial markets should not be the master of governments; the opposite should be the case. Capital controls reduce the instability of international capital flows and should be part of any macroeconomic toolbox (Rodrik 1998, Stiglitz 2004).

The existence of international capital controls does not imply that developing countries should stay isolated from international capital markets. Williamson (2005), for example, recommends that

²⁷ See Ken Rogoff and other IMF economists in Prasad, et al. (2003). For developed countries such empirical analyses do not exist. However, it should be kept in mind that the economic miracles in Europe or Japan in the 1950s and 1960s took place under a regime of international capital controls and fixed exchange rates.

foreign direct investment and equity portfolio investment should be allowed in developing countries, as these capital flows do not create currency mismatch, whereas portfolio investment in the form of debt securities and short-term credit contracts should be strictly controlled. Long-term foreign credits in foreign currency, including credits by public households should also be limited. Many capital controls can be integrated into a system of strict financial market supervision. For example, to keep the financial system stable, foreign indebtedness of the private household sector should be generally forbidden, as well as foreign debt of enterprises with no foreign currency revenues.²⁸ Also, dollarization has to be reduced and, if existing, should not lead to currency mismatch.

There are good arguments that developed countries should also be able to use international capital controls. International capital flows can substantially add to domestic boom-bust cycles, even if indebtedness remains in domestic currency and drive current account imbalances and international debt levels to unsustainable levels. The sale of US-real-estate credits to the rest of the world, in the form of asset-backed securities, before the outbreak of the US subprime crisis, is just one example.

As international capital flows are driven by expectations that are not based on fundamentals and can become very unstable, they turn a system with flexible exchange rates and unregulated capital flows into a worldwide shock machine. Capital controls are needed to give the world economy a stable framework. James Tobin (1978) wanted to throw sand into the gears of overly rapid international capital flows. He recommended a transaction tax for foreign exchange transactions to slow-down capital flows and to make them more long-term, hoping long-term capital flows are driven more by fundamentals and are more stable. However, his hope is not justified, as long-term capital flows have also been shown to have no anchor in fundamentals.

Keynes's (1969) ideas during the Bretton Woods negotiations can still be used as a starting point for a debate about a more stable international financial system. He recommended a system with fixed exchange rates, which should only be realigned in cases of large current account surpluses or deficits. Before exchange rates are adjusted, other types of economic policies should be used. Surplus countries need to follow expansionary monetary and fiscal policy to stimulate their economies, while deficit countries should follow a relatively restrictive economic policy. What is important, in Keynes's suggestion, is that not only countries with current account deficits should fight against imbalances; surplus countries should also actively follow policies to adjust current accounts. He recommended a system which would levy a tax paid by both deficit and surplus countries. His recommendations also included international capital controls to keep the exchange rate

²⁸ It is difficult to understand why countries like Hungary or some Baltic countries allowed a high indebtedness of private households in foreign currency before the outbreak of the Great Recession.

system stable. Part of Keynes' recommendations is the establishment of a strong international lender of last resort, he even recommended an international institution issuing its own money which could be used by central banks.²⁹ Kindleberger and Aliber (2011) continuously stress the need for a comprehensive international lender of last resort, which creates international liquidity, carries out anti-cyclical international capital flows and helps to produce the global public good of a stable world economy.

6. Relevance of the theories of finance and financial crisis for present crisis

Capitalist history shows periods with frequent and deep financial crises and periods with rare and insignificant financial crises. Periods with rare and less significant financial crises are characterised by strict financial regulation on the national and international level. The first two decades after World War II showed a regulated type of capitalism, establishing the best historical time span since capitalism became the dominant mode of production, around the late 18th century – in terms of high GDP growth and productivity development, relatively equal income distribution, a developed welfare state, a relative low level of uncertainty of living conditions, participation of almost all in economic development, *and* the absence of deep national and international financial crises. Both the Regulation School and the Social Structures of Accumulation approach stress this point.

In the 1970s/1980s, a structural change occurred and a new capitalist regime was born. In the centre of the new era was the deregulation of financial markets. The Regulation School speaks of a finance-led regime of accumulation whereas the Social Structures of Accumulation approach speaks about a global neoliberal model.³⁰ The new capitalist regime is characterised by a change in the power relationship in society. Finance or elites in the financial system became the most powerful groups in society. Managers of large firms, in finance and beyond, and shareholders, represented by financial institutions, investment banks, institutional investors, hedge funds, etc. became the leading class, replacing the previously existing class compromise between capital and labour. When we look more narrowly at what happened in the financial system, several factors stand out. Firstly, the new regime led to an uncontrolled explosion of financial innovations and institutions, many located in the minimally-regulated or completely unregulated shadow financial system. Secondly, an integration of domestic financial markets (for example, integrating real estate financing) and international financial

²⁹ Keynes called this money "bancor". Special Drawing Rights follow the logic of such money.

³⁰ Duménil and Lévy (2011) and (2004) and Dullien et al. (2011) follow basically the same argument.

markets (abolishment of international capital flows) took place. Thirdly, a fundamental change occurred in the corporate governance systems towards the shareholder value system; there was a systematic attempt of owners to increase mark-ups in companies, a general increase of speculative activities, and a more short-term orientation of economic agents in the financial system. Also, the pressure for high dividend payments led to the weakening of self-financing of investment and higher debt quotas of companies.

Looking at society as a whole, one stand-out feature of the new regime is the exclusion of large parts of society from participation in economic development. Income distribution became more unequal, owed in large part to the dominance of the financial system. In most countries, profit shares increased because the more powerful financial system enforced higher profit mark-ups. A clear symbol for the change in power relations is the switch to shareholder value corporate governance. On the one hand, this led to an explosion of managers' salaries and bonus payments. On the other hand, this weakened trade unions' influence, which lost its power to prevent obscenely high managers' incomes and the development of low wage sectors, in many cases, under precarious conditions.

The economic regime that took shape after the 1970s has been very unstable in several respects. Firstly, changing income distribution led to a structural lack of consumption demand based on a relatively equal income distribution. The regime of Fordism, as described by the Regulation School, came to an end. Many heterodox authors have argued that unequal income distribution leads to a lack of consumption demand and the danger of economic stagnation. What happened under the new regime is that in many countries the lack of consumption demand based on income was substituted by consumption demand, including real estate investment by households, based on credit. The financial system played a key role in exacerbating inequality while, at the same time, delivering more credit to compensate for the lack of demand created by changes in income distribution. However, the consequence was an increase in households' indebtedness.

The conclusion is that in the 1970s/1980s, a regime was created which has, at its centre, a more powerful, more de-regulated, more short-term oriented and more risk-loving financial system and at the same time debt quotas of firms and households increased. It is obvious that the whole economy became more fragile. Another long-term trend is the deregulation of labour markets and the erosion of the nominal wage anchor. This trend increased the danger of deflationary nominal wage decreases. Last but not least, the world financial system has been moving away from a clear post-WWII hegemonic system to one with multiple competing currencies for international functions. Such

a system is unstable, as it favours portfolio shifts from one internationally important currency to another.

With the Great Recession, the finance-led or neoliberal regime of accumulation seems to be exhausted. A longer stagnation in the capitalist centres becomes likely. Long-term approaches, like the Regulation School or the Social Structures of Accumulation approach, lead to the conclusion that the next decade(s) may give birth to a new economic regime with a new power relationship in society. A system with a complete dominance of the management class is deemed a feasible scenario by authors as diverse as Duménil and Lévy, Marx, Hilferding and Schumpeter.

Based on the aforementioned long-term changes in the economy and society, the regime established after the 1970s is characterised by an explosion of medium-term national and international boom-bust cycles and financial crises. For the analysis of such boom-bust cycles, especially on the national level, a differentiated and theoretically developed body of economic models is available. In spite of their different paradigmatic orientations, economists as diverse as Marx, Wicksell, Hayek, Fisher, Keynes, Minsky, Kindleberger and Shiller have come to surprisingly similar conclusions in their writings on financial crises.

Almost all of the approaches agree that typically exogenous factors, like a technological revolution, the end of a war or a period of very low interest rates *trigger a boom phase*, which later can potentially lead to the financial crisis. There is also a great consensus among the different approaches that a boom phase is stimulated and closely linked to credit expansion. In substance, all approaches follow the idea of an endogenous money supply.

Higher indebtedness of economic agents and unsustainable asset price inflations are at the centre of an *expansion process*. During a period of expansion, economic agents do not act in a rational way, as claimed by neoclassical approaches of rational expectations and efficient financial markets. Cumulative processes based on herding, play an important role to explain instabilities. Speculation and fraud can drive asset prices to irrational levels, at least when judged with the benefit of hindsight. Herding is based on psychological properties of humans and on socioeconomic behaviour. Behavioural finance has added to the knowledge of such behaviour, which in its basic dimensions is stressed by all authors on financial crises. Asset price inflations typically (but not always) are linked to a period of high growth and shrinking unemployment. This can lead to inflationary processes in the goods market which also drives instability.

All approaches stress that a boom phase leads endogenously to increased fragility of the economy. The most developed analyses on this point comes from Minsky, who argues that during a

boom phase, debt quotas of economic agents increase and the debtors' and creditors' risk endogenously increase. A myriad of factors can lead to the *end of a boom*. In many cases, it is restrictive monetary policy which stops a boom. In other cases, problems of some speculators, a sudden increase of supply, increasing fraud, changes of expectations, or other factors, can lead to the end of an expansion. A whole set of objective and subjective feedback mechanisms lead to a cumulative bust phase in asset markets, which explains why a contraction phase can spin out of control and end in a deep systemic financial crisis. There are a number of potential objective feedback mechanisms: the destruction of equity, wealth and collateral during an asset price deflation, losses of the enterprise sectors as the result of a collapse of investment, and the increase of the real debt burden during a demand deflation and cost deflation, where the latter is based on falling nominal wages. Subjective feedback mechanisms include herding, which is more pronounced in case of negative developments and, in the worst case, panic.

International boom-bust cycles, which are often more destructive, are in many cases linked to national boom-bust cycles. Most notably, international boom phases for countries that do not issue internationally important currencies experience an increase in indebtedness in foreign currencies during an expansion. Depreciation then increases the real debt burden and leads to twin crises in the foreign exchange market and in the domestic financial system.

The long-term and medium-term approaches found in the literature and presented above allow for a clearer understanding of the developments over the last decades, which led to the Great Recession. It becomes clear that the Great Recession and the associated large financial crisis was not an accident; it was the result of the economic regime established in the 1970s and 1980s. The stabilisation of the financial system and the creation of a new phase of prosperity is therefore not necessarily a technical problem. Of course, financial market regulation also involves many difficult technical problems, but crises in the financial system go beyond the financial system itself. They comprise the whole economy, including, for example, the distribution of income and wealth, the corporate governance system and the role of trade unions in the wage bargaining process. They also comprise the power of different groups in society. Policies for reform must, therefore, go far beyond surface reforms in the financial system. A whole package of reforms is needed to create an economic regime which sets the stage for a new phase of prosperity. In the current globalised world, this also includes a new international financial architecture which reflects the changing political and economic dynamic on a global level.

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