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Cantillon effects in international trade: the consequences of fiat money for trade, finance, and the international distribution of wealth

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Carmen Dorobat. Cantillon effects in international trade: the consequences of fiat money for trade, finance, and the international distribution of wealth. Economics and Finance. Université d'Angers, 2015. English. NNT: 2015ANGE0067 . tel-02157134

HAL Id: tel-02157134

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Thèse de Doctorat

Carmen Elena DOROBĂȚ

*Mémoire présenté en vue de l'obtention du
grade de Docteur de l'Université d'Angers
sous le label de L'Université Nantes Angers Le Mans*

École doctorale : ED DEGEST

Discipline : SCIENCES ECONOMIQUES (Section CNU 05)

Spécialité : SCIENCES ECONOMIQUES

Unité de recherche : GRANEM

Soutenu le 18 JUIN 2015

Thèse N° : 1489

L'EFFET CANTILLON DANS LA THEORIE DU COMMERCE INTERNATIONAL

*L'impact de la monnaie fiduciaire sur le commerce, la
finance et la distribution internationale des patrimoines*

JURY

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2014-2015

Doctorat en Sciences Economiques
Ecole Doctoral de Droit, d'Economie et du Gestion

CANTILLON EFFECTS IN INTERNATIONAL TRADE

The Consequences of Fiat Money for Trade, Finance,
and the International Distribution of Wealth

– **Dorobăț Carmen Elena**

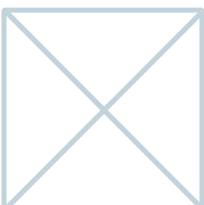
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Defended publicly on June 18, 2015



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INTRODUCTION

“In a social order that is entirely founded on the use of money and in which all accounting is done in terms of money, the destruction of the monetary system means nothing less than the destruction of the basis of all exchange.”

Ludwig von Mises

In the 19th century, theories of international economic phenomena became one of the most important branches of political economy. After the marginalist revolution of 1871, these theories underwent constant refinement, and throughout the 20th century coalesced into the stand-alone discipline of international economics. One of its most important and defining characteristics, from its formation and up to present day, has been the separation of the monetary and non-monetary aspects of international economic phenomena in theoretical analysis. Gradually, with its refinement, the discipline has also been divided into several sub-disciplines—international trade, international finance, international monetary economics, and international relations—which deal separately with flows of goods and services, with flows of capital and money across countries, and with international relations, negotiations, and policies respectively. The study of international trade became mainly focused on product markets and barter-like conditions, while the study of international money focused exclusively on monetary transactions, and later on financial markets.

Throughout time, scholars have advocated for this separation on the basis of one founding principle: the *neutrality of money*.¹ This postulate claimed that changes in the value of money (as a

¹ According to Patinkin and Steiger (1989, 137) the term *neutrality of money*, often used interchangeably with the expression *veil of money*, “did not come into use until the interwar period, primarily as the result of the work of Hayek and Koopmans in the early 1930s.” Laidler (1990) however, traces the term as far back as Wicksteed in 1910, who referred to the *covering cloak of monetary payments*, while Klausinger (1990) finds it first in Schumpeter’s 1908 habilitation thesis. Schumpeter (1954, 264-5; 313-4; 561) in turn, considered

result of a change in the money supply, for example) have no long-term effects on the distribution of resources and wealth, or on relative prices, and thus that their potential short-term consequences are transitory. The separation of the real and monetary realms was built on David Ricardo's and John Stuart Mill's legacy—i.e. the 'classical dichotomy' between monetary or nominal values, and real values, or real riches²—and has proven to be a useful analytical tool in the development of economics in general (Klein 1947, Samuelson 1958). Mill's argument that "exports and imports are determined... not by the paper prices", and that "a depreciation of the currency does not affect the foreign trade of the country: this is carried on precisely as if the currency maintained its value" (Mill 2009, 634-5) rose to the status of a dogma in neoclassical international economics. The effects of the neutrality postulate, and of the methodology it entailed, were far-reaching: they obscured relationships between individual economic variables and camouflaged the effects of monetary changes on individual prices and wealth.

The Keynesian program of overcoming the classical and neoclassical money neutrality did not exclude the use of mathematical formalization, nor criticized the exclusive macroeconomic focus of trade theories. In fact, the application of the Keynesian approach to international economics continued to use the same two sub-systems, with the only changes that "...on the real side of international economics, full employment is assumed... [while] on the monetary side of international economics, the prevailing paradigm is that of Keynesian economics applied to the open economy" (Hoon 2000, 43). As Shapiro (1977, 550) argued, "demand takes on its Keynesian role as effective demand as the determinant of output, only to the extent that it is separated from the movement of prices", or in other words, with the condition that demand has no bearing on relative

the monetary veil to be a customary expression and a defining feature of the orthodox economics which developed after the Physiocrats and mercantilism.

² For a detailed assessment of the evolution of the classical dichotomy in international economics—and specifically its consequences for the analysis of the balance of payments and international trade phenomena—see Salerno (1980).

prices in the long run. Coddington (2003, 10-11) has called the new separation the ‘Keynesian dichotomy’, “the functional equivalent of the classical dichotomy: a drastic separation that makes theorizing manageable”, and whose result was the Mundell-Fleming open macroeconomic model (Fleming 1962, Mundell 1963).

Thus, even after the Keynesian revolution in mid-20th century, international economics continued to examine comparative advantage at a national level in the study of international trade, and the impact of exchange rates and balances of payments on other macroeconomic variables (employment, demand, and output) in the study of international money, without reconciling the two areas. The dichotomy, both in its classical and Keynesian view, was however much more than a theoretical simplification for analytical purposes. It was a ‘precise abstraction’ (Long 2006), which postulated money as nonexistent in international trade; it was no longer a drastic reduction of reality to a minimum of analyzable concepts—as it may have been for Ricardo—, but a descriptively false set of assumptions. The dichotomy was later adopted into the models of international trade through the condition that goods and money are separable in the consumer utility function, as well as in the production function (Neghishi 2001), so the role of currency was specified as irrelevant for real values.

However, for real-world market participants, money forms an integral part of any exchange, inextricably valued together with other goods on value scales. Furthermore, as an economy develops, reckoning in terms of a general medium of exchange simplifies the entrepreneurial navigation of global markets, which in turn allows for the development of increasingly roundabout production processes and for the intensive and extensive growth of the global division of labor. All items that enter in entrepreneurial calculations are in fact *monetary items*—prices of factors of production, wage rates, interest rates, as well as anticipated prices for consumer goods. Monetary transactions and exchange rates, and by extension, the evolution of capital flows and financial

markets thus constitute a central and sometimes primary reason for entrepreneurial activities in global markets, alongside organizational and resource-related concerns. However, by keeping money and real goods in separate analytical boxes, theories of international economics traded accuracy and realism for simplicity and mathematical sophistication.

In recent decades, especially after the 1990s, there have been numerous calls for realism in international economics, and for a reconciliation of its analytical sub-systems. These concerns—voiced with regard to economics in general in both media and academic outlets—were prompted by global financial crises, debt crises, trade crises, as well as by the rising income and wealth inequalities which began to defy traditional explanations. The literature contains important critiques of the present state of international economics, spanning more than two decades and ranging from its methodology (Zjip and Visser 1992) to its lack of pluralism (Hendrik van den Berg 2012). Throughout this time, scholars began to question the alleged neutrality of money, but they focused on the short-term, transitory effects. Moreover, these discussions have remained separated from the main corpus of theoretical analysis in international economics—comprising the Ricardian comparative advantage model, the Heckscher-Ohlin model, or the New Trade Theory—and have instead been dealt with separately within the sub-discipline of international monetary economics. Nevertheless, the amount of effort and attention dedicated to the extension and refinement of this theoretical development are a good gauge of its importance. Research into the non-neutrality of money has reached a critical mass of works and theories, which suffused from monetary theory into international economics, where scholars now search to bridge the divide between real and monetary international phenomena, and to apply these new insights to recent historical experience.

The present doctoral dissertation endeavors to contribute to this theoretical development, and seeks to accomplish four goals: (1) to investigate the extent of this divide in contemporary international economics, (2) to critically analyze the existing solutions for this problem and suggest

a new way to overcome it based on a different theoretical framework, (3) to apply this framework to analyzing the most recent financial crisis and collapse in international trade, and (4) to show the further relevance of this analysis for additional issues such as international industrial organization or global wealth inequality.

In order to do this, this study begins from the insight that the relationship between the supply of and the demand for money (also known as the *money relation*) is encapsulated in *specific* demand and supply relations for all goods in an economy. Consequently, the structure of relative prices of ‘real’ goods cannot be separated from the structure of money prices. Changes in the supply of money, i.e. a cash-induced change in the purchasing power of money, give rise to a ‘revolution’ in the structure of prices, rather than a simple change in the price level. In the event of an increase in the money supply, for example, prices will rise gradually, at different times and to different extents—and some prices might even fall—although the increase will, on the whole, bring about the depreciation of the monetary unit. Furthermore, this increase in the money supply does not impact only the overall level of output and employment, but necessarily modify the relative allocation of resources, both in its geographical and inter-temporal dimensions, as well as the distribution of income and wealth across the economy.

The allocational and redistributive effects of a change in the money supply were first described by Richard Cantillon, in his *Essai sur la nature du commerce en général*. Written in the 1720s and published in 1755, the essay was rediscovered more than a century later by William Stanley Jevons, who considered it to be ‘the cradle of political economy’. The term coined by Mark Blaug (1985) in honor of Cantillon thus groups these monetary effects under one label: *Cantillon effects*, according to Blaug, represent the differential effect of a cash injection, i.e. the fact that an increase in the money supply “will not only raise the level of prices, but will also alter the structure

of prices, depending on the initial recipients of the new cash and their relative demand for goods” (Blaug 1985, 21). In his essay, Cantillon described this process and effects as follows:

“The proportion of the dearness which the increased quantity of money brings about in the State will depend on the turn which this money will impart to consumption and circulation. Through whatever hands the money which is introduced may pass it will naturally increase the consumption; but this consumption will be more or less great according to the circumstances. It will be directed more or less to certain kinds of products or merchandise according to the idea of those who acquire the money. Market prices will rise more for certain things than for others however abundant the money may be. [...]

I conclude that an increase of money circulation in a State always causes there an increase in consumption and a higher standard of expense. But the dearness caused by this money does not affect equally all kinds of products and merchandise, proportionably [sic] to the quantity of money... I conceive that when a large surplus of money is brought into a State, the new money gives a new turn to consumption and even a new speed to circulation. But it is not possible to say exactly to what extent” (Cantillon 1931, 179-81).

In other words, the expression “Cantillon effects” is the common name for all repercussions of an expanding money supply on the structure of individual money prices and thus on the distribution of resources and wealth in an economy in the short run and on the long term.³ Ludwig von Mises—who mentions John E. Cairnes for paving the way toward a realistic analysis of these issues, but at the same time criticizes the aggregate approach to monetary problems of ‘older economists’ such as

³ While the term Cantillon effects has sometimes been used interchangeably with that of non-neutrality of money—term employed by Hayek (2008, 301)—, I avoid to use the later concept in this thesis for my own analysis. Albeit more popular, neutral and non-neutral money are concepts fraught with confusion, while Cantillon effects offers the advantage of clarity and precision. As we shall see more in Chapter 2, non-neutrality is also employed the Post and New Keynesian economics to refer to changes in output or staggered price adjustment after inflation, i.e. to temporary consequences with no effect on wealth distribution.

David Hume or John Stuart Mill—described the Cantillon effects of an increase in the money supply as follows:

“The additional quantity of money does not find its way at first into the pockets of all individuals; not every individual of those benefited first gets the same amount and not every individual reacts to the same additional quantity in the same way. Those first benefited—in the case of gold, the owners of the mines, in the case of government paper money, the treasury—now have greater cash holdings and they are now in a position to offer more money on the market for goods and services they wish to buy. The additional amount of money offered by them on the market makes prices and wages go up. But not all the prices and wages rise, and those which do rise do not rise to the same degree.

Thus, price changes which are the result of the inflation start with some commodities and services only, and are diffused more or less slowly from one group to the others. It takes time till the additional quantity of money has exhausted all its price changing possibilities. But even in the end the different commodities are not affected to the same extent... As long as the inflation is in progress, there is a perpetual shift in income and wealth from some social group, to other social groups. When all price consequences of the inflation are consummated, a transfer of wealth between social groups has taken place. The result is that there is in the economic system a new dispersion of wealth and income and in this new social order the wants of individuals are satisfied to different relative degrees, than formerly. Prices in this new order cannot simply be a multiple of the previous prices” (Mises 1990[1938a], 72-73).

This central insight into the process of monetary adjustment to changes in the supply of money carries in its wake a host of subsidiary implications regarding business cycles, resource allocation, and wealth distribution. In his later works, Mises—as well as other economists such as Murray Rothbard, Joseph Salerno, or Jörg Guido Hülsmann—extended, emended, and refined these implications and applied them to analyze the inter-temporal changes in the allocation of resources, and the international consequences of a change in the supply of money.

It is however worth pointing out here that the type of changes in the structure of prices and production mentioned above are always coupled with allocational effects on production and redistributive effects of wealth under any circumstances, as both are built into the market mechanism. For example, changes in supply of any good or service also modify, directly and indirectly, the price of some commodities, and this process benefits some producers and consumers, and hurts others. Nonetheless, what makes the case of money special is the fact that all individuals are ‘dealers’ in money: changes in the supply of money affect every economic actor to a different extent and at different times, such that its economic and social effects are all-encompassing. These consequences also become permanent and recurrent when the monetary system allows for an unchecked expansion of the money supply—as is the case in the present-day fiat money, fractional-reserve banking system.

Before we move on to outlining the overall structure of the thesis, let me first explain the methodological approach used throughout this dissertation. As the coming chapters will show, there are several reasons for which I choose not to use any of the formal models usually employed in the contemporary literature in international economics. First, the concept of non-neutral money, and thus that of Cantillon effects, does not lend itself to mathematical formalization in a general equilibrium context. This is because the latter approach requires a set of static, aggregate variables, while non-neutral money is necessarily a dynamic element. This holds true even for the more recent dynamic stochastic general equilibrium models, which—although they analyze microeconomic decisions and their impact over time—focus on the behavior of the economy as a whole rather than on the evolution of individual variables such as prices, household wealth, or particular trade flows. Moreover, the concept of money and monetary changes is also incompatible with a framework of certainty, as general equilibrium implies, given that the demand for money holdings makes sense only in a world subject to uncertainty, where no stable equilibrium can ever be achieved.

My methodological approach, therefore, is a step-by-step analysis of the transmission of monetary expansion internationally, and thus a step-by-step analysis of its impact on prices, capital and trade flows, as well as on the global distribution of income and wealth among households. The particulars of this approach will be explained in more detail in Chapter 1 as part of our examination of Ludwig von Mises's contributions. This analysis is furthermore founded on the notion of action (understood as purposeful behavior) and individual choice under uncertainty—of both consumers and entrepreneurs. As Mises explained, “acts of choice performed by individuals faced with alternatives are the ultimate causes of the exchange ratios established in the market. We have to direct our attention to these acts of choice” (Mises 1990[1938a], 71). Throughout the thesis, I employ verbal reasoning to develop my arguments and deductions regarding economic theory and policy. Nonetheless, following theoretical assessments, I use statistical evidence—when and where available—in order to illustrate some of the effects of monetary expansion on international trade in recent historical situations.

To accomplish the four abovementioned goals, the thesis is structured as follows:

In Part I, I identify the neglect of Cantillon effects in the literature and its most important consequences for the theory of international trade and international monetary relations. Chapter 1 analyzes the evolution of international economics from its early to modern developments, i.e. from the 19th century British and French schools of economic thought up to the Keynesian revolution around mid-20th century. In Chapters 2 and 3, I focus on contemporary studies in monetary theory and international trade theory, from the second half of the 20th century up to the present day. This assessment of the literature is not intended as a comprehensive historical account of the evolution of the theory, but as an endeavor to highlight the importance of the classical dichotomy as a defining element that shaped the development of international economics. The neglect of Cantillon effects—and its consequences—has influenced the scope, method, and conclusions of international trade and

monetary theories, and has brought about many of the current shortcomings of international economics. As a result, these gaps in the literature point to the fact that analyzing Cantillon effects in international trade is a particularly suitable way to criticize and reconsider the entire field of international economics, from its theoretical prescriptions to its welfare conclusions.

Part II then explores this avenue by concentrating on the impact of monetary expansion on international trade. Monetary expansion is rarely included as an explanatory variable of the synchronous evolution of global financial markets and world trade, due to the fact that mainstream economics considers that monetary factors play—at most—an indirect role in the life of international trade, not worthy of inclusion in the pure theory. What countries trade, or how firms specialize and internationalize, has to do—scholars argue—more with international demand, real wealth, strategic firm decisions, or natural resource endowments, than with domestic monetary policies. Models in international economics explain correlations across countries between consumption and output, and overlook equity prices, while international finance models focus on asset pricing and overlook relations to output (Cochrane 2005). Additionally, the interaction between trade and capital flows has also been explored only sporadically and rather unsatisfactorily in international economics (Baldwin 1966, Boileau 1999, Eaton and Kortum 2001, Yoshimine and Barbiero 2009, Mutreja et al. 2014).

The step-by-step analysis of Cantillon effects, however, has potential to clear up some of these issues puzzling economists over the last decades, such as changes in global trade (particularly its structure and volatility), while retaining the Ricardian law of comparative costs at the core of the explanation. Nonetheless, a discussion of Cantillon effects in international trade presupposes also an extension of prior work—undertaken, among others, by Mises (1953, 1990[1938a], 1998[1949]), Hayek (1989, 2008), Salerno (2010) and Hülsmann (2008, 2013)—in several ways. First of all, the basic framework outlined in these works is used here to analyze the effects of monetary expansion

on prices, production, and wealth on a global level, i.e. how Cantillon effects arise from the global monetary system, their transmission from country to country, and their effects on the flows of capital and consumer goods across borders. Second, and as a result, I also analyze Cantillon effects in the case in which the change in the supply of money takes effect first on open financial markets. In this scenario, monetary expansion affects the interest rate before all other prices, rearranging capital investment and trade across the world, “from the course prescribed by the state of economic wealth and market conditions” (Mises 2006[1931], 161) to an artificial and wasteful path. Third, I show that while the aggregate affluence created by monetary expansion is illusory, its social repercussions are real, as “the gains obtained and the losses suffered in the course of the inflationary process are never made up for” (Mises 2012[1918], 5).

To this end, Chapter 4 first provides an analysis of the evolution of the international monetary and financial system over the last two centuries, and especially after 1971 and the ‘closing of the gold window’, when national currencies became purely fiat. This chapter is meant to offer a historical anchor for our theoretical endeavor, as well as to highlight the seriousness of the neglect of Cantillon effects of monetary expansion given the latter’s widespread use in international monetary policies. Therefore, I show in this chapter that the gradual intensification in central bank cooperation led to a globalization of fiat-money inflation, and thus that the development of financial markets and the erratic evolution of international trade and capital flows were at least to some extent caused by monetary expansion. Chapter 5 offers a more in-depth theoretical assessment of this connection, by analyzing the characteristics of trade finance under two different monetary systems—a commodity money with 100% reserve banking system, which restricts or even eliminates monetary inflation, and a fiat money fractional-reserve banking system, where monetary inflation is unchecked, subject only to political considerations. Subsequently, I describe the step-by-step transmission of monetary expansion from one financial market to another, and from a product

market to another, and detail its effects on prices, production, trade, and wealth—or in other words, the transmission of *international* Cantillon effects. Finally, Chapter 6 investigates, in this light, the effects of monetary expansion on international capital flows and merchandise trade flows respectively. The analysis is structured along changes in volume, value, direction, and composition of these flows, and supplemented at each step with statistical illustrations from the most recent financial crisis of 2008-2009, and the global trade collapse which accompanied it. Thus, the most important contribution of Part II of this dissertation is advancing our understanding of the changes in international trade that result from expansionary monetary policies.

In Part III, I further explore the relevance of this monetary explanation for some additional issues debated in international economics. In Chapter 7 I look into the role that changes in monetary policies play in modifying industrial organization at an international level, by analyzing the moral hazard consequences of monetary expansion for international firms' size and their financial decision-making in global markets. Chapter 8 then analyzes the redistributive aspects of Cantillon effects, both within and across national borders. I look into how the origin and composition of incomes are affected by monetary expansion, and in turn, how these channels affect income and wealth disparities among households, and the possibility to bridge these disparities. Finally, in the conclusions, I draw out the major implications of my analysis for international trade and monetary policies, its limitations, as well as other possible avenues for future research in this area.

PART I
THE NEGLECT OF CANTILLON
EFFECTS IN INTERNATIONAL
ECONOMICS

CHAPTER 1 EARLY TO MODERN INTERNATIONAL ECONOMICS

The first theories of international trade originated from the liberal reaction to the mercantilist domination of the 16th to 18th century, a reaction which approached the topic of international trade with considerable attention. From this point of view, the 19th century belonged to two main schools of thought: the British Classical School and the French Liberal School, whose best-known members were Adam Smith, David Ricardo, and John Stuart Mill, and Jean-Baptiste Say, Frédéric Bastiat and Paul Leroy-Beaulieu, respectively. In addition, the 19th century marked the emergence of economics as an autonomous science, as well as the debut of the first important differences in the theories of contemporary schools of thought, differences which shaped the purpose, scope, and method of theoretical investigations in international economics in the 20th and 21st centuries.

In this light, the first chapter of this dissertation reviews the early and modern theories of international trade in order to highlight the first discussions on—and neglect of—Cantillon effects in economic writings, underscoring also the role of the classical dichotomy in the development of modern international economics. Since this study of the literature is not intended as a comprehensive survey of the evolution of the theory, our investigation focuses mainly on two questions in the light of which we assess previous analyses of international economic phenomena: what are the fundamental principles of international trade, and what are the effects of a change in the money supply on prices and international exchanges?

To this end, the chapter is structured as follows: sections 1.1 and 1.2 discuss the classical contributions, comparing the British and French approaches to the principles of foreign commerce, as well as to monetary theory.⁴ This investigation sets the stage for the section 1.3, which reviews

⁴ In addressing the works of the French Liberal School of economics, the present chapter also partially recuperates a long and forgotten tradition of economic thought, which extends from precursors such as

the evolution of international economics in the first half of the 20th century, with a particular focus on Ludwig von Mises's contributions to the principles of international trade and to the analysis of the international monetary system.

1.1 PRINCIPLES OF FOREIGN TRADE IN THE CLASSICAL TRADITION

Adam Smith is considered to be the founder of the British Classical School, and his well-known treatise, *The Wealth of Nations* (first published in 1776), is a comprehensive and thorough critique of mercantilist thought (Smith 1954). In his work, Smith highlighted the importance of the division of labor in increasing output, and considered international trade as a particular case of specialization, i.e. international specialization among nations. According to Smith, in a world of scarce resources and unlimited wants, every country is bound to specialize in the production of those goods that can be produced at a lower absolute cost, i.e. fewer hours of labor. These goods, in turn, will be exchanged for the goods for which other countries have an *absolute advantage* in production. Smith's ideas were later developed and enriched by David Ricardo in 1817, who first described the principle of *comparative advantage* within the same paradigm: countries should specialize in producing those goods which require—in relative, not absolute terms—a lower cost, i.e. relatively fewer hours of labor per unit of good produced (Ricardo 1821).

The labor theory of value that the British Classical School had championed and that underlined Smith and Ricardo's trade theories originated with David Hume, who “gave Smith the doctrine that commodities are a storehouse of labor because labor is the active agent that produces all commodities... an essential proposition of the labor theory of value” (Dooley 2005, 108). Smith then established labor as the philosophical foundation of classical economics, where workers' toil

Richard Cantillon and A.R.J. Turgot, to the founder of the school, Jean-Baptiste Say, and through subsequent generations of economists: Destutt de Tracy, Frédéric Bastiat, Jean-Gustave Courcelle-Seneuil, Paul Leroy-Beaulieu, Maurice Block, Alfred Jourdan, and Paul Beauregard.

produces all commodities, and thus a nation's wealth consists of its real riches, i.e. its consumer goods. In following Smith, David Ricardo also proposed an objective theory of value, focusing on the supply-side conditions: he argued that the cost of labor—to which the accumulated profits during the production process were added—is the main determinant of the formation of exchange prices in the market.

In 1844 and 1848, John Stuart Mill's theory of international values rounded up the classical approach to value and foreign commerce, completing and perfecting his predecessors' analyses (Maneschi 1998). First, according to Mill, the phenomena of cross-border exchange belonged to a different category of theoretical investigations, and to a different set of laws regarding value and cost than domestic economic exchange (Maneschi 2001), due to the fact that capital and labor could not move freely across countries. However, Mill also showed that the *terms of trade* between two countries depend on the intensity of reciprocal demand for goods as a function of their barter exchange ratio, and thus, he pointed out that the share of each country in the total gains from trade could change with the intensity of demand, or with the level of protective trade barriers (Mill 2009). The criticism of unilateral free trade implied in the theory of international values, which Mill expanded from Robert Torrens (Fujimoto 2014), raised questions about trade policy: how could a nation acquire, through tariffs, a larger share of the total gains from trade? As a result, while for both Smith and Ricardo, cooperation among nations was a positive-sum game, and international exchange mutually beneficial for all countries, Mill's theory of international values shifted the accent onto a fixed-sum game, in which the gains from trade could potentially be divided to favor one country more than another.

On the other shore of the English Channel, the influence of the French Liberal School on the development of economics in France began with the publication of Jean-Baptiste Say's treatise on political economy in 1803, and extended over an entire century, roughly until the death of Gustave

de Molinari in 1912 (Salerno 1978, 65). Already by the 20th century, however, the liberal *économistes français* had been exiled in a dark corner of the history of economic thought, largely dismissed as pamphleteers and popularizers of British classical economics.⁵ The prevailing opinion among reputed economists and historians of thought (Viner 1937, Schumpeter 1954, Pribram 1983) is up to this day that the French Liberal School of economics⁶ achieved nothing more than the discouragement of original and innovative economic thought in France. Ekelund and Hèbert argue that the Paris Group was guilty of “incestuous inbreeding”, and of “monopolizing the production, validation and dissemination of economic thought” (1999, 25). But although the British Classical School and the French Liberal School did not enjoy comparable popularities at the time, or during the 20th century, they were united in their appreciation of the free market, and in their endeavors to extoll the virtues of free commerce and production.

This compatibility between the ultimate goals of their science stemmed, most likely, from their common regard for the work of Adam Smith.⁷ Between the theoretical systems of the two

⁵ Rothbard (2006) has extensively shown that French liberal thought had not been an uninformed apology for *laissez-faire*, incapable of serious contributions to economic theory. Similarly, Joseph Salerno (1988; 2001) demonstrated that 19th century French liberals influenced prestigious economists such Eugen von Böhm-Bawerk, Gustav Cassel, Knut Wicksell, or Vilfredo Pareto. As the French School had not been analytically sterile, Salerno (2001) also established that institutional factors—such as an unfavorable change in educational policies in France—had led the School into disrepute. Subsequent research (Hülsmann 2001; Thornton 2001) added evidence to Salerno’s original claims, praising the contributions of French liberals on topics such as methodology, theory of value, entrepreneurship, and capital theory.

⁶ The French Liberal School is also known as the Paris Group (Schumpeter 1954) or Bastiat’s School (Salerno 2001), even though among themselves, the members of the school referred to each other simply as *économistes*. Throughout this thesis, I occasionally refer to the school as the Turgot-Say-Bastiat tradition, or the Cantillon-Turgot tradition, particularly when including 20th century intellectual successors.

⁷ During his stockbroker career, David Ricardo had become interested in political economy after having read Smith’s treatise, while John Stuart Mill dedicated a large part of his early studies to the works of both Smith and Ricardo, ultimately completing their classical view on production and exchange. Similarly, Jean-Baptiste Say considered Smith to be his master, whom he “adored” (Schoorl 2012, 152), and gave him considerable credit for having discovered the fundamental principle of market cooperation and foreign commerce: “the celebrated Adam Smith was the first to point out the immense increase of production, and the superior perfection of products referable to this division of labour” (Say 1971, 94). Paul Leroy-Beaulieu was another great admirer of Adam Smith, recognizing that “the division of labor is reasonably seen, after Adam Smith, as the foundation of political economy, or we could say of human society” (1914–I, 323).

schools, however, there existed numerous differences which informed the particular outlook of their international trade theories. As Jean-Baptiste Say wrote in his correspondence with David Ricardo, “while searching the truth in good faith, and after we have dedicated entire years to deepen the questions with which our science presents us, there are still numerous points on which Mr. Malthus, you [Ricardo] and I cannot find ourselves entirely in agreement” (Ricardo 2005 – 9, 31).

First and foremost, as Evert Schoorl writes, “Ricardo’s labor theory of value was part of a paradigm that was altogether alien to Say” (Schoorl 2012, 94). The French economist explained the formation of prices for consumption goods and capital from the demand for products, thus using an incipient subjective value theory and a theory of imputation. Second, the disciples of Jean-Baptiste Say strongly opposed the method of Ricardian economics, which they characterized as argumentation resting on unsound abstractions, which used algebraic formulas unsuitable to the study of political economy. Frédéric Bastiat defended the French tradition by noting that “our theory consists in merely observing universal facts [and] is so little opposed to practice that it is nothing else but practice explained” (Bastiat 2007, 256).

As a result, Mill and Ricardo considered Say and its disciples to be insufficiently prepared to understand the progress and subtleties that the new science had undergone under British influence. Their correspondence reveals that Ricardo believed “[Say] is certainly very far behind in his knowledge of the present state of the science”, and John Stuart Mill agreed that “there is not one of your [Ricardo’s] doctrines, that he [Say] has seized, or perceives the force of in any degree. [...] the man knows not in the smallest degree what your book is about” (Ricardo 2005 – 8, 374-5). As a result of these frictions, as Luigi Cossa noted at the time, “French economic science had no use for Ricardo” (Cossa 1893, 368), inasmuch as British economic science considered Say to be a simple popularizer of Smith’s work. Joseph Schumpeter also acknowledged that “France, following her own tradition, resisted Ricardian influence more than did any other country” (Schumpeter

1954, 479), while Arthur Bloomfield later reiterated the idea that “French economists were never strongly attracted to Ricardo” (Bloomfield 1989, 635).

This separation between the two traditions was most visible in their theories of foreign commerce, in spite of their agreement on foreign policy issues. While the British Classical School, most notably Ricardo and Mill, set the foundations for what was to become modern international trade theory, the French liberal school did not put together a stand-alone theory of international trade, nor adopted British contributions. As was noted by economists at the turn of the century, the doctrine of comparative cost, which “had found its way to Germany, Holland, Italy and the United States, had *par une fortune singuliere* remained almost unknown in France” (Bloomfield 1989, 621). Several other scholars—such as Viner (1937), Angell (1926), and more recently Breton (1998)—have also pointed out the absence of an international trade theory from 19th century French liberal contributions. As for the reasons for this absence, James Angell (1926, 227, 238) noted that “French treatises on economics... found nothing in the theory of international values and prices, as such, to make it essentially different from the theory of values and prices in general... point of view characteristic of the majority of French economists even to the present day”. These opinions notwithstanding, foreign commerce was in fact discussed in sufficient detail by the French liberals, in both theory and policy, but with some notable peculiarities compared to their British counterparts.⁸ This marked difference between the two schools thus warrants further discussion, as it will prove important in the remainder of this thesis for our methodological approach as well as for our theoretical analysis.

⁸ These works contained generous references to Adam Smith’s theory of absolute advantage, as well as discussions about the welfare gains from the division of labor and international trade. If their authors completely omitted to acknowledge Ricardo’s comparative cost doctrine, or John Stuart Mill’s theory of international values, this was motivated by the French liberals’ disagreement with the two overarching principles of the British classical foreign trade theory. The one exception was the French language treatise of Swiss economist Antoine Cherbuliez (1862), in which an entire chapter was dedicated to principle of comparative advantage.

The French Liberal School considered economic exchange and society to be congeneric phenomena, results of conscious individual effort to improve the state of affairs. Jean-Baptiste Say wrote that “Exchange is Political Economy—it is Society itself—for it is impossible to conceive Society as existing without Exchange, or Exchange without Society” (2007, 513), while Michel Chevalier noted that “without exchanges, the division of labor would be impossible, and society in its entirety owes exchanges this benefit” (Chevalier 1859, 166). Courcelle-Seneuil emphasized the fact that society is not the result of a happy accident, a fortunate unintended consequence of random acts of men. Quite the contrary, he wrote, “men have taken the habit of exchange, not under the impulsion of a blind instinct, like Adam Smith assumes—but by conscious and reasonable determination, given their wants” (Courcelle-Seneuil 1879, 240). Last but not least, Destutt de Tracy offered a definition for social economic cooperation, which anticipated to a great extent Ludwig von Mises’s views on this issue: “Society is purely and solely a continual series of exchanges. It is never any thing [sic] else, in any epoch of its duration, from its commencement the most unformed, to its greatest perfection” (Destutt de Tracy 2009 [1817], 61). As a consequence, the social division of labor and exchange were considered to be beneficial for all the parties involved in the transactions, in all possible conditions; like Turgot, for whom the freedom of domestic trade and that of foreign trade followed equally from observing the benefits of exchange, French liberals advocated that “all branches of commerce ought to be free, equally free, and entirely free” (Turgot 2011, 252).

With regard to the first principle of classical trade theories, that of international values, the members of Bastiat’s school dismissed the analytical distinction between internal and external commerce present both in Ricardo and Mill’s works. Analyses of the causes and effects of foreign commerce were found in French works intertwined with analyses of national production and distribution. Early treatises mentioned only political differences between domestic and foreign

trade: for example, in line with the mercantilist view, Richard Cantillon (1931; 2010), in his *Essai*, had argued that domestic trade is not as politically important for a country, since only international commerce can increase the state's power through the importation of money. On the other hand, A.R.J. Turgot (2011, 250) had pointed out that domestic trade was quantitatively more significant than international trade, as the former was not subject to tariffs on the movement of goods and factors of production. But later generations of French liberals provided sound theoretical arguments for considering that the same economic principles regarding value, prices, and exchange underline all economic phenomena, national or international. Destutt de Tracy wrote that "the greatest advantage of external commerce—the only one meriting attention... in comparison with which all others are nothing—is its giving a greater development to that which is internal" (Destutt de Tracy 2009 [1817], xxxiii). Consequently, de Tracy continued, the purpose of international trade is none other than "to establish between different nations the same relations which interior commerce establishes between different parts of the same nations, to constitute them, if we may so speak, in a state of society with one another" (Destutt de Tracy 2009 [1817], xxxiii).

Like Turgot, Jean-Baptiste Say acknowledged that "it is from all phenomena of production, as well as from the experience of the most extensive commerce [that] you demonstrate that a free intercourse between nations is reciprocally advantageous" (Say 1971, xxiii). In other words, he wrote, "...the mode found to be most beneficial to individuals transacting business with foreigners must equally be so to nations" (Say 1971, xxiii), and concluded that "the same principles govern both external and internal commerce" (Say 1971, 101). Similarly, Frédéric Bastiat criticized the doctrine of protectionism for being "by [its supporters'] own admission, only applicable to international relations", arguing that it gave rise to fallacious economic reasoning such as "there are no absolute principles, the political economy of individuals is not that of nations, and other nonsense of the same kind" (Bastiat 2007, 256).

One of the most detailed explanations of this view common to 19th and 20th century French liberals was found in Jean-Gustave Courcelle-Seneuil's work, which is worth quoting at length:

It is customary to distinguish sometimes between interior commerce—that takes place among the inhabitants of the same country—and exterior commerce—that takes place between inhabitants of different countries. But between these two types of trade there is no scientific distinction: everything, which is true of one, is true of the other, and can be applied to it. [...] All observations concerning the biggest markets can be justly applied to the smallest ones" (Courcelle-Seneuil 1858, 268).

Even later writings of French economists, belonging to some members of Charles Gide's 'new school' of economics maintained the same principles.⁹ For example, Paul Beauregard wrote: "It appears that if liberty is beneficial for interior commerce, it must also be beneficial for exterior commerce. Both, in fact, perform similar roles, using the same processes. From the point of view of the principles, it does not exist any difference between the two" (Beauregard 1889, 269). He further argued that differences between domestic and foreign trade are manifest only in "the degree of complexity of the workings and the skills required for speculation" (Beauregard 1889, 269), i.e. in arbitraging prices internationally. More categorically, Alfred Jourdan believed that "opposing the exchange between nations to the exchange between individuals is simply an abuse of language; what we call exchange among nations is nothing but exchange among individuals of different nationalities" (1890, 431).

In sum, French liberals argued that foreign trade differs in degree, but not in kind, from domestic commerce, which meant that theories about the "trade of nations" or "international values" were sterile and purposeless. The primary consequence of this consensus was that international trade theory never developed as an autonomous branch of French political economy,

⁹ Charles Rist remarked that some of the new 'professional' economists groomed by Charles Gide, despite their apparent dismissal of liberals, were still writing and teaching "in the most conservative traditions of the most orthodox liberalism" (Rist 1966, 978). It appears that this was particularly true of Jourdan and Beauregard, and their views on international trade.

as it had within the British Classical School; international trade was theoretically explained by “the well-known laws concerning value and exchange, with the modifications they require by virtue of secondary laws” (Jourdan 1890, 434). These secondary laws, which dealt with the quantitative and not qualitative differences between the two phenomena, concerned the economic and institutional characteristics specific to exchange across national borders. As Alfred Jourdan pointed out, “while we deny that there is a particular theory of exterior commerce, it does not automatically follow that international trade does not present certain particular characteristics, relative to the conditions in which it is carried” (Jourdan 1890, 431-4). Therefore, French liberal works discussed in detail the role of different resource endowments,¹⁰ differences in productivity and mobility of factors, institutional and political restrictions, different money (gold and silver), and transportation costs in shaping cross-border exchanges, thus anticipating many insights of the modern trade theories.

A second consequence of the different methodological approaches was the role ascribed to the entrepreneur in production and trade. Early theorists as Richard Cantillon or Jean-Baptiste Say explicitly recognized the fundamental function entrepreneurs perform in the economy. Thus, the French liberal tradition saw entrepreneurs to be “the heart of economic production and distribution” and commended the arbitrage they perform in the market (Hébert and Link 2006, 275). The British Classical School, on the other hand, did not see entrepreneurship as a fundamental concept of economic theory. Adam Smith is believed to have had few underdeveloped theoretical elements as he wrote about the adventurers, projectors, or undertakers; yet in his work, the catallactic functions of capitalist and entrepreneur are theoretically indistinguishable (Reekie 1984). Despite Bentham’s

¹⁰ For instance, Bastiat argued that “exchange... allows [an individual] to derive greater advantage from natural resources distributed in various proportions over the face of the earth” (2007, 190). Courcelle-Seneuil wrote that “there are different working conditions between different countries, inequalities concerning their productive power”, adding that “these are equally occurring between the inhabitants of different counties, different localities of the same country, and between the inhabitants of the same locality” (1858, 268). In like manner, Paul Leroy-Beaulieu recognized differences in factor proportions between industries of the same country or industries from different countries: “the three factors of production, which are land, labor, and capital, are not found in the same proportions in all countries and at all times” (1914, 53).

criticism on this point, Smith's idea was passed on in its original form to David Ricardo, who further subsumed entrepreneurship to all other agents of production (Hébert and Link 2006). Later on, John Stuart Mill, although familiar with the works of both Bentham and Say, did not follow the contributions of either and focused exclusively on land, labor and capital as main agents of production (Hébert and Link 2006). As a result, the first international trade theories—as they were of British origin—failed to mention any role for the entrepreneurs as such. Up to this day, a reconciliation of the theory of international trade which followed in the 20th century, and the theory of entrepreneurship and the firm is sought after by contemporary research.

1.2 CANTILLON EFFECTS AND THE REALLOCATION OF TRUE RICHES

Along with their undivided approach to phenomena of exchange, 19th century French liberals advocated an undivided approach in economic analysis in general. The same economic principles regarding value applied equally not only to exchange within or across national borders, but also to money and all other market commodities.¹¹ This was another point of contention with the British Classical School, which arose from the value theory debate and which concerned the separation of the real and monetary sectors of the economy in theoretical analysis.

In England, monetary theory rested almost entirely on the classical quantity theory of money, exposed in detail by David Hume (1987a), which postulated that changes in the money supply gave rise to proportional and simultaneous modifications in the level of prices, leaving the underlying barter exchange ratios otherwise unaltered. The theory succeeded in exploding the

¹¹ French liberals devoted lengthy chapters in their treatises to explaining how commodity money originated from the need to overcome the problems of barter, like the double coincidence of wants, and how the value of money stems from its scarcity and from the demand for it, acquiring additional utility once selected as a general medium of exchange. Courcelle-Seneuil emphasized the fact that „gold and silver have become money not due to an act of the public authority, nor even through an express convention, but through the free and spontaneous interplay of exchanges.” (1879, 244) Maurice Block (1890) launched also into a critique of the state theory of money, which was gaining a foothold in France at the end of the 19th century.

mercantilist myth that money is equivalent to wealth by showing that the quantity of money in an economy had no bearing, as such, on its overall level of wealth. It also explained, when extended to the case of two countries, the balance of payments adjustment through the price-specie flow mechanism, in which movements of prices would equilibrate the quantities of gold in circulation in each country.

However, as Friedrich Hayek (2008) showed in his lectures on the influence of money on prices, David Hume had also touched on the short-run effects of variations in the quantity of money on prices when he wrote: "...by degrees, the price rises, first of one commodity, then of another; till the whole at last reaches a just proportion with the new quantity of specie which is in the kingdom" (Hume 1987a, 285). Hume also believed that an increase in the supply of money can be beneficial to economic activity in the "interval or intermediate situation, between the acquisition of money and rise in prices" (Hume 1987a, 286). This beneficial effect, which works not through price adjustment, but through changes in output and employment of previously idle resources (O'Brien 2004, 195), was assumed to cease once prices have completely adjusted, once they have re-scaled to a new level, proportional to the new value of money.

David Ricardo and J.S. Mill rejected Hume's argument that monetary changes affect output and employment in the short run, arguing that the increase in prices, instantaneous and exactly in proportion to the decrease in the value of money, gives no encouragement to production (Humphrey 1991, 6). Hume himself later recanted, arguing that these short-run effects were in fact due to an 'illusion' of money. The term was later adopted by Irving Fisher (1928), who explained that the temporary real impact of monetary changes, be it positive or negative, was the outcome of misperceptions and slowly adjusting expectations, and not of an ingrained characteristic of the monetary system (Dimand 2013). Finally, almost a century after Hume, in 1852, John Elliot Cairnes (2004, 20-53) used and refined the abovementioned *Essay on Money* to analyze the gradual changes

in prices throughout the world following the Australian gold discoveries. Nevertheless, as Hayek (2008, 199) points out, Cairnes did not attempt to offer a description of the general and universal effects of a change in the money supply on prices, but only to analyze the particular characteristics of a historical event.

Consequently, Hume, Ricardo, and Mill downplayed the importance of these issues in their monetary theories (Marcuzzo and Rosselli 1994, 1255), and relegated money to being merely the “circulating blood” of economic activity.¹² Thus, they focused their economic analysis only on the barter aspects of exchange and on ‘real riches’ in the long run, even though they were aware of the consequences of changes in the value of money in the short run: for example, Ricardo referred to some protracted effects of currency depreciation on categories of prices and commodities, while Mill concluded some of his analyses with the idea that “the discovery of [new gold] would thus produce only *temporary effects*; namely, a *brief* disturbance of international trade until the treasure had disseminated itself through the world, and then a *temporary* depression in the value of the metal...” (Mill 2009, 432; emphasis added).

In a pamphlet on the high price of bullion, Ricardo responded to some critics by saying that in its practical aspects, “the operations of an increased currency are not instantaneous, but require some interval of time to produce their full effect” (Ricardo 2004 – 3, 118). In later writings, he also added that some of these temporary consequences could also manifest in a redistribution of property, which would alter the demand for some goods and in turn, create a short-term shortage until production was directed toward that sector to restore relative prices (Ricardo 2004 – 5, 107-8). Furthermore, Ricardo also recognized that “every man is injured or benefited by the variation of the value of the circulating medium in proportion as his property consists of money, or as the fixed

¹² Adam Smith likened the monetary system with a well-traveled road which connects the productive structure of an economy, but which does not allow for any productive activity in itself. He used this metaphor to explain the benefits of paper money—a wagon-way through the air which released the land used for traveling to other productive activities. Cf. Smith (1954).

demands on him in money exceed those fixed demands which he may have on others” (Ricardo 2004 – 3, 136). In other words, Ricardo argued that unanticipated depreciations of currency affect the relative wealth positions of creditors and debtors, as well as those paying taxes in fixed monetary terms (Ahiakpor 1985, 20). These temporary effects were further attributed by Mill to a misperception and confusion between the general price level and relative real values—an anticipation, as we shall see, of modern rational expectations theories. In “The Currency Juggle”, Mill argued that unanticipated inflation “produced a rise of prices, which not being supposed to be connected with a depreciation of the currency, each merchant or manufacturer considered to arise from an increase of the effectual demand for his particular article, and fancied there was a ready and permanent market for almost any quantity of that article which he could produce” (Mill 1833).

But although the members of the British Classical School recognized the short-term impact of currency changes on prices and the distribution of wealth, they considered these effects to be only transitory or residual. Both Ricardo and Mill, in fact, stressed the idea that these consequences are not permanent, leaving no trace in the long run on the overall pattern of production and trade in an economy. For instance, Ricardo argued that “prices [are] being affected in exact proportion to the depreciation... [and although this would not benefit the wealth of the nation], if the currency were now doubled, the nominal value of the exports and imports would double also” (Ricardo 2004 – 3, 139-141). By this “incontrovertible” process of proportional rise in prices, Ricardo was referring to the general price level or what he called “the mass of prices” (Ahiakpor 1985, 19). Influenced by Ricardo, John Stuart Mill explained in the *Principles of Political Economy* that “the introduction of money, as a medium of exchange, makes no difference in the laws of exchanges and of values between country and country, no more than between individual and individual: since the precious metals, under the influence of those same laws, distribute themselves in such proportions among the different countries of the world as to allow the very same exchanges to go on, and at the

same values, as would be the case under a system of barter” (Mill 2009, 431). If the quantity of money were to rise suddenly in a country, Mill continued, “...a newly acquired stock of money would diffuse itself over all countries with which the supposed country carried on trade, and from them, progressively, through all parts of the commercial world... [until] money had diffused itself so equally that prices had risen *in the same ratio* in all countries, so that *the alteration of price would be for all practical purposes ineffective*, and the exports and imports, though at a higher money valuation, would be exactly the same as they were originally” (Mill 2009, 431-32; emphasis added).

The British tradition maintained, therefore, the postulate of long-run money neutrality: changes in the purchasing power of money did not affect the ‘relative real values’ of commodities, or they affected nominal prices only momentarily, while the barter ratios reasserted themselves at equilibrium. As a result, changes in the supply or demand for money were thereafter seen as neutral to the structure of prices, production, and to the distribution of wealth.

French economists, by comparison, drew on Richard Cantillon’s *Essai* in their monetary theory, in which—as we have seen in the introduction—the Irish-born precursor of their school had shown how additional quantities of money percolate in the economy and modify commodity prices gradually and unevenly. Cantillon thus wrote that “a river which runs and winds about in its bed will not flow with double the speed when the amount of its water is doubled... [So] by doubling the quantity of money in a state, the prices of products and merchandise is not always doubled” (Cantillon 1931, 177). Furthermore, as Salerno (1980, 108) has shown, Cantillon also treated balance-of-payments phenomena as “an integral part of the adjustment process” following an increase in a nation’s quantity of money—coming from either foreign loans to private entrepreneurs, foreign purchases of private shares and government bonds, or through exacting contributions from other states (Salerno 1980, 113-4).

Cantillon's percipient essay is the first known such account of the effects that a change in the supply of money has on the prices of commodities and their distribution in a (global) economy.¹³ And as a result of the work of this precursor, French economists were not convinced by the quantity theory of money,¹⁴ which they considered too simplistic.¹⁵ Their skepticism was also informed by the practical difficulties of empirically estimating if changes in the purchasing power of money are cash-induced or goods-induced. Turgot wrote: "A thousand different causes compete to determine at any moment the value of commodities when compared either with each other, or with silver, and cause them to change incessantly. The same causes determine the value [of money], and cause it to vary, when compared either with the value of each particular commodity, or with all the other values which are in commerce at the time. It is not possible to disentangle these different causes, and to unfold their effects, without entering into very extensive and very difficult details" (Turgot 2011, 29). In consequence, completed Leroy-Beaulieu later, "once we notice that the prices of the most important commodities have increased or decreased in proportion of 1 to 2, for example, from one period to another, we are not entitled to conclude exactly that money has depreciated (or appreciated) in that proportion also, or that it was from causes pertaining to it [monetary causes] exclusively that the movement in prices took place" (Leroy-Beaulieu 1914, 221-

¹³ It is also believed that at the time, the yet unpublished essay was circulating among British economists, but the insights contained in it began to be recognized, and only by some, only a century later (Hayek 2008, 198).

¹⁴ Salerno (1980, 66-67) distinguishes between two types of the quantity theory of money: first, the more mechanical Davanzatti-Locke version equated all the precious metal in the world and in circulation with all the goods in commerce and was based on a crude macroeconomic methodology which Ricardo and Mill subsequently adopted. This was the version that French economists criticized. Second, the 'commodity theory of money', originating with Jean Bodin and Martin de Azpilcueta Navarro, used a more 'microeconomic' methodology and traced the value of money to the relation between its supply and demand. This second version was further understood and employed as a quantity theory by Jacob Viner and Ludwig von Mises.

¹⁵ Beraud (2012) has recently shown that the reluctance of French liberals to accept the real-monetary dichotomy continued into the 20th century, as Irving Fisher's *equation of exchange*, a mathematically sophisticated version of the classical quantity theory of money, was received with a great deal of suspicion by French economists.

2).¹⁶ The well-known statistician Maurice Block also argued that “the results [of changes in the purchasing power of money] are never as mathematically exact in practice as we are led to believe by the absolute formula employed by the [quantitative] theory, as there exist always numerous disturbing factors” (Block 1890, 46).

However, the discovery of Californian gold at the time fostered discussions about the effects of an increase in the supply of money on the balance of trade and the international distribution of gold, and French economists diligently applied Hume’s price-specie flow mechanism in their analysis. And as their British counterparts, they were adamant in their foreign policy recommendations, advocating against any government interventions to tip the balance of payments in the favor of one country or another. Jean-Baptiste Say explained that “when a nation has a smaller stock [of money] than its necessities require, its value within the nation is raised, and foreign and native merchants are equally interested in the importation of more. When it is redundant, its relative value to commodities at large is reduced, and it becomes advantageous to export to that spot where its command of commodities may be greater than at home. To retain it by compulsory measures [through mercantilist policies] is to force individuals to keep what is a burthen [sic] to them” (Say 1971, 153). Paul Beauregard also offered a Humean account of international currency movements: “these [balance of payments] disequilibria are rare, and they last shortly when they occur, for the rise in the exchange rate forces merchants to lower their prices, exports become more active and the balance of trade is soon adjusted” (Beauregard 1889, 263).

Maurice Block offered a sophisticated analysis of international currency movements in terms of the *law of one price*:

¹⁶ Leroy-Beaulieu went further to make a methodological point that modern Austrian economists have stressed repeatedly: “it is here that the mathematical method in economics is found manifestly at fault; from the point of view of practical results, given the inextricable complexity of phenomena, it cannot be of any help” (1914, 222).

“Now here’s how the abundance or the scarcity of money translates into supply or demand. Nowadays especially, all countries are part of a universal market, and world prices tend to reach the same levels, as much as transportation costs, tariffs, and other obstacles permit. However, if in country A money is scarce, prices of commodities will decrease—instead of 10 grams of gold, 5 will suffice to purchase a good—and consequently, the countries where the same good costs more than 5 grams will bring their gold to country A. In this way, a certain equilibrium will be reestablished between the value of money and that of commodities, [...] the gold that becomes abundant will be exported to the regions where it is scarce or where commodities are cheaper. Prices tend to equilibrium and precious metals aid them approach this equilibrium” (Block 1890, 43).

This agreement notwithstanding, French economists’ analysis of the international monetary system went into further depth. They explained the dynamic adjustment of the purchasing power of money within a country or throughout the world, from one individual or group of individuals to another, as well as analyzed the distribution of wealth among individuals. Thus, in following Cantillon, French liberals pointed out that changes in the purchasing power of money modify prices in a gradual and uneven manner, and must necessarily bring about the redistribution of wealth from one group of people to another. For instance, Bastiat wrote that “if [Californian gold] increases the amount of money, it will depreciate it. The gold diggers will be richer than they would have been without it. But those who possess the gold at the moment of its depreciation will obtain a smaller gratification for the same amount. I cannot look upon this as an increase, but as *a reallocation of true riches*” (Bastiat 2007, 120; emphasis added). Accordingly, he acknowledged that “[the] rise in prices is not instantaneous and equal for all things”, thus increasing the money supply has “the effect of increasing the distance that separates wealth from poverty” (Bastiat 2007, 131).

Equally clear, Leroy-Beaulieu exposed the effects of an increase in the money supply on commodity prices. Leroy-Beaulieu argue that this increase, especially of inconvertible paper

money, was often called for by a need for cheap resources to cover gaps in government budgets created by fiscal emergencies (Leroy-Beaulieu 1879). As a result, Leroy-Beaulieu wrote,

„the first commodities onto which the new influx of money is spilled undergo first the rise in prices; their owners profit for they have acquired [produced] them at past prices [...] The ones who receive the first the influx of money multiply their orders of commodities, without having to increase—at least at first—the prices they pay to their suppliers. [...] certain categories of merchants benefit from the spread between their selling prices and the prices at which they buy; [...] little by little, this rise spreads to other commodities, but much more slowly. [...] But this artificial movement [...] causes suffering for a significant part of the population [...] Once we look at things closely, we can see that some categories of people reap these benefits at the expense of other categories of people” (Leroy-Beaulieu 1914, 148-54; 291-3).

It would appear, therefore, that the French liberals stressed a slightly different theoretical insight than the British classical economists, namely that changes in the value of money have a permanent and irreversible impact on prices and the distribution of wealth, and that it was this effect—not the proportional price changes—which preclude the ‘beneficial’ consequences of monetary depreciation on industry. As Flandreau (2003b, 43) argues with regard to Leroy-Beaulieu and other contemporaries, “it [was] not that 19th-century international macroeconomists did not know... that monetary expansion brings domestic prosperity by boosting demand, but, rather, that they did not believe in it.”

This approach allowed French liberals to put forth, for the first time, a coherent and cohesive (albeit incomplete) picture of international economic phenomena. Most importantly, it allowed for the better identification of the permanent character of the Cantillon effects of cash-induced changes in the money relation. Moreover, the manner of analysis employed by French writers fit better with their incipient subjective theory of value, as well as with their overall theoretical framework, which looked at both short-run and long-run consequences, without

downplaying the importance of either—as Ricardo and Mill had done. In fact, for the Cantillon-Turgot-Say-Bastiat tradition, *l'économie politique* was supposed to be nothing else but reality explained. So when the reality of market prices contradicted the theoretical assumptions of the Ricardian system, French economists resolved to employ a more realistic method of analysis, guided by sounder methodological principles (Salerno 1985), which rejected the theory of international values, as well as the classical dichotomy. However, their contributions remained largely neglected for the last two centuries, and have exerted some influence only on the early 20th century Viennese economists (Rothbard 2006; Salerno 1988).

The 20th century thus belonged to the classical trade and monetary theories put forth by the British economists, which marked the evolution of economic science—and of international trade theory—for centuries to come. John Stuart Mill's theory of international values and David Ricardo's methodological approach set the foundation for the aggregate general equilibrium analysis of international economic phenomena, and channeled theoretical investigation toward separating the “real” economy—of goods and services—from the “monetary” economy, thus creating the appropriate conditions for the neglect of Cantillon effects in modern trade and monetary theories.

1.3 20TH CENTURY INTERNATIONAL ECONOMICS AND LUDWIG VON MISES'S CONTRIBUTIONS

The field of international economics suffered a peculiar, albeit expected, evolutionary fate in first half of the 20th century. First of all, along the lines Ricardo and Mill drew between domestic and international exchange, international economics developed as an exclusively macroeconomic theoretical system. After 1871, neoclassical theories formalized, elaborated, or criticized the principle of comparative advantage, framing it within the new subjective paradigm. In 1895, Vilfredo Pareto created the first mathematical model of Ricardo's principle, for two countries and

two goods, in which relative costs were expressed in terms of marginal utility, in the attempt to eliminate the labor theory of value from the principle of comparative advantage (Pareto 1895). In like manner, Gottfried Haberler formulated in 1936 the principle of comparative advantage in terms of opportunity costs rather than hours of labor (Haberler 1936).

Pareto and Haberler's revisions opened the gate for mathematical models with multiple countries and multiple goods, and set the conceptual foundations for modern trade theory. The Swedish economist Bertil Ohlin, inspired by his professor Eli Heckscher (1919), developed the theory of factor endowments in his 1933 treatise. Unlike Pareto and Haberler, Ohlin wished to discard Ricardo's theory completely, and replace it with his own new explanation of international trade: given two factors of production, labor and capital, Ohlin proposed that countries relatively more endowed in capital should produce and export capital-intensive goods, thus specializing in those sectors which use the factor of production the country is relatively more endowed with (Ohlin 1933). Albeit contradicted by some empirical studies of international trade flows (Leontief 1953), Ohlin's contribution is still considered to be a correct theoretical explanation of the causes of comparative advantage, easily reconcilable with Ricardo's principle (Maneschi 1998).

Second, due to the overarching classical dichotomy between the real and the monetary sectors of the economy, international economics grew into two separate branches: the pure theory of international trade, centered on the movements of goods and production factors, and international monetary theory, dealing with foreign exchange theories and the balance of payments equilibrium. The classical dichotomy had thus survived the marginalist revolution, and later in the century it was reinforced by a foundational shift from the early neoclassical methods toward the Samuelsonian synthesis of Keynes's theoretical system (Samuelson 1948, 1958, 1964; Dornbusch et al. 1977). Samuelson soon applied these new principles to international trade as well, application which gave rise to contributions such as the Balassa-Samuelson theorem (Balassa 1964) and the Stolper-

Samuelson effect (Stopler and Samuelson 1941). The former referred to the purchasing power parity, influenced by the relative real productivity of sectors that produce tradable and non-tradable goods. The Stopler-Samuelson effect focused on the relationship between the relative prices of finished goods and those of the factors of production. During the 1980s and 1990s, this foundational shift led to an uprising against the neoclassical orthodoxy in international trade, aimed at correcting previous errors like the perfect competition hypothesis, and extending trade models to incorporate more variables—such as technological development, scale economies, or product life-cycle theories. However, these extensions—to which we shall return in Chapter 3¹⁷—also did not attempt to eliminate the classical dichotomy from international economics.

Third, the “unfortunate legacy” (Redlich 1966) of the British Classical School, i.e. the disregard for the role of entrepreneurs, has also been carried through after the marginalist revolution and the subsequent paradigm shift, shaping the development of mainstream theories of international trade. Generally, modern economic models became “an instrument of optimality analysis of well-defined problems which need no entrepreneur for their solution” (Baumol 1968, 67). Since uncertainty had no meaning in a frictionless, predictable system—which postulated profit maximizing agents, production functions, and equilibrium prices—“the entrepreneur became a mere automaton, a passive onlooker with no real scope for individual decision-making” (Hébert and Link 2006, 325). International trade theories have shared the evolutionary fate of mainstream economic analysis, because Pareto (1895), Ohlin (1933), Samuelson (1948), and Krugman (1979) developed their theories within the same non-entrepreneurial paradigm.¹⁸ Largely due to this, Ricardian and

¹⁷ Chapter 3 of this thesis analyzes in detail the mainstream international trade theories of the late 20th and 21st century, from the point of view of their theoretical treatment of money and Cantillon effects.

¹⁸ A feeble return to entrepreneurship in international economics began in the 1950s, when large multinational firms became an alternative unit of analysis in international trade apart from nation states (Mtigwe 2006). Product life-cycle theory (Vernon 1966) was developed as a less static version of comparative advantage, yet without the explicit purpose of incorporating entrepreneurship into previous trade theories. Similarly, international portfolio theory, internalization theory, or theories of international entrepreneurship

factor-endowments models have stopped short of developing beyond naturally given productivities of land and homogeneous capital as sole causes of the international pattern of specialization (Jones 1961).

Ludwig von Mises's contributions stood out against this background. The Austrian-born economist did not employ an analytical distinction between domestic and international trade, and unlike his contemporary scholars, he did not separate the real and monetary realms of the economy in his analysis. Quite the contrary, Mises's lifelong research program was centered on bridging what he believed to be an artificial theoretical separation.¹⁹ Moreover, Mises also focused on placing entrepreneurship—understood as judgment, or decision-making under uncertainty, a view fully reconcilable with the classical principles of international trade—at the heart of his analysis of international economic phenomena. Albeit scattered throughout his works and weaved into the general economic analysis—thus falling short in terms of systematic and orderly presentation—Mises's contributions to international economics are nevertheless original, wide-ranging, and eloquent.

and networks gave entrepreneurs a more prominent role in international trade only incidentally, because most of these theoretical developments sought to analyze business growth, and to build a theory of the international firm on the foundation of transaction costs theory (Oviatt and McDougall 1994, Markusen 1995, Dunning 2000, Rugman and Collinson 2012). Edith Penrose's approach (1959), on the other hand, criticized these 'biological analogies' in theories of the firm, suggesting instead an approach that "depends upon the conscious willed decisions of human beings." As a result of these clashing frameworks, the entrepreneur remained a rather ambiguous concept, subsuming qualities such as "an innovator, a leader, a creator, a discoverer, an equilibrator, and more" (Foss and Klein 2012, 26). When restrained to pure neoclassical reasoning, the entrepreneur was thought to maximize both utility, and the value and desire to succeed. More generally, entrepreneurship was seen as innovation (Aghion and Howitt 1998) characterized by boldness and imagination (Lumpkin and Dess 1996), leadership (Witt 1988), or alertness and discovery (Kirzner 1979, 2009).

¹⁹ Mises wrote in his *Memoirs*: "Economics necessarily must be a complete and united whole. In economics there can be no specialization. To deal with a part one must do so on the foundation of a theory that comprises all the problems [...] I had merged the theory of indirect exchange with that of direct exchange into a coherent system of human action" (Mises 2009 [1978], 55; 112). Cf. Hülsmann (2007, 223-225) and Salerno (2010, 61-114) for a detailed account on Mises's integration of subjective value theory with the theory of money.

In what follows, I will expose in more detail these contributions, and in the next chapters, I will use them as a foil to investigate the theoretical contributions of modern and contemporary economists on the consequences of variations in the supply of money on international trade and the international monetary system.

Mises began his analysis of the particular aspects of international economics from the fundamental and overarching economic phenomenon of the division of labor. Throughout his works, numerous references were made to the merits of the principle of comparative advantage and the economic benefits of international trade, first explained by Adam Smith and David Ricardo. However, Mises stressed the fact that the adherents of the classical school were mistaken in their belief that the law of comparative costs represented the starting point for a separate theory of value in international trade. In accord with 19th century French liberals, Mises argued that “with regard to the determination of value and of prices there is no difference between domestic and foreign trade. What makes people distinguish between the home market and markets abroad is only a difference in the data, i.e. varying institutional conditions restricting the mobility of factors of production and of products” (Mises 1998 [1949], 163).

Consequently, in *Human Action*, Mises revised the principle of comparative advantage into the *law of association*, a broader concept that incorporated the more particular law presented by Ricardo.²⁰ According to Mises, “if and as far as labor under the division of labor is more productive than isolated labor, and if and as far as man is able to realize this fact, human action itself tends toward cooperation and association; [...] Experience teaches us that this condition—higher productivity achieved under the division of labor—is present because its cause—the inborn inequality of men and the inequality in the geographical distribution of the natural factors of

²⁰ Mises’s revisions were extensive, and although he modestly gave credit entirely to Ricardo, the *Misesian* law of association can be considered a significant improvement of Ricardo’s principle of comparative costs. For an analysis of the implications of the law of association, see Salerno (1990a).

production—is real. Thus we are in a position to comprehend the course of social evolution” (Mises 1998 [1949], 158-60). The Misesian law of association indicated that unrestricted production and market exchange take advantage of the more propitious conditions, leading to the specialization of individuals and geographical areas according to their comparatively more suitable characteristics for one branch of production or another (Mises 1990 [1943a]). If capital and labor are bound to the national soil, it is goods that move across borders; when capital and labor are free to move between countries, “the tendency inheres to draw labor forces and capital to the locations of the most favorable natural conditions of production without regard to political and national boundaries. [Therefore], unrestricted free trade must lead to a change in the conditions of settlement on the entire surface of the earth: from the countries with less favorable conditions of production capital and labor flow to the countries with more favorable conditions of production” (Mises 1983 [1919], 92).²¹

The analytical coup of Mises’s revised version of the principle of comparative advantage lay primarily in the incorporation of money prices into the analysis of comparative costs. Mises did not argue—like Gottfried Haberler, for example—that “the translation of comparative differences in cost into absolute differences in price is very simple and... in no way alters the real exchange-relations between commodities which lie behind money prices” (Haberler 1936, 132). In fact, in direct response to Haberler’s approach²², Mises explained that “some critics... do not want to calculate in terms of money. They prefer to resort to those methods of utility analysis which they

²¹ Mises also stressed the role of technological innovation that might naturally change the pattern of international specialization over time. Mises explains that “the significance of this [technological] invention would lie precisely in shifting the locational circumstances of a branch of production, in making productive conditions of a country that were previously to be regarded as less favorable more favorable under the given circumstances. Such shifts have often occurred in history and will occur again” (Mises, 1983 [1919], 179).

²² Mises’s critique of the classical dichotomy in *Human Action* appears also to be a critique of Haberler’s approach: “the whole theory of catallactics, it was held, can be elaborated under the assumption that there is direct exchange only. If this is once achieved, the only thing to be added is the *simple* insertion of money terms into the complex of theorems concerning direct exchange” (Mises 1998 [1949], 202; emphasis in the original). I am indebted to Professor Joseph Salerno for this point.

consider a means for making value calculations in terms of utility... these attempts to eliminate monetary terms from economic calculation are delusive. Their fundamental assumptions are untenable and contradictory and all formulas derived from them are vicious. No method of economic calculation is possible other than one based on money prices as determined by the market” (Mises 1998[1949], 162). Mises continued: “we must not fall prey to the illusion that a comparison between the expenditure of factors of production of various kinds and of the output of products of various kinds can be achieved without the aid of money calculation” (Mises 1998[1949], 162).

In his analysis, Mises drew on his well-known 1920 essay on the impossibility of economic calculation under socialism (Mises 1990[1920]). There, Mises argued that calculation in terms of anticipated money prices represents the utmost and indispensable mental tool available to individuals—and particularly to entrepreneurs—in planning and evaluating production processes, and discerning among complex economic alternatives. Mises wrote:

“Monetary calculation... affords us a guide through the oppressive plenitude of economic potentialities. It enables us to extend to all goods of a higher order the judgment of value, which is bound up with and clearly evident in, the case of goods ready for consumption, or at best of production goods of the lowest order. It renders their value capable of computation and thereby gives us the primary basis for all economic operations with goods of a higher order. Without it, all production involving processes stretching well back in time and all the longer roundabout processes of capitalistic production would be gropings in the dark” (Mises 1990[1920], 14).

This essay not only settled the calculation debate going on at the time, but set the foundation for Mises’s overall approach to economic phenomena, both in their domestic and international aspects, which put the concept of money at the heart of the matter. As a result, Mises also explained in detail the causes and consequences of a change in the supply of or the demand for money, and

thus gave a complex but operational definition of Cantillon effects, with its manifold aspects concerning prices, production, wealth, and business cycles. Mises wrote:

“The essence of monetary theory is the cognition that cash-induced changes in the money relation affect the various prices, wage rates, and interest rates neither at the same time nor to the same extent. If this unevenness were absent, money would be neutral; changes in the money relation would not affect the structure of business, the size and direction of production in the various branches of industry, consumption, and the wealth and income of the various strata of the population. Then the gross market rate of interest too would not be affected either temporarily or lastingly by changes in the sphere of money and circulation credit. The fact that such changes can modify the rate of ordinary interest is caused by the changes which this unevenness brings about in the wealth and income of various individuals. The fact that, apart from these changes in the rate of ordinary interest, the gross market rate is temporarily affected is in itself a manifestation of this unevenness” (Mises 1998[1949], 552-3).

This unevenness or non-neutrality which Mises refers to is what we refer to as Cantillon effects. Cantillon effects result from a cash-induced change in the money relation, i.e. from a change in the supply of money or in the demand for money, which thus brings about a ‘cash-induced change’ in the purchasing power of the monetary unit. Cantillon effects represent the change in prices, wage rates, and interest rates which occurs at different times and to different extents, in a gradual and sequential manner following a change in the money relation. As a result of their gradual progress through the economy, from one individual cash balance to another, changes in the money relation thus affect the structure of prices, the structure of production (size and direction of production, and by extension, the size, direction, and composition of trade), the pattern of consumption, and the distribution of income and wealth in an economy.

In all cases, regardless of the channel through which the change in the money relation makes its way through the economy, the structure of production, prices, and wealth is necessarily shifted

from the more efficient course prescribed by the market toward a suboptimal path. In some particular instances, however, these modifications have a rather cyclical evolution when they bring about inter-temporal disequilibria in the structure of production. One particularly important instance of these effects is thus the case of the business cycle, when the change in the money relation first takes place on loan markets. In this case, the initial decrease in the gross market interest rates leads primarily to the unsustainable lengthening of the structure of production, which reallocates labor and resources toward the higher order stages of production, but which also revolutionizes prices and redistributes wealth among different groups of the population.

In *Human Action* and in later works, Mises set these insights at the core of all theoretical and applied analyses of the domestic and international economic and monetary environment, and thus opened up an entirely new and different framework than the standard analytical framework of modern and contemporary (international) economics. But how did this approach to money and monetary calculation fit with the fundamental principle of international trade?

The foundation for the analysis of monetary exchange—within and across national borders—concerned the process in which the purchasing power of money was established at the interplay of supply and demand within the market process. As Mises argued, money is a commodity valued independently for its services as a medium of exchange, thus “the proposition is as true of money as of every other economic good that its distribution among individual economic agents depends on its marginal utility” (Mises 1953, 182). In other words, the individual demand for money holding, along with the existing supply of the medium of exchange determines the value of money. Additionally, in a monetary economy, exchange ratios are the result of subjective valuations of both money and commodities; that is, monetary and non-monetary goods are in the same manner distributed among individuals according to the intensity of the demand they express in the market, until equilibrium is reached, i.e. until no further exchange could improve the subjective gain of any

individual. In Rothbard's (2009, 236) definition, "the inverse of the money price of any good gives us the "goods-price" of money in terms of that particular good". This goods-price of money represents its purchasing power, and the structure of money prices that arises on the market represents (when inversed) "an unaveraged, heterogeneous array of alternative quantities of goods that are exchangeable for a unit of money" (Salerno 2010, 157).

Internationally, the same reasoning holds true for the case of independent moneys and the exchange rate between them. As long as economic exchanges occur between currency areas, both moneys are utilized in both areas as media of exchange. The exchange rate between any two currencies embodies the ratio between their purchasing power arrays, i.e. the ratio between the price structures in the two monetary areas. As a result, money occupies in international transactions the same position as all other commodities being exchanged, and "money may sometimes be the usual reason for undertaking transactions" (Mises, 2006 [1923], 50). Once a general medium of exchange is selected on the market, barter exchange ratios between the goods imported and exported disappear in a monetary economy, superseded by money prices.

Internationally, therefore, Mises pointed out that "if no other relations than those of barter exist between the inhabitants of two areas, then balances in favor of one party or the other cannot arise" (Mises 1953, 182). Consequently, "the volume of foreign trade is completely dependent upon [money] prices; neither exportation nor importation can occur if there are no differences in prices to make trade profitable" (Mises 1953, 250). By extension, Mises also reached the conclusion that the balance of payments is consequently determined "by the price level and the purchases and sales induced by the price margins" (Mises 1953, 244), making money the *active* element of the balance of payments, and not an accommodating flow of the movement of 'real' goods across borders.²³

²³ Other balance-of-payments theories are discussed in Chapter 3.

Mises spelled out his monetary approach to the balance of payments as follows: “international movements of money are not consequences of the state of trade; ... so far as they are not of a transient nature and consequently soon rendered ineffective by movements in the contrary direction, they are always called forth by variations in demand for [and supply of] money” (Mises 1953, 181-3). If residents of a country find that they have excess cash in their balances, they will increase their demand for goods available in the market. Whether the demand for imports increases directly or the upward pressure on prices of domestic goods further makes imports more attractive, the surplus cash will eventually develop into an outflow of money from the country. On the contrary, if national residents want to increase their cash balances, they will put downward pressure on market prices, reducing imports, increasing exports, and thereby bringing about an inflow of money. This equilibrating process is consummate when individuals reach the desired level of cash balances, accomplishing both at a national and international level the equilibration of money’s purchasing power.

By exposing this indelible connection between the demand for money and the demand for goods (sides of the same coin) which drive the equilibration of the international monetary system through changes in individual cash-balances, Mises was able to argue that the separation between the monetary and real economy in the economic analysis was both artificial and pernicious. He was then able to identify the classical dichotomy as having nurtured the fallacy that “the purchasing power of the monetary unit changes, but the relations among the prices of individual commodities remain the same” (Mises 1990 [1938a], 70), as having fostered the preoccupation of maintaining a stable level of prices, as well as the fallacies surrounding balance of payments adjustment. Throughout the 20th century, Mises remained one of the singular voices to argue that “money without a driving force of its own [...] would not be money at all” (Mises 1998 [1949], 415), and that “money is neither neutral nor stable in purchasing power” (Mises 1998 [1949], 416).

What happens then with the purchasing power of money, and subsequently with the exchange rate, when there is a change in the demand for or supply of money? Mises based his arguments—and his definition of money non-neutrality, or Cantillon effects—on the insight that any changes in the supply and demand for money cannot run their course through the economy without first and foremost modifying the levels of individual cash-balances. He argued that

“...changes in the quantity of money and in the demand for money for cash holding do not occur in the economic system as a whole if they do not occur in the households of individuals. These changes in the households of individuals never occur for all individuals at the same time and to the same degree and they therefore never affect their judgments of value to the same extent and at the same time” (Mises 1990 [1938a], 72).

If individual cash-balances cannot be increased or decreased simultaneously, the purchasing power of money also cannot be altered instantaneously following a change in the money relation. For example, an increase in the supply money is necessarily distributed *step-by-step*, from one individual money holder to another, spent and re-spent within and across borders “in a sequence of monetary changes” (Salerno 2010, 155) which drive down the purchasing power of the monetary unit. This process goes on until cash balances, the purchasing power array, and the exchange rate between currencies are established, *uno acto*, at the new levels. Consequently, argued Mises, commodity prices can never change at the same time and to the same extent following a change in the money supply. Their economic and social consequences taking place during this process represent the Cantillon effects of a monetary expansion.

What are the welfare effects of change in the money supply? According to Mises, such monetary changes will necessarily lead to the redistribution of wealth on a general scale. The reason for these social changes, Mises argued, is twofold: on the one hand, “all economic agents are in a sense dealers” (Mises 1953, 206) in currency, such that changes in its value affect the economic

position of every individual.²⁴ On the other hand, he continued, “the economic consequences of variations in the value of money are determined by the nature of their slow progress, from person to person, from class to class, and from country to country. [...] The fact that these variations occur *one after the other* is the sole reason for their remarkable economic effects” (Mises 1953, 210; emphasis in the original). First, only some people will initially have higher cash-balances (the first receivers of the new money); given decreasing marginal utility, they will value each currency unit less, so they will be willing to pay higher prices for the goods they prefer. As “a lower subjective valuation of money [will be] then passed on from person to person” (Mises 1953, 208), individual money prices will rise or fall depending on the path in which the additional money is spent, thus depending on the pattern consumer preferences.²⁵ This process, which gradually drives the equilibration of the purchasing power array to the new money relation, does not affect commodity prices at the same date and to the same extent, i.e. prices do not change simultaneously or proportionally to the change in the money relation.

As a result, argued Mises, “while the process is under way, some people enjoy the benefit of higher prices for the goods and services they sell, while the prices of the things they buy have not yet risen to the same extent” (Mises 1998[1949], 409-10). Wealth is thereby necessarily redistributed towards the first receivers of money from those who receive it last, or never, and who have to pay higher prices in the meantime. In other words, Mises defined Cantillon effects as the economic phenomenon in which modifications of the money supply gradually and unevenly

²⁴ In the case of single commodity price change, just as in the case of a non-inflationary redistribution of cash-balances among individuals as a consequence of changes in their demand for money, the price of some articles will gradually increase and the prices of others decrease, as individuals now spend their income differently. Mises explains that this cannot represent a general or international rise in prices. Cf. (Mises 2012 [1913]).

²⁵ Even if we were to assume that all people instantly get equal shares of the additional quantity of money, wealth will still be redistributed, simply because people’s preferences for different commodities are not the same throughout time or among themselves, nor given different levels of their cash-balances.

percolate through the structure of money prices, and more importantly, modify the distribution of resources and wealth in an economy in the short run and on the long term.

Notwithstanding this general trend, each change in the money supply takes a different course through the economy toward establishing the new purchasing power array, such that the process will arbitrarily create winners and losers, i.e. benefitting and affecting different individuals each time, and to different extents. This means, as Mises pointed out, that the social changes brought about by monetary changes cannot be undone: the redistribution of wealth caused by an increase in the money supply cannot be offset by a subsequent decrease, or by a concurrent increase in the money demand. On this point, Mises is worth quoting at length:

“Both processes take their own course, both result in a disarrangement of existing social conditions, making some people richer, some people poorer. Both *affect the prices of various goods at different dates and to a different degree*. It is true that the rise in the prices of some commodities caused by one of these processes can finally be compensated by the fall caused by the other process. It may happen that at the end some or many prices come back to their previous height. But this final result is not the outcome of an absence of movements provoked by changes in the money relation. It is rather the outcome of the joint effect of the coincidence of two processes independent of each other, *each of which brings about alterations in the market data as well as in the material conditions of various individuals and groups of individuals*. The new structure of prices may not differ very much from the previous one. But it is the resultant of two series of changes which have accomplished all *inherent social transformations*” (Mises 1998[1949], 412; emphasis added).

Mises’s contributions represented a serious blow to the theoretical integrity of the classical dichotomy—which he often referred to as the ‘barter fiction’—, and implicitly to that of the money neutrality postulate. First, his analysis showed that once a commodity surfaces as the general medium of exchange in an economy, there no longer exist barter prices, and all exchange ratios are

necessarily money prices, underscoring the lack of realism in the assumptions underlying the classical dichotomy. Second, it illuminated the fact that the geographical equalization of the purchasing power of money throughout the world is accomplished as part of the same market process that creates the structure of money prices, and brings about the division of labor, thereby making monetary analysis an integral element of economic analysis. Third, it underscored the insight that money is redistributed among individuals according to their individual preferences for cash holdings in a sequential process of monetary exchanges, dispensing with the classical aggregate approach to monetary matters and proposing a disaggregate, ‘microeconomic’ approach.

For international trade in particular, Mises’s insights showed that money is embedded in the economic phenomenon of cross-border exchange. Money makes economic calculation possible by overcoming the drawbacks of direct and indirect exchange, and allows entrepreneurs to judge and plan transactions and extensive production processes (Mises 1990 [1920]). International movements of goods, services, and factors of production are necessarily guided by monetary calculation, and require above all the use of money. As Mises pointed out in *Socialism*, “in foreign trade, just as in internal trade—there is no difference between them—no rational production could proceed without money reckoning and the formation of prices for the means of production” (Mises 1951, 232). A general medium of exchange begets complex and roundabout division of labor.²⁶

Last but not least, Mises’s contribution showed there is no difference in the effects on the distribution of income and wealth whether the variations in the purchasing power of money occur within a single national economy or within internationally connected market economies, or whether

²⁶ As the second part of this thesis will focus mainly on these latter issues, suffice now to point out that given this fundamental connection between the phenomena of international trade and the monetary system, the past decades witnessed the increased use of a very lucrative channel for government intervention—relative to the more old-fashioned protectionism—namely the monetary and financial channel. Mises had a radical attitude against any interventionist foreign policy, and particularly one that would undermine the international monetary system. Instead, he advocated an international gold standard, alongside free labor migration and free movement of capital across national borders.

it's the case of metallic money or fiat money (Mises 1953, 208). Just like in the case of a single national currency, the “interrelated variations in the complex of individual cash balances, incomes and prices” (Salerno 2010, 156) drive toward the equilibration of the purchasing power of money internationally as well, in a sequence of monetary changes—and it is these individual, microeconomic changes which constitute the focus point of an analysis of Cantillon effects on a national and global level. In other words, the process which brings the balance of payments to its equilibrium²⁷, works in a similar way in the case of a change in the money supply: money will move, internationally, from one money holder to another until the new purchasing power array is established together with the desired level of individual cash-balances. Therefore, the inherent social transformations accompanying all such monetary changes will concurrently take place: wealth will be redistributed towards the first receivers of money from the last (or never) receivers, as the transfer of wealth is parallel, and of opposite sense, to the inflow of new money in the economy.

Ludwig von Mises witnessed important transformations in the international monetary landscape over the course of the 20th century. As international trade and economic relations between countries grew stronger, the international specie (gold) standard was replaced by national paper currencies, which were no longer subject to limitations in production, and lent themselves to great increases in supply, subject only to political considerations. Exchange rates among national money began to exhibit sharp fluctuations, and lasting balance of payments deficits were registered. Throughout these changes, Mises continued to write about the pernicious effects of increases in the

²⁷ Mises concluded that "precious metals are distributed among individuals and hence among nations according to the extent and intensity of their demands for money", such that "government measures designed to regulate the international movement of money in order to ensure that the community shall have the amount it needs are unnecessary and inappropriate" (Mises 1953, 181). Nevertheless, as Mises points out, "the foremost argument in the protectionist's reasoning today is again, as in the days of the Mercantile Theory, the monetary standpoint. Restriction of imports is said to be indispensable for the maintenance of a country's monetary equilibrium" (Mises, 1990 [1933], 105).

supply of fiat money, arguing time and again that “if a country wishes to enjoy the advantages of a sound currency and stability of foreign exchanges, it has but to avoid inflation and credit expansion” (Mises, 1990 [1938b], 130).

We will return to the case of different national paper currencies and their effects on international trade in the second part of this dissertation. At the end of this first chapter, however, it is important to underline the fact that a look back at the roots of modern international economics shows us that the treatment of Cantillon effects is one of the main elements at stake in any reconsideration of international economics. It can provide the analytical path to bridge a long-lasting separation between the real and monetary spheres of economic analysis, and offer a way to understand the impact of monetary changes on individual variables and wealth.

Let us now, in the next chapter, review the contributions of contemporary monetary research to the topic of Cantillon effects. By comparing them to Mises’s contributions on this issue, we will be able to evaluate if they have been—or have the potential to be—successful in an endeavor similar to that undertaken in this thesis.

CHAPTER 2

CANTILLON EFFECTS IN CONTEMPORARY MONETARY THOUGHT

By mid-20th century, monetary thought had dissevered into several theories through alternative attempts to reject or develop the classical quantity theory of money. However, the success of these attempts was almost completely hindered by the fact that international monetary theory became synonymous with a macroeconomic approach: economic analyses became general equilibrium models, mathematical exercises in aggregation, and economists lost sight—deliberately or not—of the impact of monetary changes on individual variables (Klein 1947; Yeager 1982, Zijp and Visser 1992). Given the methodological apparatus, money was conceptualized as *numéraire* (measure of value), store of wealth, or standard of deferred payments, rather than general medium of exchange,²⁸ since the latter was a dynamic element that could not be incorporated in a static equilibrium analysis (Kiyotaki and Wright 1989). Consequently, international trade theories also expressed the prices of goods and services in a numéraire, the only type of concept that was reconcilable with the theoretical world of frictionless barter. According to Mises, this kind of money represented “an unsubstantial and immaterial clearing system [...] an unrealizable and even unthinkable system of accounting” (Mises 1990 [1938a], 69-70). If this numéraire “could be called money”, Mises concluded, “it would be neutral money” (Mises 1990 [1938a], 70).

In what follows, let us canvass the landscape of contemporary monetary theories (especially after 1970), from the New Classical Economics through Post Keynesian, New Keynesian, and other heterodox approaches, in order to assess their theoretical treatment of Cantillon effects. This survey is important to underscore the gaps in the monetary foundation for international trade studies, as

²⁸ According to James Tobin, “it is tempting to identify numéraire prices as money prices. But the numéraire is just a mathematical normalization convenient for handling the fact that the supply equals-demand equations for N commodities determine only the $N - 1$ relative prices. Those relative prices are, by construction, independent of the scalar arbitrarily attached to the numéraire” (Tobin 2008, 930).

well as, as we shall see later on, for studies on the distribution of income and wealth. To this end, section 2.1 discusses the relationship between money and the structure of relative commodity prices in contemporary research; section 2.2 maps alternative views on the impact of monetary changes on distribution of wealth, and section 2.3 summarizes their conclusions.

2.1 MONEY NEUTRALITY AND MACROECONOMIC INEFFICIENCIES

The theoretical revolution dubbed ‘rational expectations’, which occurred around mid-1970s, came to reinforce the classical dichotomy that had already been dominating economic thought for over two centuries. The introduction of expectations of variations in the purchasing power of money was grounded on the postulate that economic agents can understand the connection between money and the price level. On the assumption that economic agents do not suffer from the ‘money illusion’, rational expectations theories expected them to be able to sieve through market signals and discriminate between nominal and real changes. Lucas (1975) and Sargent and Wallace (1976) therefore concluded that only real changes affect real decisions, and that variations in the purchasing power of money are *neutralized* if correctly anticipated (McCallum 1980)—not only in the long run, but in the short run as well (Kaldor 1970; Lines and Westerhoff 2010). The dichotomy between the monetary and the real sectors of the economy was in this way restated in even stronger terms, with the postulate of money neutrality explicitly acknowledged.

In response to these contributions, the long-standing opponents of the Chicago school, Post Keynesians and New Keynesians in particular, asserted their views on the *non-neutrality of money* (Subrick 2010). According to these theories, there are macroeconomic inefficiencies in the real economy that hinder its adjustment to the new nominal values following movements in the purchasing power of money (Meltzer 1988), even if the latter can be correctly anticipated. These inefficiencies—highlighted in (broadly) Keynesian literature—are labor market rigidities, staggered nominal wage and price adjustments (Calvo 1983; Fischer 1981), heterogeneous expectations

(Lines and Westerhoff 2010) or rational beliefs²⁹ (Motolese 2002), price setting practices (Dixon and Kara 2010) as well as imperfect information and gradual learning (Wray 1998). However, the postulate of money neutrality is included here too in the assumption that the real economy does not adjust—as it should—to the nominal levels of variables. In this case, theoreticians postulate implicitly, if not explicitly, that it is meaningful to distinguish between nominal and real changes, between money prices and relative prices (barter ratios).

These tacit assumptions are best revealed in the monetary policy conclusions that contemporary theories reach, and that are unsurprisingly similar across different schools of monetary thought. For example, classical Keynesian analysis tells us that the economy does not tend to equilibrium in the long run, and that inherent market frictions do not allow it to operate at full employment save an inflation-induced reduction of real wages. In other words, an increase in the money supply can depress real wages by increasing the general price level, while the underlying real relative prices remain unaffected (Davidson 2006). Until wages adjust to the new level of prices, the increased spread between buying and selling prices allows entrepreneurs to ‘recapture’ productive and otherwise idle resources in situations of deficient-demand unemployment. An affiliated view is shared by monetary disequilibrium theorists (Yeager 1966; Yeager and Greenfield 1989) who also advocate the adjustment of the nominal money supply to modifications of the nominal demand for money. With money being a ‘fluttering veil’ covering real variables (Yeager 1997), they argue that variations in the demand for money cause changes in output and only later in the level of prices, given that some prices adjust slower. Consequently, the nominal supply of

²⁹ Also a reaction to rational expectations theories, the proponents of the *rational beliefs* approach assert that money is not neutral as “nominal prices and real output change in response not only to modifications in the exogenous money growth rate, but also in response to changes in beliefs” (Motolese 2002, 325). The existence of these beliefs—i.e. different conditional probabilities about the dynamic events of the economy—implies that agents interpret current information in different ways. Consequently, as people react differently to monetary shocks, although they can observe them, monetary policies can have a real impact on the economy. Cf. Motolese (2002).

money adjusts to the real demand for money “only through the roundabout, *protracted*, and *possibly painful* price-level process” (Yeager and Greenfield 1989, 408; emphasis added). Monetary disequilibrium theorists consider that this process can be bypassed through monetary injections that could equilibrate the nominal stock of money with nominal demand.³⁰

The idea of sluggish price adjustments is to be found even in the more orthodox neoclassical approaches. One such example is the New Neoclassical Synthesis (Goodfriend and King 1997; Woodford 2007), whose proponents argue that even if the economy tends to a full-fledged equilibrium in the long run, price stickiness in the market requires costly adjustments to the new money demand in the short run. In like manner, market monetarism proponents—whose theories have been enjoying wide currency over the last years—combine neoclassical and Keynesian insights (Ritenour 2013), and argue that given sticky prices, good monetary policy should try to stabilize the expected Nominal Gross Domestic Product (Sumner 2011; Christensen 2011).

Additional examples of the extrapolation of “stickiness” to variables other than prices are numerous, but the most relevant are information stickiness and money stickiness. The former is part of the New Keynesian program to replace the traditional Phillips curve—defining the directly proportional relationship between inflation and employment—by emphasizing the slow dissemination of information in the market in the short run. Its foremost proponents, Mankiw and Reis (2002), argue that inflation, while still being positively correlated with real economic activity, exerts its impact on the macroeconomic variables with a significant delay, given that information is sticky. Staggered price setting is thereby replaced by staggered update of information, in a manner in which the New Keynesian perspective embraces the importance of New Classical expectations.

³⁰ The French economist Michel Aglietta (1997) shares a similar view regarding the negative economic consequences of monetary instability. In his view, what impedes monetary stability is precisely the ability of the market to self-regulate. This ability determines undesired movements of currency, and disequilibria between its supply and demand. Consequently, the central bank must play a key role in managing the money supplies and the laws for its development (Sterdyniak 1998; Privarova 2005).

More recently, Cheng and Angus (2012) extended stickiness to money itself, examining the disproportionate effect of monetary injections. They claim that money has real effects in the short run not because prices are sticky, in the sense that sellers are reluctant to change them in response to changing demand, but rather because money itself is sticky, in the sense that new money does not arrive in all participants' pockets instantaneously—mainly due to banking procedures. Eventually, however, they find this stickiness to be a transitory nuisance: “a money injection [...] can generate oscillating changes in real variables in the short run, but is neutral in the long run”, as “the relative prices of the final goods to the intermediate good and the output of all goods will oscillate around their initial steady state values” (Cheng and Angus 2012, 4).

As a consequence, all these alternative theoretical approaches advocate monetary management in order to correct and speed up the readjustment of market (monetary) disequilibria. Arguably, the expedience and appeal of these policy proposals lies in the simplicity and elegance of adjusting a single macroeconomic variable (i.e. the money supply) instead of allowing the adjustment of the entire system of prices.³¹ According to Yeager, monetary management

“...is a more delicate and selective method, operating directly where changes are really required. General price and income adjustments resemble arranging for more daylight hours after work on summer evenings by having everyone adjust his daily schedule so that he does everything one hour earlier. Instead of making these myriad

³¹ One metaphor used in these explanations is that of a circus clown trying to adjust his chair to the piano by pulling the piano (representing the so-called price-level process), rather than pushing the chair (the nominal money supply) towards the piano. This metaphor originally belongs to Wilhelm Röpke. The daylight saving time example quoted below by Yeager (1966, 96) belongs to Milton Friedman. A much more instructive and less misleading metaphor, first used by Arthur Marget, is that of “a swarm of bees, in which the individual bees are never lost sight of as they continually alter their relative positions within the swarm as it changes altitude. In the same manner, as the ‘price swarm’ rises or falls as a result of a change in the supply of money, the relative positions of the individual prices, and therefore of the distribution of individual incomes and demands, undergo continual alteration and remain permanently altered even after the price swarm adjusts to its new height” (Salerno 2010, 444).

detailed changes in our habits, we simply adopt daylight saving time” (Yeager 1966, 96).

The metaphors, however, are highly misleading, for they imply the irrelevance of changes in the nominal values for real variables. But the money supply and the structure of prices are not independent of each other, and their movements are necessarily *co-movements*. As explained previously, the purchasing power of money is an array, unaveraged and heterogeneous, whose adjustment is analogous to the readjustment of the structure of money prices; the eventual re-scaling of macroeconomic variables—on which economists focus almost exclusively—is nothing but the result of the uneven and gradual modification of individual variables from within aggregated magnitudes. Save analytical tricks, the structure of money prices adjusts to changes in the money supply only in a succession of myriad detailed changes; and because these changes are not quantitatively—and to a certain extent, not even qualitatively—foreseeable, it is impossible for intended manipulations of the money supply to neutralize the original changes in the money demand, or to purposefully reshuffle the structure of prices along intended lines.

In conclusion, developments in contemporary monetary thought, albeit technically more sophisticated than traditional theories of money neutrality, do not overcome the long-standing classical dichotomy (Totonchi 2011), and are far from giving a satisfying theoretical treatment of Cantillon effects. By the same token, policy recommendations for tuning macroeconomic variables like the money supply fall short of their intended purpose. A flexible supply of money, managed by central banks, does not “put flexibility into sticky wages and prices” (Yeager 1966, 97), whereas reducing sluggish price adjustment or stabilizing prices does not increase welfare, as the overwhelming majority of contemporary monetary theorists suggest. This is because in reality, nothing can bypass the market price-adjustment process, however sluggish and painful it may be. Prices always change gradually and unevenly to changes in money relation. Most importantly,

attempts to correct this process via monetary intervention only bring about additional price revolution and wealth redistribution.

2.2 THE CONTRACTUAL PREDICTABILITY OF WEALTH REDISTRIBUTION

Despite their contradictory views on the effects of monetary changes on prices, there is a general consensus across schools of thought that changes in the purchasing power of money lead to some income and wealth redistribution. This redistribution occurs, as a rule, only to a limited extent, provided that “loans in the economy are specified in fixed money terms” (Meh and Terajima 2010). In such cases, scholars argue, price inflation transfers wealth from creditors to debtors, as the latter repay their debt with a currency that has a lower purchasing power than when the contract was made. Similarly, deflation transfers wealth in the opposite sense, from debtors to creditors. John Maynard Keynes, as well as the majority of Keynesians, subscribe to this view when advocating the benefits of paper money, claiming that the central bank “should always be in a position to impose losses on the retailers of the *green cheese*” (Rogers 2008, 15; emphasis in the original), i.e. creditors, by manipulating purchasing power and interest rates.

This type of reasoning concerning wealth redistribution is similar in the case when wages increase at a slower pace than price levels, or when some asset prices rise slower than others. In these scenarios of price stickiness, there is a redistribution of wealth from those whose incomes are roughly fixed to those whose incomes adjust faster to the fall in purchasing power. According to Keynes, for instance, “wages and other costs will chase prices upwards, but nevertheless prices will always... keep 20 percent ahead. However much wages are increased, the act of spending these wages will always push prices this much in advance” (Keynes 1972, 420). As a result, “inflation acts like a pump that transfers income” (Frisch 1990, 230) from the wage earners towards the

entrepreneurial sector.³² The majority of economists have echoed these views, which go a long way back in the history of economic thought. Bach and Ando (1957), Kessel (1956), Bach and Stevenson (1974), or more recently Kregel (2011), Domanski and Chui (2010), Doepke and Schneider (2006), Fischer, Sahay, and Vegh (2002), Erosa and Ventura (2002), Collard and Dellas (2006) or Albanesi (2007) have exposed the different theoretical and empirical explanations of the losses incurred by creditors and wage earners when the purchasing power of money falls, or the redistribution of wealth caused by the rearrangement of portfolios. The latest trend in this subject area is fostered by the context of an international economy still reeling from a financial crisis: some economists now consider the relationships among different creditor and debtor states in relation to their budget and trade deficits.

The central tenet of these theories is that price adjustment precedes the adjustment of incomes of some groups (Laidler and Parkin 1975, 788). Accordingly, different theories pick particular winners or losers of this process, depending on the cause they perceive as determining the staggered rise in different classes of prices. For instance, in the case of *demand-pull* price inflation, the shift of income and wealth is from wage earners to profit receivers (Clower and Burnstein 1960; Davidson 2002). In the case of *cost-push* inflation, it is the unemployed and the entrepreneurs that transfer income towards the employed workers (Calvo 1983; Fischer 1981; Brofenbrenner and Holzman 1963). However, neither of these phenomena is of a permanent character, and moreover, they all occur only when changes in the purchasing power of money are not anticipated by either contracting party. Consequently, contemporary monetary thought resolves that only unexpected inflation redistributes income and wealth.

In other words, depending on the extent in which people can anticipate changes in the purchasing power of money and adjust their money contracts accordingly, the redistributive effect

³² The initial assumption that all firms are debtors led to the conclusion that all firms gain from inflation. Alchian and Kessel (1957) relaxed this assumption and showed that there can be firms to lose from inflation.

of inflation on wealth can be reduced or completely avoided. Thus, if all wealth transfer arises from unanticipated inflation, drafting better contracts can offer a fair resolution for all parties involved (Bordo 1980). Anticipating inflation leads to fair contractual relationships, offsetting the wealth redistribution effects of changes in the purchasing power of money. In this manner, any possible “injustice becomes a matter of uncertainty, [and] justice a matter of contractual predictability” (Skidelsky 1992, 223). As Hülsmann (2003) argues, the indexing of credit and labor contracts, albeit an imperfect vehicle of adjustment, is an indication that people mainly succeed in anticipating changes in the purchasing power of money. Nevertheless, the redistribution of wealth between creditors and debtors is only one particular case of the more general distributional effects of monetary changes. As Rothbard noted, “particular sufferers will be those depending on fixed money contracts—contracts made in the days before the inflationary rise in prices (Rothbard 2008a, 53). But this issue does not pertain exclusively to monetary aspects, since contractual inadequacies are expected to occur sometimes in all types of economic transactions, as parties discover sooner that the original terms of contract are no longer satisfying.

The more vulnerable issue here is that this potentially anticipated redistribution does not exhaust the social rearrangements of wealth following a change in the money relation. Cantillon effects cannot be avoided by indexing contracts. The crucial distinction is that a cash-induced fall in the purchasing power of money does not transfer wealth simply from one group to the other, and it does not do so proportionally and symmetrically. Wealth redistribution occurs through the gradual alteration of the structure of individual prices, and not in between general levels of wage incomes and profits; as such, variations in the purchasing power of money trickle down through individual prices and individual incomes, disproportionately and sequentially. In this case, only superhuman abilities of contracting parties would make such alterations quantitatively foreseeable and thereby, avoidable.

Finally, the issue of wealth redistribution among nations is also brought up in the last decade with regard to the case of the European currency union and the policies of the European Central Bank.³³ The most notable contributions are those of Maennig and Hunger (1996), Sinn and Feist (1997, 2000) and Botazzi and Manasse (2002). The seigniorage gain of money creation, that is the interest bearing assets central banks receive from the private sector for the newly printed money, belonged to national central banks from EMU member countries before the creation of the European Central Bank. Once the monetary union was put into place, however, “the return on the interest bearing assets which lie in the coffers of national central banks [was] transferred to the ECB” (Sinn and Feist 1997, 4). The issue of wealth redistribution arose in this context once these concentrated seigniorage gains had to be distributed by the ECB back to member countries “according to a pattern different from the one which exists prior to the monetary union” (Sinn and Feist 1997, 4). In other words, while countries contributed to interest gain in accordance to their share in the joint currency, they received seigniorage gains according to their share in the capital contribution to ECB. The authors also pinpoint the accidental winners and losers for this process: according to their calculations, France, Portugal and the UK received net seigniorage gains, at the expense of Germany, Spain and Austria (Sinn and Feist 2000, 28). The solution to this problem, they suggest, is to allocate this wealth “in proportion to the magnitudes of the respective monetary bases as of 1 January 1999 and the additional contributions necessitated by the future growth in the joint monetary base in proportion to country size” (Sinn and Feist 2000, 29).

Nonetheless, the above-cited works fail to mention any wealth redistribution following money creation per se, or the fact that money creation, while costless for the central bank, necessarily imposes losses on individual traders that are forced to use a currency with falling value. Furthermore, the creation of new money also affects consumers and producers through the

³³ I am indebted to Professor Guido Hülsmann for this point.

increased (and decreased) availability of some products or others as a result of the changes in the structure of prices and production. In other words, alternative ECB distribution policies might provide member governments with a fairer share of the total ‘seigniorage wealth cake’ (Hansen and King 2007). Nevertheless, it can be argued that the more pressing issue are the gains from money creation to begin with, gains which accrue only to those that usually find themselves as the first receivers of the newly created money. As Cantillon effects are not eliminated by drafting better contracts, they are not bypassed by better monetary union treaties either.

2.3 DOES ‘MONEY MATTER’ IN MONETARY THEORIES?

The theoretical conclusions of modern monetary thought concerning the relationship between money and real variables, and thus Cantillon effects, can be grouped along three main assertions: First, *money does not matter* is the phrase by which classical, neoclassical, and New Classical economists mean that the relationship between the nominal stock of money and the levels of other macroeconomic variables—such as output or general level of prices and employment—is not readily visible, especially in the case in which inflation is correctly anticipated. Second, when scholars argue that *money matters in the short run*, this should be taken to mean in the more old-fashioned Keynesian sense (Chick 1983) that the rate of change in the nominal money supply will have a temporary impact on the price level and output, and enable entrepreneurs to recapture otherwise idle resources, such as labor. Third, and finally, if *money matters in the long run*, this is because the sluggish price adjustment and other market frictions related to information, employment levels, or monetary policies prevent the expected re-scaling of nominal values to the previous levels before variations in the supply of money (Cottrell 1994, 591).

From the point of view of understanding Cantillon effects, the more pertinent conclusion is that ‘money does not matter’ for monetary economics—that is, not in the theoretically meaningful way in which it does in Mises’s contributions to this topic. Contemporary monetary thought does

not offer a satisfactory account of the revolution in the structure of money prices and arbitrary redistribution of wealth that any cash-induced change in the money relation necessarily brings about. Also, standard discussions of the welfare implication of increases in the money supply fail to account for the latter's manifold consequences on various branches of production and trade, as well as for its central role in the creation of business cycles. Thus, the implications of this shortcoming are far-reaching, insofar as the study of economics is an interconnected whole, and the study of international economics depends on a correct monetary theory. Consequently, as we shall see in the next chapter where we analyze the underpinnings of contemporary trade theory, these monetary theory foundations can be considered as a primary reason for which the study of international trade and international money falls short of its purpose.

CHAPTER 3

CANTILLON EFFECTS IN CONTEMPORARY TRADE THEORY

During the last century, as monetary theory became increasingly divided into schools of thought, the theory of international trade coalesced into a stand-alone branch of the economic science, dealing with the efficient allocation of scarce resources in an international setting with two or more open economies. According to the textbooks, “the subject matter of international economics consists of issues raised by the special problems of economic interaction between sovereign states” (Krugman, Obstfeld and Melitz 2011, 3), interaction that is only ‘generally’ or only ‘in most cases’ mutually beneficial, and thus requires government supervision. In other words, economic exchange across borders is subject to its own analysis and to particular tools and models, different from those applicable to domestic exchange.

More importantly, the 20th century divided the discipline into two subfields: the study of international trade—or the pure theory of exchange³⁴—and the study of international money—or international monetary economics (Chipman 1966, Sen 2010). According to Krugman, Obstfeld and Melitz, “international trade analysis focuses primarily on the *real* transactions in the international economy, that is, on those transactions that involve a physical movement of goods or a tangible commitment of economic resources. International monetary analysis focuses on the monetary side of the international economy, that is, on financial transactions such as foreign purchases of U.S. dollars” (Krugman, Obstfeld and Melitz 2011, 8; emphasis in the original). As Chacholiades (2009, 6) argues, this separation between money values and real values is similar to the overarching division of economic theory into microeconomics and macroeconomics respectively: the micro

³⁴ The term refers to the theory of barter exchange, i.e. of a moneyless economy, and not to a priori theory that does not require empirical validation. Cf. Bhagwati (1964).

investigations are supposed to be separate from the macro investigations, just as the analysis of monetary phenomena can be performed without reference to the real phenomena—and viceversa.

In other words, the study of international trade deals with the causes and consequences of international commodity trade, independent of the study of international money which deals with the balance of payments equilibrium and the determination of the exchange rate, i.e. with macroeconomic monetary adjustment (Anderson 2008). In light of this separation, international trade theory can be described as “a competitive-equilibrium model of allocations and relative prices (the general-equilibrium part) and a single equation which came to be interpreted as one that equates the demand for and supply of money (the quantity-theory part)” (Wallace 2001, 848). Furthermore, the two are theoretically independent of each other, since “the variables in the general-equilibrium part are determined without reference to the quantity-theory part. Given those variables and the time path of the money supply, the quantity-theory part determines the time path of the price level” (Wallace 2001, 848).

At a closer look, therefore, the separation between the study of international trade and the study of international money is an outgrowth of the classical dichotomy. As a result, the analysis of the social and economic consequences of variations in the value of money at an international level suffers from shortcomings kindred to those discussed in the previous chapter. Theories of international trade assume money to be neutral and the monetary adjustment process complete, thus monetary changes are considered to bear no influence on the nature and position of the long-run equilibrium of trading economies (Mundell 1960; Modigliani 1963); equally, the monetary analysis of the short-run international adjustment is exclusively macroeconomic, and not rooted in the general theory of value and exchange (Dillard 1988).³⁵

³⁵ Paraphrasing Ludwig von Mises, the pure theory of international trade is the epitome of the barter fiction, while the monetary theory of international trade is an acatallactic theory par excellence.

Notwithstanding these visible gaps in mainstream trade theory, further investigation into the causes and implications of the neglect of Cantillon effects in trade theory is important for the present thesis: as this chapter endeavors to show, this discussion will open fruitful avenues for analyzing the Cantillon effects of monetary expansion in international trade, analysis which we undertake in Part II. To this end, Chapter 3 is structured as follows: section 3.1 underlines the common assumptions that standard trade theories make with respect to money and changes in its purchasing power. In like manner, section 3.2 discusses the monetary theories of international trade, i.e. alternative approaches to the exchange rate determination and balance of payments adjustment, and compares them with the Misesian approach sketched in Chapter 1. Finally, section 3.3 surveys discussions on wealth redistribution found in international trade theory, and section 3.4 summarizes their theoretical conclusions.

3.1 THE STUDY OF INTERNATIONAL TRADE

The British classical economists pioneered the analysis of international trade of commodities in barter terms, but it was in the hands of Marshall, Edgeworth, Heckscher, Harberler, Ohlin, Samuelson, Stopler, and later Krugman and Obstfeld that it evolved into a mathematically sophisticated non-monetary analysis. Even so, contemporary theories remained tributary to the classical theory in their fundamental assumptions. As Robert Mundell argues, “Ricardo's love was not the short-run dynamic mechanism... but the long-run theory of international barter“, where *real*, not monetary phenomena, where “the only considerations that mattered” (Mundell 1968, 113). Jacob Viner also pointed out that “Ricardo could very rarely interest himself in the immediate and transitory phases of an economic process sufficiently to trace it in detail though its successive stages... passing over without mention or even denying the existence of the intermediate stages” (Viner 1937, 139-40). In relation to Ricardo’s methodological approach, Viner also hailed as one the most important achievements of the classical (and neoclassical) trade theory the fact that:

“ ... instead of dealing with money prices, [Mill and Ricardo] abstracted from money and dealt with exchange ratios between commodities... instead of dealing with the variations in value of particular commodities taken one at a time on the assumption that the remainder of the system of values remained unchanged, they dealt with the internal variations occurring in the system of values as a whole [...] [taking] for granted the existence of money and its execution of its respective functions, but confin[ing] its analysis to the non-monetary manifestations of the equilibrium process” (Viner 1937, 583).

Currently, two main theories stemming from this non-monetary framework are included under the umbrella of traditional explanations of international trade: the Ricardian model of comparative advantage and the Heckscher-Ohlin theory of factor endowments. Both theories and their subsequent developments explain trade flows between countries in terms of differences in the opportunity cost of production, expressed in real relative prices (Dixit and Norman 1980). For instance, “a country has a comparative advantage in producing a good if the opportunity cost of producing that good *in terms of other goods* is lower in that country than it is in other countries” (Krugman, Obstfeld and Melitz 2011, 26; emphasis added).

According to the Ricardian model, these discrepancies in opportunity cost among countries arise due to differences in the productivity of labor (Krugman, Obstfeld and Melitz 2011, 27); in the Heckscher-Ohlin model, they arise due to relative abundance and intensity-in-use of factors of production, i.e. capital and labor (Krugman, Obstfeld and Melitz 2011, 80). In either case, theories predict a particular pattern of ‘inter-industry’ international trade (Bernhofen 2009): that is, a country will export from one set of capital intensive industries, and import from foreign labor intensive industries. For trade flows which do not fit into these categories (Grubel and Lloyd 1975), the New Trade Theory (Krugman 1979; Helpman 1981; Ethier 1982) offers an explanation in terms of consumers’ love of variety and the geographical concentration of production to exploit economies of scale and increasing returns (Krugman, Obstfeld and Melitz 2011, 138-50). Other

refinements also introduce monopolistic competition, factor mobility, and human capital into the analysis (Helpman and Krugman 1985; Zhang 2008), and well as detailed analyses of the policy implications of these theories (Bhattacharjea 2004).

These developments notwithstanding, contemporary international trade theories construct their assumptions by incorporating the well-known dichotomy: first, the supply side of the two economies in a model is determined using transformation curves and output levels. Second, the demand side is described in terms of consumer indifference (or love of variety), which directly links quantities of real goods to levels of satisfaction or utility. Once the supply and demand outlines are constructed, trade models predict the level of welfare gains in the case of autarky and trade general equilibrium respectively (Lempp 2008, 229-30). Thus, these theories focus solely on pure exchange, also called direct exchange or barter. Given the absence of uncertainty, absence which “facilitates the general equilibrium analysis that is core to international trade” (Bernard et al. 2007), the utility of cash holdings disappears, and the theory assumes that “goods are exchanged directly for other goods on the basis of their relative prices” (Krugman, Obstfeld and Melitz 2011, 294).

Although employed initially as a pedagogical tool,³⁶ this ‘barter fiction’ soon became standard analysis. The introduction of money, scholars argued, did not change the actual conclusions of the pure theory, as the transition from direct to indirect exchange analysis required only the seamless process of quoting real values in nominal terms. Thus, if money is introduced in trade theories (Kawaller 1974; Kelmann 1975; Drabicki and Takayama 1983), it is only as a *numéraire*, or as “a standardized means of payment” (Krugman, Obstfeld and Melitz 2011, 355). The aggregate monetary demand is in this case considered to be demand for real assets³⁷,

³⁶ Krugman, Obstfeld and Melitz acknowledge the fact that “in the real world, there is no simple dividing line between trade and monetary issues”; this admission notwithstanding, they conclude without further justification that “the distinction between international trade and international money is useful” (Krugman, Obstfeld and Melitz 2011, 8).

³⁷ We will detail the fallacies involved in this approach in section 3.3, when we discuss real balance effects.

determined by the interest rate, price level, and real national income (Krugman, Obstfeld and Melitz 2011, 358). James Tobin sums up this theoretical stance as follows:

“[F]ormal general equilibrium theory, which describes the imaginary world of frictionless barter, does of course express the prices of goods and services in a *numéraire*. It is tempting to identify numéraire prices as money prices. But the numéraire is just a mathematical normalization convenient for handling the fact that the supply equals-demand equations for N commodities determine only the $N - 1$ relative prices. Those relative prices are, by construction, independent of the scalar arbitrarily attached to the *numéraire*” (Tobin 2008, 930).

Given the disconnection between the monetary unit and the real relative prices underlying money prices, the only conclusion that follows is that money is neutral in the long-run: if “the demand for money is a demand for real money holdings [...] all else equal, an increase in a country’s money supply causes a *proportional increase in its price level* [having] no effect on the long-run values of the interest rate or real output” (Krugman, Obstfeld and Melitz 2011, 369; emphasis in the original).

This manner of theorizing is characteristic of the contemporary study of international trade. The only sense in which money is not neutral for the trade theorist is when “fluctuations in the supply of money or in the demand for it can affect both output and employment” (Krugman, Obstfeld and Melitz 2011, 294), or in other words, when there are macroeconomic inefficiencies that impede full economic adjustment, like price rigidity or underemployment. But as we have seen in Chapter 2, this non-neutrality is an incomplete account of cash-induced revolution in the structure of prices and production, as well as of the subsequent wealth redistribution.

Trade theorists are aware of the fact that “neither short-run nor long-run analysis of the comparative static type is fully satisfactory”, and admit they would prefer a “true dynamic analysis that traces out the path of all variables [including money] as they evolve over time” (McCallum 1996, 97-8). Nevertheless, the exclusive focus on the interplay between aggregate variables, the conceptualization of money as a numeraire, and the assumption of money neutrality would still

preclude a satisfactory detailed account of the Cantillon effects of monetary expansion on international trade. In its present state, therefore, the theory of international trade is not fully equipped to study the monetary adjustment process as it occurs on the market--and its effects—, process which it relegates to the study of international money. Let us now map alternative theories concerning these latter aspects, and analyze their treatment of Cantillon effects.

3.2 THE STUDY OF INTERNATIONAL MONEY

The study of international money explains the formation of exchange rates and the mechanism of the balance of payments equilibrium. These theories also analyze the effects of devaluating a currency in order to adjust the inflows and outflows of commodities and money in a country, and to correct current account deficits (Krugman, Obstfeld and Melitz 2011, 504-9). For the most part, points of contention between schools of thought begin with the manner most efficient to attain two policy goals (whose necessity is taken for granted): “the internal balance (full employment with price stability) and the external balance (avoiding excessive imbalances in international payments)” (Krugman, Obstfeld and Melitz 2011, 505). As a result, alternative theories of the process of international monetary adjustments are complementary to each other, rather than mutually exclusive (Frenkel, Gylfason and Halliwell 1980). More importantly, the one common foundation of all studies in international money is the assumption that real values lie behind the nominal money prices, and thus that changes in the money supply are neutral to the real economy in the long run.

Theories of exchange rate determination

The purchasing power parity theory of the exchange rate (hereafter PPP theory) is the oldest and the most widely accepted explanation for the exchange ratio between two currencies. In its absolute ‘Casselian’ version (Cassel 1916), it asserts that the exchange rate between two currencies is equal to the ratio of the national price levels in the two trading nations. Price levels are determined by the

supply and demand curves for money as equated through the quantity-theory equation, and empirically estimated via a statistical average (index) of a handful (basket) of individual prices.

Much criticism of this theory is directed toward its disregard of real variables (Taylor and Taylor 2004) and of the fact that commodities can be either internationally transacted (traded or tradable goods), or bound to the domestic soil (nontraded or nontradable goods, e.g. houses and haircuts). Critics thus observe that the prices of nontraded identical goods exhibit significant differences between countries, and these differences bias statistical price averages, deviating the exchange rate from its alleged parity (Dornbusch 1973; Neary 1980; Sarno and Taylor 2002). According to Sachs and Larrain, nontraded goods “affect every important feature of an economy, from price determination, to the structure of output, to the effects of macroeconomic policy [and] undermine the case for purchasing power parity” (Sachs and Larrain 1993, 657-8). Scholars thus conclude that the purchasing power parity theory is false, unreliable, or at best a mere approximation of the exchange rate.

Defendants of PPP theory—such as Frenkel and Johnson (1976)—retort with an empirical, rather than theoretical, observation: given that the elasticity of substitution for traded and nontraded goods approaches infinity, the range for relative price changes between the two categories of goods is extremely narrow. Alternatively, empirical tests of the purchasing power parity theory undertaken by Rogoff (1999) and Taylor (2002) reach the conclusion that PPP theories hold best for individual traded commodities, satisfactorily for all traded goods, but unsatisfactorily for all goods, both traded and nontraded. That is because, according to the mainstream view, “the law of one price applies to individual commodities [...] while PPP applies to the general price level, which is a composite of the prices of all the commodities that enter into the reference basket” (Krugman, Obstfeld and Melitz 2011, 386-7).

Given these debates, economists refined the Casselian version into a relative purchasing power parity theory, which asserts that changes in the exchange rate over a period of time are proportional to the relative change in the price levels of two nations. Since it focuses only on relative changes, this version is believed to be correct regardless the shortcomings of the absolute version (Officer 1978; Krugman, Obstfeld and Melitz 2011). Nonetheless, empirical investigations undertaken by Balassa (1964) and Samuelson (1964) showed that the ratio of prices of nontraded to traded goods is systematically higher in developed nations than in developing nations. This means that relative changes in the exchange rate are also biased due to wage differences and the fact that all indexes contain nontraded goods, the prices of which are not equalized by international trade.

The shortcomings of the Casselian version of the PPP theory, as well as of its critiques and alternatives are best highlighted using Mises's contributions to this subject as a background.³⁸ First, Mises's explanation of the formation of exchange rates debunked the claim that nontraded goods render purchasing power parity hollow, by explaining the role of the positional factor of commodities. According to Mises, two goods—similar in every other technological aspect—, “are not members of the same species if they are not both ready for consumption at the same place” (Mises 1953, 170). The price differences that empirical analysis identifies between similar commodities are explained by the costs of transportation, or by differences in the quality and positional factor of goods (Mises 1953, 172-9). For example, black tea in Manchester is a consumption good, while in New York it is a production good, to be combined with the complementary factor ‘transportation’ in order to reach its American consumers. As a result, the spatial and temporal location of commodities, as well as the consumer's psychic response to the site of purchase or consumption, determines their spatial dimension in quality, and makes non-monetary products different economic goods (Salerno 2010, 105).

³⁸ Ludwig von Mises also developed an absolute version of the purchasing power parity theory, four years before Cassel's contribution gained international recognition (Salerno 2010, 104).

Additionally, Mises argued that the theory of foreign exchange is merely a particular instance of the theory of parallel standards. Thus, it takes only a few commodities to cross national borders, in order for two national currencies to become, for each of the countries trading, co-existing parallel currencies. In Mises's words, "the existence of international trade relations results in the consequence that the money of each of the single areas concerned is money also for all other areas" (Mises 1953, 179). Steered by the law of one price, the equilibrium exchange rate then establishes itself at a point at which it is irrelevant whether the purchase of the same good is made in one country or another. Hence, "a perfectly adequate explanation of the actual exchange ratio between money and goods may be made without reference to problems of production... [and] there is no longer a reason to distinguish between internationally tradable goods and domestically produced and consumed nontradable goods" (Salerno 2010, 97-8). Mises summarized his views as follows: "the purchasing power of money is the same everywhere, only the commodities offered are not the same" (Mises 1953, 176).

Most importantly, all goods and services existing in each country, as well as their qualitative and spatial features find their full expression in an unaveraged and heterogeneous purchasing power array, and not in an arbitrary statistical average which makes such qualities of goods incommensurable. Therefore, the equilibration of the purchasing power of money is not equivalent to an equalization of prices of goods in two countries, or of the statistical averages of such prices. Modern proponents of PPP theory, however, reach this erroneous conclusion by acquiescing to instantaneous arbitrage³⁹ and methodological holism (Thompson 2005), which focuses their analyses exclusively on the interplay of aggregated magnitudes like national price levels and total stocks of money. But Mises carefully pointed out that purchasing power equalization is brought

³⁹ According to Krugman, Obstfeld and Melitz, "any long-run theory essentially assumes that price levels adjust as quickly as exchange rates do— that is, right away" (2011, 389). Therefore, by definition, any gradual and uneven changes in individual commodity prices are assumed to be absent.

about through a gradual, successive equilibration of individual cash-balances, accomplished as part of the same step-by-step process that creates the structure of monetary prices. On an international scale, these processes and the determination of the exchange rate between two currencies are congeneric, accomplished *uno acto* on the market. Because the adjustment of the structure of prices to any change in market data or the money relation is sequential and uneven with respect to individual commodity prices, then these aspects cannot be meaningfully captured through price indexes. And for the purposes of this thesis, the fact that Mises's step-by-step analysis does not obscure individual price changes means that it also allows for the identification of Cantillon effects on an international level, unlike the mainstream purchasing power parity theory.

Let us now compare the Misesian approach to the purchasing power parity theory to the other two approaches to the determination of the exchange rate, i.e. the asset market approach and the balance of payments theory. These theories begin by excising money from the analysis, and assert that non-monetary factors primarily drive the international monetary adjustment and determine the exchange rate. First, asset market approach proponents (Branson and Henderson 1984) contend that the exchange rate is determined by the supply and demand of financial assets traded on the stock market. Expected returns and relative risks of financial assets are affected by interest rates, speculation, political uncertainty, and other real economic constraints, as the market reacts to monetary and fiscal policies. These stimuli induce shifts in the supply and demand for financial assets, which in turn determine the exchange rate. In recent years, this approach received its fair share of criticism (Baxter, Jermann and King 1998) along the lines of the old problem of nontraded groups of assets. This led to the development of the portfolio-balance approach, which claims that for investors, foreign and domestic assets (traded and nontraded assets in other words) are imperfect substitutes (Frankel 1983, Stockman and Dellas 1989), and that differences in yielded interest rates can significantly move the exchange rate from the lines predicted by initial analysis.

Setting aside the objections we already dealt with above, the asset market view can nevertheless be criticized on grounds of its superficiality. In fact, this view illustrates well the prevailing confusion about the fact that foreign exchange rates adjust faster to the underlying parity than do commodity prices. As Mises explained, the price of foreign exchange is rapidly fine-tuned due to the speculative efforts of businessmen.⁴⁰ When traders perceive a deviation of the actual exchange rate from the entrepreneurially anticipated market parity, they have the opportunity to make profits by trading financial assets and arbitraging their prices. This happens, according to Mises, “at a time when the variations in the value of money have by no means completed their course through the community, perhaps when they have only just begun it, but in any case before they have reached the commodities that play a decisive part in foreign trade” (Mises 1953, 214). Nonetheless, this logically implies that the causal relationship does not run from asset trading to the exchange rate, but the other way around. In anticipating modifications in the purchasing power, asset trading takes place in order to gradually arbitrage anticipated differences in the parity of two currencies. Because this adjustment first touches on financial assets, economists superficially deduce that the supply and demand of financial assets determines the exchange rate.

The asset market approach thus errs in laying emphasis on the superficial aspects of this phenomenon. At the same time, unlike traditional PPP theory, it addresses speculation and expectations by correctly observing that financial asset trade reacts most quickly to anticipated changes in the exchange rate. This observation has spurred attempts to operate ad-hoc changes to orthodox theories of exchange rate determination (Dornbusch 1976), but as a proxy for expectations was difficult to find, and empirical testing unfeasible, any thorough revisions were avoided. This

⁴⁰ Mises writes: “[F]oreign exchange quotations, however, are speculative rates of exchange—that is, they arise out of the transactions of business people, who, in their operations, consider not only the present but also potential future developments. Thus, the depreciation of the money becomes apparent relatively soon in the foreign exchange quotations on the Bourse—long before the prices of other goods and services are affected” (Mises 2006 [1923], 46).

failure opened a Pandora's box for Post-Keynesian critiques (Harvey 1991; Akiba 2004), which proclaimed that traditional approaches wrongly assumed exchange rates to be determined by some fundamental (monetary or non-monetary) factors. Rather, critics claim, it is a form of 'animal spirits' that determines exchange rates, since "dealers [on the foreign exchange market] are not guessing the outcome of some external operation—they are creating the outcome" (Harvey 1996, 576).

The same confused analysis prevails in this case too. Stock market arbitrage does indeed anticipate the exchange rate without waiting for the adjustment of the entire price structure to be effected, and the spot exchange rate consequently fluctuates in accordance to the buying and selling actions of foreign exchange dealers. However, these dealers do not create the final outcome: baseless, foolish speculations are free to happen, but entrepreneurs need to make correct forecasts about the future purchasing power of money—that is, to have the right expectations (Salerno 1995)—in order to reap any profits from their transactions. As Mises explained, speculation "does not determine prices; it has to accept the prices that are determined in the market. Its efforts are directed to correctly estimating future price situations and to acting accordingly" (Mises 1953, 253).

Finally, the balance of payments approach to the determination of the exchange rate comes in a close second in popularity after the Casselian explanation. Its proponents (Robinson 1950; Dornbusch and Fisher 1980; Obstfeld and Rogoff 2005) argue that the equilibrium rate of exchange between two national currencies is reached when current account and financial account flows are balanced. This view has tremendous appeal for researchers, as the statistical data is easily acquired, but numerous critics have correctly pointed out that it completely disregards the role of money and financial assets (Daniels and Van Hoose 1988). As this theory of exchange rates is supported by two explanations of the balance of payments, the elasticity and the absorption approach (Tsiang 1961), we will address its shortcomings in the next subsection.

Balance of payments theories

Just as in the case of exchange rate explanations, the following approaches are complementary mainstream theories that attempt to explain the international monetary adjustment between two trading economies.

The monetary approach to the balance of payments—term coined by Robert Mundell (1968)—, explains the equilibrium and disequilibrium of the balance of payments as essentially a monetary phenomenon, that results from an excess national stock of money (demanded or supplied), which can and should be corrected by a nation’s monetary authorities (Raffinot and Venet 2007). This monetary model is derived from the Casselian purchasing power parity theory (Harvey 1996, 569), and shares in its shortcomings. Its proponents (Johnson 1972; Mussa 1974; Frenkel and Johnson 1976) begin their analysis from the nation as a whole, and construe a single macroeconomic agent that acts and chooses—“analytical concepts and constructs that are appropriate only to the analysis of individual action” (Salerno 2010, 106).

The argument then runs as follows: if the nation desires only to increase the variety (mix) of consumer goods by importing foreign commodities, it will not alter its money balances, and the balance of payments adjustment will occur exclusively on the real side of the economy. The nation will increase its exports of domestic goods (which it demands less) to pay for imports of foreign commodities (which it demands more). The separation between a nation’s money balances and its demand for imports is based on the separation between an individual’s money balance and his or her demand for goods, which is in fact another version of the old money neutrality postulate. As a consequence, monetary approach proponents are led to the contrived conclusion that only changes in the monetary side of the economy can have disequilibrating effects on the balance of payments, and most importantly, that changes in the national stock of money have no impact on real variables such as level of exports and imports (Thompson 2005).

To illustrate the deficiency of this approach, let us return to Mises's analysis of the international monetary adjustment. For Mises, as Salerno explains, the equilibrium of the balance of payments is brought about through “a succession of configurations of mutually inconsistent individual equilibria representing numerous microeconomic agents who are induced by the price system to bring their individual actions into closer and closer coordination until a final inter-individual equilibrium is effected” (Salerno 2010, 176). If some residents of a country increase their demand for foreign goods, this means necessarily that money leaving their cash balances in the form of expenditures will constitute an outflow of money from the country.

This translates into three effects: an initial deficit in the balance of payments, lower cash balances for domestic producers (for whose products demand had decreased) and higher cash balances for foreign producers (for whose products demand has increased). Between the two latter groups of producers, a good-induced shift of income and wealth occurs, that is determined by the change in consumer preferences. Now, if these particular individuals do not desire to keep their cash balances at these levels, they will proceed to adjust them to previous levels. Money will gradually leave the cash balances of foreigners (who demand it less) in order to return, sooner or later, into the cash balances of national residents (who demand it more). The equilibrating process is consummated when individuals reach the desired levels of cash balances, accomplishing both at a national and international level the equilibration of money's purchasing power and the redistribution of money holdings. The initial balance-of-payments deficit would in this way self-reverse, if no lasting change in cash-balance preferences has occurred.

Therefore, as Salerno explains, Mises's analysis “arrives at the same long-run, comparative-static conclusion as the proponents of the monetary approach do, to the effect that the change in question will not result in any alteration in national money stocks. However, his focus on the individual economic agent leads him to analyze the dynamic microeconomic process by which the

comparative-static, macroeconomic result emerges” (Salerno 2010, 176). And as a matter of fact, only the analysis of the dynamic microeconomic process can reveal the shifts in income and wealth, as well as the changes in the pattern of production and trade that occur internationally when the supply of and demand for currencies changes. For the purposes of this thesis, therefore, the modern monetary approach to the balance of payments—as it is developed in the standard literature—cannot contribute to the analysis of Cantillon effects in international trade.

Mainstream thought has also criticized this approach along two lines: first, some critiques came from historical research. According to Michel Aglietta “the conception of commodity money whose world stock is distributed among nations, and which reabsorbs the balance of payments disequilibria through the equilibrating movement of nominal prices and monetary flows [...] is not consistent with historical experience [...] nor with the theoretical representation of modern currencies” (Aglietta 1979, 808) Consequently, Aglietta argues, the establishment of international monetary equilibrium is akin to historical circumstances, and cannot be explained by absolute economic principles. Moreover, the strength and dominance of a particular currency is allegedly caused by the structural surplus of the country's balance of payments. In other words, Aglietta posits a backwards causal relationship between movements of money, and the modifications in the current and financial account.

This critique is akin to two Keynesian-flavored alternative theories of balance of payments that challenge the monetary approach for supremacy, both of which argue that the latter disregards changes occurring in the non-monetary side of the economy (Atkeson and Burnstein 2008). Tributary to the money neutrality, the proponents of these views stress non-monetary factors as fundamental causes of the balance of payments disequilibrium (Obstfeld and Rogoff 2001), and argue in turn that “price variations responsible for adjustment in the balance of trade are changes in terms of trade, i.e. relative price of exportables and importables for countries” (Negishi 2001, 14).

First, the elasticity approach to the balance of payments is “an extension, to imports and to exports as a whole, of the familiar Marshallian supply and demand analysis of the price and production of a single commodity” (Alexander 1952, 265). It argues that the volume of exports depends on the price of exports, and that of imports on the price of imports, and thus that the exchange rate clears the balance of trade. In this form, it is a price-specie flow mechanism stripped down of its fundamental element: money. If the fundamental causes of the balance of payments are a country's terms of trade, i.e. the relative prices of its imports over exports (Kempp 1964, 79-81), then the international adjustment is effected exclusively in the non-monetary side of the economy (Raffinot and Venet 2007). Furthermore, any output and employment adjustments that follow a devaluation of the currency are considered beneficial, given that the aggregated analysis does not reveal any changes in the structure of money prices and the distribution of wealth within the aggregated magnitudes.

In fact, central to the elasticity approach is the Marshall-Lerner-Robinson condition, which extends Keynesian analysis to the international sphere by including assumptions of price rigidity and mass unemployment. The condition can be stated as follows: when a country devalues its currency, the price of exports will decrease, which in turn will increase the demand for these exports. Provided the sum of demand elasticities (foreign and domestic) is higher than unity, currency devaluation will eventually improve the balance of payments⁴¹, claim based on the Keynesian assumption that unemployed resources that can be captured via an increase in the money supply (Kavous 2009). However, these assumptions undercut the possibility of analyzing the dynamic and microeconomic effects of an increase in the money supply on individual variables, and

⁴¹ Empirical verifications (Kouri 1976, Miles 1979) have subsequently tested if in the short-run the Marshall-Lerner condition holds, when due to smaller elasticities, devaluation leads to a larger deficit (smaller surplus) in the current account in the short term. This situation was depicted by the "J-curve", whose shape is given by the initial worsening of the balance of payments, but also by the fact that eventually the current account will improve following a depreciation of the exchange rate. Some tests disputed the existence of a J-curve entirely (Rose and Yellen 1989).

thus of analyzing its international impact of on the distribution of income and wealth. The elasticity approach assumes that the increase in the size of output and trade which will result from devaluation is not underlined by any modification in the structure of production, or in the distribution of wealth. This implicitly postulates money as non-neutral to the size of production and aggregate demand, but at the same time neutral to its direction and composition, thus neutral to all various branches of production and to the pattern of consumption. In other words, cash-induced changes in the money relation can only impact the economy by proportionally scaling up or down aggregate variables such as total output or trade, but have no impact on particular trade flows, on their direction or composition, which remains unchanged. It thus results that the elasticity approach is also not equipped, due to its underlying assumptions, to account for Cantillon effects in international trade.

Second, the absorption approach to the balance of payments has sprung up as a critique of some elements of the elasticity approach, and it is kindred to the balance of payments approach to the determination of exchange rates. Critics argue that following a currency devaluation, “the percentage change in quantity [of imports or exports] is the result not only of the price change to which it is related, but also of many other price and income changes which are themselves direct and indirect effects of devaluation” (Alexander 1952, 266) Thus, the absorption approach extends the analysis from the external sector seen in isolation to the workings of the domestic economy as a whole; it emphasizes changes in real income and the domestic absorption of foreign goods as determinants of a nation’s balance of payments and exchange rate performance. It also posits that if the real income rises (or falls), real absorption will rise (respectively fall) as well. Consequently, whether the current account balance improves or worsens depends on the relative changes in these real variables, i.e. how much faster the modification of real income happens in relation to similar modifications in real absorption. If real income rises faster than absorption, the theory concludes

that exports must be increasing relative to imports, and that this will cause the national currency to appreciate. The baseline assumptions on which the absorption approach operates is that money prices are constant, in order for all variables to be real aggregated measures; thus, inflows and outflows of money can be considered as the involuntarily result of the particular configuration of these magnitudes.

The crucial element that the theory overlooks is that imports and exports are not undertaken unthinkingly, but that they depend entirely on price and entrepreneurial calculation, as merchants take into account the exchange rate, selling prices and costs, as well as anticipated changes in these variables, before undertaking a transaction. In fact, the purpose of imports and exports is nothing but the profit entrepreneurs can gain, by arbitraging price differences and production maladjustments, and satisfying consumers.

The Misesian approach to the balance of payments thus argues that “international movements of money are... not the effect, but the cause, of a favorable or unfavorable trade balance” (Mises 1953, 181). Therefore, a change in the relative prices of imports and exports of a nation may bring about fluctuations in both the exchange rate and the balance of payments, and can shift income and wealth from domestic producers and consumers to foreign producers and consumers. But these non-monetary factors, albeit playing a role in the short-run disequilibrium, cannot be considered co-determinants of the balance-of-payments (Salerno 2010, 161-3): a worsening of the ‘real’ terms of trade, unless translated into a change in the relative demand for the two currencies, will be a short-lived non-monetary disturbance, and the initial disequilibrium of the balance of payments will self-reverse. More importantly, however, because the absorption approach eliminates monetary factors from its analysis, it is fruitless for an analysis of the reallocational and distributional effects of monetary expansion on an international scale.

The theoretical corpus of contemporary studies of international trade and international money

is thus diverse and heterogeneous, but nevertheless held together by the underlying common assumption of money neutrality. At the same time, the discussion of money non-neutrality (concerning the effects of monetary policy on output or the evolution of the balance of payments) remains focused on aggregate aspects. Let us see now how contemporary economists deal with wealth redistribution in international trade.

3.3 EXPORT PREMIUMS AND REAL BALANCE EFFECTS

The financial crisis of recent years enhanced the preoccupation of contemporary trade scholars with the wealth effects of international trade and capital flows, in the context of increasing income and wealth inequalities. Modern international trade studies deal with wealth shifts in creditor-debtor relations among countries (Kraay and Ventura 2000), as well as with the wealth consequences of wage and factor-price equalization (Stolper and Samuelson 1941), of variations in the exchange rate (Baccetta and Wincoop 2000), or of a worsening of the terms of trade determining a balance of payments deficit (Ben-David 1993). Nonetheless, these analyses do not cover the arbitrary wealth redistribution effects that a cash-induced change in the money relation is bound to produce, given that the study of international trade remains confined to barter analysis. On the other hand, research on wealth redistribution within the study of international money (Das 2001; Obiols-Homs 2002) remains confined to the aggregate, mathematically elegant methods. Consequently, the examination of these wealth effects proceeds with the same old analytical tools—general price levels, real wealth, economic systems as a whole—and rests on the assumption of long-run money neutrality, envisioning the singular goal of macroeconomic stabilization (Power 1959, 131).

The more prominent results of these mainstream wealth distribution analyses are theories of real-balance effects, concept first established by Pigou (1943)—and thus also known as the Pigou effect—and Haberler (1946). The term ‘real-balance effects’ stands for the impact of a movement in the nominal price level or in the nominal money supply on the real value of household wealth

(Lloyd 1962; Gupta 1972; Hynes 1974), which in turn further affects consumption and output. According to these theories, individuals interpret changes in the general price level as changes in the real wealth that they possess, assuming they do not suffer from the money illusion. Aggregate demand for money, in turn, is considered a positive function of the real value of wealth (Power 1959, 131), while increases or decreases in wealth rise or respectively depress aggregate demand.

Unfortunately, the insight into these real-balance effects rests on a circular reasoning which in fact eliminates money from the analysis. As Arthur Marget (1966) explained, in the logic of real-balance effects, the demand for currency is in fact demand for real wealth, as individuals not suffering from the money illusion can translate their money balances into real terms. This aggregate demand determines in turn the general price level. However, in order for individuals to be able to deflate their money holding into real wealth, and decide on their demand for currency, they need a general price level to begin with, in order to grasp the real value of their resources in form of currency. Moreover, as Salerno (2010, 74-75) argues, equating money demand with the demand for products is equivalent to equating the utility of a cash balance to the utility of the products it can purchase. However, if the two utilities were equivalent, individuals would have no desire to hold currency instead of storing real wealth in other form.

Notwithstanding these issues, real balance effects are an important element of all the above-mentioned approaches to the study of international money, and they are often used by scholars in order to argue that a weak currency can promote the international competitiveness of a country (Dornbusch 1973; McKenzie 1977). For instance, according to the monetary approach proponents, given real-balance effects, authorities can correct a balance-of-payments disequilibrium via inflation or deflation, by adjusting the money stock to the underlying real income in terms of wealth (Frenkel and Johnson 1976). The elasticity approach argues for a similar monetary policy, in the case in which the decrease in the price of exports following devaluation can rapidly boost the

demand for exports (Robinson 1947; 1950). Finally, according to the absorption approach proponents, devaluation of a currency increases the general price level, which in turn, through the real-balance effect, determines the public to curtail consumption and investment in order to build up their real cash balances (Alexander 1952). This attends to the re-equilibration of the balance of payments by depressing real income, decreasing imports, promoting exports and reducing the deficit.

The discussion from previous chapters is useful now to indicate that these real-balance effects are theoretically sterile unless associated with Cantillon effects. As Salerno explains, “the very process by which the market adjusts the (positive or negative) excess demands for money of individuals necessarily revolutionizes wealth positions and the price structure” (Salerno 2010, 79). A modification in the money relation does not merely sink or elevate the general price level, and increase or decrease cash holdings, as these changes must irrevocably alter individual cash balances and commodity prices to different degrees and at different times, and redistribute wealth among market participants in the process.

Furthermore, proponents of currency devaluation fail to see is that its expected benefits are illusory, due chiefly to these distributional effects. What national exporters may gain from a weakening currency must be paid fully through shifts of wealth from other groups of the population. As pointed out above, the foreign exchange rate adjusts to its market parity before changes in the purchasing power of money have had time to permeate the entire structure of prices and production. Therefore, in cases of devaluation, the exchange rate will be the first to reflect the lower purchasing power of the domestic currency, and because of this, some exporters will constitute the first receivers of the new money. This means that “the commodities they market already fetch the new higher prices whereas the commodities and services they want themselves and, what is of particular importance, the material and personal factors of production they employ,

are still obtainable at the old lower prices” (Mises 1953, 214). This spread provides exporters with the so-called *export premium*; in this way, currency depreciation “function[s] like a protective tariff... assist[s] the export of domestic products... and benefit[s] the debtors, as well” (Mises 2012 [1907], 13). Other gains accrue to foreign importers and foreign consumers, who enjoy the benefits of a stronger currency that allows them to purchase cheaper goods from abroad.

However, this is only one side of the story, as some other groups of the domestic population will necessarily be disadvantaged once the commodities they market still command lower prices, while the prices of goods they want and employ has already risen. As Cantillon effects take their course in the market, the benefits accruing to exporters represent wealth being surrendered by the later (never) receivers of the new money. In Mises’s words, devaluation “can make some people more prosperous, but only to the extent it makes others poorer” (Mises 1944, 84). What is more, this boon for exporters cannot last indefinitely: once the structure of prices adjusts to the new money relation, the advantages of a devalued currency disappear. What exporters gained was “counterbalanced by losses that are borne entirely at home” (Mises 1953, 214), and traders now face higher prices for what they buy as well. The previously overvalued currency flows out of the country as payment for imports, and the balance of payments is in deficit once again. In other words, a currency devaluation policy must continuously decrease the purchasing power of money in order to maintain the promised benefits for exporters, since not a *weak* currency (with low purchasing power), but only a continuously *weakening* currency (with decreasing purchasing power) functions as an export premium.

In conclusion, real-balance effects or wealth shifts between creditors and debtors do not represent a complete account of the redistribution of wealth following changes in the money relation. As a result, we can conclude that contemporary studies of international money identify only some aspects of Cantillon effects, but do not grasp the entire host of consequences of monetary

expansion on production and trade. More importantly, this also means that these theories do not account for the most important cases in which such wealth redistribution crosses national borders: one such instance is, as we have seen, the case in which a policy of currency devaluation shifts wealth from domestic consumers and importers, to foreign consumers and importers, while encouraging domestic exporters and checking imports. We shall return more to these aspects in Parts II and III of this dissertation.

3.4 DOES 'MONEY MATTER' IN TRADE THEORIES?

In the first part of this chapter, our investigation has led us to the conclusion that the theoretical framework in which the pure theory of international trade is set does not allow for a satisfactory account of Cantillon effects. This unsettling realization undermines not only the adequacy of the pure international trade theory to explain economic phenomena, but also the conclusions of its welfare analysis. A comparison between two states (autarky and free trade equilibrium) of a fictitious barter economy will offer less reliable information about the pattern of trade, trade gains, and the scope of trade policy than a comparison between autarky and free trade in a monetary economy. Furthermore, the study of international trade and international money are both corroded by a set of assumptions (price levels, national stocks of money, single macroeconomic agents, instantaneous arbitrage, automatic equilibrium forces) which are facets of the money neutrality postulate.

We can reach now the conclusion that money 'does not matter' in the study of international trade, nor in the study of international money, in the sense that it does not represent a non-neutral element integral to the general economic market process, but rather a neural, separate element whose evolution (such as an increase in its supply) leaves the real economic phenomena and processes undisturbed in the long run—or, at most, it impacts these phenomena in a positive way. By contrast, the Misesian view of the international monetary adjustments, and thus of Cantillon

effects as an integral part of this adjustment illuminates some critical theory and policy issues that contemporary thought overlooks: first, measures that promote interference with the money relation in order to re-equilibrate the balance of payments are fruitless, given that this adjustment can proceed without any help from the monetary authorities. Second, they are necessarily disruptive, because they permanently alter the market structure of individual money prices. But more importantly, if devaluation policies were pushed to their logical limits, that is, to a constant lowering of the purchasing power of money toward zero, this end point would equate with what Mises called ‘the utter destruction’ of monetary unit. All these constitute important reasons why understanding Cantillon effects fundamentally changes not only the theoretical landscape, but also the welfare conclusions of international trade thought and its policy recommendations.

The first part of this dissertation has endeavored to analyze some key aspects of the development of international economics over the last centuries and the evolution of international monetary analyses—and thus the treatment of Cantillon effects—as part of this development. As we have seen in the first chapter, whereas the field of international economics witnessed a spectacular growth over the 20th century, these new contributions perpetuated the classical dichotomy first employed by Ricardo and Mill. This separation of the analysis of the real and the monetary sectors of the economy was later also adopted by contemporary thought, and international economics grew into two irreconcilable strands of theory: the pure theory of international trade and international monetary theory. Chapters 2 and 3 revealed the fact that contemporary economic thought omits any thorough discussion of the Cantillon effects of cash-induced changes in the money relation. What is more, contemporary monetary and trade theories appear to not be conceptually equipped to analyze the impact of monetary expansion on the allocation of resources, on prices, and on the distribution of income and wealth.

This study of the literature has however also underlined the importance of a complete account of Cantillon effects of monetary expansion in international trade. As our analysis of Mises's contributions has shown, Cantillon effects are central to a complete framework of analysis of international economic phenomena, in which monetary changes are integral to the general economic process. Furthermore, such a framework has important implications for our understanding of current events, such as changes in the structure of production and trade, redistribution of wealth or for business cycles. In the remainder of this thesis, we will further extend and apply this alternative framework and method of analysis—first sketched by Cantillon and later fully developed Mises—to an international level.

PART II
MONETARY EXPANSION AND
INTERNATIONAL TRADE

CHAPTER 4

THE INTERNATIONAL MONETARY AND FINANCIAL SYSTEM

The second part of this thesis investigates the relationship between monetary expansion and the evolution of international trade, sketching out a possible way to fill the gap in standard international economic analysis that we outlined in Part I. The research question underlying the next three chapters is threefold: how do monetary expansion and its Cantillon effects arise from the global monetary system, how are they transmitted from country to country, and what their effects on the flows of capital and merchandise across borders? This analysis builds on the most fruitful avenues for such an endeavor developed, among others, by Mises (1953, 1990[1938a], 1998[1949]), Hayek (1989, 2008), Salerno (2010) and Hülsmann (2008, 2013). However, I emend and extend the framework used by these authors to analyze the effects of monetary expansion on prices, the structure of production, and the distribution of wealth on a global level. To this end, in Chapter 4, I discuss the evolution of the international monetary and financial system before and after the ‘closing of the gold window’ in 1971. In Chapter 5, I undertake a theoretical assessment of trade finance under alternative monetary and banking systems in order to draw attention to the effects of fiat money and monetary expansion on the global financial infrastructure. In Chapter 6, I apply these theoretical insights to analyze the evolution of international capital and merchandise flows, and find whether monetary expansion and Cantillon effects explain the changes in the pattern of international trade over the last decades.

The purpose of the present chapter, Chapter 4, is to place our research in a contemporary historical and theoretical context, by summarizing an existing strand of literature that can be used as a point of departure for more detailed analysis in the subsequent chapters, and by highlighting the importance of the analysis of Cantillon effects in light of current economic issues and policies. As we shall see more in section 4.1, (international) monetary policies have engendered the very rapid

growth of the national money supplies over the last century or so. More importantly, after 1971 monetary expansion has become a global phenomenon made possible by central bank cooperation and the international fiat money standard. In relation to this, financial markets have also become the main channel through which these monetary policies exert their effects on global markets; therefore, in section 4.2, we shall examine the connection between financial development and international trade.

4.1 CENTRAL BANK COOPERATION AND GLOBAL INFLATION

Throughout the 19th century and up to the First World War, Western European economies experienced periods of a ‘golden age’ of classical liberalism and free trade. In spite of revolutions and military conflicts, an expanding international gold standard and network of trade agreements—whose foundational stone was the Cobden-Chevalier 1860 treaty between England and France—provided a sound economic basis for periods of peace among European countries, which allowed foreign trade to flourish on the continent as well as across the world (Daudin, Morys and O'Rourke 2008, 2). The more developed West became a standard of prosperity the majority of Eastern economies wished to attain by modernizing and industrializing their production structure (Berend 2000). At the beginning of the 20th century, however, liberalism was showing signs of weakness, and the world was slowly returning to government interventions and trade restrictions (Ebeling 2000), a situation which brought about, and worsened by, the onset of the First World War.

In the interwar period, trade, migration and capital restrictions proliferated. Most Western economies saw these economic measures as necessary compromises, given the political circumstances in Europe at the time. Nonetheless, as economic historian Alan Milward points out, “the inter-war experience imposed distinct limitations in practice on the ease with which trade, people and capital could flow across national boundaries” (Milward 2005, 161). The reason for this,

Milward argued, was the “constant tension in all Western European countries between, on the one hand, the widely accepted idea that in the long run prosperity depended on a return to more open economies with a relatively free multilateral system of trade and payments, and, on the other hand, the determination to reconstruct the economy and society in the way in which the purely national mandate for change demanded” (Milward 2005, 162). This inherent tension eventually “pushed [European countries] toward economic nationalism in their foreign policies” (Ebeling 2009, 171), and tipped the balance in favor of restricted foreign trade, and more interventionist policies. In Eastern Europe, the situation was even more severe, as “fundamental nationalism urged... a split with the Western dominated world system or even a total rejection of Western values and market capitalism” (Berend 2000, 315-16).

The goal of political independence became indelibly tied with that of economic independence, even though attaining peace in Europe would have required unhampered markets and a drastic fall in protectionism (Milward 2005, 165). World War I—as well as the following Great Depression—represented thus a turning point in European history, which marked the definitive departure from classical liberal ideas in favor of economic and political nationalism. The 1920s and 1930s “ushered in an era of economic planning, price and production controls, foreign-exchange regulations, restrictions on international trade, capital movements, and migration, and a flood of paper money inflations to cover the costs of war” (Ebeling 2000, xix). The idea of peace and international economic cooperation failed to grow any roots in the interwar Europe, and “the attempts... to recreate a multilateral framework for international trade... had not been very successful” (Milward 2005, 162). These latent conflicts among countries eventually boiled over in the Second World War.

After 1945, economists and policy-makers alike understood that political nationalism had been a recipe for disaster. At the same, they were not interested in returning to the golden age of

classical liberalism, a system which they believed no longer fitted the political and economic context of a war ridden Europe. Consequently, as Tumlrir and La Haye (1981, 372) point out, “it was generally accepted, even by the US government, that the postwar reconstruction of the European economies would have to be planned and closely controlled by their governments.” The ailing world could not be left to the market, but instead had to be cared for by the welfare state, as well as by intergovernmental organizations that would plan and manage international economic and monetary relations among states. At the same time, state central planning made an even more forceful return in Eastern Europe, which embraced full-blown socialism and slowly barricaded itself from the rest of the world, politically and economically. The anti-capitalistic mentality also swayed the majority of developing countries, which sought to achieve prosperity by renouncing free market principles.

In the second half of the 20th century, military conflicts returned to the international arena, against the backdrop of the Cold War. In reaction to real or imagined threats, the idea of a European Community became increasingly appealing, and brought about the creation of a free trade area and, later on, of a political and monetary union in Western Europe (Shanks 1971). Nonetheless, the trade and monetary policies of European member states have only been repackaged and shifted from national to union borders (Apolte 2010). At the same time, the United States needed heavy monetary inflation to fuel the Vietnam War and the Great Society programs of the Johnson administration. As the general expansion of money supplies and credit continued after WWII, Bretton Woods institutions were unable to reestablish a sound monetary foundation for international trade, and the Bretton Woods monetary arrangement collapsed in 1971.

Before we delve more into the particulars of the global monetary system after 1971, let us point out that the rationale and underlying assumptions of this new system and policies were not new or particular to this period. The importance of international central bank coordination and

management of the money supply had in fact increased gradually over 19th and 20th century, especially as economies had become more integrated in the international division of labor, and domestic monetary matters were no longer independent of the international monetary system.

During the pre-1914 gold standard, inflationary countries faced a high danger of an external drain of national reserves, and of a balance of payments crisis. These problems dated from the late 1880s, when price-deflation during the classical gold standard—and its impact on the debt burden—first provided the opportunity for an increase in central bank activity, and its role in issuing notes and monetary management (Flandreau, Cacheux and Zumer 1998). Moreover, as Flandreau and Galice (2003) also found, between the end of the 19th century and up until the First World War, investment banks in many European countries, with the blessing of their central monetary authorities, supported official foreign borrowers in Southern Europe and Latin America through overdrafts and funding loans. However, the ‘international problem’—i.e. the outflow of gold from the more inflationary countries and the balance of payments deficit—was also linked to the ‘reverberation’, or in modern terms, with the contagion of crises across national borders. At the heart of these problems, contemporary writers saw the issue of fixed exchange rates, which left countries vulnerable to foreign monetary shocks (Flandreau and Maurel 2001), precluded large sums of international borrowing, and did not allow them to fully manage their monetary affairs.

Thus, the prevailing opinion was at the time already in favor of renouncing the ‘golden fetters’ (Eichengreen and Temin 2013), whose international equilibration mechanisms was taxing for inflationary governments—although for a while, governments also implemented several fiscal and monetary restraints that involved deflationary pressures (Flandreau 2003b, 25). Eventually however, as Mises explained, “various governments went off the gold standard because they were eager to make domestic prices and wages rise above the world market level, and because they wanted to stimulate exports and to hinder imports. Stability of foreign exchange rates was in their

eyes a mischief, not a blessing” (Mises 2010b, 252). Renouncing the gold standard thus greatly enlarged the freedom of central banks to inflate money supplies, although some statutory limits on the extent in which they could contribute to enlarge government spending and depreciate the currency remained in place for the time (Flandreau 2003b, 27). International central bank cooperation also began to develop, although it remained in infancy for a while, because the role of lender of last resort had not yet been successfully appropriated by any institution or coalition of governments (Eichengreen and Flandreau 1994, Flandreau 1997).

It was the Genoa Conference of 1922 which provided the first important official meeting of central banks, which allowed them to cooperate more closely in reducing interest rates together and avoid the official devaluation of their currencies and a drain of funds. But during the interwar period, banks of issue still had to redeem their notes in gold (coins or bullion), and all foreign exchange reserves also remained fully redeemable, such that this important constraint of the classical gold standard was still present. After 1944, as far as fixed exchange rates⁴² remained in place—with gold or among paper currencies—, there still arose from time to time problems with the ‘international liquidity’ of countries that inflated more than others. As Mises explained to his students, “if the various governments and central banks do not all act in the same way, if some banks or governments go a little farther than the others... those who expand [the money supply] more are forced to return to the market rate of interest in order to preserve their solvency through liquidity; they want to prevent funds from being withdrawn from their country; they do not want to see their reserves in... foreign money dwindling” (Mises 2010a, 77).

⁴² As Walter Block explains, “under fixity, if one country inflates, it falls victim to a balance of payment crisis. If and when it runs out of foreign exchange holdings, it must devalue, a relatively difficult process, fraught with danger for the political leaders involved. Under flexibility, in contrast, inflation brings about no balance of payment crisis, nor any need for a politically embarrassing devaluation. Instead, there is a relatively painless depreciation of the home (or inflationary) currency against its foreign counterparts” (Block 1999, 19).

But the earlier monetary and financial innovations in central bank monetary management and international cooperation in these operations became increasingly more important at this time. In this regard, therefore, the Genoa conference paved the way for the Bretton Woods Conference of 1944 and the gold-exchange standard thereafter. It created the auspicious environment for inter-governmental solutions to this ‘international problem’, among which was the creation of an international fiat paper currency, issued by a global monetary authority (the Keynes Plan’s *bancor* and the White Plan’s *unitas*). While this would have been “the ‘ideal’ condition for unlimited inflation” (Rothbard 2009, 1018), the proposal turned out to be politically unfeasible, not least because negotiating the share of seignorage gains for each country would have become an insurmountable obstacle. As Mises explained, if such a paper currency and monetary authority were created, “under a system of world inflation or world credit expansion every nation will be eager to belong to the class of gainers and not to that of the losers. It will ask for as much as possible of the additional quantity of paper money or credit for its own country” (Mises 2010b, 254).

The more comfortable compromise between the two alternatives—a taxing international commodity standard, and a politically problematic international paper money—was found in 1971, when U.S. President Richard Nixon ended the convertibility of foreign central bank dollar reserves into gold.⁴³ Nixon’s decision to break any ties between money (dollars or other currencies) and gold had already become inevitable by that time in order to “stabilize” the dollar. That year became an important turning point in the history of the international monetary system: whereas global monetary relations had remained on a form of the gold (or gold-exchange) standard until then, after 1971 the international monetary system became totally fiat (Rothbard 2008a, 106). Second, and as a result, 1971 marked the ending of the characteristic feature of the Bretton Woods system—the fixed

⁴³ The US also instituted a 10% import surcharge on all foreign products, which forced the hand of trade partner countries to revalue their currencies against an overvalued dollar (Irwin 2012). Four months later, when the surcharge was lifted, foreign exchange rates had been artificially stabilized.

exchange rates—in favor of fluctuating fiat currencies, as well as the definitive departure from the specie standard type of monetary system. These changes had an ample effect on the international monetary system, in particular on the policies of national central banks and their international interaction: the world's major central banks began to “«coordinate» monetary and economic policies, harmonize rates of inflation, and fix exchange rates” (Rothbard 2008a, 111; emphasis in the original), and the European Union pushed forward its plans for a European paper currency.

Since then, trading nations have been moving toward an internationally flexible exchange rate regime.⁴⁴ The latter's main property is that “it allows the country to pursue independent monetary policy” (Frankel et al. 2004, 702), which means an accelerated monetary expansion—dubbed ‘independent price inflation targeting regime’—without many international repercussions⁴⁵, making it “easier for a country to manufacture its own economic crisis” (Fieleke 1978, 34). Murray Rothbard anticipated in 1962 that “pure fiat money on a national scale would serve almost as well [as a world paper currency]” (Rothbard 2009, 1018). And as Hayek explained, “with flexible exchange rates, the effect of an increase in the quantity of money on the internal price level is much too slow to be generally apparent or to be charged to those ultimately responsible for it” (Hayek 1979, 10). Nowadays, monetary expansion has become the commonplace policy of all national monetary authorities, although its presence and effects are not entirely recognized. Let us now discuss these aspects in more detail.

⁴⁴ Most governments can still intervene to influence currency values, while other countries remain tied in currency blocks. However, the latter no longer employ a hard peg, but a soft (crawling) peg: they allow their currencies to steadily appreciate or depreciate more than the anchor currency (Mishkin 1999, 2), so that domestic policy can accommodate lower or higher inflation respectively.

⁴⁵ Hayek explains: “the Bretton Woods agreement had tried to place the burden of international adjustment exclusively on the [budget] surplus countries, that is, to require them to expand but not to require the deficit countries to contract. It thus laid the foundation for a world inflation... Yet when the criticism [of fixed exchange rates] of the inflation-minded majority of economists succeeded in removing this last obstacle to national inflation, no effective brake remained” (Hayek 1979, 9).

The post-1971 new international monetary arrangement—sometimes dubbed Bretton Woods II—has been characterized prominently by managed floating exchange rates, and constant increases in the overall level of prices throughout the world. However, after few episodes of two-digit price inflation during the 1970s and early 1980s, the last three decades have witnessed low and steady rates of growth in consumer prices (Bordo and Wheelock 1998), which peaked before the financial crisis in 2008 (Ciccarelli and Mojon 2010, 1). The period between 1985 and 2006—called ‘the Great Moderation’ (Calderon and Schmidt-Hebbel 2009)—was deemed to be one of ‘monetary stability’ by most national central banks (Roger 2010, Hammond 2012).

This semblant evolution was well in accordance to the central banks’ new mandate after the 1970s to maintain ‘price stability’, i.e. to target a positive medium to long-term price inflation forecast. Since the 1970s, the U.S., Japan, United Kingdom, or the European Union, among other 28 OECD countries, have gradually opted for a variant of *price inflation targeting policy* (Rose 2006). Their number rose in recent decades, as emerging economies followed suit. Frederic Mishkin (1999, 2000) has argued that this regime was the most adequate choice for the welfare goals of any country after the collapse of the Bretton Woods system. According to Mishkin, inflation targeting allows central banks to pursue traditional stabilization policies (of output or employment), as well as structural reforms of labor and capital markets, while anchoring the value of the monetary unit to a steady, fully anticipated rise in the price level. This rise in the price level—which is interpreted as price stability (Dalziel 2011)—is defined according to the European Central Bank Mission Statement as “a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the Euro area of below 2%.” Similarly, the U.S. “Federal Open Market Committee seeks to foster maximum employment and price stability of 2% inflation... [with] a highly accommodative stance of monetary policy” (Federal Reserve Bank 2014).

The political and academic consensus underlying these definitions and policy choices has its roots in the monetary theories discussed previously in Chapter 2. In light of the long-run neutrality of money, when economic agents have rational expectations, scholars believe that measured inflation in the range up to 3% per year is reasonably ‘zero inflation’ (Goodfriend and King 2001, Kahn 2009). Thus, any monetary policy that keeps prices rising constantly around announced levels is considered neutral to relative prices and incomes,⁴⁶ capturing otherwise idle market resources, such as unemployed labor force.

To pursue this common goal, national central banks also use similar means. First, central banks select, based on estimates, a target range for price inflation, which is measured by a type of consumer price index (CPI).⁴⁷ On the basis of this target, they define the range for the reference interest rate, through which they attempt to steer actual price inflation toward the desired level: in general, anything lower than the targeted inflation floor of about 2-3% elicits a response from central banks to aid the ‘sluggish’ business activity with additional interest rate cuts.

In order to affect interest rates, central banks then manipulate the monetary base, mainly through open market operations, i.e. they modify the available supply of loanable funds with newly created money (Engelhardt 2014, 140). In recent years, Consumer Price Indexes peaked in 2008,

⁴⁶ The ECB argues that “under price stability people can recognize changes in relative prices without being confused by changes in the overall price level. This allows them to make well-informed consumption and investment decisions and to allocate resources more efficiently, reducing inflation risk premia in interest rates... [which] reduces real interest rates and increases incentives to invest” (ECB Mission Statement). Furthermore, a constant year to year price inflation is believed to prevent “an arbitrary redistribution of wealth and income as a result of unexpected inflation or deflation, and contribute to financial stability” (ECB Mission Statement).

⁴⁷ Measures of price inflation have changed over the years. Generally, CPI is still used in the majority of countries targeting inflation, but the indices vary depending on what central banks wish to see in their measurements. The EU uses the Harmonized Index of Consumer Prices (HICP), while the U.S. has gradually moved from the CPI, to the Core CPI, and now to the Personal Consumption Expenditure Index (PCE). Some argue that these changes in indexes are made such that official data reflect a particular narrative and usually underestimate the level of price increases. To give a similar example, a new index for the U.S. labor market was devised in 2014 – the Labor Market Conditions Index – that neglects the wealth-generating effect on newly created jobs, and focuses only on the number of people employed, hiring rate, or hiring plans (Shostak 2014).

with a 10-year high of 4.2% price inflation in the European Union, and 3.8% in the United States. The recession, however, brought about slower price increases, as European Union HICP measured 0.5% annualized change—and 0.4% in the euro area—in August 2014, while United States registered a 1.74% Core CPI, and 1.4% Core PCE annualized change in September 2014. As a result, reference interest rates were kept between 0% and 0.25% in many developed countries, and the deposit facility interest rate reached negative levels (-0.2%) in the Eurozone in September 2014.

The evolution of consumer prices paints, however, a very incomplete picture of the status-quo of monetary problems, and there are two major indications that the underlying economic situation is entirely different. First indication, as scholars have discovered (Smiech 2014), is that the last decades of price stability have nonetheless been characterized by a pronounced co-movement in commodity prices—especially in the more volatile food and energy sectors not included in CPIs. The price of oil, minerals, and agricultural commodities rose steadily from 2001 to 2007, peaked and plunged between 2008 and 2009, and reached a second high in 2011 (Frankel 2014, 89). For instance the price of cocoa doubled, and that of coffee and cotton tripled between 2005 and 2010 (Ncube et al. 2014). Two explanations were offered for this evolution: the growth of emerging economies such as China and India is stimulating aggregate demand, and/or prices move together due to speculation on futures and the financialization of commodity markets (Alquist and Colbion 2013, Kilian and Lee 2014, Areski et al. 2014). Thus, the international environment urged for a reconsideration of the targeted inflation indexes as a solution for these issues (Frankel 2006).

These explanations, however, omitted the fact that a synchronized general movement in commodity prices cannot be explained only by endogenous changes in the ‘real’ economy. If the demand for or supply of commodities varies, it can do so only in different degrees for each particular good. If the price of crude oil rises, *ceteris paribus*, some other prices must fall. Industrial fluctuations—which are the result of shifts in data (consumer preferences, technology, the supply of

labor and other resources, climate conditions)—necessarily bring about a shift in resources, which can never occur in all industries at the same time and in the same direction. Consequently, if all prices increase (or decrease) steadily, this can be due only to a change in the supply of the medium of exchange. As Rothbard explained, “if one price goes up and another down, we may conclude that demand has shifted from one industry to another; but if all prices move up or down together, some change must have occurred in the monetary sphere. Only changes in the demand for, and/or the supply of, money will cause general price changes” (Rothbard 2000, 6).

Therefore, a second indication of the genuine monetary status-quo—and the cause for the co-movement in prices—are the skyrocketing rates of growth exhibited by monetary aggregates in inflation targeting regimes. As a case in point, according to J.P. Morgan calculations, between 2008 and the fourth quarter of 2013, the ‘global’ money supply (M2 and M3 series for U.S., Japan, and Eurozone)⁴⁸ had increased by 21% and the global monetary base by 150% (J.P. Morgan 2013, 2). By August 2014, the Bank of England, Bank of Japan, the ECB and the U.S. Fed held together \$US 9 trillion in assets, or approximately 8.5% of global GDP (Yardeni and Quintana 2014, 3). For Japan, this meant a 47% expansion of the balance sheet since the financial crisis, and a 24% expansion for the other three monetary authorities (J.P. Morgan 2014, 9). The situation is similar in other countries, where “total assets held by central banks have roughly quadrupled over the past

⁴⁸ The monetary aggregate M2 (comprising currency, checking and savings accounts, as well as money market accounts) more than quintupled in the United States from 1980 to 2007, and as of April 2013, U.S. M2 totaled \$10.5 trillion. In the United Kingdom, M4 (the only published aggregate of the total money supply) increased over 6 times since 1984, reaching £2.2 trillion in 2010. In the Eurozone, since its creation in 1998, the M2 money supply increased from €3.5 trillion to €7.5 trillion in 2007, and €9.3 trillion in 2014. Even Switzerland—one of the most conservative countries in terms of its monetary affairs—has allowed its central bankers to roughly double M1 since 2008, to maintain an euro-franc peg established in 2011 (data are available from the St. Louis FED, series M2).

Nonetheless, “M” aggregates can be misleading measures of the money supply: M2, for example, includes money market instruments, i.e. investments which do not increase the money supply. The TMS (true money supply)—a more accurate measure of the money supply, defined by Rothbard (1978), Salerno (1987), and Shostak (2000)—yields, however, a similar and even clearer picture. For the U.S., annualized growth of TMS is estimated between 7.9% and 8.4% (8% in September 2014), 2 percent larger than the annualized growth in M2.

decade and stood at approximately \$18 trillion at the beginning of 2012, roughly 30% of global GDP” (Hofmann and Bogdanova 2012, 46).

Considering these increases, there is a visible large discrepancy between the levels of monetary inflation and the evolution of price levels targeted by monetary authorities. There are three reasons for these differences.

First and foremost, as we have repeatedly pointed out in the first part of the thesis, increases in prices do not reflect the increase in the money supply in a similar proportion. Prices for different goods change at various times, at various speeds, and to different extents, within and across countries. Consequently, statistical price averages such as the CPI, PCE, or the GDP deflator are

Table 4.1: Two year percentage change in asset prices and wages Source: J.P. Morgan Worldview 2013; data from Nov 2011 to Nov 2013.	<i>Wages</i>	<i>Property prices</i>	<i>Equities</i>
<i>United States</i>	4%	20%	46%
<i>Eurozone</i>	2%	-4%	45%
<i>Japan</i>	0.3%	-1%	77%

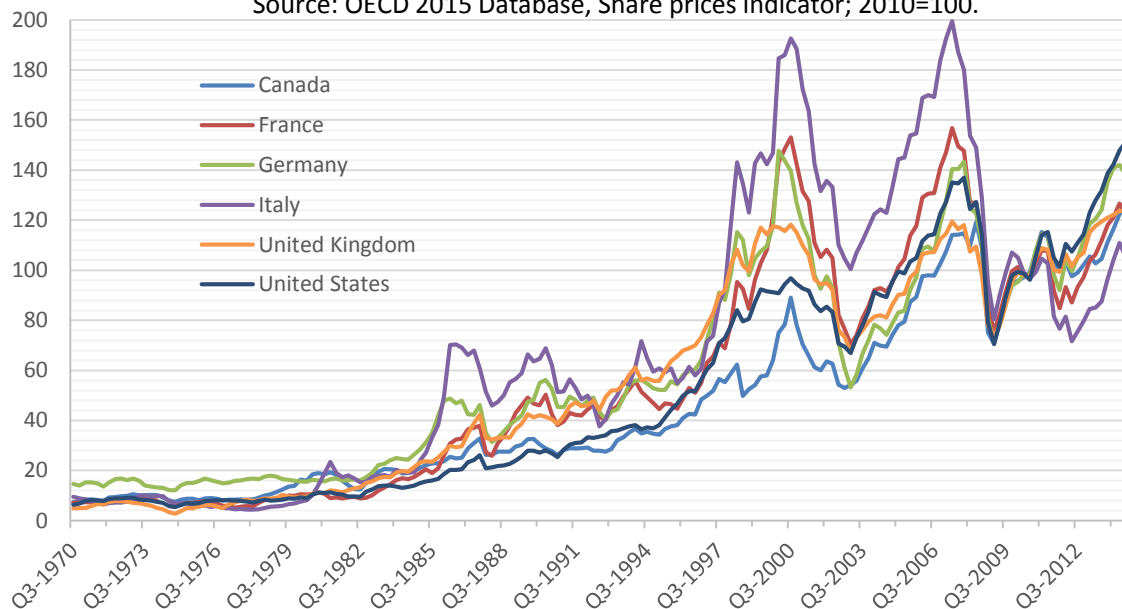
from the outset misconstrued to assess a change in prices overall, because they average an otherwise unaveraged array of variable price quotations.⁴⁹ From this point of view, indexes are at best approximate measures of the price effects of changes in the money relation, which do not possess, however, actual predictive or targetable qualities regarding such changes.

⁴⁹ The choice of the mean for such indexes is highly arbitrary, remaining at the subjective decision of the statistician (Salerno 2010, 443). Also, the weight assigned to each consumer price in the total average depends on the relative importance coefficient attached to every good. The differences between index numbers become clearer once we look at the concomitant evolution of the CPI, PPI (Producer Price Index) for finished goods, and the PPI for all commodities. For the U.S., while the PPI for finished goods fell between June 2008 and July 2009 from 9.9% to -6.9%, and the PPI for all commodities fell from 17.4% to -16.1%, the headline CPI was recorded at 5.6% in 2008, and fell only to -2.1%. The core CPI index—which further removes the volatile aspects of food and energy prices—recorded a remarkably low dampening of only 1% over the same year that marked the beginning of the crisis. In a similar manner, after 2009, the rise in prices is different among indexes: from 2009 to 2011, U.S. PPI for all commodities soared 27.2 percentage points—still not reflecting increases in asset prices (houses, art market)—while the (headline) CPI recorded only a 5.7% variation.

Second, increases in the money supply—via central banks’ open market operations—first enter credit markets, such that changes in the money relation first affect prices of financial assets and capital goods, i.e. financial and property markets have a quicker, ‘disproportionate’ reaction (Table 4.1). This is due also to market participants’ different abilities to anticipate inflation levels: capitalist-entrepreneurs are better at forecasting changes in the purchasing power than the rest of the population, whom adjust their inflationary expectations at a much lower pace. This unevenness notwithstanding, inflation indexes do not account for prices on capital markets, thus understating the actual depreciation of the monetary unit—or otherwise put, because new money reach asset prices first, consumer prices are no longer a reliable, comprehensive measure of the extent and impact of monetary expansion on the economy (Polleit 2005). As we can see in Figure 4.1 below, share prices in the biggest world economies have had a much more volatile evolution, increasing up to ten times their value in 1970.

Figure 4.1: Share prices, selected countries (1970-2014)

Source: OECD 2015 Database, Share prices indicator; 2010=100.



Third, but not least, measures of price inflation cannot distinguish between cash-induced changes in the money relation from the goods-induced changes (Salerno 2010, 453). For example, technological developments, supply shortages, foreign debt repayment conditions, as well as

variations in the demand for imports and exports can all put a downward or upward pressure on international and domestic prices. This means that in the final price quotations, cash-induced changes in the purchasing power of money can be compensated by various changes in the goods side of the economy, obscuring the true underlying growth in the money supply.

Summing up, because of these differences between the evolution of the money supply and that of consumer price inflation, the policy of inflation targeting conceals the real extent of central bank management of the money supply. This, in turn, permits monetary expansion to continue without public backlash regarding the rise in consumer prices. As Mishkin (1999, 21) acknowledges, “inflation targets increase the flexibility of the central bank... to loosen monetary policy without fearing that its action will trigger a rise in inflation expectations”. Furthermore, the domestic accountability of central banks for monetary inflation is reduced or eliminated in this way—accountability which is also diminished through legal tender laws on fiat money, and regulations of the banking and financial system, as we shall see more in the next chapter. In such a system, central banks are often allowed and urged to resort to monetary expansion, “on an unprecedented scale far beyond limits ordinarily thought prudent” (Goodfriend 2014, 2) in order to fight deflationary episodes during recessions.

Such domestic inflationary experiments occurred repeatedly throughout the 1970s (Fieleke 1978, Darby and Lothian 1983), but the era of global monetary expansion and inflation targetting dawned after 1980 in particular (Bowen and Mayhew 2008). Additionally, although intergovernmental cooperation had not been explicitly agreed upon,⁵⁰ and an international monetary

⁵⁰ Economists and politicians advised against official international cooperation in monetary policy, considering it would prove expensive and less rewarding than a network of fully independent, national oriented mandates for central banks. Some scholars argue, however, that monetary policy coordination has developed as long as central banks remained close to the Taylor rule(s) of optimal monetary policy (Taylor 1993). According to Taylor himself, the rule—which mechanically links the level of nominal interest rate pursued by the central bank to the deviations of inflation from its target, and of output from its alleged potential (the output gap)—, has not been observed by the Federal Reserve and other national monetary

policy did not officially exist (Bullard and Singh 2002, Clarida et. al 2002, Obstfeld and Rogoff 2002), the international monetary system altogether experienced world monetary expansion since then. This originated with the operations of multiple monetary authorities, and multiple commercial banks expanding circulating credit, as developing economies also tried their hand at ‘inflation targeting’. At the same time, national paper money currencies allowed for the benefits of domestic inflation to accrue to every government, without having to divide them through international agreements. Supported by international conditions and the system of floating exchange rates, countries slowly chimed with each other’s levels of monetary inflation (Mumtaz and Surico 2008, Mukherjee and Bhattacharya 2011).

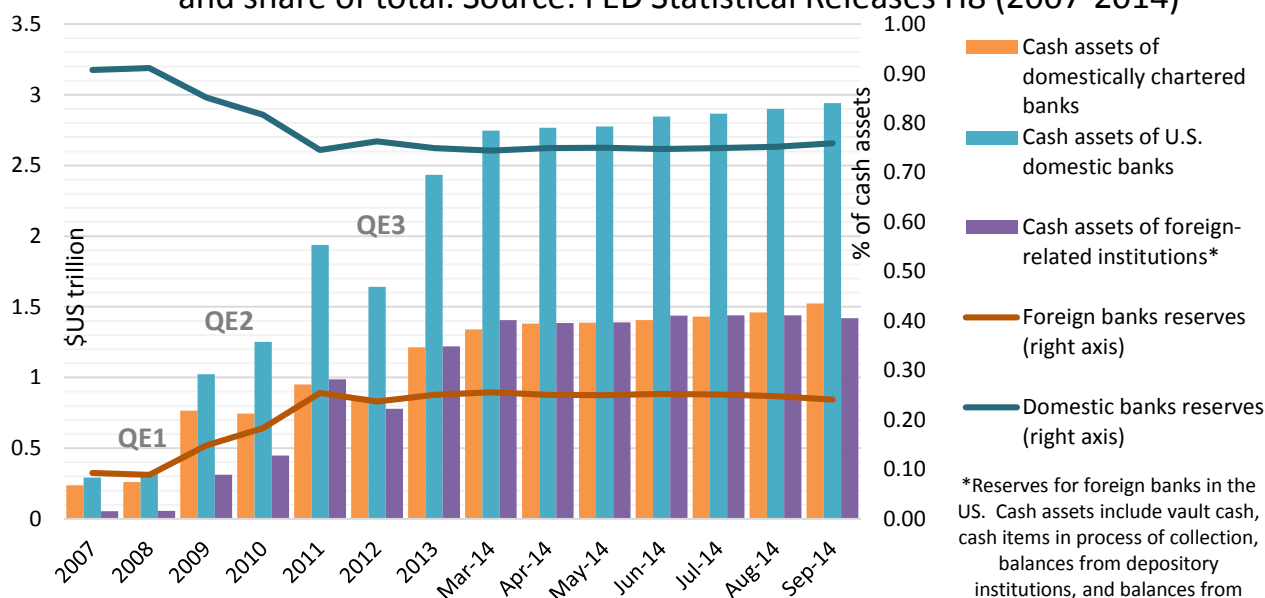
With low ebb price inflation, economic activity nevertheless waxed and waned every few years. For example, during the 1980s and the 1990s, as well as after 2000, European countries, Japan, or the U.S. have been aggressive—or ‘unconventional’—in their monetary policies (Hofmann and Bogdanova 2012, 37). This translated into large scale open-market operations that greatly increased the size of central bank balance sheets, and into capital outflows that sought higher interest rates in emerging economies. When monetary booms ended, countries entered financial crises, i.a. U.S. Savings and Loans crisis of late 1980s, Europe and Japan in early 1990s, Mexico in 1994, the Asian Crisis of 1997-1998, and the recent global financial crisis of 2008-2009⁵¹. In such cases too, central banks banded together, in their common goal to maintain

authorities since 2002, and their unconventional behavior thus led to the creation of the asset bubble (Obstfeld and Rogoff 2002; Clarida et al. 2002; Taylor 2013). For a critique of the rule and its implication for the financial crisis, cf. Machaj (2014). Others (Rey 2013) have argued that monetary policy dependence and coordination is the necessary byproduct of open and unmanaged capital markets.

⁵¹ These consequences of their policies, suggests Frederic Mishkin, were not acknowledged or anticipated by central bankers before 2007: “There was a general consensus in central banks about most elements of monetary policy strategy, and monetary policy was perceived as being highly successful in OECD countries, with not only low inflation, but also low variability of inflation... Monetary economists and central bankers were feeling pretty good about themselves. Then, starting in August 2007, the world was hit by what Alan Greenspan, former Chairman of the Fed, described in Congressional testimony as a *once-in-a-century credit tsunami*” (Mishkin 2011, 2; emphasis in the original).

whatever bubbles they had previously created (Gertchev 2013). As one recent example, according to the data released by the U.S. Fed (Figure 4.2), the three rounds of quantitative easing after 2007 provided much needed liquidity injections not only in U.S. domestic bank vaults, but also in foreign banks, an operation sometimes dubbed a ‘stealth bailout’ (McCauley and McGuire 2014). In absolute numbers, out of the \$US 1.3 trillion injection in 2013, approximately half went to large U.S. banks, and the other half to foreign insolvent banks. The cash-assets of foreign related institutions held by the Federal Reserve belonged in a great part to European banks’ US-based subsidiaries, whose share in total cash assets increased from 9.2% in 2007 to 24.1% in 2014. The Fed’s reason for this disproportionate liquidity injection in European banks was—among other things— propping up the euro-dollar exchange rate, thus depreciating the dollar and helping U.S.

Figure 4.2: US Federal Reserve cash assets by bank group, value and share of total. Source: FED Statistical Releases H8 (2007-2014)



exports. By ‘fortuitous circumstances’, once U.S. QE3 ended in October 2014 and the dollar began to appreciate, it was the turn of the ECB, soon after the Bank of Japan, to begin their own rounds of purchases of asset-backed securities. Therefore, regardless of the origin of the injection, commercial banks received the reserves they needed to keep expanding credit, and foreign exchange markets have been artificially stabilized.

However, these inter-bank agreements have also been tampered with (at least slightly) at the beginning of this year. A surprise move from Switzerland's central bank (SNB) sent European stock markets into panic during the second week of January 2015. Although a few months earlier, the Swiss public voted no in a referendum demanding the SNB keep higher gold reserves, they soon returned to a more traditional and rational stance in their monetary policies. With a €500 billion QE program coming from the ECB, and other economic and political conflicts in Europe, the Swiss bankers could see investors flocking to the safer assets in their economy. So they slightly closed the easy-money floodgates, and suddenly terminated the policy of pegging the franc at 1.2 per euro (an exchange rate ceiling), which they had maintained for the past three years, in which time their foreign currency reserves had more than doubled. In just a few minutes after stock markets heard the news, the value of the Swiss currency rose 30 percent, FTSE 300 dropped 2 percent, Wall Street futures turned negative, and the recent feeble rise in commodity prices was reversed. The morale of the story is that just one unanticipated decision of a central bank to move out of the market revealed how disconnected financial markets are from the real economy, how dependent they are on monetary expansion, and how crucial is the inter-bank cooperation for its continuation.

The situation is not much different for emerging economies. Many of them were affected by the same crises—e.g. Russia and Brazil during the Asian Crisis (Bordo and Landon-Lane 2010, 9), or more recently Turkey and Indonesia (J.P. Morgan 2014, 12). While the impact on these countries was somewhat different given a series of idiosyncratic factors (Mohan and Kapur 2014, 3)—e.g. the level of short-term foreign debt, and level of foreign reserves—the response of their central banks was similar to that of monetary authorities from developed countries. They either offset the outflow of capital with domestic credit expansion, in order to “prevent their currencies from rising and hurting exports” (Taylor 2013), or allowed a slight increase in government bonds yield compared to U.S. Treasuries, to attract more foreign funds as a buffer in case interest rates abroad were to rise

further, i.e. aligned themselves to the levels of global inflation, compensated its reduction and stimulated its growth with additional monetary injections.

Recessionary episodes have thus provided a learning curve for monetary authorities, leading toward greater coordination of inflation and credit expansion. They have also given rise to concerted international action to preclude global markets from adjusting after crises, nipping in the bud future capital outflows that could destabilize the fragile financial systems of inflationary countries and their trading partners.⁵² As Marc Flandreau argues, “international flows of expertise” (Flandreau 2003a, 3) on monetary management are part and parcel of international economic relations and capital flows. The fear that the failure to bail out troubled financial institutions will trigger the meltdown of financial systems in other countries impels governments to pool reserves on an international level. For instance, a network of swap agreements among central banks, IMF loans, great international bailouts in the 1990s (Bordo and Schwartz 1998), and cross-border credits in the European Union in 2010 (Higgins and Klitgaard 2014, 3) ensured that what remained of the danger of external drain of reserves was stamped out. This was an otherwise expected and natural outcome of a monetary regime in which the ties between national banking systems have increasingly tightened, and countries became dependent on each other’s continuation of monetary expansion. If the internal drain of reserves from one bank to another was dealt with by the creation of a national central bank, international cooperation and inter-governmental institutions stood as centralizers of central bank activity. It is plausible then to argue that international monetary institutions—designed

⁵² Marc Flandreau makes an interesting point regarding the beneficial effects of foreign loans on a country’s assets during an economic crisis, which relates to the idea of inter-governmental cooperation in periods of financial turmoil. Flandreau argues that this type of financial assistance is important because “the very heart of the crisis is an outflow of capital. The key notion here is that crisis lending may be profitable, either by mitigating the costs of an uncoordinated run, or in a more direct straightforward way: in global finance, a country is an asset whose price can be talked down or up depending on the perception of policy actions undertaken by the government as well as on the actual effects of these policies. Talking up a depreciated nation could become a profitable business, provided that one makes sure that “appropriate” (whatever is meant by that) policies will be undertaken” (Flandreau 2003a, 3).

to be “social insurance funds” (Bordo and Schwartz 1998, 45) which offered loans at lower-than-market interest rate, and with little conditionality attached—grew into lenders of last resort for countries (emerging or developed) which found themselves knee-deep in financial, debt, or currency crises.

Today, international monetary cooperation is still not as closely connected as many would want it to be (Frieden and Broz 2013, Taylor 2013), so there is an active ongoing call to reconsider the benefits of inflationary spillovers, and recalibrate international monetary and fiscal cooperation. For example, a recently published IMF study argues that “the GDP effects of any given country are considerably larger when all countries implement stimulus [monetary expansion] simultaneously... compared to one country implementing its stimulus program in isolation” (Benes et al. 2013, 24). In other words, scholars admit, while disproportionately high domestic inflation might still lead to an increase in foreign debt, depreciation of the exchange rate, and worsening of the balance of payments, monetary coordination for high levels of expansion among countries is conducive to lower debt-to-GDP ratios, and more equilibrated balances of payments. Scholars then ask for more global policy coordination in response to the ongoing financial turmoil: “the global recession now under way calls for a coordinated policy response. It means expansionary monetary, credit and fiscal policies in all industrial countries. Many are now adopting such policies. Developing countries should also be part of the solution, and should adopt equally expansionary policies, individually and in a coordinated way” (Griffith-Jones and Ocampo 2009, 15).

A larger role of the IMF (Weiss 2008) is also envisioned in the international monetary and financial architecture, arguably because “the creation of a meaningful and truly global reserve currency could... overcome both the inequities but also the instability that are inherent in a global reserve system based on a national, or a few national currencies... [and] provide counter-cyclical official liquidity to developing countries... IMF [should] lend during balance of payments

crises rapidly, at sufficient scale, and without overburdening borrowers with the conditionalities of the past, particularly when the sources of the crisis are exogenous, such as a rapid reversal of capital flows and/or a sharp deterioration in the terms of trade” (Griffith-Jones and Ocampo 2009, 14).

According to one account, in the first decade of the 20th century, the Italian finance minister called for a peace conference in Hague that would end “the war of central banks”, i.e. eliminate the international mechanism that prevented governments from accelerating inflation and credit expansion at will⁵³ (Mises 2010a, 79). While the said conference never took place, its results have nonetheless appeared, as globally coordinated monetary expansion is a reality of the present international monetary system.

4.2 FINANCIAL DEVELOPMENT AND INTERNATIONAL TRADE

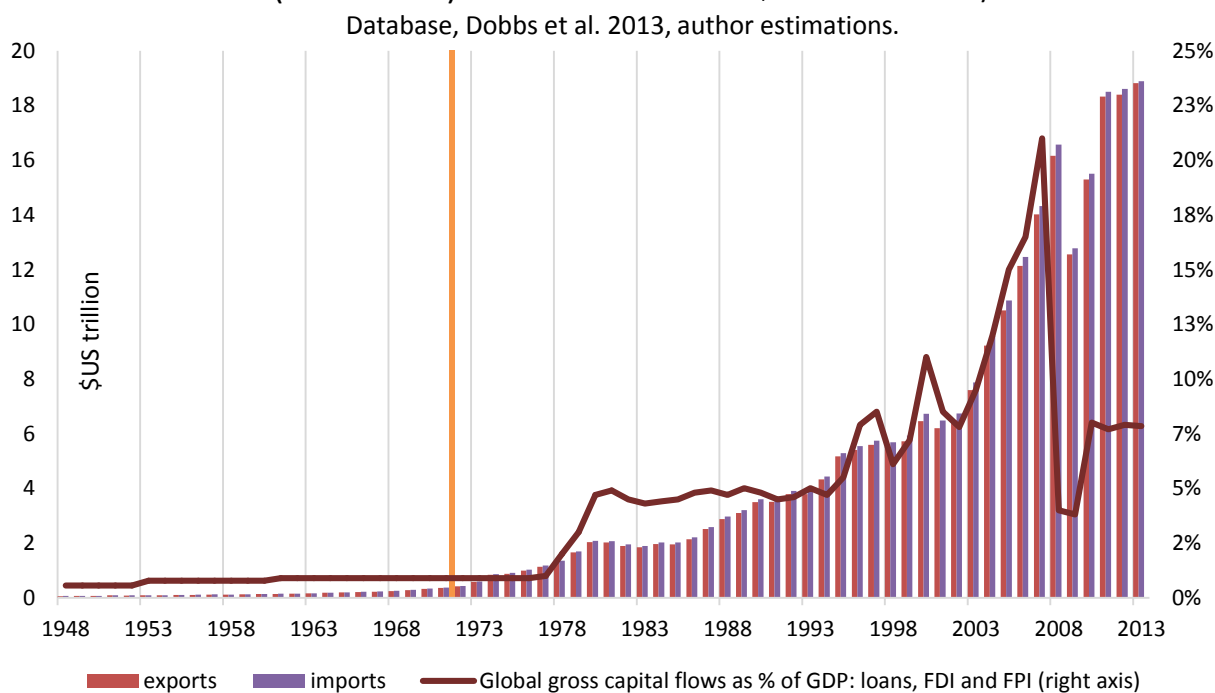
After the Second World War, the General Agreement on Tariffs and Trade⁵⁴ had been somewhat successful in convincing countries to lower their barriers and open their borders to merchandise and capital flows. However, although tariff barriers decreased, alternative economic restrictions—non-tariff and red-tape barriers, financial regulations, or environmental and health standards—mushroomed after 1970 to compensate for these reductions. Since then, the international trade system only continued this trend: multilateral wars on terror eroded relationships among countries of the world, while recurring economic crises opened wide the gates for more government control of markets and trade flows. Compared to the pre-1914 era, the economic importance of nations in international trade increased over the course of the 20th century, “as a consequence of government intervention, either in the form of tariffs or other barriers to geographic trade, or some other form of monetary intervention” (Rothbard 2009, 1102).

⁵³ Mises was most likely referring to Luigi Luzzatti, who served as the Italian minister of treasury between 1903 and 1906, and as Prime Minister between 1910 and 1911. His credit expansion policies were instrumental in bringing about the 1907 Italian Stock Market Crash (Tusset 2012, 18).

⁵⁴ GATT was signed in 1947, and was replaced in 1995 by the World Trade Organization.

In this context, the last century was unexpectedly marked by repeated surges in private capital flows across national borders, and by a tremendous growth in international merchandise trade. Around the First World War, and until the Great Depression, cross-border capital investments went mainly toward European settlements to finance public sector budget deficits. After the Second World War, however, the growth in international capital flows was fueled first by cross-border bank lending, and then by a surge in private portfolio flows and foreign direct investments to almost all

Figure 4.3: Total merchandise trade value and global capital flows (1948-2013). Source: WTO Time Series, IMF Balance of Payments Database, Dobbs et al. 2013, author estimations.



areas around the world (Quinn et al. 2011, Lund et al. 2013). Despite a resurgence of protectionism and capital controls in the postwar period, the steady upward trend in the value of cross-border capital flows was maintained after Bretton Woods and reached record levels after 1971 (Cali et al. 2008). As can be seen in Figure 4.3, global capital flows reached \$US 11.8 trillion in 2007—22% of world GDP—up from \$US 0.5 trillion between 1948 and 1980, as estimated by Dobbs et al. (2013). Out of these, the Euro area capital flows experienced the most spectacular evolution over the last decades: intra-Eurozone gross capital flows increased from less than 10% of GDP in the early

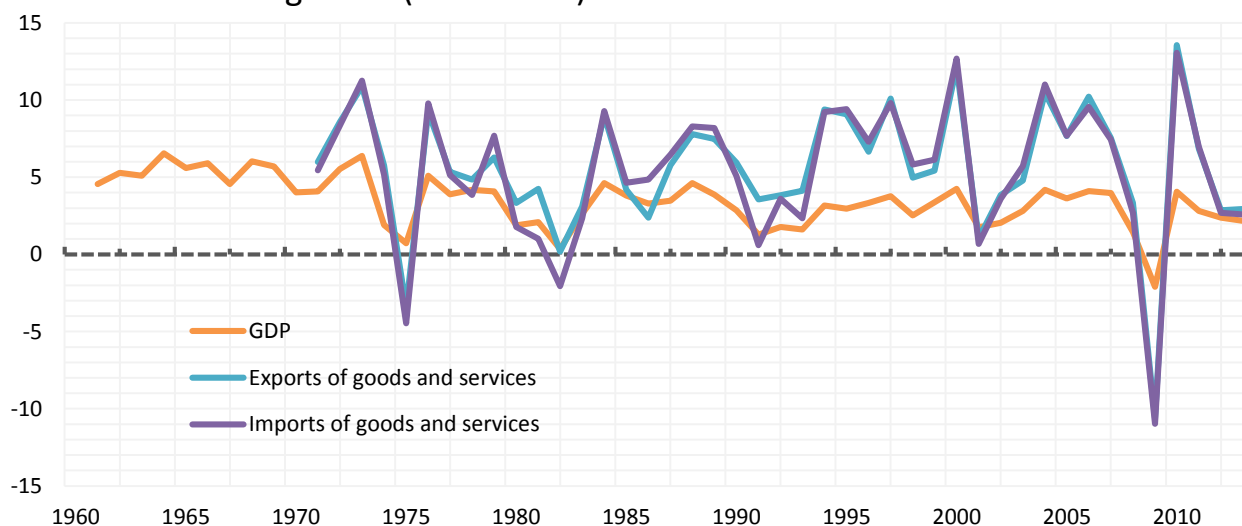
1990s to approximately 43% of GDP in 2007, far above any other developed nation (Milesi-Feretti and Tille 2010).

This development was mirrored by the increase in world's financial assets—from \$US 12 trillion in 1980 to \$US 206 trillion in 2007, i.e. an increase from 120% to 355% of global GDP (Lund et al. 2013, 2)—as well as merchandise trade, where exports increased from approximately \$US 317 billion in 1970 to \$US 2.1 trillion in 1980, \$US 6.7 trillion in 2000, and \$US 18.9 trillion in 2013 (that is from 20% to 35% to 39% and respectively to 49% of world GDP). According to some optimistic estimates (Buitter and Rahbari 2011), global trade is expected to increase up to \$US 287 trillion by 2050, a share of no less than 86% of world GDP.

The causes and consequences of this growth have been long disputed issues, especially in relation to the impact of globalization on income growth and income inequality in both advanced and developing economies (Wood 1994, Krugman 1995, Corden 1997, Dollar and Kraay 2001, Alderson and Nielsen 2002, Redding and Venables 2004, Milanovic 2007). Two types of factors are usually given as standard explanations of the increased commercial and financial integration. First, technological factors such as improvements in transportation, communication, falling costs (information search or currency exchange), or innovation are considered to encourage firms to trade or internationalize their production activities. Second, political factors such as tariffs, quotas, trade agreements, or tensioned geopolitical relations are attributed equal importance in impeding or encouraging trade and capital flows across the globe (Krugman 1995, 338). However, the tremendous growth in trade and capital flows can only partly be attributed to such non-monetary factors, while two important features of this development remain unexplained.

First, as can be seen in Figure 4.4, the evolution of international trade has broadly mirrored that of world output. Yet after 1970, the increases and declines in global trade have been disproportionately larger than those in world GDP. The trade to output ratio has been constantly increasing since WWII, and has accelerated over the last 30 years (Dean and Sebastia-Barriel 2004), having tripled since late 1970s. The average ratio peaked at 2.4 in 2000, and after the recent crisis fell to 1.7 as of 2013. Scholars have tried to argue that structural factors such as global supply chains, the particular composition of world trade, or non-tariff protectionism have been partly responsible for this erratic evolution. However, there is a growing consensus that the phenomenon cannot be entirely and satisfactorily explained by these factors, mainly because their evolution has been on a steady upwards trend, while that of global trade has been much more erratic.

Figure 4.4: World GDP, exports and imports, annual percentage growth (1960-2013). Source: World Bank Database.



Second, and related to this, the extent of the contraction in world trade in 2009—dubbed the “Great Trade Collapse” (Baldwin 2009)—surpassed even the most pessimistic expectations. According to WTO data, the volume of world trade decreased by 12% in 2009, more than double that of world GDP, which declined by approximately 5% over the same year. But more importantly, the trade collapse of 2009 surpassed all other previous episodes in severity—trade declined by 7%

in 1965, 2% in 1982, and only by 0.2% in 2001 (Vaubourg 2014)—including the trade contraction during the 1930s depression (Almunia et al. 2010). However, there had been no major change in technological or political factors after 2000 to warrant such a volatile evolution of global trade.⁵⁵ International transactions were hampered by trade customs, especially by expensive non-tariff barriers, before, during, and after the first decade of the 21st century. Protectionist policies, on the other hand have not escalated to a similar extent that would justify the 12% fall in trade volumes during the most recent crisis (Henn and McDonald 2011). Similarly, trade costs have also fallen only by 8% as a share of total import costs between 1970 and 2002 (Dean and Sebastia-Barriel 2004, 314), while transportation and communication technology, as well as global supply chains or the composition of trade have experienced only incremental changes since 2000 (Disdier and Head 2008, Arvis et al. 2014). However, as we have seen above in Figure 4.3, global trade expanded by \$US 5.83 trillion in only 3 years after the most recent financial crisis.

Having established that traditional explanations for the increase in the volume and value of world trade no longer fit the status-quo of the international trade system after 1971, trade scholarship reoriented its attention toward the link between trade and financial markets, especially toward the effects of financial openness and financial integration (Clark and Wincoop 2001, Heathcote and Perri 2002, Inklaar et al. 2008, Crucini et al. 2011). Part of this focus has also been placed on the role of commercial and financial linkages in synchronizing business cycles between countries, i.e. cyclical co-movements of output growth, current accounts, and net exports (Baxter 1995, Baxter and Crucini 1995, Kim and Roubini 2008), as well as correlations between

⁵⁵ One partial explanation was the abovementioned rise of global supply chains – within which intermediate goods cross borders more times than they did in a world where most stages of production took place within one country. This is one reason why trade volumes decline more sharply than output during downturns and why trade accelerates faster than GDP when the economy picks up. Scholars agree, however, that the fall has been too large to be explained entirely by industrial organization factors (Alessandria et al. 2010, Altomonte et al. 2011).

globalization and real shocks (Kose et al. 2003, Coeurdacier et al. 2009), price inflation dynamics (Cooke 2010, Mumtaz and Surico 2014), and income inequality (Lim and McNelis 2014).

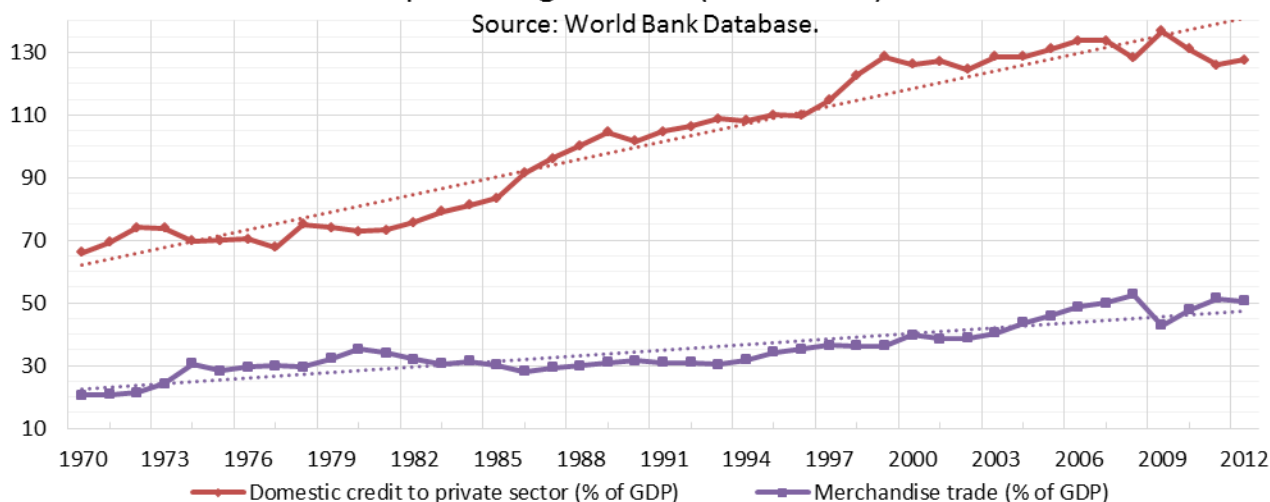
The causal link between financial development, integration, and international trade had been occasionally explored ever since Bardhan and Kletzer's 1987 seminar paper on credit markets and the patterns of international trade. In this article, the two scholars argued that, in a Heckscher-Ohlin framework of two countries with identical factors endowments, the relatively more financially developed country has a comparative advantage in producing "processed goods requiring more working capital, marketing costs, or trade finance" (Kletzer and Bardhan 1987, 58). A somewhat similar causal link was put forward by Baldwin (1989), who argued a trade sector that it is likely to face large demand shocks in international markets is favored by financial development because better, more integrated financial markets allow for better risk diversification. Subsequent studies have added other reasons for which the growth of financial markets, and their increased international integration can lead to increased international trade: Beck (2002) found that financial markets concentrate investments more into the trade sectors likely to incur economies of scale—such as high technology manufacturing—and less in sectors with constant returns to scale such as agricultural sectors. Susanto et al. (2011) further found that financial development will impact both the fixed and the variable cost of trading firms, but that the overall increase in trade flows will vary depending on the type of firm, the trade sector, as well as countries' trade profiles.

Some studies have also shown a strong causal link of *opposite* direction: from the degree of trade integration toward financial openness and development (Cripps et al. 2007). From an economic perspective, Do and Levchenko (2007) argued that trade liberalization brings about an increase in the demand for finance from countries with financially intensive exports, which in turn induces financial development. From a political perspective, Rajan and Zingales (2003) argued that trade liberalization increases incentives for private interests to favor financial deregulation and

international integration. In this light, they interpreted the low levels of global trade and financial integration between 1913 and 1980 as a result of the political climate of protectionism prevailing at the time. Finally, other studies explored a potential bilateral causality between the development of financial markets and that of international trade. Pham (2010) found that financial markets increase with trade and financial openness, which in turn are fostered by financial development. Ju and Wei (2011) argued for an institutional explanation: countries with already developed financial institutions can easily improve the level and efficiency of financial intermediation, which will lead to increases in output and trade; for other countries, however, where institutional change is more difficult, production and trade—given factor endowments—will eventually determine the level of financial development and international integration. Nonetheless, Svaleryd and Vlachos (2002) have disputed this causality, arguing that finance and trade simultaneously influence one another through the two-way feedback between trade openness and risk sharing.

Similar trends in the evolution of financial development and international trade were also observable in a quick comparison of their shares in global GDP. As seen in Figure 4.5 above, financial development (with domestic credit to the private sector used as proxy) and merchandise trade have both been on an ascending trend as a share of GDP since 1970. Merchandise trade

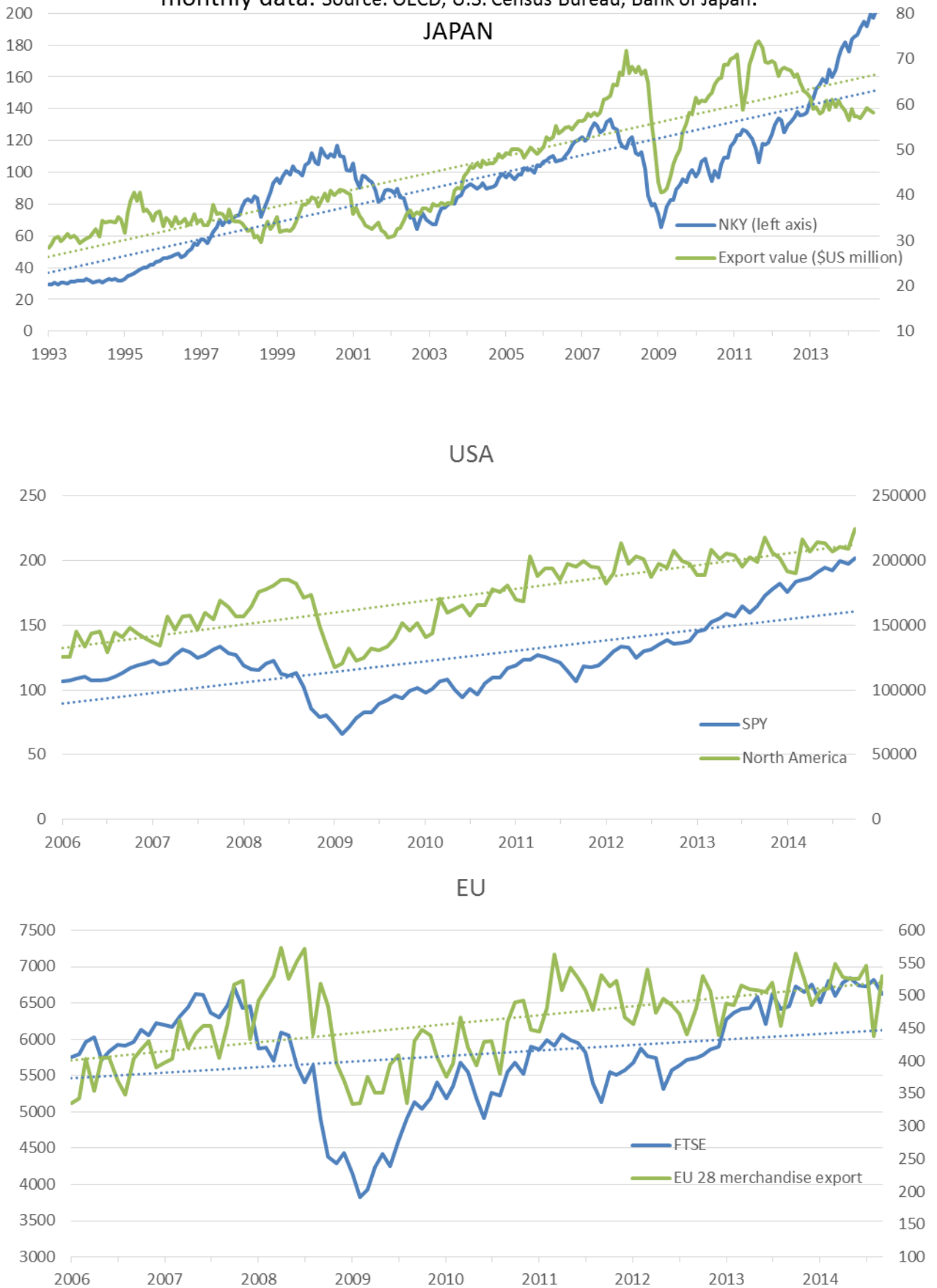
Figure 4.5: Global financial development and international trade as percentage of GDP (1970-2012)



increased from 20.7% in 1970 to 50.6% in 2012, after dropping to 43% in 2009. The ratio of domestic credit to GDP has also increased from 66% in 1970 to 133% before the financial crisis, but has slowed down or even decreased after 2009. The similar evolution of trade and financial development offered a previously neglected inkling into why financial crises were in recent years synchronized with international trade crises, and scholars argued that trade collapses are due to supply-side shocks, i.e. the credit crunch affects finance for trade activities (Ahn et al. 2011), as well as to more classical demand-side shocks, i.e. when the overall slowdown in economic growth dampens international demand (Kiendrebeogo 2013).

The fact that international commercial relations should thrive apace with the development of the financial infrastructure is an expected outcome of the natural role financial markets would perform in a free society. As we shall see more in the next chapter, in a natural financial order, financial markets improve the use of savings, and encourage additional saving of the population, in this way contributing to facilitate production and exchange. The international trade system in particular benefits from the intermediation of the financial system, given the geographical and informational distances between trading partners, and the risks involved in an international transaction. Even so, however, the two-way feedback between trade and financial markets is not a sufficiently strong explanation for their unusually rapid growth, which is also unexplained by technological and political factors. So why did financial markets and trade flows grow as fast they did in the first place? And why was the boom and collapse of trade (and financial markets) largely synchronous across countries?

Figure 4.6: Stock market returns and merchandise exports, monthly data. Source: OECD, U.S. Census Bureau, Bank of Japan.

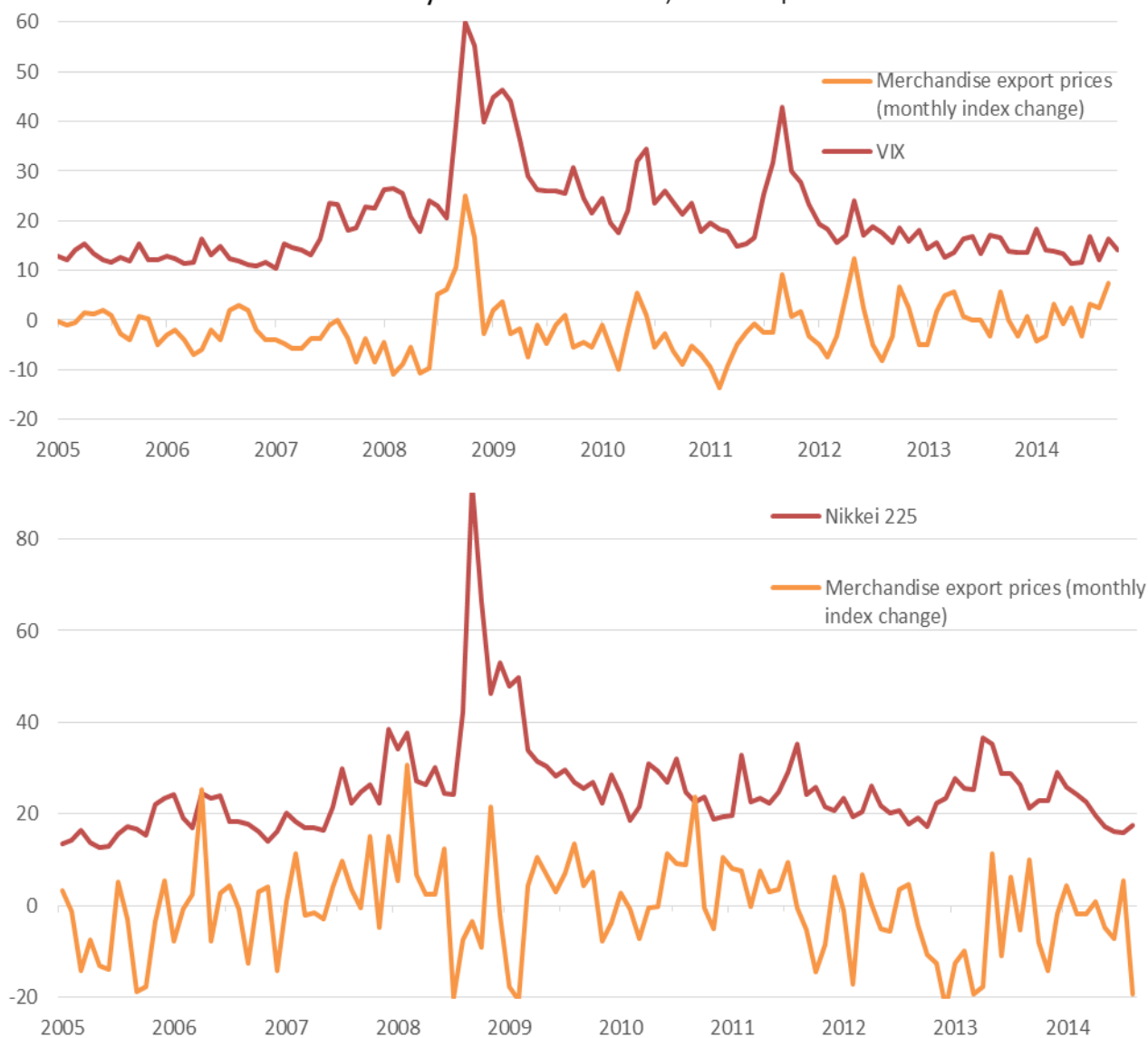


A more adequate answer lies in the expansion of the money supply. Monetary expansion, as we have seen in the section above, leads to the growth of asset prices, and thus of financial markets. Because international trade responds to this financial growth, the evolution of both trade and financial markets can then be linked to the same underlying monetary cause. A first indication of this relationship between trade and financial markets, and the money supply is the correlation between the evolution of merchandise exports and that of stock market returns. Figure 4.6 shows the evolution of stock market returns and that of export volumes for the world's three most important stock markets (Tokyo, New York, and London) as well for the most important global capital and trade hubs (Japan, USA and EU). The correlation between the value of exported goods and that of financial assets has increasingly strengthened as countries lowered some of the trade and capital barriers after the 1980s, but especially as the degree of financial integration and trade connection surged during the last decade. More importantly, however, this has occurred together with a lowering of the interest rates through monetary policy: for Japan, interest rates have artificially dropped from 3.3% in 1993 to 0.5% at the end of the 1990s. All three central banks—Bank of Japan, the US Fed and the European Central Bank--have lowered the interest rates toward the zero-bound after 2009. As a result, trade has also become more sensitive to the ups and downs of financial markets—spurred by the artificial reduction of interest rates—than to those of global production.

Perhaps a better inkling into this relationship can be further provided by the volatility of asset price changes—which, as shown in previous chapters, are most sensitive to changes in the money relation—and the volatility of export price changes (Tauchen and Pitts 1983, Fung et al. 1995). In Figure 4.7, VIX (S&P 500 volatility index) and the export price index for U.S. exports have a highly correlated monthly evolution between 2005 and 2014. Similarly, the evolution of Nikkei 225 (N225 volatility index) and that of Japan's export price index are positively correlated

for the period between January 2005 and November 2014. Furthermore, firms that are either exporters or are globally engaged experienced sharp fluctuations in their sales, profitability and growth prospects throughout this period, which were also correlated to the volatility of financial markets, as well as with their dependence on foreign funding and foreign capital markets (Lin and Huang 2014).

Figure 4.7: Merchandise export prices and financial market volatility. Source: St. Louis FED, Bank of Japan.



In the coming two chapters, we will explore in depth this connection, first by offering a theoretical assesment of why and how monetary expansion and the subsequent financial development affect international trade, and then applying this assessment to analyze foreign investments and portfolio flows, as well as trade flows by sector and geographical pattern. Such a detailed analysis is warranted because the effects of a change in the money relation are visible in the volume and value of international flows of capital and merchandise, but also underlined by changes in the direction and composition of flows. As we shall see, for example, as a monetary and financial boom leads to disproportionate investment in and production of capital goods, the volume of capital flows and the share of capital goods in total merchandise trade also experience a comparatively disproportionate growth.

CHAPTER 5

FIAT MONEY AND INTERNATIONAL TRADE FINANCE: A THEORETICAL ASSESSMENT

As mentioned in previous chapters, the international trade system can benefit from the intermediation of the financial system, given the geographical and informational distances between trading partners, and the high risks involved in an international transaction.⁵⁶ Over the last century, however, trade has become virtually dependent on financial intermediaries and the so-called ‘easy money policies’ of monetary authorities. This has allowed for the international monetary system to become a pervasive and ever-growing vehicle for government intervention in international trade, intervention whose social and economic consequences are now felt on a global scale. Furthermore, because monetary expansion is a habit-forming policy, the institutionalization of fiat money and the expansion of bank credit has changed the landscape of international business. Entrepreneurs tend to rely almost exclusively on bank loans and insurance to finance and support their international ventures, because this provides them with a financial edge in global markets, more profitable and easier to obtain than a conventional commercial advantage over one’s competitors.

These issues lie at the core of the changes in the pattern of international trade, changes which are the result of the differential effects of monetary inflation on global prices, production, and wealth. It is here that a correct understanding of Cantillon effects proves to be analytically useful in correcting and complementing existing theories and explanations of global trade and capital flows phenomena.

To illuminate these aspects more, let us undertake in this chapter a comparative counterfactual analysis of trade finance in commodity and fiat money systems, as well as a brief

⁵⁶ Export and import transactions usually take a longer period of time before completion when compared to domestic exchange; additionally, carrying out international trade involves, apart from commercial risk (nonpayment, nonperformance, bank failure) also political risk (war, riots, civil commotion, currency devaluation). Cf. Beck (2003).

analysis of the scope and effects of government trade finance activities in different monetary systems. We will conclude with a detailed step-by-step analysis of the transmission of monetary expansion at a global level and its differential impact on prices, production, trade, and wealth.

To begin, let us first sketch some of the main characteristic of finance in general, and of international trade finance in particular. The process of financing human activities may be divided into two main classes: (1) self-finance, where the source of funds is personal past revenue, and (2) interpersonal finance, where one person's savings finance the activities of another person (Hülsmann 2014a, 6). Interpersonal finance can further take two forms: cash hoarding and financial exchange. In the former case, the increase in the purchasing power following the increase in cash balances generates a tendency for prices to drop, and lowers the market money rate of interest through a negative purchasing power premium, sometimes combined with a lower level of time preference. In this fashion, savers can signal entrepreneurs that the circumstances of available capital enable them to embark upon longer and more roundabout production processes. In the latter case, financial intermediaries can expedite and facilitate the process by concentrating the savings of the population and further provide funding for entrepreneurial ventures in a cost-efficient manner. As Hülsmann (2014a, 7) explains, in many cases, "financial claims... provide greater services to savers, and to the users of savings, than all other forms of using one's income. Financial markets therefore tend to encourage additional savings and to improve the use of available savings." On an international level, self-finance and community cash hoarding remain viable options to obtain savings to fund international entrepreneurial ventures. Notwithstanding, trade-related frictions—i.a. commercial and political risk—make capital more difficult to acquire, and firms have to weather these perils on their own (CGFS Report 2014, 4).

In this regard, bank-intermediated trade finance allows international firms to shift a large part of the nonpayment and nonperformance risks to their banks (Asmundson et al. 2011, 102), and

obtain capital at lower costs than available from non-bank investors or trade partners (Chor and Manova 2010, 1). Banks generally issue and pay letters of credit as part of inter-firm trade credit transactions, i.e. transfers of goods between trade partners without advance or immediate payment (open account transactions, where goods are shipped in advance of payment, or cash-in-advance transactions, where payment is made before shipment). They offer *trade loans*, which compared to domestic loans are special insofar as they are conditioned upon the production, sale, and purchase of goods across national borders (Ahn 2011). Financial institutions also offer firm-level information about trading partners, as well as insurance for international transactions⁵⁷, which in turn enhances traders' credit worthiness. Last but not least, because bank-endorsed collateral is easier to verify, pledge, sell, and hedge on the market, financial institutions simplify and expedite the payment of international transactions (Dinh and Hilmanson 2013).

Given that the financing process is realized in a more expedient manner through financial intermediation, many scholars believe that financial markets are indispensable for the international division of labor. They argue that "well-functioning financial institutions are necessary to support the global exchange of goods and services... [and] strong banking institutions are crucial for firms' abilities to finance their international activities" (Manova 2013, 1-5). Nevertheless, from the perspective of both savers and users of savings, there are no significant differences between cash hoarding and financial investments (Hülsmann 2014a, 6), as both have the same effect of concentrating resources released by savers into the hands of entrepreneurs.⁵⁸ The choice of means to achieve this resides with the client as well as with entrepreneurial judgment of future market

⁵⁷ In exchange for a premium for bearing the default risk, a trade credit insurer promises to indemnify a seller if a buyer fails to pay for the goods or services he has purchased (Morel 2010, 4).

⁵⁸ According to Hülsmann, differences spring from the contractual origin of financial claims, which "puts the citizens in charge. The citizens in their capacity as savers control the overall volume of financial markets. They also choose the immediate users of their savings, though not necessarily the final users" (2014a, 5). On the other hand, financial intermediation, because it allows savers to choose the beneficiaries of their accumulated capital, simplifies the activity of entrepreneurs, especially in funding global market activities.

conditions⁵⁹, i.e. with the decisions of both the financier and the financed. The competitive market process, therefore, driven by consumer preferences and entrepreneurial judgment, decides upon the structure and boundaries of financial intermediation of international trade. In a “natural financial order” (Hülsmann 2014a, 7), financial markets need not be indispensable to economic activity, be it domestic or international.

The Hanseatic League (c. 13th - 17th century) stands as an example of how alternative methods of finance can sustain a large network of international transactions in the absence of financial markets, insurance companies, and more importantly credit and debt. Initially travelling together to weather the risks of trade in the Middle Ages, Hansa merchants later created a commercial association in the pursuit of profit, peace, and freedom of trade.⁶⁰ The commercial operations of Hanseatic partnerships were financed from a merchant’s own accounts or from those of his associates: traders bought shares in each cargo and in each ship, and subsequent profits and losses were shared in proportion to the capital invested (Dollinger 1970, 167), with the rare exception of complete partnerships among brothers who shared them equally. The captains and sailors of the ships, who also travelled in large convoys for mutual protection, sometimes joined the ranks of the shareholders (Eteris 2011). In spreading their investments over several ships—or in modern terms, in diversifying their portfolios— merchants also reduced the risk of transporting cargos over long distances. Amidst this network of numerous partnerships, “there was no single

⁵⁹ Similarly, the choice between foreign portfolio investment, i.e. the purchase of foreign securities (stocks in a foreign company or bonds of a foreign government), foreign direct investment, i.e. starting a new venture or funding the establishment of a branch or subsidiary, or a straightforward foreign trade loan rests also with entrepreneurial judgment and decision-making. From this point of view, the distinction between portfolio investments as passive (no managerial control) and FDI (with managerial control) – which we will discuss in more detail in Chapter 6 – can also be misleading. The long and short of the matter is that in both cases, international investment rests on entrepreneurial judgment. The entrepreneur will be the one who will eventually decide also upon the degree of direct or relegated managerial control of the company. I am indebted to Professor Mihai-Vladimir Topan for this point.

⁶⁰ The commercial association in turn gave rise to a common legislation and a political union. For a detailed account on the Hanseatic League, cf. Dollinger (1970); for its importance in the debate on free trade, cf. Liggio (2007).

large commercial firm, permanent, centralized ... [b]ut this in no way precluded the existence of merchants operating on a large scale, investing large amounts of capital, carrying out ... complex commercial operations in various geographic regions” (Dollinger 1970, 168).

Furthermore, the towns of the Hansa each had the privilege to mint their own coin; consequently, the merchants “anxious to develop their trade... were careful not to exploit their coinage as a source of revenue by means of frequent debasement” (Dollinger 1970, 207). But most importantly, the Hanseatic League’s approach to trade was defined by an outright hostility to credit.⁶¹ There existed almost no banks in the market towns—and all attempts to establish such banks failed sooner or later (Dollinger 1970, 203)—, while the practice of credit was proscribed in many mercantile quarters. By the 14th century, Hanseatic towns embarked upon a systematic campaign against financing commerce via credit, “on the grounds that it caused instability of prices, which would upset business... increasing the temptation to take risks, and... favouring the dishonest schemes of unscrupulous merchants, thus compromising the good name of the Hansa” (Dollinger 1970, 205). In spite of these ‘oddities’—as most modern scholars label them—the Hanseatic League was successful in its endeavors for almost four centuries.⁶²

By comparison, today’s global marketplace is an unprecedented quagmire of complex credit and insurance arrangements. The growth of financial markets, as well as the over-proportional reliance of entrepreneurs on external debt is assumedly not the result of the ‘needs of trade’, which did not undergo a similarly spectacular development (UNCTAD 2011, 2013). As a matter of fact, a better explanation is that the scope, size, and role of financial intermediaries is artificially inflated

⁶¹ Loans and bills of exchange appear in the earliest accounting books of Hanseatic merchants. However, based on the extant documents, Dollinger argues that “the wording of the bill was not cast in the laconic form used by Italian financiers. It was a relatively detailed missive, and the ‘order to pay’ is wrapped up in prolix circumlocutions which suggest that this method of payment was exceptional” (Dollinger 1970, 166).

⁶² What is more, the demise of the Hanseatic League did not occur on financial grounds; on the contrary, it was the result of the increased authority of German princes who constrained the commercial and political independence which Hansa towns and their merchants had enjoyed.

by the governments' interference with the market process through fiat money and the fractional-reserve banking system, and that, in turn, has led to the growth of international trade and capital flows, as we shall see more in Chapter 6. Before that, however, the causes and consequences of the overwhelming presence of financial institutions in trade thus warrant a detailed investigation.

To this end, sections 5.1 and 5.2 offer a comparison of the state of trade finance under two scenarios: (1) a commodity money system, and (2) a fiat money system. Under each scenario, I will also analyze the differences between a 100% reserves banking system and a fractional reserve banking system. This comparison will highlight the fact that in the second scenario, of fiat money fractional reserve banking, international trade finance becomes an indispensable channel through which monetary expansion radiates internationally, augmenting the distortion of prices and production, as well as the social rearrangements of income and wealth brought about by changes in the money relation.

5.1 TRADE FINANCE WITH COMMODITY MONEY

A commodity money system is a non-expansionist monetary arrangement, which prevents the money supply from being increased *ad libitum* due to the natural scarcity of the commodity in question. Similarly, a 100% reserve banking requirement prevents the creation of uncovered or partly covered fiduciary media⁶³, and thus the artificial expansion of (fiduciary) bank credit. In this system, there is a general tendency for the purchasing power of money to increase as the economy develops, mirrored by the tendency of prices to fall in the long run. Under these circumstances, incentives for saving in the form of cash hoarding, as well as for financing economic activities from equity increase relative to those for taking out a loan (Hülsmann 2013, 10), as the increase in

⁶³ According to Mises's taxonomy of money, money certificates are the money-substitutes which are completely covered by the reservation of corresponding sums of money, whereas the term fiduciary media is reserved for those which are not covered by the reservation of corresponding sums of money (Mises 2009, 133).

purchasing power of money tends to favor creditors at the expense of debtors. Notwithstanding, the mediation of banks is still beneficial for the international division of labor: as credit intermediaries and trade insurers, financial institutions pool the savings of the public from a larger geographical area into the hands of the entrepreneurs and for their international ventures, arbitraging interest rate spreads and reducing the risks associated with trade transactions (Hoppe 1990; Rothbard 2009; Davidson 2014).

However, bank-intermediated trade finance can take place in an unhampered 100% commodity standard under some specific conditions. First, in order to remain solvent, any bank would have to carefully match the time structure of their assets with that of its liabilities—a condition otherwise observable in any other type of business (Rothbard 2008b, 98)—meaning that financial intermediaries would separate their activities into deposit and loan (credit) banking. In deposit banking, no lending activity, and no trade finance activity could take place, since operating with less than 100% reserves would require the issue of money substitutes uncovered or partly covered by money proper (fiduciary media). Consequently, only credit banking could provide finance for trade: loans for entrepreneurs would be granted from the shareholders' savings (capital stock, accumulated surplus), or from the savings of its clients, i.e. banks would receive loans, float bonds or other debentures, thereby borrowing from some people in order to lend to others, and earn the interest differential.

In turn, even in the absence of a 100% reserve legal requirement⁶⁴, the demeanor of financial intermediaries would be bridled by market mechanisms. The ability of deposit banks to

⁶⁴ There are several views concerning the feasibility of fractional-reserve free banking on an unhampered market. Professor Hülsmann, in interpreting Mises, argues that the creation of fiduciary media can be limited only by a banking policy to this effect (2014b), since banks are likely collude for a common credit expansion policy even in the absence of a central bank. Rothbard (2008b), however, argued that these inflationary episodes would be limited and short-lived, because banks would face the same obstacles in forming a cartel as any other business on a free market. Consequently, Salerno (2012a) interprets Mises as a

meet their liabilities at any point in time would represent the sole foundation for the good will of their customers. As patrons' confidence would plummet were a bank to become insolvent, and because a reputation of "safety, probity, and honesty" takes decades to build up (Rothbard 2008b, 103), deposit banks will be constrained from operating with a fractional reserve by the likelihood of a bank run and the mechanism of brand extinction (Salerno 2012a, 114). A similarly powerful check would be the adverse clearing mechanism, the day-to-day constraint of satisfying non-clients' demands for redemption. Since any bank has a limited clientele, any of its non-clients could call upon redemption, "not because he doesn't trust the bank or thinks it is going to fail, but simply because he patronizes another bank and wants to shift his account to his preferred bank" (Rothbard 2008b, 116). The more banks there are on the market, the smaller the clientele of each bank, the fiercer the competition among them, and the more severe the redemption pressure and the danger of reserves being depleted. Finally, the potential outflow of reserves from one inflationary bank to other non-inflationary banks, also called 'internal drain' (Salerno 2012a, 113), would be mirrored internationally by the price-specie flow mechanism. Thus, if foreign banks and business partners were less (or not at all) inflationary compared to domestic banks, a subsequent outflow of money from the country would trigger the external drain of reserves, and force the contraction of the money supply and bank credit.

Similar market checks would be imposed on the activity of loan banking, and thus on the risky practices undertaken by trade financiers. For example, the latter could profit from 'loan maturity mismatching', i.e. earning an additional interest differential by borrowing short and lending long, and thus arbitraging between the lower interest on short-term maturities and the

higher interest on long-term maturities⁶⁵. The risks of this activity can be circumscribed to those of financial intermediation in general: having the time structure of assets become longer than liabilities when (1) shorter loans extended to the bank reach maturity, while the longer loans extended by the bank have not yet matured, as well as when (2) the bank has extended a bad loan that it can no longer (or with difficulty) recuperate. When the contractual obligation becomes due, either case would place the financial institution in an insolvency position, forcing the bank to “match the duration of its [assets] by obtaining a prolongation from its clients or by obtaining a credit from another customer” (Hülsmann 2000, 102). However, neither under the wire solution is easy to come about, while the possibility of bankruptcy runs high; as a result, “the danger of insolvency leads to an optimal level of [loan maturity mismatching] in the unhampered economy because, like any other business, banks that are consistently wrong must eventually cease to operate” (Davidson 2014, 87).

This reasoning is mirrored for international loan banking, as well as in the case of trade insurers, for whom the level of exposure and the profitability of risk underwriting activities would be carefully weighed against the likelihood of bankruptcy. Furthermore, the past performance of a bank's portfolios would be central to clients' decision to use its products for collateral and international payments. The higher the default risk of a bank, the higher the counterparty risk and insurance premium attached to its financial claims; similarly, their value as collateral for trade finance would be lower, discounted by the bank's risk exposure, given its “particular geographical situation and... particular structure of assets and liabilities” (Hülsmann 2003b, 403). Trade financiers and those using trade finance would thus strive toward reducing bank exposure, and differentiating financial instruments based on the issuer's default risk.

⁶⁵ Loan maturity mismatching is not in itself conducive to business cycles, although it aggravates them in the context of fractional reserve banking. For a detailed investigation of loan maturity mismatching under different banking systems, cf. Davidson (2014).

In conclusion, the 100% reserve banking commodity money standard would suppress the increase of the money supply and bank credit, while market mechanisms would further restrain risky banking practices. Financial institutions could thus only finance trade by channeling the savings of their clients and shareholders into international trade ventures, and would not be able to interfere with the money relation. The unhampered market interest rate would express the underlying availability of capital for new production plans, and entrepreneurial calculation would reveal profitable future businesses and transactions; in addition, in the absence of increases in the money supply, revolution of prices and production, as well as accompanying social rearrangements of income and wealth⁶⁶ would not occur. Ultimately, as the incentives for cash hoarding and equity financing would increase relative to those for debt financing, the judgment and preferences of savers and investors would set the natural bounds for financial markets and intermediaries in international trade.

5.2 TRADE FINANCE WITH FIAT MONEY

In stark contrast to the previous scenario, the central purpose of a fiat money is to allow for the unchecked expansion of the money supply. Whatever the main motive—meeting the needs of trade, maintaining price stability, or accommodating fiscal shocks (Selgin and White 1999)—monetary inflation and credit expansion are also pursued by monetary authorities by virtue of their redistributive effects, which may sometimes become the main driving force behind these policies.

⁶⁶ As we pointed out in the introduction, changes in the structure of prices and distributive effects are at work in any monetary system. On the commodity side, distributive effects are built in the market mechanism: changes in consumer demand bring about changes in the structure of prices and production, benefitting some producers and hurting others; but these distributive effects are limited to particular markets, and to producers of particular articles, and are the result of the efficiency or inefficiency of entrepreneurs in anticipating future prices and consumer demand. On the monetary side, in the case of commodity money, these effects are also limited by the high costs of money production (Hülsmann 2013). It is in the contemporary fractional reserve fiat monetary order, as we shall see, where no such limits are imposed on monetary expansion.

As the increase in the supply of money trickles downward to wage, rent and interest earners, Cantillon effects are set in motion, rippling disproportionately through the structure of money prices, and rearranging the distribution of wealth and income. Wealth is shifted to first recipients of the new money—governments and commercial banks—from later or non-recipients, generally the larger part of the population. Other particular categories of economic agents that are well positioned in this hierarchy—the banks' major clients (business establishment and leaders of industry), exporters for whom the exchange rate adjusts favorably before the structure of prices—also lend their support to this monetary system (Hoppe 1990, 68).

Notwithstanding their approval and assistance, certain institutional conditions need to be fulfilled in order for such an expansionary monetary system to develop. First, legal tender laws on fiat money are required to allow a costless, *ex nihilo* expansion of the money supply, as well as to absolve banks from redeeming financial claims. Second, a central banking authority must be established “as a government cartelizing device to coordinate the banks so that they can evade the restrictions of free markets and free banking and inflate uniformly together” (Rothbard 2008b, 134). In other words, the second necessary step in extending the potentiality of the fiat money system for monetary expansion is the institutionalization of the fractional reserve banking system. In fact, the role of commercial banks in such a case becomes subservient, as governments have indirect total control over the size of the money supply and pattern of credit. As Mises wrote, “the facilities of banking [become] a substitute for issuing government fiat money” (Mises, 1998 [1949], 570). Nevertheless, the private banking system embraces these institutional changes in light of the profits to be made from operating with fractional reserves and issuing fiduciary media—as well as from over-diminishing the interest rate spread between long-term and short-term maturities—without fearing default.

The likelihood of bank default is reduced or eliminated in a fractional reserve fiat money system in several ways: for one, banks are legally required only to maintain a ‘desired’ level of bank reserves and illiquidity risk. If undesirable situations occur, like contradictory claims to money, they can roll over or renew maturities with the help of other banks or of the central bank, as roller-over of last resort. This also means that financial institutions no longer need to attract further loans to meet a surge in demand that surpasses their individual reserves, as they can tap into the pooled reserves of the national banking system, or ask for an injection of liquidity from the central bank, in its role of lender of last resort.

Second, the ability of the banking system to expand bank credit in concert at rather uniform rates also erases the danger of the internal drain: “if Bank A and Bank B each increase their reserves, and both expand on top of such reserves, then neither will lose reserves on net to the other, because the redemption of each will cancel the other redemption out” (Rothbard 2008b, 133). Finally, as bank competition is replaced by bank interdependency, financial institutions strive for the homogenization of their products. This homogenization obscures the probity of banks and dilutes counterparty risk, makes financial assets more liquid, and more easily used as collateral for further credits (Hülsmann 2003b, 406), and banks can pyramid further credit expansion on each other’s financial instruments. Similarly, absent the possibility of default, trade insurers undertake higher trade risks⁶⁷ for lower premiums than otherwise.

Bank product homogenization and interdependency make the financial and banking system as a whole unstable: if a bank’s term structure of its assets is jeopardized, so is that of all other banks which hold its products as collateral (Hülsmann 2003b, 407). Consequently, the supply of

⁶⁷ In fact, bank competition for a bigger market share, in the context of perverse incentives and cheap credit, only loosens the conditions for granting trade finance and insurance, giving rise to a host of moral hazard and adverse selection problems, which can be traced back to the broader interventionism-induced moral hazard in a fiat money system (Hülsmann 2006, 43). For a more detailed discussion, see Chapter 7, section 7.4.

money and bank credit are continually expanded to keep banks “one step ahead of consumer retribution” (Rothbard 2000, 13). Loan maturity mismatching further aggravates the situation, by become overly 'aggressive' or 'excessive': absent the fear of market sanctions as in a commodity money system, banks are “encouraged to reduce interest rate spreads more than would otherwise be the case, and to do so in concert” (Davidson 2014, 88).. The coalition between governments and banks becomes a “passport to easy money” (Rothbard 2008b, 134), and numbs the market mechanisms that would otherwise restrict the inflation of the money supply.

By the same token, central bank money creation also hampers the natural financial order, and leads to the disproportionate growth of financial markets. As Jörg Guido Hülsmann explains, this latter phenomenon occurs via four channels:

“Central banks may create fiat money to purchase financial claims, thus increasing both the demand for those claims and their prices (monetisation channel). Central banks may create fiat money in order to lend it to other market participants... [t]hus the demand for such claims increases because they may serve as collateral in central bank lending operations (collateral channel). The permanent increase of the fiat money supply typically creates a positive price-inflation rate. In this case, savings in the form of cash hoarding are no longer a suitable way to preserve wealth, and thus savers and investors increasingly turn to financial markets (price-inflation channel). Finally, central banks usually try to stabilise the purchasing power of money, which involves a stabilisation of the commercial banking system. Because the commercial banks know that they can count on support from the central bank, they have an incentive to increase their financial exchanges beyond what would otherwise be their precautionary limits (moral-hazard channel)” (Hülsmann 2014a, 8).

The risk of an external drain of reserves remains, and the international price-specie flow mechanism puts some attenuated restraints on inflationary tendencies. However, the cartelization of the banking system is gradually enlarged to an international level, together with the coordination of

the inflationary process. As we have seen in the previous chapter, “paper-money producers tend to collude in their expansionary policies” (Hülsmann 2008, 234), in order to bypass the last remaining market mechanism. Usually, this is accomplished in two ways: either by inflating at evenly matched rates, or by adopting one paper currency as reserve currency on other central banks. In the second case, the issuer of the reserve currency sets the pace for the inflationary process, while foreign central banks use the newly created money to further expand foreign money supplies. In both situations, national banking systems no longer fear the external drain of their currency reserves. Moreover, the process is highly profitable for the top tiers of the international financial hierarchy; as Hoppe explains, “parallel to this flow of money goes a reversed process of income and wealth redistribution from the periphery onto national business and banking elites, and the various nation states, as well as from the dominated territories to ... the ultimate center of world finance” (Hoppe 1990, 84).

In the context of permanent monetary expansion that this system engenders, thus in light of continuously rising price levels, financing international trade via equity becomes less and less attractive when compared to debt financing. As a result, since international competition is fierce and obtaining capital under the best terms available can become crucial for the success or survival of the venture, monetary expansion “makes businesses more dependent on banks than they otherwise would be” (Hülsmann 2008, 180). Unsurprisingly, trade finance occurs today almost entirely via financial intermediaries, even for inter-firm credit, and routinely involves (at least) a short-term bank loan. Cheap bank credit, easily accessible government loans, and public trade debt guarantees that undervalue risks also become more profitable. All of this swerves entrepreneurs from cash hoarding and equity financing toward surging debt.

The consequences of the tendencies that this system creates in the market are manifold. As the new money is poured into credit markets, it drives interest rates below the unhampered market

interest rate. The artificially diminished rate falsifies entrepreneurial calculations⁶⁸, and the threshold for profitability of international investments and transactions appears to be lower. Thus, “entrepreneurial ambitions expand. New businesses are started in the expectation that the necessary capital can be secured by obtaining credit [...] Deluded by an arithmetical operation with illusory figures, the entrepreneurs embark upon the realization of projects that are at variance with the most urgent desires of consumers” (Mises 2006 [1928], 110; Mises 2006 [1946], 192).

As entrepreneurs are led to believe the market has undercapitalized and underpriced the factors in relation to their future rents, they malinvest available capital in otherwise fruitless projects—longer than the conditions of available capital warrant. The illusion of cheap credit sweeps through markets for a shorter or longer period of time, depending on the behavior of commercial banks and monetary authorities. Usually, as demand for credit grows, and as the changes in purchasing power make themselves felt in the price premium, the money interest rate tends to rise. But as banks continue to expand the supply of fiduciary media, they keep gross interest behind the level it would have attained absent interference. So long as this happens, “inventories of goods are readily sold. Prices and profits rise [...] the crisis does not appear yet ... the earlier calculations of the entrepreneurs are realized... [i]n short, the boom continues” (Mises 2006 [1928], 110-4).

Apace with lowering the interest rate, the expanded supply of credit also lowers the purchasing power of money⁶⁹. For this reason, as long as the upswing continues, the Cantillon

⁶⁸ In addition, as Joseph Salerno explains, “while the artificially reduced loan rate encourages business firms to overestimate the present and future availability of investible resources and to malinvest in lengthening the structure of production, at the same time it misleads households into a falsely optimistic appraisal of their real income and net worth that stimulates consumption and depresses saving” (Salerno 2012b, 15). This, in fact, leads to a further rise in the natural interest rate, and thus to a widening of the gap between the latter and the artificially low market interest rate.

⁶⁹ Additional quantities of fiduciary media can have different entry points in the economy: on the one hand, they can be first injected into the loan market, where they first lower the gross market rate of interest and mislead entrepreneurs into malinvestments. As the increased money supply further trickles down to

effects of the increase in the money supply accomplish irreparable social transformations: revolutions of price and production structures, and concomitant rearrangements of income and wealth. As Mises explains, “monetary depreciation brings an advantage for those whose money prices and money wages rise first, and it brings a disadvantage for all of those who sell goods and services whose money prices lag behind closer to their original levels [...] The sectors that bring to market those goods and services whose prices rise at the beginning of the process gain from the changes in the purchasing power of money” (Mises 2012 [1918], 5). As a case in point, exporters for whom exchange rates adjust favorably at the bourse will reap an export premium to be surrendered by those affected by the rise in prices; these undeserved monetary gains further concentrate wealth and capital not in the hands of most efficient entrepreneurs, but in the hands of the first receivers of the new money.⁷⁰

While the social repercussions of a change in the purchasing power of money are real, the aggregate affluence induced by the expansion of the money supply and credit is illusory, as “the gains obtained and the losses suffered in the course of the inflationary process are never made up for” (Mises 2012 [1918], 5). In fact, the expansion brings about the rearrangement of capital investment, “from the course prescribed by the state of economic wealth and market conditions”

commodity and services markets, this gradually lowers the purchasing power of money by revolutionizing the structure of prices and rearranging wealth and income distributions. On the other hand, if fiduciary media first enter commodity and services markets, their impact on the interest rate and entrepreneurial calculations is revoked. What remains is ‘simple inflation’, a decrease in the purchasing power of money with disproportionate and sequential effects on prices and wealth. Notwithstanding these catallactic differences between the two phenomena (Mises, 1998 [1949], 568), they are similar in their effects on the purchasing power of money, and thus on the distribution of income and wealth. As Mises explains, in fact, credit expansion magnifies the effects of simple inflation, “as overbidding one another in the struggle for a greater share in the limited supply of capital goods and labor, the entrepreneurs push prices to a height at which they can remain only as long as the credit expansion goes on at an accelerated pace” (Mises, 1998 [1949], 567).

⁷⁰ Changes in purchasing power have no direct impact on the ordinary rate of interest. They can have an indirect effect, however, as the shifts in income and wealth among people with different time preferences will influence the level of savings and the accumulation of capital (Mises 2006[1923], 107). A particular instance of this phenomenon, when monetary depreciation favors people with a low time preference has been called ‘forced savings’. For a brief analysis and critique, see Mises (1998 [1949], 545-7).

(Mises 2006[1931], 161) to an arbitrary, artificial, and wasteful production path. The longer this illusion can be maintained, the larger the scale of malinvestments, and deeper the subsequent depression. As monetary and banking policies are now aligned internationally, the concurrent domestic expansions of the supply of money and credit can proceed for longer periods of time “without any fear that the consequences would lead to a situation which produces an external drain of funds from the money market” (Mises 2006[1928], 140). Moreover, artificially low interest rates in one country filter their way through international capital markets to trade partners, and depending on the latter's exchange rate and monetary policies, inflows of cheap credit create new bubbles or further inflate existing ones (Hoffmann and Schnabl 2013, 156). This means that the longer entrepreneurial calculations are falsified, the larger the maladjustment of international trade relative to the scarcity of resources, and to consumer preferences. The international trade path into which entrepreneurial activity is misled by lower-than-unhampered-market interest rates is disconnected from the comparative advantage and international specialization pattern otherwise prevailing.

The ability of banks to continue the expansion of credit on a global level does grind to a halt when eventually the true underlying scarcity of capital is discovered. The discrepancy between “what entrepreneurs have done and what the unhampered market would have prescribed becomes evident in the crisis” (Mises 2006[1928], 127), once clusters of large-scale entrepreneurial errors are revealed.⁷¹ The period of stagnation after crises is marked by bankruptcies and a prudent behavior of banks. Unfortunately, as inflation and credit expansion are habit-forming policies⁷², the

⁷¹ According to an undated quote, Mises explained to his students: “If we study the history of such cycles in the past, we can discover that in every case there was some instant... that finally brought about the change, the turning point from good business, from the boom, into the depression. [...] What brought it about was mostly the fact that somebody lost their nerves....” (Bien Greaves 2006, 5).

⁷² In fact, as Mises pointed out, “each crisis, with its unpleasant consequences, is followed once more by a new boom, which must eventually expend itself as another crisis” (Mises 2006[1928], 127; emphasis in the original). Consequently, the recurrence of recessions is due, according to Mises, “to the ideology which dominates all influential groups—political economists, politicians, statesmen, the press and the business

market mechanism is not allowed to complete—or even begin—the liquidation of malinvestments.⁷³

If crises were left to their own to purge these malinvestments, entrepreneurs would proceed to rearrange international trade on unhampered-market comparative advantage patterns. But since each crisis is followed, sooner or later, by a new expansion of credit, the structural distortions in prices and production that emerge in a boom are preserved, and others fueled on top of them. This is particularly true of international trade, where entrepreneurs have more than ever habituated themselves to financial support and bank intermediation.

Over and above, however, monetary expansion interferes with international trade not only via the domestic banking system, but also in a more direct manner, through export credit agencies. As we shall see in the next section, export credit agencies have promoted and prolonged the consequences of monetary expansion on international trade, have hampered global markets, and prevented them from recovering after recessions.

5.3 THE AGGRAVATING ROLE OF EXPORT CREDIT AGENCIES

Based on the type of insurance and credit offered, literature and practice distinguish between public (official) and private (market) trade finance. Private trade finance usually covers short-term transactions (an average of 3.5 months to one year maturity, with shorter maturities for letters of credit), while short-term export credit insurance has repayment terms of one year or less. Both of

world – [which] not only sanctions, but also demands, the expansion of circulation credit” (Mises 2006[1928], 127).

⁷³ This explanation of the business cycle is possible only with understanding the slow progress of the change in the money relation through the structure of prices, i.e. the Cantillon effects of monetary changes. Otherwise, “neutral money would be a medium of exchange that didn't affect the exchanges in any way” (Bien Greaves 2006, 20). The idea of money neutrality, therefore, also puts forth a contrived explanation of business cycles in a barter economy (real business cycles), which cannot explain, however, the clusters of large-scale entrepreneurial errors. The latter would not occur – by definition – in the absence of a general medium of exchange, because people would not suffer from a ‘money illusion’, but most importantly because no roundabout and complex processes of production could be undertaken without monetary calculation.

these financial services are offered by commercial banks as part of their regular financial intermediation. Medium to long-term lending (2 to 15 years maturity) is granted by special government agencies (ICC Trade Register 2013; Grath 2008), as is medium to long term export credit insurance, which covers trade transactions between 3 and 15 years. Furthermore, while commercial banks usually insure the exporter's entire portfolio of trade receivables on short term, government agencies insure medium to long term business on a transactional basis, generally underwriting transactions of capital goods which are repaid over several years (Morel 2010, 4).

This separation of the supply-side of the trade finance market has a threefold cause: first, it derives from government regulation of international trade, because initially, trade finance and insurance were ascribed to one financial entity in each country—an Export Credit Agency⁷⁴ (hereafter ECA). Over the last decades, however, large multinational banks and investment funds have been allowed to extend their activities to guarantee or finance international transactions—often in collaboration with governments. Today, the lion's share of the global market for trade finance and insurance belongs to the “Big Three” companies: Euler Hermes from Germany, Atradius from Netherlands, and Coface from France (Van der Veer 2011, 202). Second, the distinction between public and private trade finance persists with regard to the different levels of trade risks that the two types of institutions are willing and able to underwrite.

Third and finally, public trade finance differs in its goals from private trade finance—and this particular feature deserves additional scrutiny. According to Fitzgerald and Monson (1989), the rationales behind the activity of ECAs are frequent capital and insurance market failures, as well as government strategic trade policies, and the desire to reduce balance of payments deficits. When these circumstances appear, ECAs step in to fill the “market gap” (Ascari 2007, 3), providing otherwise ineligible businesses with credit insurance (any percentage of cover up to 95%) and trade

⁷⁴ These institutions are usually known as Export-Import Banks (Ex-Im Banks), or as Multilateral Development Banks (MDBs), when their projects are targeted towards developing countries.

loans. The latter—offered to entrepreneurs on favorable terms not available on the private sector—are extended through three main channels: (1) direct lending, where the loan is given directly by the agency, (2) financial intermediary loans, where the ECAs lend funds to a commercial bank, which further lends them to exporting or importing businesses, or (3) interest rate equalization, where commercial banks offer trade finance below market rates, and receive the difference in compensation from the government agency (Bishop 2003; Grath 2008).

Generally, ECAs have received a good deal of criticism over the last decades. First, they have been called out on their contradictory statements concerning the nature of their activities: they claim they underwrite projects the market considers too risky, while arguing that they are conservative in their investments, thus making ‘sure bets’. Given that private financial institutions would not refuse profitable investments in the first place, scholars indicate that either ECAs crowd out private trade finance, or they expose unaware taxpayers to bad loans, case in which export promotion becomes nothing more than foreign aid (James 2011; Brynildsen 2011).

Second, export credit agencies are significantly biased in the choice of clients: by their own admission, they support trade activities that are either ‘environmentally friendly’, belong to ‘strategic’ industries, or have ‘high potential’ for export growth but are otherwise neglected by the private sector. However, private financiers would not overlook high growth opportunities, unless they were not, in fact, profitable⁷⁵ (James 2011, 2).

Third, every export credit agency around the world touts as its foremost goal the countering of foreign subsidy programs, thus ensuring a level playing field⁷⁶ for domestic companies facing unfair competition from foreign firms. Yet, for all intents and purposes, public trade loans and

⁷⁵ If government officials were indeed endowed with better information about trade finance opportunities, the more reasonable course of action would be to share this information with the private sector.

⁷⁶ The idea of a level playing field is itself flawed, considering that differences among individuals and market conditions are the foundation of cooperation, and thus give rise to mutual beneficial exchanges in a society, provided governments do not interfere. Cf. Hülsmann (2007, 429).

export subsidies have similar effects on the market, albeit being different in their bureaucratic characteristics (CATO 2002, 339-43). Scholars thus argue that ECAs tilt the playing field in the first place—and that it is for this reason that no results of their countervailing activities are ever published (James 2011). Reports of ECAs contribution to international trade that are made public purport to show only loose statistical correlations—and not the causal link—between increases in exports, and ECA loans and insurance (Gianturco 2001; Contessi and de Nicola 2012).

In spite of these differences, and the potential crowding out effect, private and public trade finance do work together in harmony, most likely the result of the symbiosis between governments and banks. Although most economists believe that ECAs, with all their flaws, act as quasi-market players⁷⁷ (Abraham and Dewit 2000; Ascari 2009), in this case it is commercial banks which act as quasi-government agencies.⁷⁸ Banks are enabled by special mandates to underwrite higher levels of trade risks than they otherwise would have been able to, and thus to profit from otherwise unprofitable ventures, eventually at the expense of taxpayers. The most appropriate examples are also Coface, Atradius, and Euler-Hermes, which are constituted both as private trade insurers and ECAs. This cooperation notwithstanding, the more vulnerable issue does not have to do with the

⁷⁷ Formally, ECAs are required to break even in the long run and only if possible to refinance activities on their own (Gianturco 2001). However, as long as ECAs function on public funds, and their eventual losses are born by taxpayers, they cannot calculate and can only 'play' market. As a result, although they can force more goods into foreign markets at one point in time, in the longer run this is achieved against the pattern of comparative advantage, and at the expense of the international division of labor.

⁷⁸ Under these circumstances, it is not surprising that the activity of both public and private trade financial institutions is characterized by a lack of transparency. The criteria on which insurance and lending are undertaken, the profitability of these financing operations, or even the actual number of trade finance providers remain mostly unknown to the general public (Goldzimer 2003). According to the OECD Official Export Credit Agencies List, there are 31 Export-Import Banks throughout the world. The Berne Union, i.e. International Union of Credit and Investment Insurers and the Prague Club, gathers 79 public and private member companies (Berne Union Yearbook 2013). Some scholars have counted over 90 countries hosting approximately 200 trade agencies worldwide, with private, public, and mixed ownership (Gianturco 2001, 155-60). Statistical information is very limited and highly aggregated, as state departments and banks have started to gather such information only after 2008, when the global financial crisis brought trade finance to the attention of scholars and policy makers alike; since then, the International Chamber of Commerce, IMF, and World Bank undertake annual global surveys of the trade finance activities of these agencies.

process in which governments choose their favorites among financial intermediaries, but with the source of the funds poured into international trade by government agencies: whether loans are requisitioned from the taxed income of the population, or from an expanded money supply purports an important distinction on the overall impact of ECA activity. The difference between the two cases is best depicted under the two scenarios discussed above: 100% reserves commodity money system, and fractional reserve fiat money system.

In the first scenario, absent any government intervention in trade and trade finance, international trade flows align to the configuration of comparative advantage under the most efficient worldwide allocation of resources, while financial intermediation funds trade activities solely from the savings of the public. But if in this context we allow for government financial intervention in international trade, this intervention would be restricted under the 100% reserves commodity money standard: ECAs could only capture resources through taxation or borrowing, creating an island of calculation and allocational chaos. International trade would then operate on a different pattern of comparative advantage than the one otherwise prevailing on the unhampered market: some exporting or importing businesses—favored by government trade promotion—would flourish at the expense of other industries, as the economy would experience unnatural business fluctuations. Nonetheless, entrepreneurs would adjust their calculations to the new market data, accounting for government activity as an increase in the scarcity of available capital, and “a lowering of the general standard of living in the present and the future” (Rothbard 2009, 1026). Furthermore, as the market interest rate would not be artificially lowered—in fact, “diversion and waste of savings causes interest rates to be higher than they otherwise would, since now private

uses must compete with government demands” (Rothbard 2009, 1026)—, entrepreneurial judgment would not be induced into malinvesting.⁷⁹

In the second scenario, which depicts real-world phenomena, trade finance is being granted from an expanded money supply, by export credit agencies and commercial banks alike. Consequently, we are dealing with a more disruptive intervention: ECAs reallocate resources to unproductive uses, wasting a part of the savings, and lowering the capital structure, but also mislead entrepreneurs into wasting savings and lowering the capital structure by reinforcing and enlarging the effects of monetary expansion. As a case in point, ECAs increase the reserves of commercial banks by providing them with financial intermediary loans that allow them to further expand bank credit, or via interest rate equalization policies, both measures having the effect of further artificially lowering the interest rate below unhampered market levels. ECA guarantees help reduce interest rate spreads between short-term and long-term by allowing banks and their clients to easily extend the maturity of their debt.⁸⁰ In addition, because ECAs are eligible for a 0% risk weighting

⁷⁹ As Mises argues, a contraction of the supply of money and credit is less harmful: whereas “expansion squanders scarce factors of production by malinvestment and overconsumption... contraction produces neither malinvestment nor overconsumption” (Mises 1998[1949], 565), leaving scarce factors of production idle, but still useful in the future.

⁸⁰ The willingness of monetary authorities around the world to support trade finance, especially during financial crises, can be explained in part by the particular suitability of this channel for government purposes. Briefly put, in a system of fiat money and fractional reserves, there are few limitations on the expansion of the money supply and bank credit: first, the prospect of a breakdown of the entire monetary system, with hyperinflation and a crack-up boom, broadly curtails the assiduousness of governments and banking system in driving down the purchasing power of money and the interest rate. Second, the inflationary potential of monetary policies is attenuated also by banks holding excess reserves, and/or by the public preferring cash to checking accounts, i.e. hoarding the currency out of the banking system (Rothbard 2008b, 132). These latter actions reduce the money multiplier, and thus restrict the ability of the banking system to further inflate the supply of money and credit. However, these checks are no longer applicable when it comes to the particular case of trade finance, as trade loans are conditioned upon the sale and purchase of foreign commodities, and thus cannot be hoarded by the borrowers. Consequently, as Ellingsen and Vlachos (2009, 2) candidly admit, “the reasons for promoting trade finance are stronger than for promoting credit in general”, since trade finance loans must return to the banking system, and thus allow for a greater expansion of the money supply.

(Aaa or AAA rating) with respect to their debt held by private sector banks, this further undervalues the risk weighting of projects that benefit from their support (Sheppard 2012, 86).

This government safety net encourages firms to borrow and trade internationally, as state guarantees lower the trade risk perceived by entrepreneurs, as well as shift the costs of intermediating transactions from banks to domestic taxpayers (Kane 1997, 2000). Hence, unlike the previous scenario when competition between private and public demands for savings raised the interest rate, here government injection of funds into trade finance prevents interest rates to rise, deepening malinvestments and precluding the readjustment of international trade after a crisis. These favorable terms for trade finance engage entrepreneurs and the banking system in a reckless planning of financial activity, with government intervention adding more unnatural business fluctuations to the already distorted production structure.

Summing up, the fiat money fractional reserve banking system represents the linchpin of steadily recurring booms and busts. Its interference with trade and trade finance amounts to the falsification of economic calculation, as entrepreneurs are maneuvered into undertaking otherwise unprofitable ventures, and have difficulties accounting for the islands of calculational chaos of governments' trade policies. In such a monetary system, financial intermediaries no longer facilitate the coordination of international trade; instead, they become hubs of distortion in the spatial and temporal allocation of economic resources across the globe. As a result, the pattern of international trade and specialization that emerges in this system is fundamentally incongruent with the most efficient worldwide allocation of resources, and thus with the unhampered-market configuration of comparative advantage.

5.4 THE CROSS-BORDER TRANSMISSION OF MONETARY EXPANSION

Having assessed the theoretical characteristics of international trade finance under different monetary and banking systems, let us now analyze in more detail the way in which monetary expansion interacts with capital flows and trade finance, how it crosses national borders, and what effects it further entails for international trade in a globalized world. This section will set up the stage for the next chapter, in which I will apply this analysis to the evolution of trade and capital flows over the last decade, and especially before and after the most recent financial crisis.

This process has become a key research interest in international economics, but the focus of contemporary mainstream research has been price inflation, rather than monetary expansion. In this light, scholars have argued that the analysis of the international transmission of price inflation—also called inflation pass-through—is best studied from both a micro (price) and a macro (aggregate supply and demand) perspective (Hamilton 2012, Liu 2014). This also means, however, that by focusing on empirical evidence (changes in the price level, foreign reserves, and aggregate demand), scholars pay little attention to the changes in the money supply, the structure of prices and production, or the complementary shift in wealth which are revealed by the theoretical investigation of Cantillon effects. With this incomplete picture, however, the conclusions standard literature reaches can be grouped along three lines: scholars argue that (1) a regime of flexible exchange rates fully protects countries from the transmission of price inflation, if prices are not sticky (Chua 2013), (2) if prices and exchange rates are sticky, some price inflation can enter a country via imports and capital inflows (Liu 2014), and (3) government intervention in exchange rates, capital markets, and money supplies can prevent or stave off the transmission of monetary shocks (Darby and Lothian 1989, Rey 2013). At the same time, scholars argue, *real* shocks—like real business cycles—can be more easily transmitted under either exchange rate regime. According to Frankel and Rose (1998), trade relations between countries lead to tighter correlation of business cycles, as do similar industrial structures, factor endowments, cultural connections, or currency unions (Rose and Engel

2002, Baxter and Kouparitsas 2004). These business cycle co-movements notwithstanding, their impact on output and its rate of growth, as well as on the long-run rate of domestic inflation are considered to be transitory⁸¹ (Lothian 1992, 492).

Within the corpus of Austrian economic research, monetary inflation and the business cycle within an economy are explained in detail in Mises (1953, 1998 [1949]) Hayek (1979, 1989), Rothbard (2009), Garrison (2001), Hülsmann (1998), and many others, with a particular focus on its short-run and long-run consequences on the structure of prices and production, and the distribution of wealth in the economy. However, the transmission of monetary inflation internationally, as well as its impact on the global credit and commodity markets is comparatively less examined. And with several exceptions (Engelhardt 2004, Salerno 2010, Bagus and Howden 2011, Hoffman and Schnabl 2011, Hülsmann 2013), the case of an international fiat money standard is often omitted from discussions on the Austrian business cycle theory.⁸² Nonetheless, this latter analysis, albeit currently focused on domestic aspects, can be used as a foil for the international case, of open economies. Austrian monetary and business cycle theory is best suited for this task because the theory is built on an integrated view of the market process, in which monetary changes and real changes are analyzed as an indivisible phenomenon. In other words, this theoretical framework, unlike the framework in the standard literature, can be best extended to analyze Cantillon effects on

⁸¹ One exception to this rule is the discussion on the relative impact of inflation and business cycles on tradable and non-tradable groups of commodities (the Balassa-Samuelson effect), i.e. on tradable and non-tradable inflation (Gregorio et al. 1994, Martin-Moreno et al. 2014)—but these inquiries ignore the spatial and temporal qualities of non-monetary goods that fully explain the goods-induced price discrepancies across geographical areas.

⁸² One reason for this is the fact that Austrian economics, like French 19th century forerunners, operates under the assumption that between domestic and international economic phenomena there is no scientific distinction, but only a difference in data. As Rothbard points out, “The laws of the free market... apply, therefore, to the whole extent of the market, i.e. to the ‘world’ ... there can be no such thing as an ‘international trade’ problem” (Rothbard 2009, 617; emphasis in the original). Another reason is the fact that identifying the precise winners and losers of inflation is an admittedly impossible task for economic analysis, especially in the case of a global market. Hayek (1979, 41) argued that on an international scale, “inflation [i]s more widely dispersed and is therefore much more difficult to trace.”

a global level, that is highlight the general (and not negligible) tendencies and effects of the international transmission of monetary expansion.

In this section, we will therefore follow the step-by-step process of monetary adjustment to an increase in the money supply, or in other words, the spatial equilibration of the purchasing power of money as described by Mises (1953). Also in Mises (1953, 209) we find a blueprint for schematically dividing a community into several groups in order to identify the sequence in which prices change, and the benefits and losses produced by a reduction in the value of money. I extent and apply this framework to a globalized world (with open economies and integrated time-markets), where wage rates for the same type of labor, factor prices and commodity prices, interest rates and money's purchasing power tend toward uniformity across geographical areas (keeping in mind persisting differences in the spatial and temporal qualities of non-monetary goods). In this case, following an increase in the money supply, cash-balances are *internationally* redistributed in a series of gradual monetary changes that revolutionize the structure of prices, the pattern of production and trade, and which redistribute wealth among individuals.

Consider three developed economies: the U.S., the E.U, and Japan, and their national currencies—dollar, euro, and yen—, as well as three developing economies: India, Brazil, China, and their currencies: the rupee, the real, and the yuan (renminbi).⁸³ For simplicity, the beginning point of this analysis is an imaginary situation of monetary equilibrium, in which for every individual in each country, his or her cash balance is at the desired level (their stock of and demand for money are equal), and the purchasing power of the six currencies is inter-spatially equilibrated. Consider now an increase in the total supply of dollars via credit expansion (like the recent quantitative easing programs), that first enters United States' loan markets and lowers the U.S.

⁸³ The literature sometimes refers to the first group of countries as 'big' or 'center' economies—or the economic North—while China, India, and Brazil are considered 'emerging' or 'peripheral' economies—or the economic South.

gross market rate of interest.⁸⁴ What will be the gradual impact of this change in the money relation on different markets and prices?

In the early stage, American capitalist-entrepreneurs, as well as those trading internationally will first interpret the decrease in the lending interest rate as an increase in the capital available for their investment projects. Otherwise unprofitable ventures are now worth undertaking, and the additional credit is invested in domestic production processes. But since capital is largely mobile internationally, entrepreneurs also search to funnel the new money into countries with higher interest rates (i.e. more productive investment opportunities), and to diversify their portfolios across levels of macroeconomic risk. Thus, comparatively higher interest rates in trading partner countries attract U.S. cheap capital in search for higher returns on investments. This leads to an increase in portfolio flows from the U.S. to its trading partners, because foreign currency denominated assets are more attractive given the anticipated depreciation of the dollar. It also leads to an increase in foreign investments, as entrepreneurs acquire properties and invest in production processes abroad.

Second, given that loan markets and foreign exchange markets in the E.U., U.S. and Japan are well integrated (Engelhardt 2004, 5), and the cost of making international transactions is low, the increased supply of dollar credit will shortly make itself felt on European and Japanese loanable funds markets before having any impact on other markets (Bilo 2013, 102). As a consequence, interest rates in E.U. and Japan will be arbitrated down. This will not lead to an equalization of interest rates across countries (Findlay 1978), but to a structure of interest rates reflecting varying degrees of entrepreneurial risk—associated with the characteristics of the particular credit transaction and particular market characteristics—and purchasing power components. Nevertheless,

⁸⁴ The new money supply can enter commodity markets directly—in a phenomenon we called ‘simple inflation’—case in which it does not lower the interest rate. It will however first increase only the prices of some commodities—generally war equipment, or other public project related infrastructure—and then diffuse in the economy as we shall explain later on. In today’s monetary system, however, the bulk of monetary expansion first enters loan markets.

the gross market rates of interest will be lower than otherwise in all three time markets. This lowering effect on interest will further be enlarged by the fractional-reserve banking system in the European Union and Japan: as the inflow of American capital increases in the reserves of foreign commercial banks, this allows them to pyramid additional domestic credit expansion. Moreover, the ECB and the Bank of Japan may further loosen their own monetary policy to counteract the appreciation of the euro or yen against the dollar, and to maintain the competitive position of domestic producers in international markets.⁸⁵

Third, U.S. capital—and soon after European and Japanese capital—will also relocate into developing economies where many growth opportunities are found (Frankel et al. 2004). Even in the absence of well integrated time markets between developed and emerging countries, capital will flow into Brazil, India, or China, for example. This will impel central banks in latter economies to align their monetary policy to the expansionary tendencies of the developed world, for similar reasons: e.g. to maintain either the ‘competitive’ low purchasing power of their currencies or the pegged rates, whatever the case. Therefore, a policy of monetary expansion in a big economy will most likely bring about a monetary expansion (sometimes called counter-cyclical) policy in a small economy, and a depreciation of the real, yuan, and rupee through policy coordination.⁸⁶ Soon after,

⁸⁵ As Hoffman and Schnabl (2011, 394) point out, the largest interest cuts occur during deflationary periods: “foreign exchange intervention [by the Bank of Japan] took place in times of yen appreciation to soften appreciation pressure. In contrast, Japanese monetary authorities remained inactive in foreign exchange markets when the yen depreciated.” By the same token, as “the [U.S. Fed] key interest rate fell more quickly in recessions than it rose during booms, from more than 18 per cent in 1980, to 6 per cent in 1986, to 3 per cent during the crisis of the early 1990s, to 1 per cent after the bursting of the dotcom bubble, to close to nil in 2009” (Hoffman and Schabl 2011, 395), as did interest rates in the Eurozone, from 8.5% in Germany before 1998 to 4.75% in 2000, 3% in 2008, 1% in 2012 and 0.3% as of September 2014.

⁸⁶ As Cachanovsky (2012, 284) argues, “as long as the countries in the periphery are willing to peg their currencies and absorb the center’s currency as reserves, the center can keep expanding its money supply without facing foreign exchange depreciation.” Barry Eichengreen (2004, 3) claims that the United States “has been able to run persistent current account deficits without seeing the dollar fall significantly against the currencies of the periphery because the latter are concerned to preserve their position in the U.S. market. This prompts countries in the periphery to intervene with purchases of dollars in order to keep their exchange rates from appreciating.” John Taylor (2009, 8) also wondered if before 2008, “the low interest rates

interest rates in Brazil, India, or China will also be brought down to lower-than-otherwise levels. If, however, central banks in developing countries allow at least bond yields to rise slightly, this will only increase the carry for foreign investors, and bring about further inflows of artificial credit (Hoffmann 2012). It is also worth mentioning at this point that the transmission of monetary expansion between countries in different income groups, while similar in kind, will vary in degree. One likely tendency is that in between developed economies, given well integrated time markets, quick movements of capital in each direction will arbitrage interest rates in a timely fashion. Between developing and developed economies, on the other hand, it is more likely that initial differences in capital endowments and higher costs of transacting across less integrated time markets will take longer to arbitrage.

Part and parcel of this movement of capital across borders, the demand for capital goods (relatively higher order goods) in all countries increases, as entrepreneurs are embarking on new, more roundabout production processes. Moreover, as companies are part of global supply chains, or have ‘sliced-up’ production stages across different geographical areas, trade in capital goods also increases, as products in intermediate stages can cross borders multiple times to be assembled and sold in different countries. As the prices of capital goods are bid up through investment and trade, the market value of firms in capital goods industries is raised. International credit markets (commercial paper, bonds, bank loans), stock markets, and property markets—where titles for capital goods and firm debentures are traded—also experience a rise in prices (Salerno 2010, 455).

The demand for options to insure oneself against the currency and inflation risk associated with international financial transactions also increases, which heightens the price of derivative instruments, e.g. over-the-counter forward agreements or foreign exchange futures. This reflects

at other central banks were influenced by the decisions in the United States or represented an interaction among central banks that caused the global short-term interest rates to be lower than they otherwise would.”

back on the price of the assets underlying these derivatives,⁸⁷ and strengthens the participation of banks and clearing houses as counterparties to international transactions. These modifications also occur gradually, and to different extents in different countries: price changes thus depend on the pattern of demand, supply, and particular opportunities for extending the structure of production that entrepreneurial judgment reveals for each country. These differences notwithstanding, capitalist-entrepreneurs and speculators continuously rearrange their expectations, and adjust for ignorance and error, such that differences in the value of bonds, stocks, derivatives, commodities, and currencies across markets tend to be fully arbitrated.

An important part of these capital movements in the early stages of the international inflationary process is of a trade finance nature. The conditions of capital availability due to the increased supply of money allow commercial banks to undertake higher risks than otherwise, such that they are more willing to underwrite trade activities, and sustain cross-border flows and foreign investments larger than otherwise. Consider one example: the export of industrial equipment from the U.S to Brazil might not have been profitable at 5% interest rate. If the new (lower) interest rate level reaches 3%, increased investment in industrial equipment, together with an increase in the trade guarantees banks are willing to offer, enable entrepreneurs to export to Brazil, and a trade flow that previously did not exist is created. Gradually, the ability to finance trade through bank credit is increased in other countries, developed or developing, as the supply of their respective currencies is increased. International firms find it cheaper and less risky to expand supply and distribution chains across borders. In particular, companies from developing countries can easily

⁸⁷ This feedback effect is most evident in the case of Credit Default Swaps (CDSs), i.e. an insurance that investors buy to compensate for a loss if a particular debtor defaults on its obligation. The existence of CDS markets implies a permanently higher demand for stocks and bonds than if they were absent, making lenders more willing to lend (Mera 2014), as well as creating higher bond prices and lower interest rates than otherwise.

obtain funding from developed countries by issuing bonds, or arranging loans from foreign commercial banks and export credit agencies.

The stream of new money spent on capital goods to fuel new investments and international transactions subsequently trickles down from the initial borrowers to the factors of production (in wage, rent, dividend, and interest payments). How monetary inflation diffuses internationally at this stage (second in a logical, and more or less historical order) depends on two aspects: the geographical pattern of the structure of production, and the pattern in which prices of heterogeneous capital goods are affected by increased demand. Thus, in a globalized market, factor payments can be local or international: for instance, a group of high-income countries—and their industries respectively—are likely to have specialized in the production of higher order goods, while low and middle-income economies produce predominantly lower order capital goods. As a result, when entrepreneurs begin to lengthen the structure of production, owners of the factors in the higher stages of production (most in the economic North, less in the South) will experience relatively larger price increases and inflows of the new money, while factor owners from countries with lower stages (most in the South, less in the North) will thus receive a smaller—and later—share of the new money.⁸⁸ As Mises explains, “technological conditions make it necessary to start an expansion of production by expanding first the size of the plants producing the goods of those orders which are farthest removed from the finished consumers’ goods. In order to expand the production of shoes, clothes, motorcars, furniture, houses, one must begin with increasing the production of iron, steel, copper, and other such goods” (Mises 1998[1949], 559). This bias becomes somewhat self-

⁸⁸ The example is much more intuitive for North and South (capital intensive exports vs. labor intensive exports), but it also holds in the case of trade among developed economies. For example, in the production of pharmaceuticals (one of the largest exports of the U.S, E.U. and Japan), the three countries trade only high order goods (from the point of view of the final consumer good). But these goods are nevertheless in different manufacturing stages (research and development, parts and small devices, assembled equipment), so in relation to each other they are of different orders.

sustaining over the course of the boom, as higher-order firms become gradually more able to bid factors of production away from other firms.

What particular sectors of the economy will be most affected (real estate, technology and biotechnology, machinery and transport equipment, raw materials, etc.) depends on the particular shape of the boom, i.e. the areas in which most malinvestments occur. At the same time, these specific malinvestments will nevertheless bring about an increased demand for relatively non-specific factors of production, such as labor. Consequently, on international labor markets there is a shift in employment, as workers are bid up into higher stages of production with jobs made temporarily attractive to the detriment of other lines of work. This shift of labor can occur domestically—as companies use local labor force—or on an international level—through either outsourcing or worker migration. Between 1997 and 2007—with 30 million new jobs created in the OECD since 2003—1.5 million immigrants were hired in the UK, and 15 million immigrants in the United States (Dayton-Johnson et al. 2009). Similar studies document large labor migration from South America and Eastern Europe into construction and manufacturing industries, as a result of the property and industrial boom in United States and Western Europe, especially Ireland, UK, and Spain (Diez-Guardia and Pichelmann 2006). These workers' remittances to their home countries also strengthened private capital flows, and some estimates consider the value of flows to be double that of FDI for OECD countries (Dayton-Johnson et al. 2009).

Hereon, as the cash-balances of the owners of factors of production are increased through factor payments, their demand for consumer goods rises, and monetary expansion diffuses into commodity and product markets.⁸⁹ In this (third) stage of transmission, first-round receivers of the money will bid up the prices of some products—i.e. of the mix of domestic and foreign goods they purchase—based on their pattern of demand. This will further increase the cash balances of the

⁸⁹ This logical step in the diffusion of inflation is the third in the case of credit expansion, but the first in the case of 'simple inflation', where money would have not entered first on loanable funds markets.

producers (domestic or foreign respectively) of those goods. These second-round receivers will then return to the market as consumers themselves, again raising the prices of some goods produced at home or imported. The process goes on in this manner, from one level to the other, for each increase in the supply of each currency, as the market permanently tends toward equilibration the purchasing power of money. From individual to individual, and from country to country, the excess supplies of dollars, euros, yens, yuans, reals, and rupees is spent and re-spent until cash-balances and prices scale—gradually and unevenly—to higher levels. The rapidity of these changes will differ in every country, but in general—given that lower interest rates make mortgages and consumer loans more affordable, and discourage savings—the public is urged to spend excess cash balances rather than hoarding them, thus quickening the process of purchasing power adjustment.

Two factors, however, can offset the expected general increase in consumer prices for some open economies: first, as mentioned before, the increased demand of consumer goods can also be satisfied with imports from the other countries. In such instances, price inflation can lag behind the changes in prices had the economy been autarkic or less integrated in global markets (Auer and Fischer 2008, Hoffmann and Schnabl 2011). Second, a large part of the monetary expansion can also be absorbed in world capital markets by foreign central banks willing to finance the debt of trade partner countries and their governments (Garrison 2001, 115). This is particularly the case of the Chinese-American relations of over the last half of century, but more or less all countries which use dollars or euros as reserve currency, or wish to maintain their commercial position in foreign developed markets are in a similar situation. While prices are likely to increase more in these countries, price inflation in US or Eurozone is postponed.

Notwithstanding these delays, the market will eventually couple the structure of prices to the new level of cash-balances and pattern of consumer preferences (Rothbard 2009, 998). As interest rates tend to rise, clusters of investments and international capital movements that do not fit in the

preferred production structure begin to yield losses. Commercial banks halt credit expansion, capitalists abruptly retrench from their foreign investments, and arbitrageurs compete in reducing inflated asset prices (Acharya et al. 2010, 2). This pullback—generally a capital efflux—precipitates adjustment in countries previously benefitting from capital inflows, which have to liquidate the domestic credit expansion pyramided on foreign funds (Milesi-Ferretti and Tille 2010, 2). Labor force is also released from the higher stages of production, and unemployment rises—in particular for migrant workers with temporary or seasonal contracts. If the market were at this point allowed to operate freely, the ventures in which workers and resources were misplaced would be liquidated. Moreover, the ways to recuperate malinvested capital, and the actual profitable opportunities for its employment, would be revealed. However, while historically it does not take very much time for money to trickle down from the original injection to individual cash-balances and consumer prices, the crisis does not produce itself as fast.

The reason for this is that the supply of money is increased again—a phenomenon known as ‘reflation’, which is nothing but monetary expansion pure and simple (Hülsmann 2004)—which only prolongs the maladjustment of production and trade by still preventing interest rates from rising to their actual levels. As more new money enters credit markets, the gradual consequences of the change in the money relation are generated anew: the prices of capital goods and financial titles are further bid up,⁹⁰ capital movements across borders are spurred by interest and exchange rate variations, temporary employment in unproductive lines is increased, and entrepreneurs are further impeded toward completing and enlarging previous malinvestments, rather than adjusting production correctly. The situation can go on in this manner for long periods of time, until interest

⁹⁰ One particularly interesting example of asset price increases after crisis is offered by the action of financial institutions building up their portfolios, as governments increase their demand for finance, and the low interest rates are hurting their revenues. As a result, a OMFIF 2014 report shows, banks hold approximately \$29 trillion of market investments –out of which \$13.2 trillion belong to central banks and foreign exchange reserve managers – an equivalent of 40% of the global bond market (OMFIF 2014).

rates must rise, until the underlying scarcity of capital becomes unavoidable at last. However, if and when recession sets in, reflation is shrewdly rebranded as either a counter-cyclical policy (O’Connell 2010), or—if part of international action such as IMF loans—as foreign aid (Addison et al. 2011).

Three points need to be stressed one more time before we complete this analysis and move on to applying this framework to explain the recent evolution of the pattern of trade in Chapter 6. First, during periods of monetary expansion, the increase in the capital available for trade finance and foreign investments is not due to the higher savings of the population. By the same token, the movements of capital across borders are not the result of an increase in the foreign demand for money, or a real increase in opportunities for production in foreign countries (so-called *pull factors*). The outgoing flows of capital from expansionary countries, and the transmission of inflationary booms among open economies are rather the by-product of artificially low interest rates.

Second, even if markets quickly adjust exchange rates to anticipated purchasing power parities between trading countries, this does not alter the fact that the relative profitability of different stages of production has been changed. The increased profitability of the higher stages of production in the United States, for example, is not offset by the appreciation of the euro or the yen relative to the dollar.⁹¹ This is because even if the price premium were completely anticipated—which is not the case when new money enters loan markets first, and for the time it does not reach commodity and services markets—“it [could] never entirely remove, even as far as credit operations alone are concerned, the effects of changes in the money relation; it [could] never make interest rates neutral” (Mises 1998[1949], 533) in the context of continued monetary expansion. Consequently, the expansionary effects of a boom cannot be stopped from spilling over

⁹¹ For a detailed explanation of the spillover effect during the Great Depression, cf. Robbins (1947[1934], 173-5).

internationally, into foreign capital-producing industries, by a floating exchange rate regime (Giovanni and Shambaugh 2007).

Third, and more importantly, the Cantillon effects of monetary expansion accomplish their social consequences even if all central banks coordinate their policies, and even if capitalist-entrepreneurs have low inflationary expectations. Again, as Mises explains, “even if all factors were to know correctly and completely the quantitative data concerning the changes in the supply of money (in the broader sense) in the whole economic system, the dates on which such changes were to occur, and what individuals were to be first affected by them, they would not be in a position to know beforehand whether and to what extent the demand for money for cash holding would change, and in what temporal sequence, and to what extent the prices of the various commodities would change” (Mises 1998[1949], 544).

Internationally, therefore, each monetary expansion creates a new point of origin and channel for lowering the purchasing power of money. For each increase in the supply of money and credit, multiple strands of both consecutive and concomitant price changes are taking place, staggered and uneven. The structure of production is each time modified, and each time different patterns of wealth redistribution emerge, as the receivers of the new money in each round are not the same persons from country to country, nor from one inflationary episode to another. For each expansion of the supply of money and credit, its connate social and economic effects are carried through beyond recall.

In the remainder of this thesis, we will now apply this theoretical framework to analyze the developments of the global economic environment over the last few decades. In particular, in Chapter 6, I will offer an explanation of the recent evolution of capital and merchandise flows from the point of view of the evolution of money supplies, and show that changes in the pattern of trade (its size and structure) can be traced back to the Cantillon effects of monetary expansion.

CHAPTER 6

THE CONSEQUENCES OF MONETARY EXPANSION FOR CAPITAL AND TRADE FLOWS

From the previous chapters of this dissertation—which focused on a theoretical assessment of Cantillon effects and the relationship between monetary expansion and international trade—, four general conclusions can be drawn, which are overarching for the analysis in this chapter. First, a sound monetary system is the main institutional infrastructure that allows for the development of global markets. Second, and as a result, expansionist monetary policies have a deep negative impact on financial markets and global trade, by falsifying entrepreneurial calculations, and leading to business cycles and Cantillon effects, i.e. price revolution and large scale redistribution of wealth. Third, these business cycles, price changes and social consequences cross national borders, and spillover onto foreign markets as a result of financial globalization. Fourth, and finally, a large contribution is made also by national trade policies and trade agencies (such as ECAs, chambers of commerce, or trade ministries), and by central bank cooperation, who deepen these effects of inflation and credit expansion on international trade.

Let us now apply these insights to recent historical experience, and look at these effects of monetary expansion in some more detail. In section 6.1 we will first analyze the cash-induced changes in the pattern of capital flows—i.e. foreign direct and portfolio investments, trade finance, and cross-border bank lending, with regard to their direction, composition, volume, and value. Section 6.2 focuses on the same aspects in the case of international merchandise trade flows, discussing specialization patterns, international demand, and trade finance effects. As we shall see, our investigation reveals that increases in the supply of money (which lower the purchasing power of money and artificially depress interest rates) lead first to a rapid increase in the volume and value of trade and capital flows as a result of the overall economic boom they engender. Second, this

‘trade boom’ is underlined by an inter-temporal reallocation of capital and resources on an international level (from the lower stages of production toward the higher stages). These effects further extend to a geographical reallocation of resources—concentrating capital and trade in the more developed countries which host these higher production stages—as well as to a bias in the composition of world trade flows toward higher order, technologically intensive capital goods. These modifications represent the reallocational aspects of Cantillon effects of monetary expansion.

6.1 GLOBAL CAPITAL FLOWS

Foreign direct investments and foreign portfolio investments are main vehicles for the internationalization of production in today’s market economy. These flows of capital seek to take advantage of the better conditions for production in various regions of the world, tending toward the full arbitrage of factor prices and wage rates for the same kind of labor. The areas which are endowed with a larger capital supply provide in this manner the capital for other less-endowed areas, which however may be richer in natural resources or labor force.

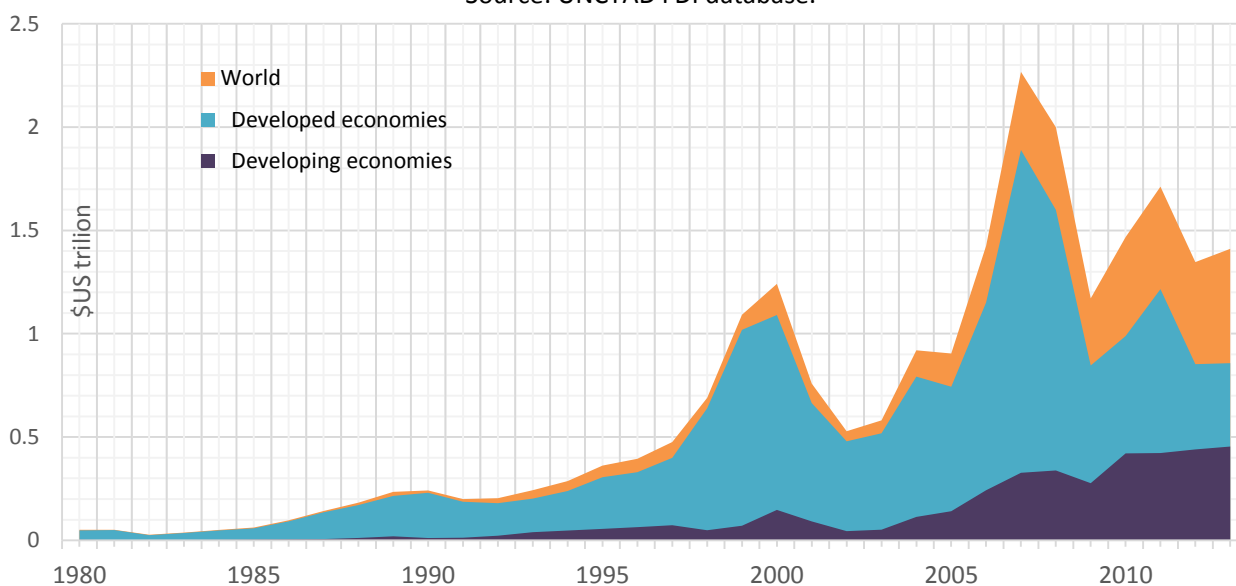
Furthermore, these cross-border investments embody technology and management techniques, but most importantly, they are supposed to represent an infusion of savings from countries with relatively lower rates of time preference (funding countries). Productive opportunities thus exploited in countries with relatively higher rates of time preference (recipient countries) should lead to greater returns on investments for foreigners, and to an increase in the capital stock of recipient countries—or in other words, to the genuine economic growth of both trading partners. Nonetheless, in the context of the artificial expansion of the money supply, these cross-border capital flows are subject to distortion as a result of Cantillon effects.

Foreign investments

A first indication of this distortion is the ill-matched evolution of savings and foreign investments since the 1980s in particular. On the one hand, the last three decades have witnessed a slow downward trend in savings in both the developed world and developing world—e.g. in the U.S., net national saving dropped from 8% of GNI in 1950 to 2% in the 1990 (Schmidt et al. 1994, 3-5). Yet, while savings have represented less than 20% of developed countries' Gross National Income over the last three decades (World Bank 2013), international capital flows—composed of loans, foreign direct investments, and foreign portfolio investments—rose from single-digit percentage of world GDP in the 1980s to 20% in 2007. As can be observed in Figure 6.1, the volume of outward foreign

Figure 6.1: Outflows of FDI (1980-2013)

Source: UNCTAD FDI database.

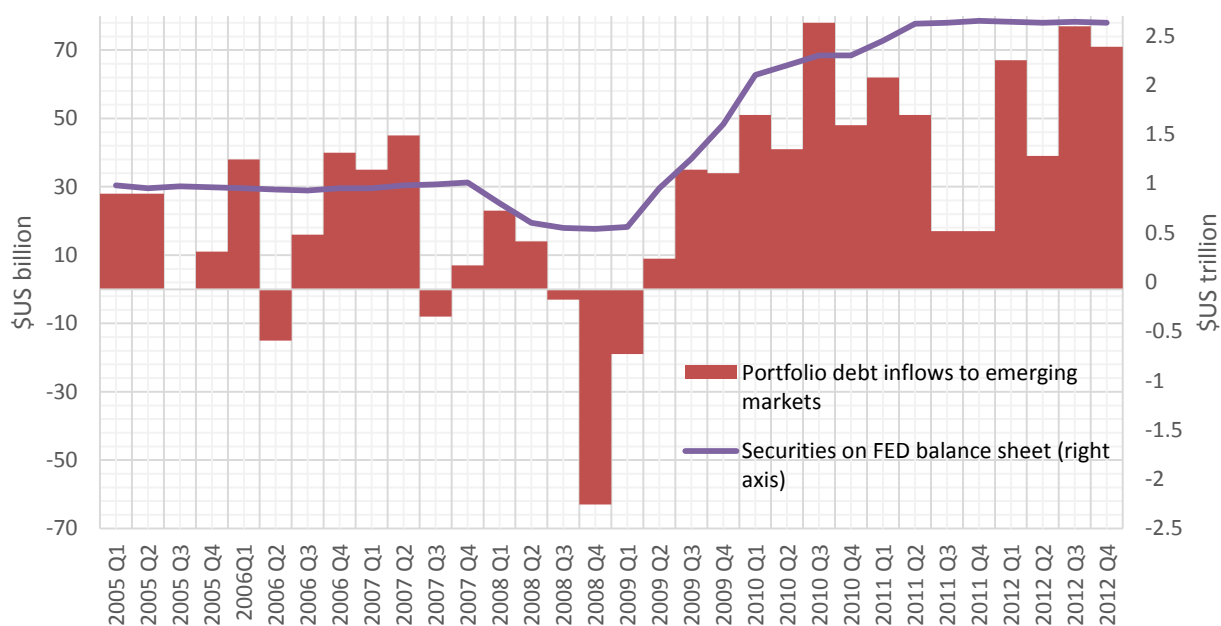


direct investment (from both developing and developed countries) has more than quintupled since the early 1990s, peaking at a world total of \$US 2 trillion in 2007. Notably, the otherwise steady upward trend has been interrupted by three recessionary periods in the United States— 1990 to 1991, 2001, and more recently, 2007 to 2009—when foreign investment flows dropped significantly. The extent of the collapse was connected also to the severity of each crisis on the stock market. Most recently, the year 2008 and the onset of the Great Recession singlehandedly

brought about a 20% drop in global FDI (UNCTAD 2009). These capital flows have not constituted an infusion of genuine savings from developed to developing economies, but a by-product of monetary expansion.

This analysis is applicable in the case of foreign direct investments as well as of foreign portfolio investments (FPI). FPI assets, purchased by investors to take advantage of the differences between countries' supply and demand of loanable funds (Grimwade 2003, 113), provided recipient companies and countries with funds to finance additional productive investment. Therefore, with monetary expansion, cross-border portfolio investments arbitrated interest rates down across countries, to levels lower than otherwise, which further led to the expansion of production into the higher stages. The acquisition of company stocks and bonds from an expanded money supply artificially increased the market value of companies being funded, and inflated asset prices in trade partner countries. Conversely, when foreign investors acquired government bonds—these playing a large part in their portfolios (Gruic and Schrimpf 2014)—, they funded government spending and financed the local budget deficit (Joseph et al. 2014). The acquisition of stocks (equity networks)

Figure 6.2: Quarterly evolution of portfolio flows and U.S. post-crisis QE (2005-2012). Source: Dobbs et al. 2013, 37.



and bonds (debt networks) in foreign companies and countries also became increasingly attractive after the crisis, due to interest and currency spreads created by different national rates of monetary expansion in response to the slow economic recovery. As can be seen in Figure 6.2, emerging-market bonds attracted a large share of the easy money put in circulation after the crisis by the United States Federal Reserve as part of their quantitative easing stimulus program. As a result, portfolio debt flows to these markets increased steadily after 2009, with a visible drop during the second dip of the recession in the European Union.

A particular case of foreign portfolio investments is that of carry trade, which had also burgeoned during these periods of monetary expansion. These transactions—which are distinguished by their aspect of ‘currency mismatching’⁹²—were expected to yield profits as long as investors anticipated that an unfavorable movement in the exchange rate⁹³ (an appreciation of the funding currency) will not outweigh the assets’ yield (Galati and Melvin 2004, 69). And truly, while monetary authorities in countries receiving carry trade funds inflated their own currency to maintain exchange rate stability, investors’ anticipations were confirmed. But as this happened, the credit worthiness and sovereign ratings of these developing economies also rose, as more capital inflows reduced the default risk of their assets, which in turn further attracted foreign investments, and prolonged and reinforced the boom (Hoffmann and Schnabl 2007, 3). As Bagus and Howden (2011, 42) explained for the case of Iceland, “artificially low interest rates in Europe, the U.S., and Japan deceived entrepreneurs about the availability of real savings not only in their own currency

⁹² In carry trade transactions, investors borrow in a low interest rate currency (for example, the yen, called funding currency), and invest on a longer term on assets – government paper, deposits, commercial paper – denominated in a higher interest rate currency (for instance, the Brazilian real, the target currency).

⁹³ In order to protect themselves from adverse scenarios, investors also buy currency swaps which allow a small sum of money to be made available each year (or other predetermined time period) to compensate for unfavorable changes in the exchange rate. However, currency swaps no longer work when interest rates between shorter and lower maturities are also artificially driven down. As a result, when short-term foreign debt comes due in the crisis, there is a sudden need for foreign currency to retire the debt (Bagus and Howden 2011, 40-2), and carry trade unwinds rapidly.

areas but also in Iceland. [Consequently]... not only were Icelanders undertaking more investment in foreign currencies than real exchange rate risk would suggest was prudent, but more foreign currency was invested in Iceland than foreigners were saving.”

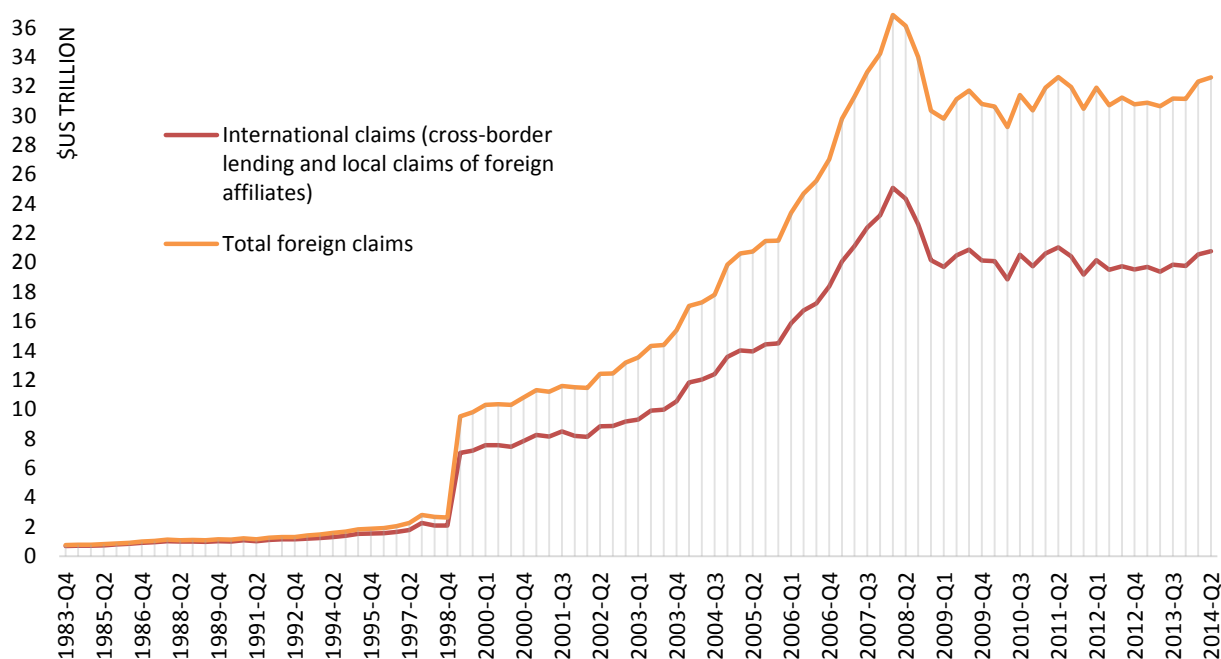
Cross-border bank lending and trade finance

Alongside foreign investments, the expansion of cross-border bank lending is also considered to have great benefits in the long run for individual economies, by stabilizing their national banking systems through an international network of inter-bank relationships. Scholars thus argue that cross-border bank lending leads to the diversification of borrowing sources, which in turn reduces the exposure of banks to domestic shocks and the overall fragility of the banking system (Hills and Hoggarth 2013, 126-7). However, this close interbank cooperation (part and parcel of the central bank cooperation discussed in Chapter 5) also means that banks which operate internationally—or that are part of cross-border lending networks—make decisions in one country which are conditioned by the financial conditions in other countries. In other words, if in developed economies such as the US, EU, or Japan the artificial reduction of interest rates (due to monetary expansion) leads to easier access to funding, this in turn reduces lending and borrowing conditions across the markets where international banks operate, i.e. in developed markets as well as in emerging markets. Conversely, during periods of crisis, as most banks precipitate to reduce their exposure, capital retrenchment first has an impact on foreign markets, but unavoidably also on home markets later on.

Over the last decades, the evolution of cross-border bank lending has mirrored that of foreign direct investment and foreign portfolio investments, but its volumes have nevertheless surpassed them greatly. As shown in Figure 6.3, the late 1990s and early 2000s brought about a surge in cross-border bank lending volumes across the globe from US\$ 6.5 trillion in 1999 to an all-

time record level of US\$ 22.4 trillion in the third quarter of 2007, while total foreign bank claims reached another record level of \$US 36 trillion. The Eurozone accounted for between 39.8% and 45.6% of total cross-border bank lending volumes during this period, according to BIS data. As of 2013, only the outstanding stock of cross-border bank claims on emerging market economies stood at more than \$3.5 trillion, i.e. roughly as large as the stock of all portfolio investment in those countries (Avdjiev and Takats 2014).

Figure 6.3: Cross-border bank lending volumes, quarterly data (1983-2014). Source: BIS Consolidated Statistics, 56 countries reporting sample



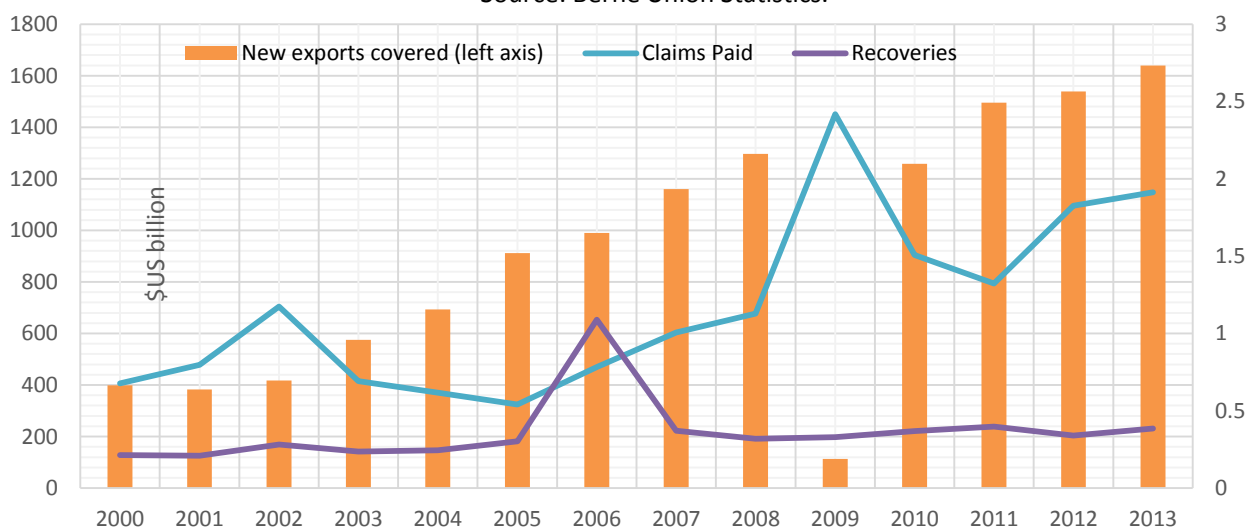
A particular case of capital flows, and of cross border bank lending is that of trade finance, an especially important channel through which monetary expansion distorts international trade. Foreign investment modifies the structure of trade by first modifying (temporally discoordinating) the structure of production, whereas trade finance also alters the financial behavior of firms and financial intermediaries. Nonetheless, as we have seen in Chapter 5, official trade finance in particular can also have a compounding effect on the former changes, by channeling trade into particular sectors and geographical areas. Because it forms an integral part of financial

intermediaries' activity on the one hand, and of entrepreneurial financial decisions on the other,⁹⁴ it is important to see how the volume and direction of trade finance responds to changes in the money supply.

Part and parcel of the overall credit expansion, trade finance increases during booms, and dries up as soon as the financial crisis sets in. To illustrate this—given that trade finance data are scarcely available⁹⁵—, we can use the volume of trade credit insurance as a proxy. In Figure 6.4, we

Figure 6.4: Export credit insurance ST (2000-2013)

Source: Berne Union Statistics.



⁹⁴ Qualitatively and quantitatively, trade finance has an important impact on trade, as far as bank (intermediated) credit is crucial to the financial decisions of trading firms. In absolute terms, Beck et al. (2008) surveyed companies in 48 countries to discover that on average, 41.62% of their investments are externally financed, mainly from bank credit from domestic and foreign institutions, out of which 10% are trade finance loans. Alternatively, some scholars (Chauffour and Malouche 2011, Liston and McNeil 2013) estimate that almost 80% of all trade transactions rely on some form of trade finance, e.g. bank intermediated loans, inter-firm trade credit, or open account transactions. More importantly, however, the impact of trade finance on the evolution of trade appears to be even larger in relative terms. For instance, equity finance accounts for an average share of 8% of external finance in high income countries, and merely around 3% in middle income countries. With so little equity and so much debt, entire countries and entire industries may in fact rely on institutional trade finance and trade credit to support both their foreign purchases and foreign sales, especially if they are integrated in long international manufacturing chains (Manichini 2011).

⁹⁵ Auboin and Engemann (2012, 5) explain the lack of data as follows: “One reason is statistical segmentation between inter-firm credit, collected through enterprise surveys or customs data, and bank-intermediated data, which comes from bank reporting. The former statistics, when accounting “open account” financing, hardly differentiates between trade finance and other forms of short-term cross border finance. The latter, about inter-bank credit, is often based on old exchange controls-based collection system or outdated surveys.”

can observe the volume of short term (ST) new exports covered by Berne Union members increased constantly between 2000 and 2008, collapsing in 2009 to a tenth of its 2008 value. The loss ratio, i.e. claims paid relative to premium income jumped from 45% in 2007 to 88% in 2009, indicating the low quality of previous underwriting activities, and a high operational loss for trade finance (Morel 2011, 344-5). At the same time, the volume of claims paid doubled, from \$US 1.1 billion in 2008 to \$US 2.4 billion in 2009. In the case of medium to long-term insurance (MLT), new business insurance volumes dropped slightly less than new short-term insurance during the most recent financial crisis, but the volume of claims paid tripled, to a little more than \$US 3 billion in 2009. For foreign investments insured by the Berne Union, the claims paid totaled \$US 17 million in 2008, but reached \$US 81 million in 2009.

In addition, while buyers defaulted in every geographical region of the world, the highest volumes of claims paid were in the United States and in Western European countries, such as United Kingdom, Italy, Spain, and Germany, which comprised almost a third of the total claims. Overall in 2009, there was a 60% year on year increase in trade related defaults in developed countries (Morel 2010). For emerging markets such as Brazil, Mexico, Russia, Turkey, and Ukraine, claims paid amounted to 23% of the total over the same year, although only 6% of total short term credits were extended toward companies in these markets. But the surge in Berne Union claims paid in this second case proves more dramatic, given that the year on year increase in defaults of insured traders in emerging markets was 435% in 2009 (Morel 2010). Finally, it is also worth noting that, while between 2003 and 2007, the overwhelming majority of claims paid were the result of defaults due to political risk, in 2009, lending risk related defaults reached 42% of the total. Adding it all up, the trade collapse of 2008-2009 was thus accompanied (and partially triggered by) a collapse in trade finance.

Banks responded to these developments in trade finance with stricter risk management practices: they began to limit their trade finance-related exposure, shortened loan maturities, and required greater collateral from their clients (Auboin and Engemann 2013). Along with this, trade finance pricing margins—which most banks believed were artificially low before the crisis—began to rise (Asmundson et al. 2011, 93). The net bank lending levels to emerging markets dropped from an all-time high of US\$ 410 billion in 2007 to \$167 billion in 2008, and to negative levels in 2009 (Griffith-Jones and Ocampo 2009, 7). However, these tendencies were more than offset by the accelerated intervention of world governments, whose trade finance activities rose by 9% in 2009 (Chauffour, Saborowski and Soymezoglu 2011, 276). As shown in Table 6.1 below, the share of ECAs in the global trade insurance markets is estimated to have increased by 13% since the beginning of the most recent financial crisis.

Table 6.1: Market shares in export credit insurance (short term)

Source: Berne Union (2013); Morel (2011).

	Commercial banks	Export Credit Agencies
2006-2008	85%	15%
2009	79%	21%
2010	72%	28%

In some cases, like that of Brazil, governments used their foreign exchange reserves to support local exporters now deprived of international trade finance lines (Carvalho and Fry-McKibbin 2014; Gallagher and Prates 2014). The largest interventions were however of a global nature, and were led by multilateral development banks. For example, the European Bank for Reconstruction and Development increased the overall limit of its Trade Facilitation Program from €800 million to €1.5 billion. The African Development Bank established a Trade Finance Initiative as a part of a broader crisis package, offering trade finance credit lines in total amount of US\$ 1 billion. The Inter-American Development Bank approved more than US\$ 1.2 billion in credit lines, and US\$ 800 million in guarantees and loans for Latin America and Caribbean exporters via its

Trade Finance Reactivation Program (Auboin 2011). The Asian Development Bank pushed its Trade Finance Program to an upper limit of approximately US\$ 3 billion in loans and guarantees granted to over 200 banks from Asian markets (Putz et. al. 2011). Finally, international cooperation culminated with US\$ 250 billion offered by the G-20 to support trade finance between 2009 and 2011, together with the World Bank Global Trade Liquidity Program of US\$ 50 billion (Hallaert 2011, 247). By the end of 2009, the medium to long-term exposure of export credit agencies around the world had reached a total of US\$ 511 billion (Morel 2010). The increase in trade finance registered in 2010 was thus the result of a stimulus package targeted to ECAs and trade finance providers (Senechal 2011, 360). This addition to the liquidity injections of national central banks into the banking system in general further prevented credit contraction on trade finance markets, and the rise in interest rates. And as we shall see more in the next section, it also maintained the distorted structure and pattern of international trade flows that had emerged during the boom.

The main consequences of this type of evolution of trade finance on the financial behavior of firms and financial institutions are worth reiterating before we move on to the next section.

First, the expansion of credit made trade finance more affordable, as commercial banks and other trade finance providers were able to lessen the financial constraints of companies that wished to trade internationally. Second, the expansion of the money supply enabled banks to underwrite high risk transactions, and to offer loans with very low conditionality. Financial intermediaries could thus support the transactions of firms with lower shares of tangible assets and less ability to provide collateral, firms which otherwise would not have qualified for funding or insurance. The programs of export credit agencies have had similar consequences, but in addition, ECAs' ability to extend long-term loans for even lower interest rates and even less collateral compounded the distortions in production brought about by credit expansion, because it further enabled firms to seek investment and trade opportunities in the higher stages of production.

Third, these effects of trade finance on the structure of trade were also be ‘redistributed’ via inter-firm trade credit. In general, a firm’s suppliers can access credit markets for their own businesses, and obtain working capital loans at lower-than-otherwise interest rates during monetary expansion. All other things equal, the easier it was to obtain funding during the most recent boom, the more willing firms were to extend trade credit to their commercial partners.⁹⁶ In addition, suppliers which might have malinvested their funds during a boom might have actually felt ‘forced’ to extend credit to their constrained buyers when recession hit, to reduce their losses over time. As a consequence, financially stronger firms ‘intermediated’ finance for weaker firms, which could not receive it on their own (Ferrando and Mulier 2012), sometimes extending such finance to maintain their own activity. Furthermore, because a company’s accounts receivable were used as collateral for additional loans from financial institutions, even less financially healthy firms had strong incentives to extend trade credit to their partners. In this manner, artificially expanded bank credit was redistributed further via inter-firm trade credit (Love et al. 2007), not only within one country, but also across national borders.

6.2 INTERNATIONAL MERCHANDISE TRADE FLOWS

If the growth in the supply of money and credit increases investment and production to unsustainable levels, world trade also increases, as a result, to unsustainable levels during period of monetary expansion. Over the last two decades, world merchandise trade volumes increased by a factor of 5, reaching \$US 15 trillion in 2008 and \$US 19 trillion in 2013. Developing countries in particular experienced a 600% increase in the total volumes of trade only between 1990 and 2008.

⁹⁶ On an unhampered market, trade credit is a source of finance between partners (suppliers to buyers, or vice-versa), an alternative to institutional financing (Petersen and Rajan 1997). Its advantages derive from the fact that a firm’s suppliers—unlike financial institutions—have better information and control over the contract, over the credit worthiness of the debtor, as well as over recuperating their investments in case of default.

More importantly—as we have seen before—world trade grew at a faster average annual rate than world output, and was much more volatile than world production (Griffith-Jones and Ocampo 2009, 9). This data corroborates the insight that monetary expansion created an ‘international trade boom’ or an ‘international trade bubble’, part of the same process which brought about the better documented asset bubbles⁹⁷.

As with any such increases in prices and production during periods of boom, the changes in the volume and value of trade flows were necessarily underlined by changes in the direction and structural composition of capital and trade flows, which resulted from the differential impact of monetary expansion on different markets and prices, as well as on individual cash balances in different countries. Furthermore, as business cycle theory indicates, when interest rates were artificially lowered, investments within and *across* countries concentrated into the more temporally distant stages of production—such as (but not necessarily) research and development, high-tech manufacturing, or resource extraction—relative to the lower stages—such as low-tech manufacturing, agriculture, wholesale, or retail. This led, in other words, to the intertemporal discoordination of international production. As long as monetary expansion went on, investments continued to be channeled toward particular sectors of the economy that produced higher order capital goods, and toward the geographical areas where these stages of production were located. In this manner, the allocation of resources on an international level was artificially modified.

⁹⁷ There are several reasons for the change in the structure of trade which are endogenous to the normal market mechanisms. Increases in specialization can naturally lead to increases in trade connections and the volume of merchandise crossing national borders, absent barriers to trade. In turn, significant reductions in trade barriers can also lead to overall trade growth. Demographic changes and changes in preferences and demand can then modify the direction and composition of merchandise trade flows. But as we have seen before, while their impact is not negligible, the spectacular as well as volatile growth of international trade, and the overall increases in the prices of traded goods over the last decades cannot be satisfactorily explained by technological, political, or other such non-monetary factors.

As a result of these changes, the network of exports and imports (as well that of global supply chains and inter-firm commercial relationships) was modified in a similar manner, because the profitability of the higher stages of production was enhanced both in terms of investment as well as trade. One reason for this was the fact that production stages and production structures overall were sliced up across world regions, such that capital and intermediate goods crossed national borders as part of intra and inter-firm transactions. As Kollar (2008, 34) explains, “if these stages are located in different countries and free trade remains, what follows is an increase in trade in general, and an increase in vertical intra-industry specialization along each particular production structure (i.e., industry) in particular.” However, more importantly, increased imports and exports of capital goods were fueled by an (artificial) reduction of the cost of capital, and an (artificial) increase in the financial resources available to entrepreneurs. This heightened financial integration between time markets—also synchronizing business cycles—and led to the growth of cross-country investment and trade in sectors such as machinery, transport equipment, and intermediate goods (Oda 1999, Eaton and Kortum 2001, Mutreja et al. 2014). Let us now analyze in more detail these aspects.

The specialization pattern

First, the artificial expansion of credit and the subsequent absorption of investment (FDI, FPI and bank credit) by technologically advanced countries reinforced a pattern of specialization that need not have prevail under a free market with an unhampered monetary system. This reinforcement occurred however because continued monetary expansion created both an artificially more roundabout production structure, but also maintained its geographical distribution by concentrating

investment in the countries which already produce higher order capital goods.⁹⁸ For instance, as of 2012, Japan, UK, and France held approximately one-fifth of global FDI inflows, while the United States remained the top destination of capital investments from the rest of OECD area (OECD 2013a). Continued investment in physical capital (infrastructure, transportation, plant, machinery and equipment) reduced trade and production costs, and thus increased the supply and trade capacity of these already big international players (WTO 2013). However, both the reduction of costs and the increase in capacity proved to be unsustainable in the longer run, as they depended on the expansion of the supply of money and the artificial decrease in interest rates.

However, the concentration of the higher stages of production in few already developed economies did not preclude the existence of spillover effects. Foreign inflows of capital from developed countries to emerging markets also led to the development of new players in world trade, through the same (artificial) reduction in trade costs and (unsustainable) increase in the trade and production capacity via investment in physical capital. Data corroborates this insight, as the capital structures of emerging markets showed a gradual development toward the higher stages of production, spurred by inflows of cheap foreign capital⁹⁹ in search of high-yield investment opportunities. As shown in Table 6.2, compared to their 1990 average value of US\$ 16.1 billion, FDI to developing countries in the manufacturing sector had increased to \$US 121 billion by 2006.

⁹⁸ When this tendency of global capital to flow rather to developed than developing countries was first observed (Lucas 1990), scholars tweaked several assumptions of the simple neoclassical models of trade and growth, including heterogeneity of labor and capital markets imperfections in their analyses. But the fact that this direction of capital flows was the result of an artificial lengthening of the production structure – feasible mainly in the already developed countries – as a result of the reduction of the interest rate was not a question explored by standard research.

⁹⁹ The concentration of production and exports in higher stages even in developing countries may explain the so-called ‘natural-resource curse’, in which the dependence on primary product exports stifles economic growth. One possible reason, therefore, is that because the boom appears in developed countries, the demand and profitability of natural resource production is increased relative to other sectors. The growth of exports – together with government policies that preclude abandonment of export lines once they are revealed as unprofitable – could explain why, over the course of decades, there is very little export diversification in developing countries. Cf. Cadot et al. (2011).

In general, FDI to the primary, manufacturing, and services sectors increase by a factor of 7 up to a factor of 16 since 1990.

**Table 6.2: FDI to developing countries,
average investment by sector**

Source: UNCTAD 2009, 93; \$US billion.

	1989-1991	2005-2007
Primary	3.9	46.8
Manufacturing	16.1	121.0
Financial services	9.3	161.4

Moreover, the emerging economies most favored by this international reallocation of investment and resources were the ones already equipped (with infrastructure and skilled labor force) to produce higher order capital goods, tendency which reaffirmed the concentration of capital goods production in countries with high levels of economic and technological development. As these countries continued to accumulate capital—not through savings, but through commandeering a larger share of the foreign credit expansion and a larger share of the scarce resources—in time, their comparative advantage changed also in favor of capital intensive exports.

Finally, as we have seen in the previous section, foreign investments also facilitated the production and trade of capital and intermediate goods by integrating national companies in global supply chains, or by purchasing from domestic suppliers and encouraging local firms to invest more (Mileva 2008). This causal link was furthermore supported by the fact that the financial crisis was felt more acutely in the regions most dependent on foreign capital, once the latter dried up during 2008 and 2009. The recent recession had thus a relatively larger impact on high-income emerging markets—East Asia and Pacific in particular—which attracted most of the developed country FDI during the boom. In other regions, however, and especially in Africa, the crisis had less of a financial edge, being more a byproduct of the change in the international business environment (UN Regional Commissions 2009). This evolution was in line with the World Bank calculations (2013, 32), according to which, since the 1980s, the world capital stock had gradually been moving toward the developing world and concentrating in high-income developing countries—almost twice as

much in East Asia and Pacific regions than in North, Middle East, or Sub-Saharan Africa. The same reasoning and causal link appeared to be valid when applied to exports and imports, as high and upper-middle-income countries' exports (East-Asia and Pacific) were more affected by the crisis than lower-middle and low-income countries (Africa) between 2008 and 2009 (Haddad et al. 2011).

Composition and direction of trade flows

The changes in the structure and direction of international production and trade that resulted from monetary expansion stemmed from both the reduction in interest rate as well as from the scaled down costs and risks of business internationalization. In this respect, the consequences of monetary expansion were best seen in the evolution of global supply chains and commercial partnerships between firms. International production in a globalized world presupposes the extension of one firm's activity to include more stages of production in different countries (vertical integration), slicing-up the same stage of production across borders (horizontal integration), or inclusion of the firm in a supply chain. As a result, a particular set of trade flows arises, called either intra-firm trade (vertical and horizontal), or 'arm's length' trade. These commercial relations, however, are very sensitive to changes in the supply of money: artificially low interest rates heighten the profitability of and the incentives for horizontal or vertical expansion of firms, and mislead entrepreneurs' judgment and their financial decision making in global markets.

When monetary expansion in a funding country induced some firms to expand horizontally through FDI, this led to an increase in the business activity—and the creation of a *similar* boom—in the recipient country. As a general example, when industrial producers in the U.S. decided to move part of the production to Brazil—taking advantage of tax policies, location advantages, low labor, trade, or transportation costs, richer natural resources (Lu 2007), or economies of scale and scope—, the industrial bubble in the U.S. inflated same-sector industrial production in Brazil. In such cases,

the two countries began to produce more of the higher order goods—albeit maybe of a different quality and price—lengthening their structures of production beyond capital endowment capabilities. Furthermore, as both countries’ industrial sectors expanded, their price competitiveness on international markets increased, leading larger exports of capital goods.

A result of this development in recent years is visible in the increased convergence in the export structures of advanced countries, as well as those of emerging market economies. This tendency is still a complicated case for trade scholars, as standard theories of financial and trade integration point to increased trade specialization rather than similarity of export structures. However, in Europe for example,¹⁰⁰ technologically intensive exports have gradually expanded both in the West as in the East—Hungary, Poland, or the Czech Republic—(Kaitila 2013), while in the United States, high-tech exports have been extended to Latin American countries (Acharya et al. 2013, IMF 2012, 28). Across the OECD area, scholars found that while technological specialization increased as a result of trade integration, overall export specialization decreased, and has steadily done so between the 1960s and 1990s (Dalum et al. 1998). More recently, for the case of Europe in particular, scholars found that “at the industry level (HS2), EU15 countries’ exports became more specialized before the introduction of the euro and less specialized thereafter” (Kaitila 2013, 3), an insight that contributed to the argument that increased export convergence between trading partners may be also the result of expansionary monetary policies lengthening the structure of production toward the higher stages.

In the case of vertical integration or vertical expansion, the production of higher order capital goods (upstream), as well as the distribution of such goods (downstream) was gradually included within a single firm’s activity. Empirical studies showed that during economic booms, these supply chain linkages responded to the abundance of credit in a similar manner as domestic

¹⁰⁰ In some cases, parent companies in advanced countries have explicitly used their affiliates in a trade partner country as an export platform for the rest of the world (Helpman 2006).

production chains (Koopman et al. 2010, Levchenko et al. 2010, Engel and Wang 2011). For instance, a boom created in a funding country induced firms (e.g. an electrical company) to expand vertically (e.g. acquire or create a company in the extractive sector), and thus led to the creation of a *complementary* boom in the recipient country, in the sector which ‘supplied’ the increased demand. The same impact has oftentimes also manifested downstream, via an increase in the activity of buyers and distributors of the firm in the inflationary country, e.g. electrical product manufacturing, industrial machinery, transportation, or even further downstream to telecommunications and appliances manufacturing.

As just one example, in 2013, copper mines in Chile have reached an ten-year peak in output due to the increased demand of Chinese electrical companies (Craze and Quiroga 2013), only to fade once China’s growth began to slow down in the second half of 2014 (Cambero and O’Brien 2014). Along the same lines, another boom has formed in the manufacturing sector in Mexico since the 2008 crisis, fueled by increased exports of natural gas from the United States. The latter have increased by 11% in 2014, the price of U.S. pipe gas being much cheaper than any other fuel alternatives, including Mexico’s own resources (Ailworth 2014). Affordable foreign fuel—due also to quantitative easing programs which stimulated industrial activity—has doubled the production of electricity, automobiles, and petrochemicals in Mexico since 2009. It has also attracted new foreign investments, as auto makers from Japan, Korea, or Germany have already opened new plants south of the U.S border, or intend to do so by 2019 (Ailworth 2014).

In the case of trade finance, borrowing constraints are different for different industries, such that the sectoral composition of a country’s exports dependd on which—and how many—producers obtain sufficient capital to produce for and sell in international markets (Manova 2008). But when borrowing constraints were lowered across industries due to monetary expansion, firms that did not previously qualify for funding were now enabled to trade internationally.

As a result, exports and imports responded to the fluctuations in trade finance as follows: on the one hand, more new products were developed and traded with the newly obtained working capital—in other words, trade grew on *the extensive margin*. On the other hand, with the decrease in risk and the cost of insurance, existing exporters were able to lower their prices, and expand the volume of goods shipped to overseas markets, i.e. trade grew also on *the intensive margin*. In both cases, the overall volume and value of trade increased. As to the pattern of trade, countries which were ‘endowed’ with faster credit growth and more developed financial systems gradually specialized in producing the goods and services which were most reliant on trade finance—link confirmed by numerous empirical studies (Svaleryd and Vlachos 2002, Beck 2003). At the same time, countries that had already specialized in the production of financially intensive goods had a higher demand for trade finance, and thus for financial intermediation and credit growth¹⁰¹ (Do and Levchenko 2006).

With regard to the structure of production, firms in the higher stages of production—as part and parcel of their increased absorption of capital investment during the boom—demanded and thus commanded higher volumes of trade finance and inter-firm trade credit. As a result, trade was further skewed toward these higher stages, compounding the effects of the foreign investment channel. It is also likely that these large firms (especially from developed countries) had better access to trade finance, and crowded other firms out of capital markets, a trend partially offset by the increased availability of loans from export credit agencies. In either case, however, the structural composition of international trade was modified, mainly toward complementing a funding

¹⁰¹ It is thus worth pointing out that countries in which the financial sectors develops relatively faster—as a direct result of credit expansion and fiat inflation—gradually specialize in the provision of financial intermediation and trade finance to both local and foreign firms (Mao and Yao 2012). Monetary expansion, therefore, is not only transmitted via the trade finance channel, but also alters the very pattern of trade finance services across the world. The comparative advantage for trade finance provision, in this case, resides not with the countries best endowed in capital and savings, but with those with the most accelerated rate of monetary expansion.

country's structure of exports. Furthermore, depending on the particular targets of trade policies and official trade finance programs, international trade flows increased in the financially privileged sectors such as aircraft, telecom and satellite, or infrastructure. Exports also increased toward the generally preferred destinations of most ECA funding, such as United States, Russia, Brazil or India (Morel 2010). Thus, the activity of the more financially strong ECAs biased the structure of their host-country trade, as well as that of its trading partners. Firms in developing countries obtained loans from developed countries' commercial banks and export credit agencies during booms (Belloc and di Maio 2010, Klasen 2013). As a result of operating in larger markets, these firms grew quicker¹⁰² than otherwise, while their contribution to trade modified the composition of their country's exports (Lees 2010). Exporters that were born or grew in this period had their firms' competitiveness tied to the continuation of monetary expansion.

In sum, trade finance, and especially official trade finance, gave a geographical and sectoral shape to the overall increase in trade during the recent periods of monetary expansion. Recurring booms—especially since the market was not allowed to purge malinvestments during crises—maintained an overgrown structure of domestic and international production, lengthened beyond capital availability, on which an unsustainable network of international transactions was also created and sustained.

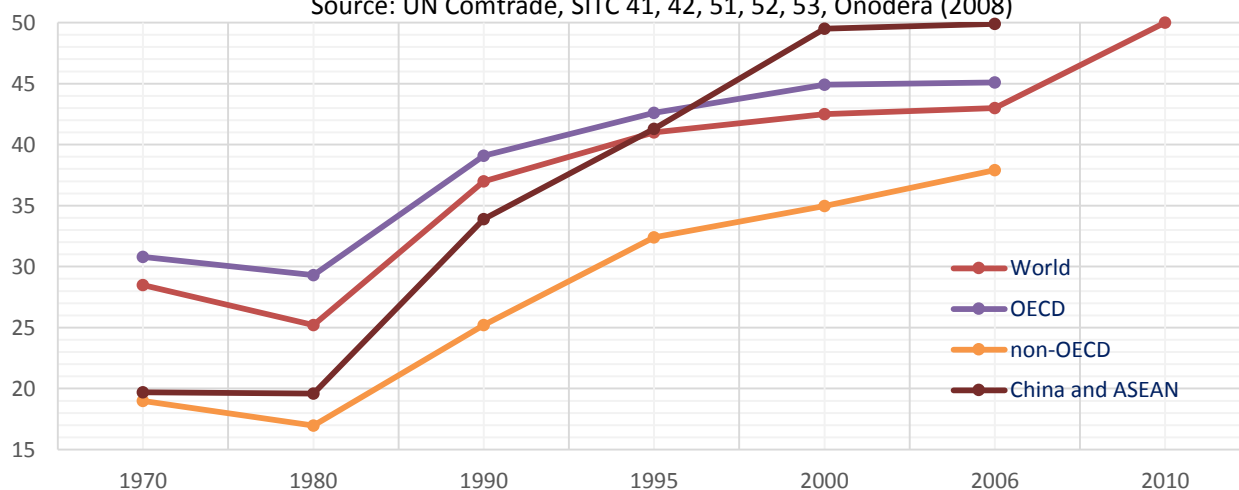
Let us now illustrate some of these consequences of monetary expansion on the direction and composition of global trade flows—in other words, to illustrate the allocational aspects of Cantillon effects on a global scale—by using some of the available statistical information concerning international trade over the last decade or so.

¹⁰² The growth, however, is short-lived. Scholars argue that any significant increase in exports “results almost exclusively from a broadening of trading partners towards higher-risk regions” (Egger and Url 2006, 415), which prove to be most vulnerable to economic crises.

As we have seen, there is a theoretical case to be made for the tendency that production, international investment and global trade will concentrate in the higher stages of production, and in the geographical areas that host these sectors—or that host connected sectors upstream or downstream. As a result, it can be expected that a trade boom will accompany the production upswing in an interconnected international economy, both being caused by an initial expansion of the money supply and credit, and a reduction in interest rates. Since all inflationary countries skew their production structures toward the creation and use of higher order capital goods, the increased international demand for such goods makes them important components of trade structures (Warner 1994, 1409). The trade flows which result between vertically and horizontally integrated parent companies and affiliates, part of ‘intra-firm (in-house) trade flows’ in intermediate goods (Antras 2003, Bernard et al. 2011), or that satisfy the growing demand for capital goods gain therefore an increasing share of countries’ overall trade structures.

Figure 6.5: Capital goods, percentage of trade (1970-2006)

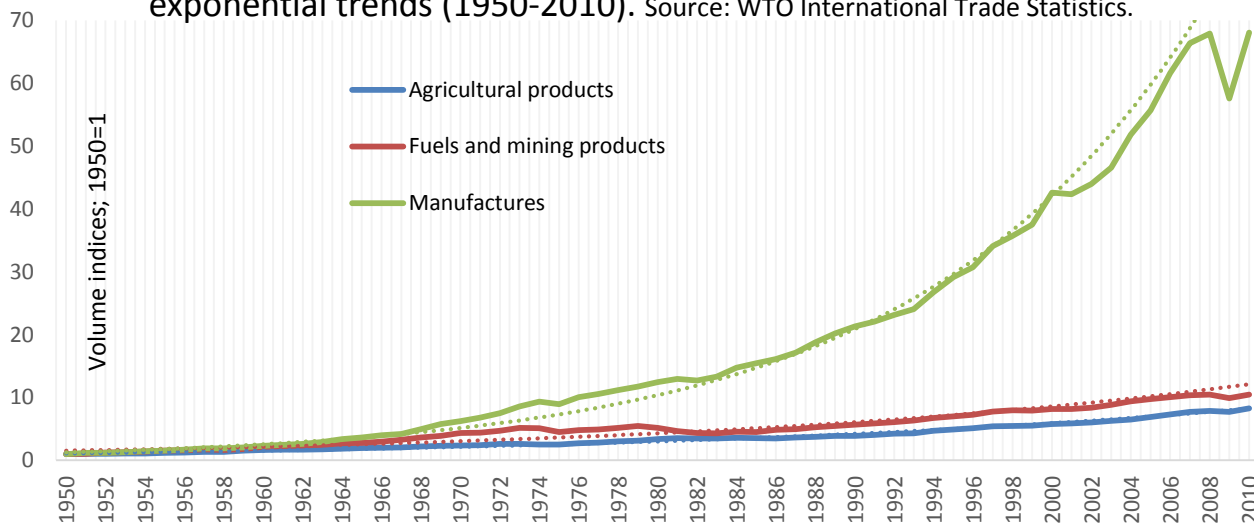
Source: UN Comtrade, SITC 41, 42, 51, 52, 53, Onodera (2008)



As shown in Figure 6.5, from the 1970s onwards, trade in capital goods and transport equipment, and intermediate goods (SITC broad economic categories 41, 51 and 52, and 42 and 53 respectively) increased as a share in the overall volume of trade for all countries. On the aggregate, the more rapid growth was visible in China and ASEAN member countries, as well in non-OECD

countries, while the growth in OECD countries has been slightly less steep. If we zoom in on the evolution of world exports over the last 60 years deconstructed by composition (pictured in Figure 6.6), we find that manufactures (machinery and transport equipment at SITC 1-digit aggregation)—

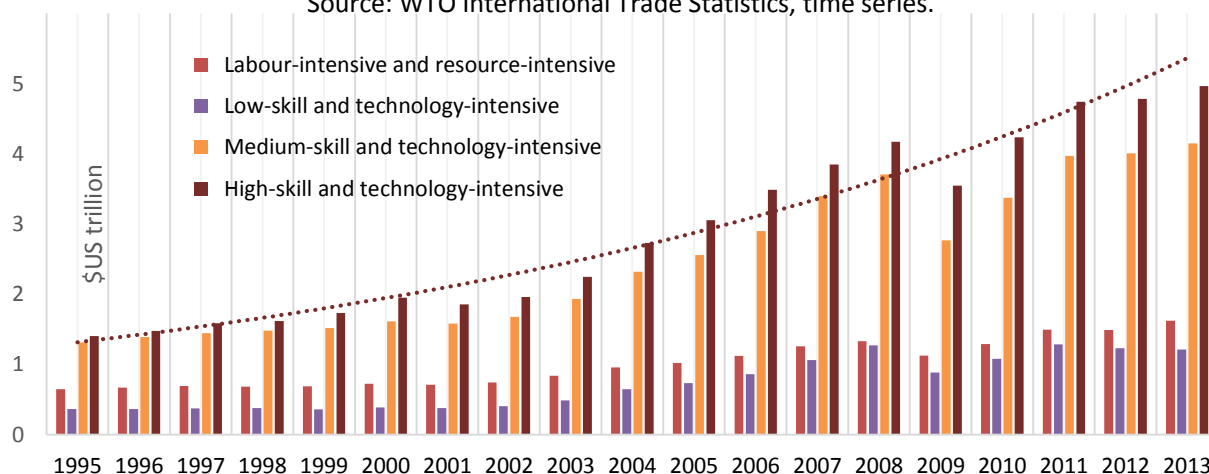
Figure 6.6: World merchandise trade, volume indices and exponential trends (1950-2010). Source: WTO International Trade Statistics.



categories most intensive in physical capital and technology—have had a spectacular growth relative to that of agricultural or mining products (such as food and live animals, animal and vegetable oils, or crude materials)—which are labor and land intensive sectors, using lower proportions of capital and technology (Shirotori et al. 2010). Even further disaggregation of the data reveals that within manufactured goods, technology-intensive products embodying high skilled labor were also the fastest growing exports (from US\$ 1.4 billion in 1995 to US\$ 4.96 billion in 2013) and the more volatile, as Figure 6.7 shows. The evolution of labor or resource intensive

Figure 6.7: World exports by type of manufactures (1995-2013)

Source: WTO International Trade Statistics, time series.

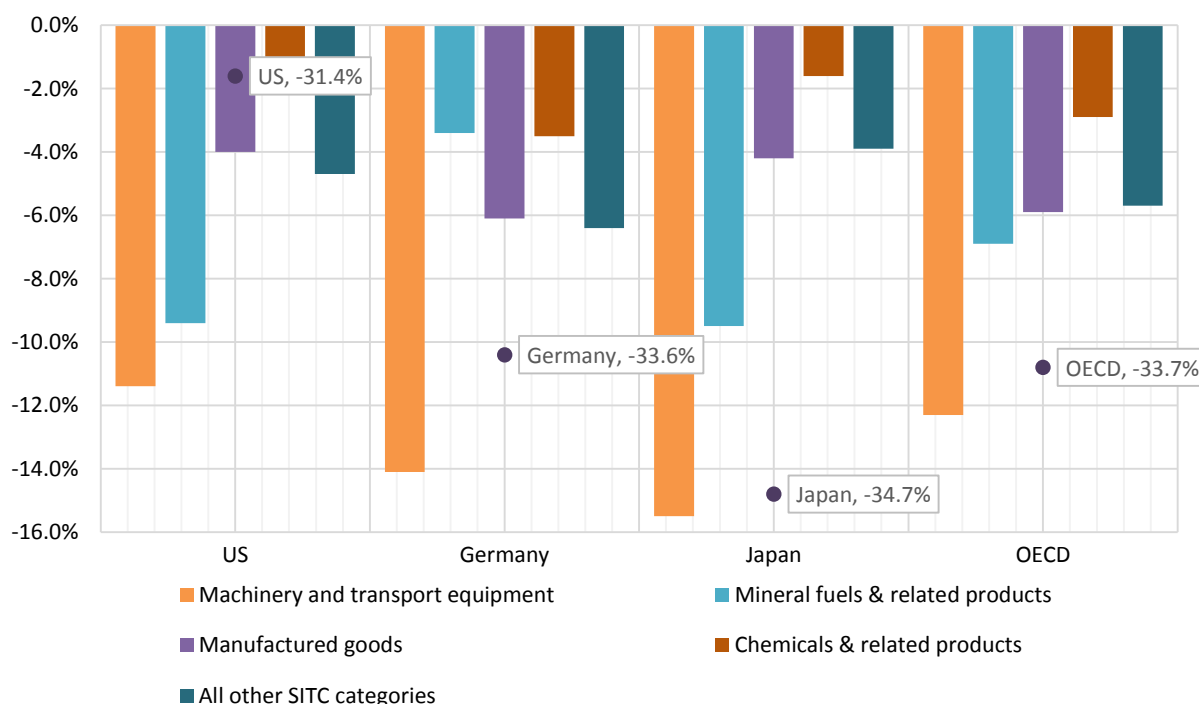


manufactures, or of those requiring low skill technology remained comparatively steadier during the recent recession, dropping by \$US 200 to 300 million compared to the \$US 600 to 900 million drop in medium to high skill labor and technology intensive exports.

As to the erratic evolution of this category of traded goods, Figure 6.8 depicts the fact that while manufactures (of the higher orders) are the fastest growing component of world trade, they also prove to be the most volatile. On the one hand, the volume of international transactions in machinery and transport equipment grew at a rate double that of other sectors' growth since 2000. On the other hand, these industrial sectors have also experienced the largest drop during the most recent recession, while other sectors have fared relatively better. As emphasized also by Francois

Figure 6.8: Trade decline by product category (2008-2009)

Source: Araújo and Oliveira Martins 2009, 104.

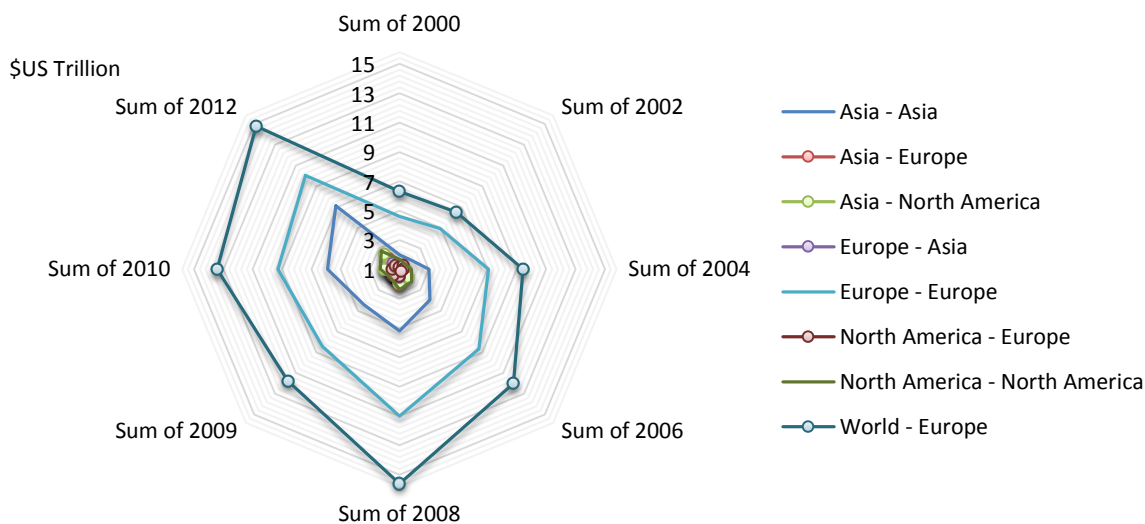


and Woerz (2009) or Vaubourg (2014), the 2009 decline in trade flows was more dramatic for manufactured products (-15.5%), especially in durable goods such as automotive products (-32%) and industrial machinery (-29%), than for agricultural goods (-3%) or fuel and mining products (-4.5%). Between 2008 and 2009, the decline in machinery, transport equipment and mineral fuels

combined was between 2 and 5 times greater than that of all other SITC categories during this period.

Last but not least, production as well as trade in capital goods is concentrated in several developed areas around the world. Figure 6.9 below depicts the largest networks of merchandise export trade between 2000 and 2012. In the last two decades, the main capital goods exports have come from the EU block (France, Germany, UK), Japan, and the United States. Overall, the value of machinery and equipment trade from these countries (which was estimated at more than US\$ 3 trillion in 2007) fell roughly by a quarter during the crisis. More interestingly, more than half of

Figure 6.9: Network of world merchandise export trade (2000-2012) Source: WTO International Trade Statistics Database, data as of 2013.



these trade flows took place among developed (and high-income) countries in Europe and North America, as technological specialization has deepened over the last decades (Thorbecke 2012). Nonetheless, over the last few years there has also been an increase in merchandise trade flows among emerging markets in East Asia and Pacific. These newly created corridors can be explained

as both a result of an increased demand from and increased production in developing countries over the last decade and a half. Furthermore, given that imports of higher quality, capital-intensive goods from the developed world tend to be more expensive, such regional trade corridors have also formed among developing economies which are closer to each other in terms of technological development. As a result, global trade has partially reoriented from the traditional North-South route to the South-South trade route. Estimated values for 2050 (Citigroup 2011) reveal however that the trend will remain in favor of the regional corridors among developed countries, although in time emerging markets in East Asia and Pacific will gradually catch up to the European and North-American trade.

International demand

World trade flows have been increasingly composed of capital goods over the last decades, as a result of global trade aligning itself to the unsustainable production structure during periods of credit-financed foreign investment and trade. However, as this production structure was not coupled with consumers' postponement of consumption, when actual consumer demand materialized—before the longer processes of production could have been brought to fruition—, entrepreneurs' demand for capital goods plummeted. As it happened during the recession of 2008-2009, entrepreneurial expectations—mislead until then by artificially low interest rates—readjusted, at least partially, in light of the underlying scarcity of savings, and the actual pattern of consumer preferences. In this light, the drop in demand for capital goods during the most recent financial crisis was not in itself the fundamental cause of the trade collapse¹⁰³, insofar as any other change in consumer preferences and subsequent entrepreneurial decisions cannot and do not lead to a

¹⁰³ Some trade scholars have claimed that the changes in international trade—and the reasons for the recent trade collapse—lie mainly with changes in international demand, particularly the demand for durable consumer goods, intermediate manufactures, and other capital goods (Rhee and Song 2013) which result from a sudden change in expectations.

generalized business cycle and precipitous decline across sectors, irrespective of whether they are anticipated or not. Changes in the international demand for capital goods during the most recent financial crisis were thus the corollary result of entrepreneurs and consumers around the world discovering their previous malinvestments and errors, and readjusting their investment and consumption patterns.

Together with the increases in demand for capital goods which are a symptom of malinvestment (or capital consumption), the recent period of monetary expansion also resulted in an overconsumption boom. As Joseph Salerno (2012b) showed, the artificial lowering of the interest rates falsified households' assessment of their wealth, altering their consumption and saving patterns (what Salerno calls the 'wealth or net worth effect'). In other words, as monetary expansion raised the prices of assets they owned, households became more inclined to use their home equity, for instance, to increase consumption of goods and services. Part of this increased consumption, as it occurred throughout countries and entire regions, led also to increased volumes of merchandise trade. And depending of the pattern of preferences of these particular households, the direction and composition of trade flows was also modified. This overconsumption (and its 'wealth effect') and malinvestment were contemporaneously present in this business cycle, as well as in every other boom and bust cycle. Nonetheless, as Salerno also (2012b) argues, it depends on the historical data which of the two effects eventually had the greatest impact on the direction and composition of trade flows. We will come back to these aspects in more detail in Chapter 8.

Another category of changes in the pattern of international demand arose from the gradual increase in the cash balances of individual consumers throughout the world. Depending on the injection point, and the sequence in which cash balances increased from one individual to the next, the mix of exports and imports in each inflationary country was modified by the step-by-step

distribution of purchasing power.¹⁰⁴ For example, if the first receivers of the new money in the UK have a strong preference for French wine, imports of Château Laffite increase, while demand for British wines drops. In the same manner, a strong preference for German cars leads to an increase of Germany's exports, and a decrease of those of Japan or Korea. Individually, these changes might not have been very important; however, there was a myriad of such modifications in cross-border purchases over the course of the economic boom, and over the course of repeated inflationary episodes. Moreover, these modifications occurred at different times and to different extents in different markets. Gradually, therefore, such small changes turned into larger, more general trends, especially on an international scale. If UK citizens, for instance, repeatedly obtained more purchasing power earlier than Eastern Europeans, their demand was stronger on international markets, and they commanded earlier a large share of the traded goods.

The mechanism of Cantillon effects of changes in the money supply was thus similar, internationally and domestically: the sooner a country received the new money, the more command of the pattern of trade it obtained. This mechanism is self-enforcing, because wealth is with each inflationary episode redistributed toward these first beneficiaries, relative to other later recipients.

Such changes in international demand also contributed to modifying the geographical pattern of trade spending. When the economy was in upswing, demand for foreign products became more diversified (Seo 2001), a consequence perhaps of the general illusion of prosperity. Empirical studies have also found that as people's income increased, they spent more on the relatively capital-intensive version of a given good—which consumers tended to associate to higher quality (Reimer

¹⁰⁴ As Rothbard explains in detail, "...the shift in relative money income during the transition itself changes the structure of demand. The gainers of wealth during the transition period will have a structure of preferences and demand different from that of the losers. As a result, demand itself will shift in structure, and the new equilibrium will have a different set of relative prices. Similarly, the change will probably not be neutral to time preferences. The permanent gainers will undoubtedly have a different structure of time preferences from that of the permanent losers, and, as a result, there may be a permanent shift in general time preferences" (Rothbard 2009, 814-5).

and Hertel 2010). In other words, the gradual increases in individual cash balances during inflationary episodes increased demand, as well as trade, within and among the countries which host these industries.

More importantly, these monetary expansion-driven changes in international demand, albeit following a boom in trade across sectors, did not affect all exporters and importers to the same extent, and also had negative repercussions on domestic-oriented production. In general, for the producers (and international firms) in the industrial sectors favored by the boom, monetary expansion is beneficial, as are increases in the demand for their products. But these increases, together with their own demand for factors of production, leads to a spike in the costs of production for other, less favored industries, e.g. import-competing industries, or any industries which receive later the new money. Some domestic producers, as well as some importers and exporters, were in this manner driven out of the market even during the boom.¹⁰⁵

Lastly, another important aspect of monetary expansion-driven changes in international demand is their feedback on the decisions of capitalist entrepreneurs. For example, domestic or foreign industries that are favored by the increase in the supply of money, the industries producing complementary goods for those sectors, or those consumer industries situated in close proximity to areas of economic boom, all benefitted from the increased demand, foreign investment (Bussière et

¹⁰⁵ This insight into the differential impact of fiat inflation on categories of producers and exporters is important because it puts the effects of exchange rate depreciation in a clear light. Despite the general consensus that the lower the purchasing power of a currency, the greater the demand for the country's exports, depreciation brings in fact mixed results. First, as mentioned in Chapter 3, the export premium is in fact redistributed wealth from the later receivers of the new money. Second, if exporters use foreign currencies more than the domestic currency, or hedge against exchange rate fluctuations, the benefits of increased international demand for their goods can be entirely offset. Third, exporters or import-competing industries—for whom the depreciation of the exchange rate should function as a protective tariff—might actually import a great part of their factors of production, case in which the increase in production costs will have a negative impact on their businesses. Fourth, and more importantly, the change in international demand due to currency depreciation may, in some cases, even favor importers or domestic producers, if the decrease in the purchasing power will reorient domestic demand toward other cheaper alternatives, foreign or local respectively.

al. 2013) or increased their own investment. However, in these cases, capitalist-entrepreneurs anticipated the growth of such sectors only because they were misguided by monetary expansion; hence, extending the production capacity of these industries—albeit not a lengthening of the structure of production—, proved nonetheless to be unsustainable in the long run¹⁰⁶.

This increased investment did not concern only existing consumer and capital goods, but also the introduction and development of new products. As we have seen before, because working capital was easily available from trade finance providers, trade grew at the extensive margin (Ghironi and Melitz 2007), with new firms and new products entering global markets. The same result appeared in the case of increased and more diversified demand for foreign goods during periods of perceived prosperity. While many of these new traded goods remained profitable during the boom, the crisis brought about a sharp decline in the demand for them¹⁰⁷ (Haddad et al. 2011; Nicita and Tumurchudur-Klok 2011). To wit, the great trade collapse of 2008-2009 impacted these new flows and commercial relationships suddenly and severely, to a greater extent than more ‘traditional’ flows. As Nicita and Tumurchudur-Klok (2011, 3) find, before the crisis, “new trade flows grow more than traditional flows for the most dynamic economies”, such as high and upper-middle income economies from the East Asia and Pacific; but “although trade volumes of new and

¹⁰⁶ An example of the effects on labor markets and consumer goods markets is the fate of boomtowns (Jacobsen and Parker 2014). The term, originally related to the rapid growth of communities situated in the proximity of gold mines, oil reserves, or industrial sites, has recently been adequately applied to towns that grew during the recent housing boom. In the United States in particular, it has led to the rapid development of places such as Fresno and Bakersfield in California, or Lakeland in Florida between 2003 and 2007. The crisis, on the other hand, brought about a yet unrecoverable drop in employment, together with the disappearance of most retail and wholesale companies, as well as of other businesses situated closer to consumption.

¹⁰⁷ This lead some economists to posit the existence of cyclicity in the introduction of new products in international trade (Axarloglou 2003), based on Vernon’s product cycle theory. It is nevertheless more plausible that the observed cyclicity is in fact related to the cyclical evolution of production in general, and fueled rather by episodes of inflation and periods of perceived prosperity, than by a cyclicity of consumer preferences.

traditional flows decline with a similar magnitude, new flows appear to decrease more substantially in number than traditional flows” (Nicita and Tumurchudur-Klok 2011, 4).

This second part of our thesis comprises the core elements of this endeavor to analyze the Cantillon effects of monetary expansion, as well as the most important practical application of this framework to explain the recent evolution of international trade. In Chapter 4, I have first anchored the theoretical assessment of Cantillon effects into a historical context, which revealed the fact that monetary expansion and its consequences on production and trade have become a global phenomenon due to the international fiat money standard and central bank cooperation. In Chapter 5, I have clarified and analyzed the characteristics of trade finance under different monetary and banking systems, in order to highlight the role of trade finance—and of the financial infrastructure in general—as a channel for the transmission of Cantillon effects in international trade. Furthermore, I have used Mises’s step-by-step analysis of monetary adjustment to detail the gradual and differential impact of monetary expansion on different markets, prices, branches of production, and household wealth on a global level.

In Chapter 6, I applied this framework to the contemporary evolution of trade and capital flows, before and after the recent financial crisis. I found that increases in the supply of money (which lowered the purchasing power of money and artificially depressed interest rates) led first to a rapid increase in the volume and value of trade and capital flows. Second, this ‘trade boom’ was underlined by an inter-temporal reallocation of capital and resources on an international level (from the lower stages of production toward the higher stages), as well as by a geographical reallocation of resources toward the more developed countries which host these higher production stages. Furthermore, I have identified this bias to be present also in the composition of world trade flows, increasingly composed more of higher order, technologically intensive capital goods. These

modifications in the pattern of trade that our framework of analysis revealed represent the reallocational aspects of Cantillon effects of monetary expansion.

Part III of this dissertation will further show the relevance of this analysis for two additional issues in international economics, which are currently under intense scrutiny in standard literature. First, in Chapter 7, I will look into the consequences of monetary expansion on international industrial organization, to highlight another facet of Cantillon effects in international trade—i.e. the changes in the size and financial decision-making of non-financial international companies. Second, in Chapter 8, I will analyze in detail the wealth redistribution effects of monetary expansion on a global level, and illustrate these consequences with statistical evidence of the evolution of household and firm wealth levels over the last decade, and especially between and after the recent financial crisis. Both these chapters have also as a broader goal to stress again the fact that a complete analysis of Cantillon effects is central to a thorough reconsideration of the field of international economics.

PART III
FURTHER IMPLICATIONS OF
CANTILLON EFFECTS

CHAPTER 7

MONETARY EXPANSION AND INTERNATIONAL INDUSTRIAL ORGANIZATION

So far, we have dealt with the impact of monetary expansion on financial markets and financial institutions, through which monetary policies affect the international transmission of monetary expansion and the pattern of international trade. There are, however, factors of a non-monetary nature which also have a significant impact on the flows of merchandise and capital, such as financial decision-making, and more generally, entrepreneurial judgment. These factors are at work in global markets at all times, and the standard literature in international economics and industrial organization recognizes their importance in determining the overall pattern of international trade. At the same time, the same literature fall short of tracing the evolution of these factors themselves as another consequence of monetary expansion.

Our previous analysis of Cantillon effects can nevertheless illuminate these issues. As we shall see in what follows, entrepreneurial judgment and financial decision-making are subject to increased moral hazard during periods of monetary expansion, such that their impact on global markets is qualitatively and quantitatively different in this context. This chapter will therefore focus on the changes in international industrial organization, more specifically the size and financial decision-making of non-financial international companies which result from monetary expansion and its moral hazard consequences.

The moral hazard consequences of monetary expansion on financial institutions, commercial banks, and export credit agencies were discussed above in Chapter 5. Similar effects, however, are observable in the case of non-financial commercial businesses. The growth of cross-border business activities over the last decades has been accompanied by organizational changes within companies that produce or trade internationally. As mentioned above, these changes—concerning the size,

corporate hierarchy, or financial decision-making of firms—, have been analyzed in detail in both the industrial organization and the international trade literature.¹⁰⁸ Firms have in fact become a rather common unit of analysis in international economics, especially “since the mid-1990s, [when] a large number of empirical studies provided a wealth of information about the important role that firms play in mediating countries’ imports and exports” (Bernard et al. 2007, 2).

The creation and development of firms that trade internationally, or that have branches in different countries is usually investigated in a framework centered on four elements: “organizational formation through internalization of some transactions, strong reliance on alternative governance structures to access resources, establishment of foreign location advantages, and control over unique resources” (Oviatt and McDougall 1994, 45). And yet, “despite this resurgence [of the theory of the firm], there is still little connection between the entrepreneurship literature and the literature on the firm, both in academia and in management practice” (Foss and Klein 2012, ix). As entrepreneurship is generally linked to small enterprises—and less with international corporations, or export-import activities—it remains dissociated from the study of international investments, and of international firms. The latter, in turn, remains dissociated from the study of international monetary systems and their impact on international enterprise. Therefore, these studies omit to discuss the relationship between monetary policies, and firms’ features and financial behavior in global markets.¹⁰⁹

¹⁰⁸ The connection between the two fields was made by Paul Krugman’s work (1989), and by Brander and Spencer’s strategic trade policy recommendations (1985). Since then, however, the relationship between the two fields has extended into areas such as corporate governance or the theory of the international firm. Most studies discuss the features that separate successful and unsuccessful trading firms (Wolff and Pett 2000), the heterogeneity among firms with respect to their size, productivity, and wages (Kaynak and Kothari 1984), the relationship between firm size and export performance (Katsikeas et al. 2000), firm productivity and export intensity (Ricci and Trionfetti 2011), firm characteristics and decisions to internationalize (Mittelstaedt and Ward 2003) or the corporate structure of the international firm (Kuwahata 2012).

¹⁰⁹ One exception are analyses of exchange-rate depreciation and export performance, whose shortcomings we addressed in Part I, Chapters 2 and 3.

Nevertheless, as Frank Knight (1921) first argued, firm organization, profit and loss, and entrepreneurship are inextricably linked. Furthermore, “these phenomena arise as an embodiment, a result, and a cause, respectively, of commercial experimentation” (Foss and Klein 2012, 131). Consequently, the international firm can be understood as an entrepreneurial phenomenon within international markets (Topan 2009, 152). And because entrepreneurial judgment is action calculated in monetary terms, the prerequisite for the creation and development of international enterprise is the existence of money and money prices that can make heterogeneous resources commensurable, and input and output comparable (Topan 2009, 205). Only with the help of monetary calculation can entrepreneurs make rational decisions concerning the organization, size, compartmentalization, geographical location, and financial decisions of the firm.

The entrepreneurs in a multinational firm, or in a firm with international commercial activities are its shareholders: as owners of the company, they are the ultimate decision makers about the activity of the firm, and the use and allocation of its assets. Since the values of shares and dividends are dependent upon particular projects succeeding in best satisfying consumer demand, the outlook and success of an international firm will be based on the ability of its entrepreneurs to judge the future state of the global marketplace. In this regard, the availability of capital—which can be offered by shareholders, drawn from the firm’s previous profits, or obtained from external creditors—becomes the essential condition for the realization of any specific entrepreneurial project. Those who own corporate bonds or commercial paper are also creditors with relation to the firm, and so are the financial institutions (banks or government agencies) who advance funds against collateral (Topan 2009, 177-80). Consequently, all decisions taken by a firm on international markets (to trade, to invest, to be born globally, to do green field investments, to merge with or acquire another company, or to license or wholly own its subsidiaries, or to slice up

production stages across countries) are indelibly tied to the entrepreneurial judgment of an individual or group of individuals, and the result of their entrepreneurial calculations.

Calculated entrepreneurial action in terms of money prices in international markets represents the basis for trade, production, and global financial phenomena. Because of this, monetary expansion impacts the organization of firms in two important ways.

On the one hand, because the boundaries of the firm are determined by economic calculation, falsification of the latter can affect decision about the outlook, structure, and size of the firm as a whole. As Foss and Klein explain, “the limits to firm size can be understood as a special case of the arguments offered by Mises and Hayek about the impossibility of rational economic planning under socialism” (2012, 181). In other words, “these ultimate limits are set on the relative size of the firm by the necessity for markets to exist in every factor, in order to make it possible for the firm to calculate its profits and losses” (Rothbard 2009, 536). Furthermore, the structure, boundaries, and the internal organization of firms—both for small companies, as well multi-person international enterprises—respond to changes in entrepreneurial judgment, which in turn is sensitive to changes in the interest rate.

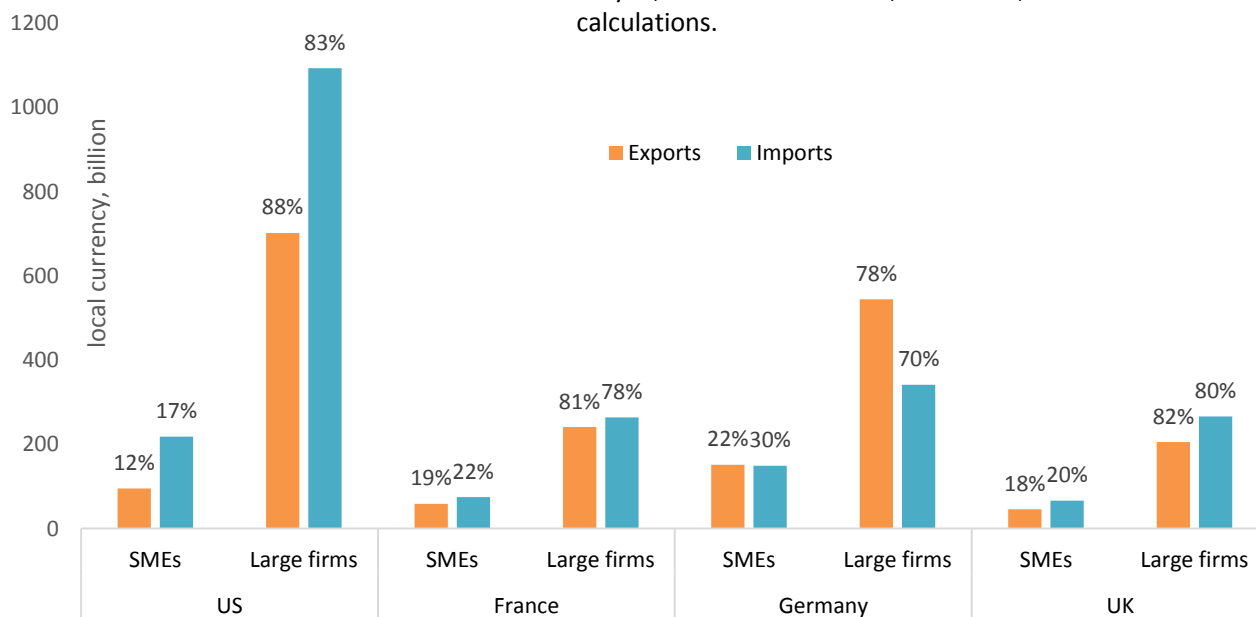
On the other hand, entrepreneurial judgment is also sensitive to the structure of incentives, such that monetary expansion and government intervention can bias entrepreneurs’ financial decisions toward debt, promote unsustainable firm growth—or unsustainable start-up businesses—, and discourage innovation. Lets us now look at these aspects in more detail.

In the case of firm boundaries, empirical studies show that international trade is populated in an overwhelming proportion by large firms, which are more likely to be successful on global markets than smaller firms.¹¹⁰ As shown in Figure 7.1, in the US, UK, Germany, and France, large

¹¹⁰ The methodology and definitions of collected data differ among countries, but most OECD countries define small and medium businesses as having up to 200-250 employees, or with turnover up to €50 million; over 250 employees is a large firm. One exception to this rule are the United States, for whom medium

Figure 7.1: Structure of trade by firm size (total value and shares)

Source: U.S. Bureau of Economic Analysis, 2012 data. Eurostat, 2013 data; author calculations.



firms comprise around 80% of the total value of their countries' imports and exports, the rest being shared between small and medium enterprises. Over the last decades, the SME share in trade has in fact diminished, although SMEs have increased in absolute numbers over the same period.

Further disaggregation of the data reveals, however, an even more important bias: the growth in the number of SMEs was led in great part by micro and small firms, while medium-sized business have almost disappeared in most countries (Grant et al. 2012), from both domestic and international activities (Ayyagari et al. 2003). For example, in the EU in 2011, there were 352,000 micro (1-9 employees) exporting firms and 187,402 small (10-49) exporting firms, while medium (50-249) exporting firms were only 73,551 (Cernat et al. 2014). The data as of 2013 further reveals that medium-sized firms comprise only between 1.3% and 1.4% of total companies in Germany, France, UK, and Italy, while in the United States and Japan they amount to 3% and 2.1% respectively (Middle Market Report 2013, 8). Their share in international trade is even smaller, given that less than half of medium-size firms have investments or derive revenue from outside their countries (Middle Market Report 2013, 31). According to Forbes Insight (2012), only 7% of

businesses have between 500 and 1000 employees, and anything above 1000 employees constitutes a large firm.

middle market companies in the US expect their growth to come from international sales, and less than half of them are willing to consider exporting given the current economic situation. As a result, international trade is “hourglass-shaped” (Feldman and Klofsten 2000, 632), comprising mainly small and large companies, while medium-sized firms appear to be only a transitional point in enterprise growth.

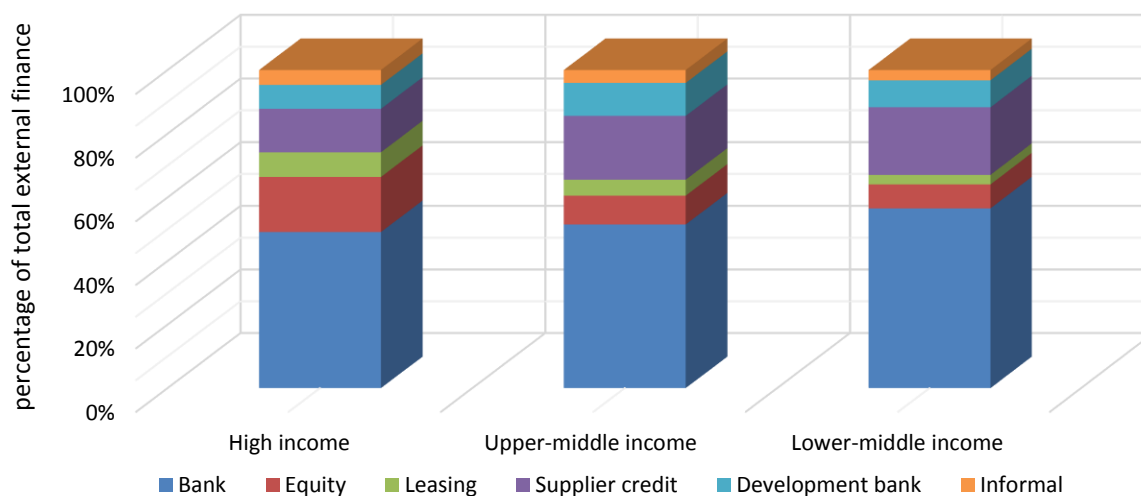
Common explanations for this bias in favor of large firms emphasize the latter’s competitive advantages: large firms command most of international trade because they are better and quicker at identifying international opportunities, have more resources than smaller firms, more bargaining power with local government authorities, and better access to capital markets (Antras and Helpman 2004). However, as there is nothing that would suggest medium-size firms as an unviable business model, such an anomalous distribution of transactions by firm size cannot be entirely justified as a natural tendency of the market economy. These explanations cover only partially the bias in favor of large firms, and do not clarify the reason for the disappearing ‘middle’ market.

A better explanation is that the distortion of economic calculation via monetary expansion brings about this hourglass distribution of firm size in international trade. This explanation is first corroborated by the ‘odd’ behavior of existing middle market companies. Approximately 31% of mid-sized firms in Germany, for example, are owned by a family, and a further 40% by some combination of private equity and family, while only 14% are traded on a stock market (Economist 2012). As an oasis in the middle of a debt desert, medium-sized firms from most countries prefer to finance their business from retained profits rather than borrowing or from the stock market, and do not wish to make use of public trade finance to internationalize (Middle Market Report 2012). Their reluctance to resort to debt might explain why they lack the ‘financial edge’ to penetrate global markets, but also why they were, as a group, less affected by the recent financial crisis (Middle Market Report 2012).

The overwhelming majority of starting companies, however, rely heavily on external finance—out of which almost half is bank credit, as shown in Figure 7.2—even from the beginning of their activities. Their balance sheets reveal that three times as many firms rely mainly on outside

Figure 7.2: Financing pattern of small firms, average of 48 countries

Source: Data from Beck et al. (2008); author calculations



debt as they do inside debt, in amounts seven times greater than the average amount of insider-financed debt (Robb and Robinson 2014, 154-5). This is due, as Cosh et al. (2009) suggest, to the fact that loanable funds markets are the easiest to access source of capital, as well as the most plentiful. During financial booms, this dependence of firms on bank finance is only strengthened, because working capital is cheap and asset bubbles provide entrepreneurs with better collateral to access more credit.¹¹¹ But the easier entrepreneurs obtain funding for their projects, the more inclined they are to expand the firm and to extend their “resource bundles” (Foss and Klein 2012)—i.e. to acquire complementary resources, integrate additional lines of production, or simply develop existing activities. Consequently, bank loans, inter-firm credit, and other external finance from

¹¹¹ Overreliance on bank credit also brings about a shift in the financial hierarchy on an international level, taking business decisions out of the hands of the entrepreneurs, and into the hands of financial institutions such as commercial banks. As Hülsmann explains, “the entrepreneur who operates with 10 percent equity and 90 percent debt is not really an entrepreneur anymore. His creditors (usually bankers) are the entrepreneurs, who make all essential decisions. He is just a more or less well-paid executive—a manager” (2008, 180). Internationally, therefore, the situation is the opposite of Joan Robinson’s contention that “where enterprise leads, finance follows”: financial institutions lead, in fact, and businesses follow.

domestic and foreign sources, allow many companies, during periods of monetary expansion, to grow rapidly and to a greater extent than otherwise. Banks also support the growth of firms that would not have otherwise qualified for (trade) finance, which can provide little collateral and whose growth prospects appear viable to investors only because of the artificially lower interest rates. These developments, together with capitalist-entrepreneurs' search to diversify their growing asset portfolios and foreign investments, further strengthens the participation of such companies on international markets (Jalles 2010).

Similarly important to a firm's international decisions are the potential changes in the geographical distribution of global commercial networks. Many firms, as they grow, are incited to internationalize by policy pressure and by the credit lines offered by chambers of commerce, industrial associations, banks, or other government agencies. As a result, they also become more integrated in international production chains, and begin to export to more distant foreign markets (Fabian et al. 2009, Bilkey 1978). On an unhampered market, such integration would be genuine, and thus highly beneficial to the international division of labor. In the present monetary system, however, firms seek these commercial relationships in pursuit of short-term gains, or due to an understatement of the risk of their transactions (Fisman and Love 2003, 353). The growth of such firms and global production chains, therefore, is not authentic, and their long-term survival becomes dependent on the continuation of monetary expansion.

The expansion of bank credit, and implicitly that of trade finance, also leads to a decrease in innovation. Many businesses are discouraged from incremental innovation, such as cost cutting or improving features of existing products, because cheap finance lessens the pressure of competition, and provides a financial edge that can, for a longer or shorter time, substitute an otherwise necessary managerial or innovative edge. Other businesses are encouraged to invest in radical innovation, through which they create new products and new markets for their products—and

promote, as seen before, an increase in the extensive margin of trade. Nonetheless, if their innovativeness is in fact reckless decision-making, their projects turn out to be just costly experiments.

Even so, when innovation is encouraged, this is likely to happen in existing, large firms, and to be denied to smaller companies, due to the way in which innovation and financing programs are set up by the national chambers of commerce, industrial associations, banks, or other government agencies. According to OECD reports (OECD 2013b), data from 2005 and 2010 show that only 700 firms accounted for close to half of the world's total research and development expenditure, while less than 10%, on average, of total patent applications in OECD countries over the same period were filed by firms younger than 5 years. These figures sustain what Hülsmann (2004) argues, that “any new product and any thoroughgoing innovation in business organization is a threat for banks, because they are already more or less heavily invested in established companies, which produce the old products and use the old forms of organization. They have therefore every incentive to either prevent the innovation by declining to finance it, or to communicate the new ideas to their partners in the business world.”

It is nevertheless important to point out that cheap finance does not lead to the growth of all companies, just like exchange rate depreciation or changes in international demand do not favor all sectors to the same extent. In fact, for an even larger part of firms that begin to internationalize, external financial support is easy to lose in the long-run: the uncertain evolution of stock markets makes many investors find a short-term investment or a short-term extended loan quicker to provide a return, and less risky (Feldman and Klofsten 2000, 633) than longer-term commitments. Thus, the time horizon of stock market investors becomes shorter than otherwise. Deprived of long-term equity in this way, small firms which cannot access credit markets (at least not to the same extent as

their competition) find their growth unnecessarily stifled, and their capacity to penetrate global markets greatly limited.

The infusion of foreign technology also contributes to the growth of some firms more than others: FDI technological spillovers are concentrated, because of the features of the business cycle, into the higher stages of production, benefitting these sectors in a different proportion than otherwise prescribed by the market. On the other hand, trade barriers and patent laws divert and limit the transfer of technology and know-how, and again disproportionately favor firms in some countries more than others, at odds with the pattern of technology transfer on a free market. In conclusion, between the small firms that cannot grow or innovate—but which, in number, increase every year as a result of government programs for SME start-up—and the large firms whose activities grow faster than otherwise, one finds the explanation for the otherwise puzzling absence of the middle market in international trade.

Finally, an overarching effect of such policies on international trade is the promotion of a certain business climate in global markets, one in which entrepreneurs believe they can thrive only with large amounts of debt and state support. Internationally, the tendency is for entire industries and countries, as financial sectors develop, to cut savings and retained earnings, and reorient toward borrowing from both domestic and foreign banks. With booms and busts, international movements of capital become more erratic, as do trade flows of goods and services. Commercial relations between traders are short-lived, and fewer firms (generally only large corporations) establish long-term partnerships. The world economy responds more to the changes in government policies, and is less and less connected to consumer preferences. As a matter of fact, the exacerbated growth of debt, and the reckless financial behavior are ingrained in the institution of fiat money, which is maintained only by the power of legal tender conferred to it by national governments. Governments

impose and maintain the monetary and banking system that allows for monetary expansion, and that is the root cause of all these modifications in the pattern of international trade.

CHAPTER 8 CANTILLON EFFECTS AND THE GLOBAL WEALTH GAP

No account of Cantillon effects would be complete without a consideration of the redistributive effects of monetary expansion of wealth. Although we have touched on these aspects repeatedly throughout the thesis, the present chapter will now conclude this dissertation with a detailed analysis and statistical illustration of the global distribution of income and wealth. By tracing this distribution to its monetary causes, our analysis will once again stress the importance of Cantillon effects for international economics, highlighting their relevance in investigating global disparities, income and wealth inequality, and the developing prospects of emerging and peripheral economies. As a matter of fact, these issues have made a comeback in academic and public debates as one of the most discussed themes in economics and political economy in recent years.

In the past—such as during the second half of the 20th century—, the overall level of wealth, as well as disparities among households in a country were attributed to different factors: the growth rate of the economy (Kuznets 1995), skill-biased technological change (Bound and Johnson 1989), demographic trends (Williamson 1998, Chevan and Stokes 2000), saving preferences (Papanek and Kyn 1986, Greenwood and Jovanovic 1989), as well as to more general macroeconomic trends, such as trade openness (Feenstra and Hanson 1996), unionization (Card 2001), financial intermediation (Jaumotte, Lall and Papageorgiou 2013), or government policies regarding taxation (Coibion et al. 2012), inheritance and capital regulation (Piketty and Zucman 2014a, 2014b). Notwithstanding their history and recent revival, studies on inequality have one overarching argument in common: ‘patrimonial capitalism’—which appeared with the Industrial Revolution of the 19th century, extended later to an international level, and is usually associated with a free, unhampered market—is principally responsible for the steady concentration of wealth and for rising income disparities (Bourguignon and Morrison 2002, OECD 2008, OECD 2014).

Albeit popular, this argument is in conflict with the main theoretical prescription of international economics, i.e. that globalization and worldwide industrialization will bring about the increase as well as the convergence of incomes across countries (Firebaugh 2000, Sala-i-Martin 2006). In addition, most inequality studies share also several shortcomings related to modern monetary and trade theory.

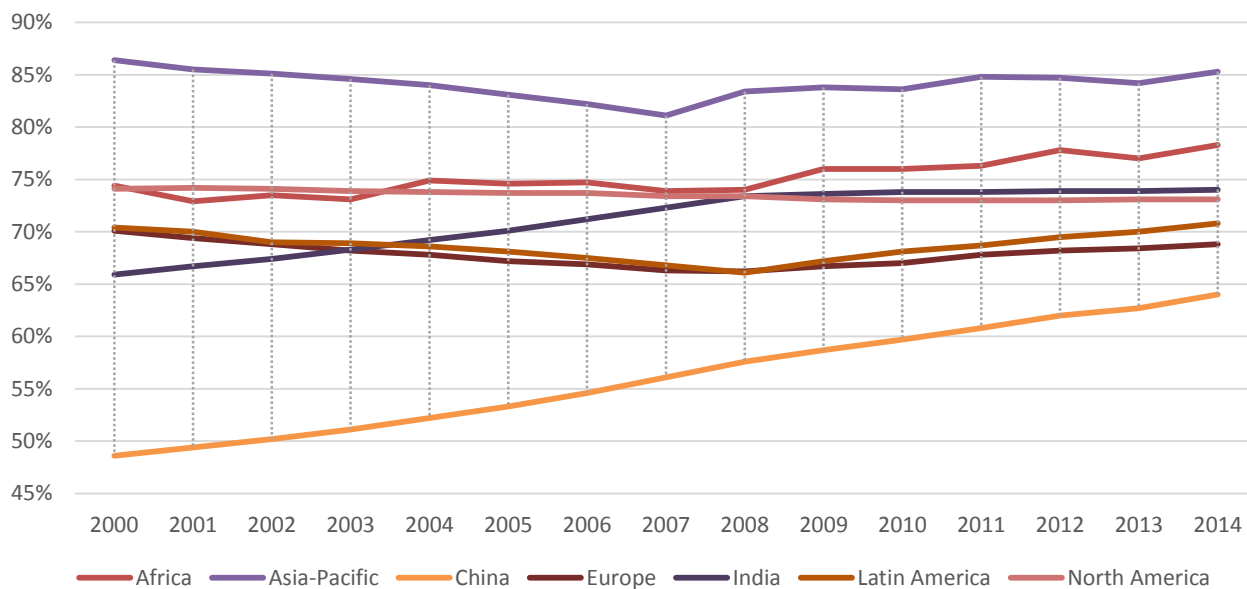
First and foremost, many inequality studies do not recognize the gradual and uneven effects of changes in the supply of money on the distribution of income and wealth. As discussed previously in Chapter 2, mainstream monetary theories focus on the relationship between the supply of money and the level of macroeconomic variables such as output, prices, and employment. Any change in the money supply is seen as having a temporary impact on the price level and output, and enabling entrepreneurs to recapture otherwise idle resources; or, if not the case, theories posit sluggish price adjustment and other market frictions which prevent the expected re-scaling of nominal values to the previous levels. And as we have seen in Chapter 3, international trade theories feature a similar set of assumptions (price levels, national stocks of money, single macroeconomic variables, instantaneous arbitrage, or automatic equilibrium forces) derived from the money neutrality postulate. The (disaggregated) impact of monetary changes on the structure of prices and production is missing from these theories, and as a result, inequality scholars also overlook the common monetary cause of the latter phenomenon. They resort instead to two types of non-monetary explanations: 1) the “economics of superstars” such as celebrities or CEOs, and capital earnings pushing up incomes at the top, and 2) deunionization, immigration, and free trade pushing incomes down at the bottom (Dew-Becker and Gordon 2005).

Second, the underlying premise—and the benchmark for most analyses of inequality—is the desirability and feasibility of an equal distribution of incomes and wealth. However, income and wealth disparities, as well as the continuous rearrangement of these hierarchies, are built in a

growing market economy predicated on the inborn inequality of people’s abilities and preferences. As a result, productive investment, the accumulation of capital, and some concentration of wealth should naturally go hand in hand: those who save more, those who are more productive, earn a higher income and become wealthier than those who do not. At the same time, the principle of comparative advantage indicates that the international division of labor increases output and labor productivity, as well as the overall levels of income and wealth for all individuals. Income and wealth disparities remaining, everybody should be better off as markets develop. The important question, therefore, is not why incomes and wealth are not equally distributed, but why are some groups of individuals better or worse off given particular factors—or alternatively, how much higher or lower would inequality be without such factors?

Figure 8.1: Share of wealth owned by the top decile, by world region (2000-2014)

Source: Credit Suisse Global Wealth Databook 2014, 124.



This question can thus be framed in terms of the evolution, over time, of wealth and income distribution. For example, as Figure 8.1 shows, between 2000 and 2014 the top deciles in all regions of the world owned between 40% and 70% of the total wealth, with inequality being most pronounced—and fastest growing—in developing countries (Africa, India, China, Latin America).

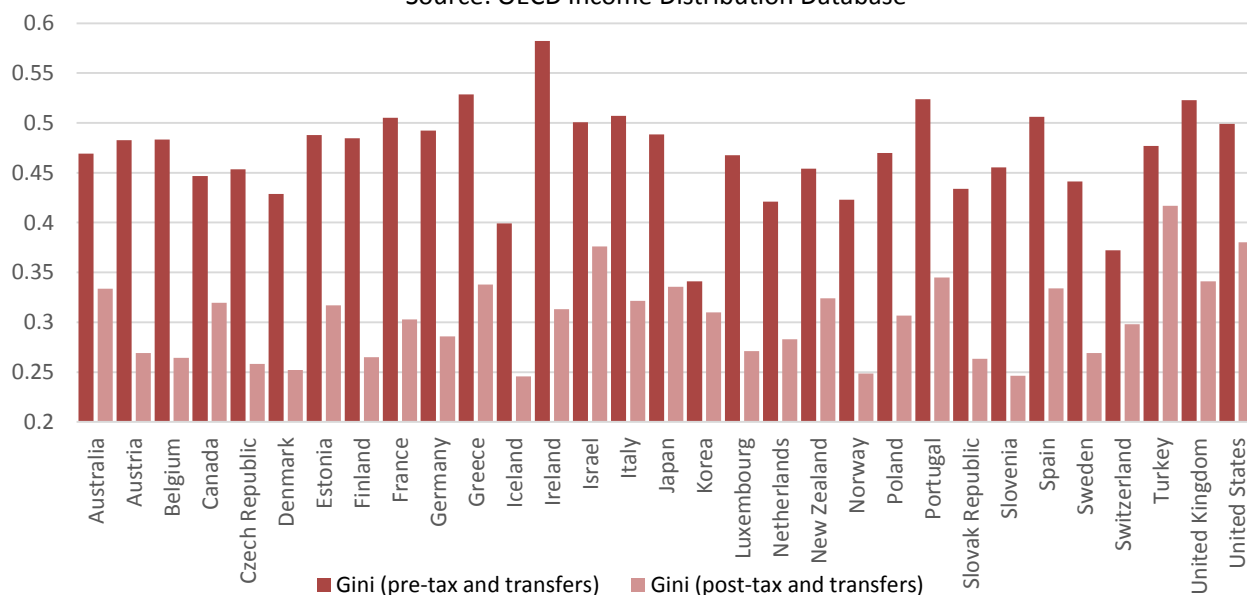
Nonetheless, until 2007-2008 there was a distinct conversion of the shares of wealth owned by the top deciles, whereas after 2008 there was an upward movement for all regions. Can this increased wealth concentration over time, which accelerated after the financial crisis, and the more pronounced wealth disparities in developing countries be entirely explained by market endogenous factors (economic growth, technological change, or capital accumulation)? Or is another explanation better fitting?

This question brings us to a third shortcoming of contemporary inequality studies, which concerns the causal relationship between income and wealth disparities, and other macroeconomic variables. Does inequality have any impact on the evolution of output, prices, employment or even political relations? As shown above, most research on the topic attributes inequality, regardless of its magnitude and evolution, to the mechanism of free, unregulated markets (Mersch 2014). However, some studies consider that these disparities themselves further bring about a plethora of economic and social problems: price inflation (Bhattacharya et al. 2003, Albanesi 2007), political upheaval (Crowe 2004), or even the destabilization of financial markets (Wisman 2013, Goda et al. 2014). While these problems have also a common root in monetary policies, these studies focus on the underlying wealth inequality. They also argue that income disparities persist because governments do not ease monetary and credit conditions sufficiently, or do not spend enough on welfare programs designed to bridge such disparities (Moene and Wallerstein 2003, Mello and Tiongson 2006). As a result, most studies argue that wealth concentration can be avoided by only three types of policies: 1) wars and high inflation, which lead to an overall impoverishment, 2) heavy taxation, particularly of capital gains, or 3) price stability, financial deepening, together with state employment and fiscal redistribution (Bulir 1998).

Fourth and finally, the expectation that globalization and worldwide industrialization will bring about the increase and convergence of incomes is usually dismissed by inequality studies using the empirical data for both national and international disparities. However, the collection and interpretation of factual evidence with unsound premises is largely unsatisfactory.¹¹² For example, one standard metric of income inequality is the Gini coefficient, whose absolute values capture the effects of numerous causes ranging from technological progress and employment to international trade and government policies. However, as Hülsmann (2013, 13) explains, the Gini income ratio “only makes sense if the ultimate standard of justice is communism.” Consequently, a decrease in the Gini coefficient after taxes—as depicted in Figure 8.2 below for 31 OECD countries—should not necessarily lead us to the conclusion that taxation has brought about an increase in social justice. The same critique holds true for the Hoover and Theil indexes of income inequality

Figure 8.2: Gini coefficients of pre and post tax household disposable income, 31 OECD countries, 2010

Source: OECD Income Distribution Database

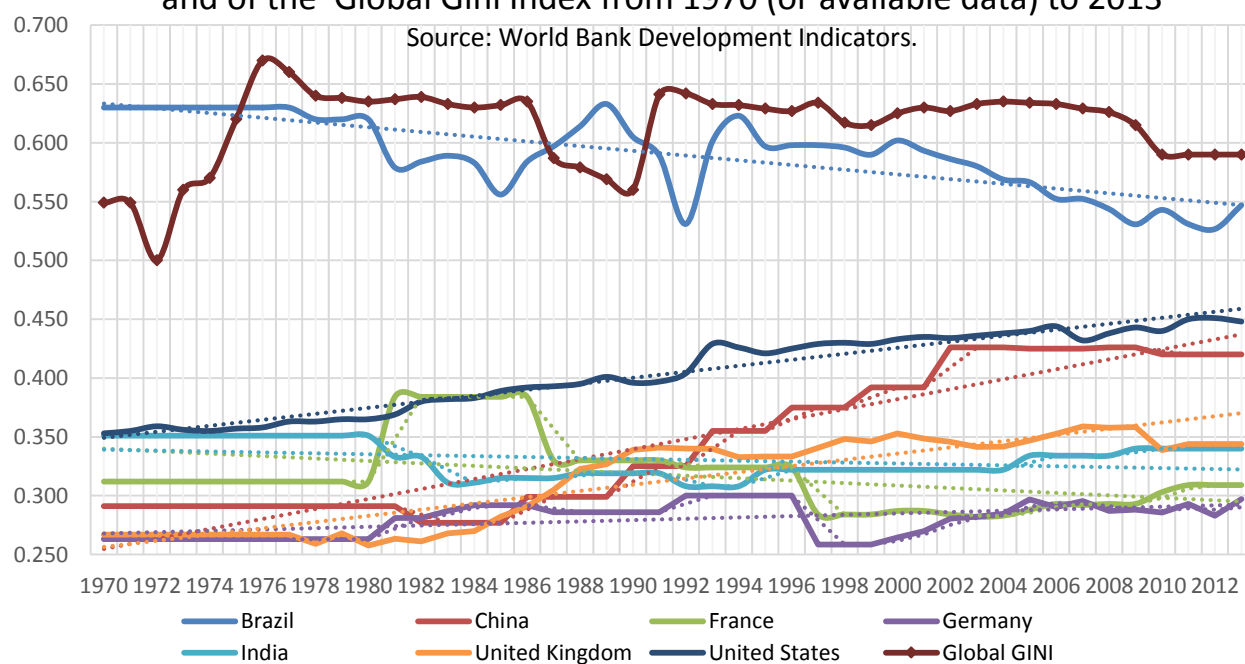


¹¹² The recent book of Thomas Piketty (2014) is based on the most extensive wealth inequality database to date. However, Magness and Murphy (2015) present a detailed account of the factual and historical errors in the data, and point to data manipulations and faulty interpretations in the study.

(Novotny 2007), for which similar data is differently weighted, but more disaggregated information on the causes of inequality is nevertheless lost. Aggregate analyses focus on national income and wealth levels rather than individual or household wealth levels, and thus mask the pattern in which income and wealth is redistributed within these aggregates (Cowell and Flachaire 2007, Foster et al. 2013).

A slightly better indicator than the absolute values is the variation in Gini coefficients from year to year (Figure 8.3), which can illustrate overall trends of income and wealth disparities. For example, increases in the Gini coefficient across time can be correlated with the decrease in interest rates as a result of monetary policies. However, such variations also reflect the impact of both monetary and non-monetary factors, and the correlations are not sufficient to establish, indisputably, the prevalence of one set of factors over another. For example, a decreasing Gini coefficient could also mean that inequality would have been much lower had it not been, for instance, for the monetary policy or the fiscal redistribution policy.

Figure 8.3: Variations of the Gini coefficient for selected countries and of the Global Gini Index from 1970 (or available data) to 2013



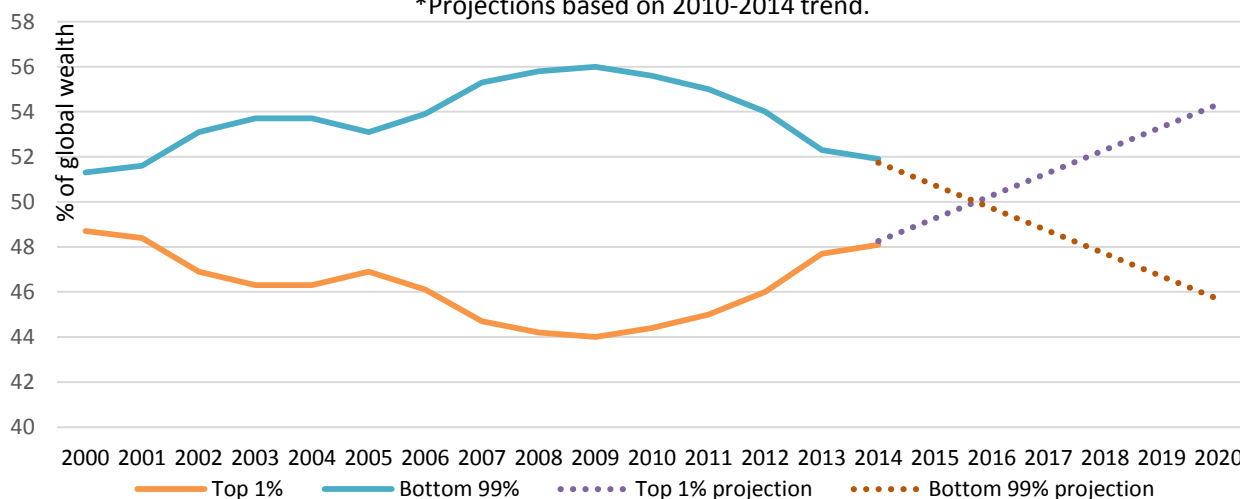
The role of monetary inflation in driving up wealth disparities can thus even be hidden in the overall value or relative change of the Gini index by the contribution—in the opposite direction—of technological or industrial development in driving down wealth disparities.

A more suitable metric for inequality studies—but sometimes less used—are ratios, such as percentiles, shares of income, or the mean and median values of household incomes and net wealth, as well as the income-wealth gap and income mobility measures. For instance, as seen in Figure 8.4, the evolution of global wealth shares over the last decade and a half, as well as their projected evolution for the next five years can paint a slightly clearer picture of the evolution of income

Figure 8.4: Global wealth shares (2000-2020*)

Source: Credit Suisse Global Wealth Databook and Oxfam 2015

*Projections based on 2010-2014 trend.



disparities and wealth concentration. As relative measures, such shares and subsequent ratios do not fall on absolute scales, and for this reason they represent a more appropriate depiction of disparities than absolute measures or indexes. However, such comparisons can also be misleading, if the aggregate numbers combine positive and negative balances (such as savings and debts) and amount to deceptively low levels, or if the comparisons are made in a contextual vacuum, i.e. without references to the evolution of global poverty and global living standard in general (Southwood 2015). That is why the conventional narrative about inequality needs to be amended by several additional qualifications. One such qualification, addressed by Horwitz (2015), emphasizes the

importance of income mobility in addition to a static comparison of quintiles and deciles, i.e. an analysis of the degree in which specific households can move upwards or downwards the wealth and income scale can prove important in identifying more accurately the causes of these disparities.

Let us now offer an account of growing global inequalities different from the rest of mainstream research, by completing the picture of the global effects of monetary expansion with a discussion on wealth redistribution as part of Cantillon effects on an international level. In short, the redistribution of income and wealth occurs in a parallel sequences and in an inverse direction to the inflow of new money and the changes in structure of prices.

Wealth redistribution begins when the new money enters loan markets (credit expansion), and continues as the lower purchasing power of money dissipates into commodity markets ('simple inflation'), transferring wealth from the late receivers (those individuals whose incomes change later) toward the first receivers of the new money (those whose incomes change sooner). More importantly, recurring monetary expansion continuously dislocates wealth from the lower strata of society, and allocates it to the higher strata, to the individuals best connected to the source of monetary intervention. These recurring phenomena lead to a widening of such disparities over time. The analysis, as we shall see more later on, is similar for households, groups of individuals, and firms,. For example, companies which obtain larger loans are able to command more resources during periods of economic boom, and are better off in the short run than other firms. From country to country, the new money redistributes wealth via foreign investments, trade finance, or as a result of changes in the trade patterns or the spending patterns of consumers. All such changes benefit certain individuals, groups of individuals, firms, and financial institutions in favored countries, at the expense of other individuals and firms.

8.1 CANTILLON EFFECTS WITHIN AND AMONG COUNTRIES

In order to discover the winners and losers of monetary expansion, which are otherwise misidentified or overlooked in contemporary inequality studies, I will use the channels through which monetary expansion redistributes income and wealth to structure the investigation. Following Hülsmann (2013) and Lin and Tomaskovic-Devey (2013), I will also use data for the last decades and the most recent financial crisis to provide each redistributive channel with statistical evidence of its effect on households, firms, countries, and world regions. However, in light of the shortcomings of the conventional measures of inequality, the statistical evidence presented in the remainder of this chapter should be taken with a grain of salt, and most importantly, understood as just an illustration of a trend whose causes can be unrefutably demonstrated only through theoretical inquiry.

The income origin channel

The primary channel through which monetary expansion redistributes wealth is the income origin channel. The groups of individuals who are closer to the point of origin of the monetary injection are the first receivers of the new money, such as financial intermediaries, commercial banks, government employees, government contractors, as well as government agencies such as ECAs. As one example, Epstein and Jayadev (2005) find that the rentiers' income—i.e. revenues from financial market activity of the financial industry, including banks, stockbrokers and insurance companies—rose as a share of GNP in the OECD area in the last decades. From less than 10% in the 1960s, the revenues from financial market activity in the United States reached 15% in 1980 and later fluctuated between 20% and 25% in the 1990s (Epstein and Jayadev 2005, 18). A similar evolution of financial revenues took place in Germany throughout the 1970s and 1980s, peaking at the end of the 1990s at 7% of GDP (Duenhaupt 2012).

The activity of commercial banks and other financial institutions during monetary expansion periods further benefits exporters, as well as local firms with easy access to loans and capital markets, and producers and investors operating in sectors favored by government policies (such as infrastructure, armament, or clean energy). More generally, decreasing interest rates favor producers of higher order goods, because they receive a larger share of loans and investment at the beginning of a boom period. Finally, workers in these sectors, owners of factors of production and other connected investors are also positively impacted by monetary expansion.

At the other end of this channel are the last receivers of the new money, i.e. the groups of individuals who are giving up wealth in the process. In the business world, importers are most likely hampered, because imports are generally discouraged by trade policies, and because monetary depreciation works mostly to their disadvantage. In a similar situation are the small businesses which do not have easy access to loans or equity markets, as well as capitalist and factor owners connected with these sectors.

The most affected categories of the population are households and workers in non-financial sectors in general, especially those living on fixed incomes or who do not keep a large share of their wealth in illiquid financial assets. However, a certain degree of wealth redistribution among households also exists, and it depends on household access to the loan market, which leverages income differences into larger wealth differences. As Hülsmann explains, while acquiring goods with borrowed money makes no positive difference in one's net wealth, "if we pay due attention to the difference between gross and net wealth, the fact remains that it does make a difference whether Jones gets the house due to money creation. The difference is that *Jones* [and not somebody else] now lives in the nice house" (Hülsmann 2013, 4; emphasis in the original).

On a global scale, international merchandise and capital flows can also contribute to income and wealth inequality in the context of monetary expansion. The countries (i.e. governments and

financial sectors) which receive foreign aid, portfolio funds, or FDI sooner than other countries can be considered among the first receivers of monetary expansion from other countries. Their national financial firms, large firms, national exporters, capital goods producers, capitalists and factor owners connected to these sectors also benefit. At the other end of the channel are small firms and importers with little access to foreign capital funds such as trade finance, investment, or working capital loans, as well as their associated capitalists and factor owners.

In other words, the groups of first and later receivers in each country will do relatively better or relatively worse, respectively, than those in other countries, depending on the position of their economy in the international trade system and in the global financial hierarchy. For instance, banks in London and New York fare better than banks in India or Brazil because they are closer to the point of origin of the most important monetary expansions. In the same manner, small businesses in UK or US, and households in these countries as a group are likely to retain more wealth over time than businesses and households in Asia or Africa, also due to their proximity to the largest and most significant monetary injections. In other words, while households are generally giving up wealth in all countries, some households can lose more wealth than others, depending on how far away from the initial injection point they are in the global monetary system.

Some statistical evidence of the effects of this income origin channel can be discovered by comparing household net incomes and net wealth levels within countries, as well as among world regions.¹¹³ Household net disposable income represents the amount of money left for spending on

¹¹³ Unfortunately, no data is collected on the income and wealth levels for some of these particular groups, i.e. differentiated by categories of importers and exporters, or small and large firms. There are only a few studies—such as Sum et al. (2008)—which show that the average weekly wage in the investment bank and securities industry (for the Manhattan area) is higher than the average wage of workers in the same area by a factor of 6, as well as higher than that of workers elsewhere in the US by a factor of 20. At the same time, there is little available and reliable data for most countries extending further back than the year 2000. Data is available, nonetheless, on the evolution of general income and wealth levels for households, as well as for the earnings of financial and non-financial companies (especially for US and Germany), which should be sufficient for the purposes of statistical illustration in this chapter.

goods and services each year after taxes and transfers. Just as a quick example, across the OECD, the average household net-adjusted disposable income per capita is approximately \$US 23,000, and before the crisis it is estimated to have risen by approximately 1.7% every year (OECD 2011, 21). However, the average positive growth in income was underlined by the fact that average net income of the top 20% across OECD was \$US 45,000, and grew faster than the average income of the bottom two deciles, which was approximately \$US 9,000 a year (OECD 2011). Furthermore, the ratio between the richest 10% of the population and the poorest 10% is estimated at around 9:1.

Let us now look more closely at four of the biggest OECD economies—US, UK, France and Germany—which are also centers of world finance and whose central banks are among the most important decision makers with respect to global monetary policy. Table 8.1 below compares the mean income (arithmetic average of household incomes) with the median income (the income below the higher earning 50% of households and above the 50% lowest earning households). The

Table 8.1: The income gap

Source: Eurostat, OECD Statistics Database, St Louis FED.

		2000	2005	2008	2009	2010	2011
<i>France</i>	Mean income	18,606	21,536	24,197	24,218	24,726	25,334
	Median income	16,012	18,553	20,709	20,812	21,004	21,319
	Ratio	1.162	1.161	1.168	1.164	1.177	1.188
<i>Germany</i>	Mean income	19,330	20,725	22,294	22,832	23,322	23,344
	Median income	17,240	18,218	19,407	20,127	20,535	20,142
	Ratio	1.121	1.138	1.149	1.134	1.136	1.158
<i>United Kingdom</i>	Mean income	14,352	17,201	19,337	19,748	19,866	20,062
	Median income	11,648	14,280	15,925	16,081	16,333	16,240
	Ratio	1.232	1.205	1.214	1.228	1.216	1.235
<i>United States</i>	Mean income	28,082	33,083	35,717	35,631	35,593	37,595
	Median income	23,950	27,017	29,303	28,951	29,056	30,077
	Ratio	1.172	1.225	1.219	1.231	1.225	1.250

ratios of mean over median incomes in all four countries are higher than 1 across the analyzed decade. This means that the earnings of the top half of the population are disproportionately larger, and those of the lower half are disproportionately lower across this period. More importantly, the mean to median income ratio is increasing throughout the period between 2000 and 2011 (especially after the financial crisis and the monetary stimulus programs), which means that the income earnings are growing for the top, wealthier half of the population, while those of the poorer half of the population are shrinking.

Internationally, the distribution of wealth within and among regions, and globally among international citizens is similar to that in the OECD countries analyzed above. Between countries and world regions, the wealth absorbing pump (writ larger) functions in a similar manner, though a similar ‘income’ (or capital inflow) origin channel. Wealth is redistributed from the countries at the periphery of the financial world and economic development (such as Africa, India, Latin-America) toward emerging markets (such as China and Asia-Pacific countries) and further toward the centers of the financial world (North America and Western Europe).

This transfer of wealth occurs among countries due to two reasons.

First, the reserve currency status of the dollar or euro, as explained above in Chapter 4, as well as their international trade relations allow major economies to postpone the effects of monetary expansion on domestic product markets—or in other words, to ‘export’ price inflation to other countries. While the citizens of these major economies are able to receive, borrow, and spend the new money first, the prices of the commodities they buy do not rise to the same extent for a longer period of time than otherwise. At the same time, prices in smaller economies rise sooner without their citizens receiving, borrowing, or spending the new money to the same extent. It is worth pointing out that these *international* Cantillon effects are not ‘automatic’: they depend on major countries inflating their money supplies, but also on peripheral economies’ monetary authorities

matching this monetary expansion in order to keep their currencies from rising in value and hurting their exporters.

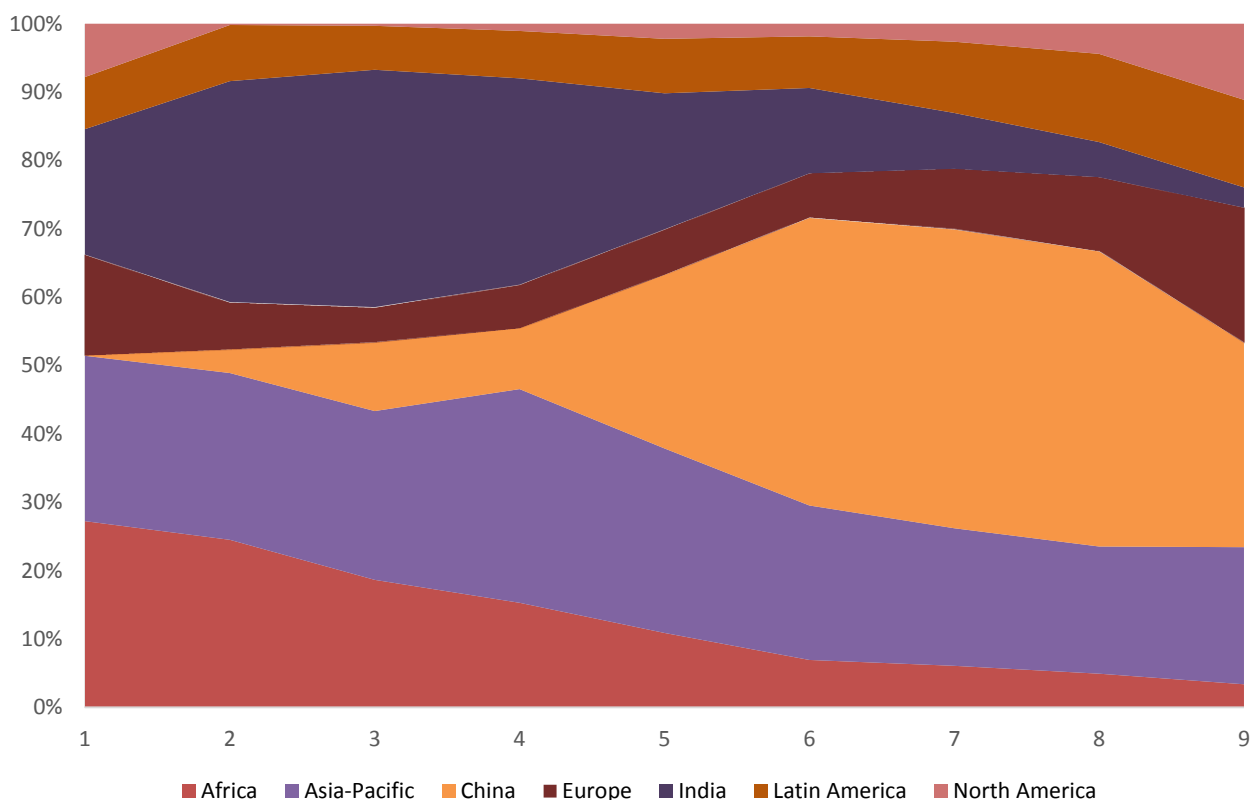
Second, as discussed in detail in Chapter 5, the integration of financial markets, as well as the increase in commercial partnerships makes the transmission of monetary expansion among countries through capital and merchandise flows easier and quicker. This transmission also benefits a select number of countries, such as those which produce and export higher order capital goods and which receive earlier larger shares of the global capital investment. These economies are thus among the first receivers of the new money, who benefit from the wealth eventually surrendered by the last receivers, such as countries at the periphery without developed industrial sectors, and which attract fewer capital flows. These differences in the direction and composition of capital inflows would be otherwise benign on a free market, the result of natural, market-determined differences in productive capabilities (or in other words, comparative advantage). In the context of monetary expansion, however, the flow of capital across borders, as shown in previous chapters, is directed to a large extent by artificially low interest rates, and as a result does not correspond to the unhampered market pattern of comparative advantage.

Let us look at some statistical evidence of income and wealth inequalities within world regions. Figure 8.5 below grafically depicts the regional and country membership of each global wealth decile, i.e. of 10 percent groups. The first noticeable tendency is the disappearance of the middle class in developed regions such as North America and Europe, which is the result of wealth concentration at the top, as well as of little income and wealth mobility for the less wealthy. Second, China—the fastest growing emerging economy—currently accounts for 40 percent of the membership of the upper middle deciles (6 to 8), but also has a significant and growing presence in the top decile (9), similar to that of the United States, Japan, or Western European countries. This reflects the growing income inequalities in the Asian economy, which can be connected to their

monetary policies of the past decade (inflating the yuan supply to maintain parity with the dollar) and the development of their financial markets.

Figure 8.5: Regional composition of global wealth deciles

Source: Credit Suisse Global Wealth Databook 2014



Similar monetary policies (expansion and financialization) were used also in India or the African countries, although to a lesser extent. As a result of their slow economic development, the residents of these economies account for the largest parts of the lowest wealth decile (1), but they also have a relatively significant presence in the top decile, which points to the growing inequality in these regions. Most importantly, however, it is worth noting that the largest shares of wealth in the top deciles belong to the most financially developed regions (Europe, North America, Asia-Pacific), while regions at the periphery of the financial hierarchy populate to a larger extent the lower deciles.

Table 8.2: The wealth gap

Source: Credit Suisse Global Wealth Databook 2014

		2000	2004	2008	2012
Africa	<i>mean wealth</i>	2,894	4,16	4,988	5,236
	<i>median wealth</i>	414	61	79	701
	<i>Ratio</i>	6.99	6.81	6.30	7.47
Asia-Pacific	<i>mean wealth</i>	32,933	36,225	39,831	49,986
	<i>median wealth</i>	1,262	2,049	2,800	3,170
	<i>Ratio</i>	26.10	17.68	14.23	15.77
China	<i>mean wealth</i>	5,672	9,624	13,825	20,339
	<i>median wealth</i>	2,703	4,265	5,387	7,086
	<i>Ratio</i>	2.10	2.26	2.57	2.87
Europe	<i>mean wealth</i>	61,272	105,830	120,447	132,010
	<i>median wealth</i>	4,672	10,353	15,981	15,616
	<i>Ratio</i>	13.11	10.22	7.54	8.45
India	<i>mean wealth</i>	2,036	3,196	3,807	4,897
	<i>median wealth</i>	588	833	843	1,079
	<i>Ratio</i>	3.46	3.84	4.52	4.54
Latin America	<i>mean wealth</i>	11,159	12,437	17,037	23,856
	<i>median wealth</i>	2,528	2,992	4,550	5,639
	<i>Ratio</i>	4.41	4.16	3.74	4.23
North America	<i>mean wealth</i>	198,984	237,610	225,806	282,691
	<i>median wealth</i>	32,308	39,076	37,366	46,999
	<i>Ratio</i>	6.16	6.08	6.04	6.01

The evolution of these inequalities is also depicted in Table 8.2, which compares mean and median net wealth, estimated for the average household or adult in different world regions between 2000 and 2012 (Credit Suisse Report 2013, 2014). The analysis of their ratio is similar to that of mean to median income from Table 8.1: a ratio between mean and median wealth higher than 1 means that the top wealthier half is disproportionately wealthy, and the lower half is disproportionately poor. The ratios vary across regions and across time, generally between 2 and 15 (peaking at around 26 in the Asia-Pacific region). In India and China, wealth disparities are on the rise before and after the financial crisis, while in the other regions they increase especially after

2008. Two regions in which wealth inequality is on a decreasing trend throughout the period are Africa and Asia-Pacific (possibly as a result of their increased openness to trade and technological development), but the absolute values are also among the highest in the world.¹¹⁴

Part and parcel of the sequence in which monetary expansion is transmitted from market to market and country to country, the income and wealth composition channel is the complementary channel to the income origin channel, two facets of the widening gap between wealthy and poor in society.

The income and wealth composition channel

Generally, the literature breaks down household disposable income into the following items: income from economic activity (wages and salaries; profits of self-employed business owners), property income (dividends, interests, and rents), social benefits in cash (retirement pensions, unemployment benefits, family allowances, basic income support, etc.), and social transfers in kind (healthcare, education and housing, generally welfare benefits). Household wealth (or net worth), on the other hand, is considered as the sum of assets minus liabilities, taking into account financial wealth (savings and debts, currency and gold, as well as deposits, stocks, and securities)¹¹⁵ and non-financial wealth (land, housing, and other similar assets).

¹¹⁴ The data for North America also shows a slightly declining wealth inequality, which in light of their recent heavy monetary expansion policies poses an interesting question regarding the available data. According to the authors of the Credit Suisse Databook (2013), the distribution of wealth within regions is calculated via a “bottom-up” approach, which first establishes “the average level of wealth in different countries onto which the pattern of wealth holding revealed in household sample surveys and other sources is grafted” (Credit Suisse 2013, 93). This approach, however, has the shortcoming of aggregating the upper-class levels of wealth with the middle and lower classes in calculating national averages, which are then ponderated by population figures within the region. This smoothes out the bulk of the increase in wealth in the upper levels with the decline (or smaller increase) for the lower and middle classes, and as a result, can understate the actual evolution of these wealth ratios.

¹¹⁵ Financial assets are themselves a source of income, because they can be sold and refinanced, and they bring in interest income, dividends, or property income.

According to the OECD (2011) and Credit Suisse Reports (2013, 2014), the proportion between labor and business income, as well as between financial and non-financial assets in the overall composition of a household wealth differs significantly from country to country, as well as between categories of households (although highly disaggregated data are not widely available). Let us now take a closer look at these proportions, analyzing 1) the share of financial assets, 2) the share of debt, and 3) the contribution of wages in total income, all in relation to the evolution of average wealth across countries of the world.

In general, the share of financial assets in household wealth has increased over the last decade and a half in OECD countries (OECD 2011). As national financial systems grow—and we have seen in Chapter 5 that they tend to develop to a great extent due to monetary expansion—the tendency is for the importance of financial assets to rise relative to that of non-financial assets in household portfolios. One current example of such a transition are Chinese and Singaporean households, where financial assets increased from a share of approximately 40% in 2000 to 50% and 52% of household wealth between 2010 and 2014. These levels have brought the two countries closer to the levels of developed countries, where financial assets usually comprise more than half of household wealth, reaching between 60% and 70% in the US (Credit Suisse 2014). Additionally, capital gains from financial activities hold similar high shares in total household revenue in these countries, especially for the top 0.01% of households. Non-financial assets, on the other hand, such as houses, land, or small business assets remain relatively more predominant in the household portfolios from the developing world, although over the last decade, rising house prices have made them more attractive even in countries like France or Italy.

The increase in wealth for these households with larger shares of financial assets represents, at the same time, a relatively lower increase for the households whose portfolios contain a smaller share. As pointed out several times throughout this thesis, while financial asset prices are the first to

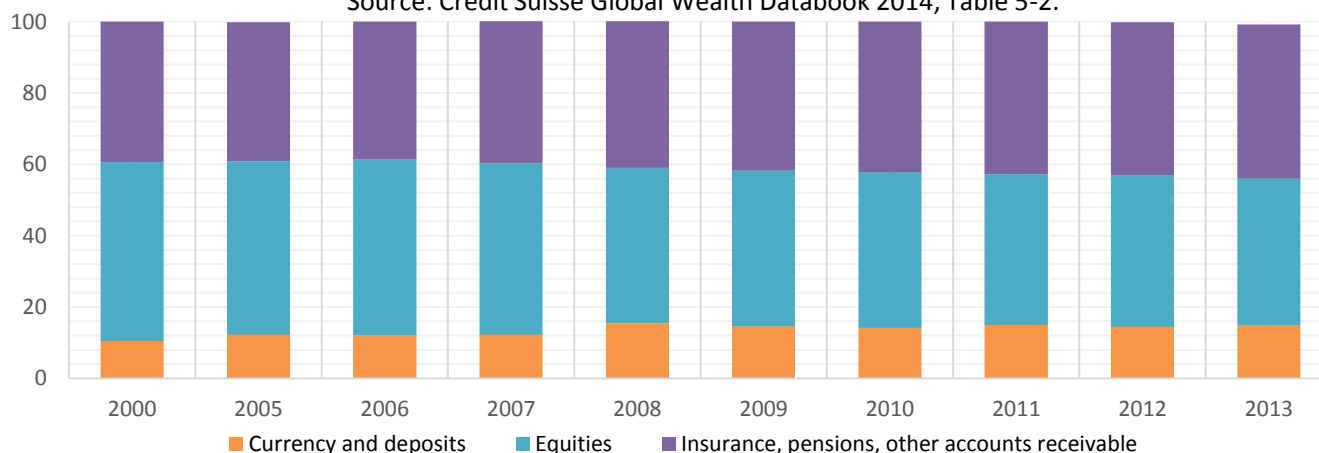
increase as a result of monetary expansion, dragging along with them the value of household portfolios, the value of non-financial assets or incomes does not rise as early and to the same extent. Households in the latter category have to pay higher prices for the commodities they buy—or otherwise put, they are the latter receivers of the financial wealth created through monetary expansion. This further redistributes wealth toward the first beneficiaries of increases in financial asset prices. In the longer run, because the larger the share of financial assets in a household portfolio, the faster household wealth can rise apace with monetary expansion, non-financial assets become a less viable way to accumulate and store wealth.

If we take apart household portfolios even further, another tendency for wealth redistribution is revealed with regard to the composition of financial wealth. Households which hold larger proportions of equities, securities, and other accounts receivable increase their wealth during a period of boom, compared to those that store their wealth in currency and deposits and whose wealth tends to decrease. Monetary expansion—by raising the price of equities and securities, and lowering the value of the currency and the level of interest rates—, penalizes the more traditionally thrifty households and transfers wealth toward the more financially-savvy ones. Additionally, this leads in the longer run to a further increase in financial markets and the financialization of the economy, as traditional saving methods and hoarding are discouraged in favor of financial market products.

The geographical pattern seen before with regard to the proportion of financial and non-financial assets is present also at this level of portfolio disaggregation: lower-income households, and especially those in developing countries with little access to financial markets tend to hold more currency and bank deposits than high-income households, especially those in developed countries, who store wealth in equities and insurance. Figure 8.6 below shows the breakdown of financial wealth in the US, where currency and deposits accounted for less than 15% before the crisis and

Figure 8.6: U.S. composition of household financial wealth (2000-2013)

Source: Credit Suisse Global Wealth Databook 2014, Table 5-2.



increased slightly after 2008, while equities, and insurance, pensions, and other account receivable have each contributed around 40% in total financial wealth from 2000 to 2013. More specifically, the typical household portfolio in developed economies has less currency and deposits (liquid assets) than the global average, while equities and other assets are at similar or higher levels than the global average. Developing countries household portfolios, on the other hand, contain less equities and other financial assets than the average, and more liquid assets. Finally, transition countries, where financial markets are growing, but have not yet developed sophisticated financial products, have more of both currency and deposits, and equities in a typical household portfolio.

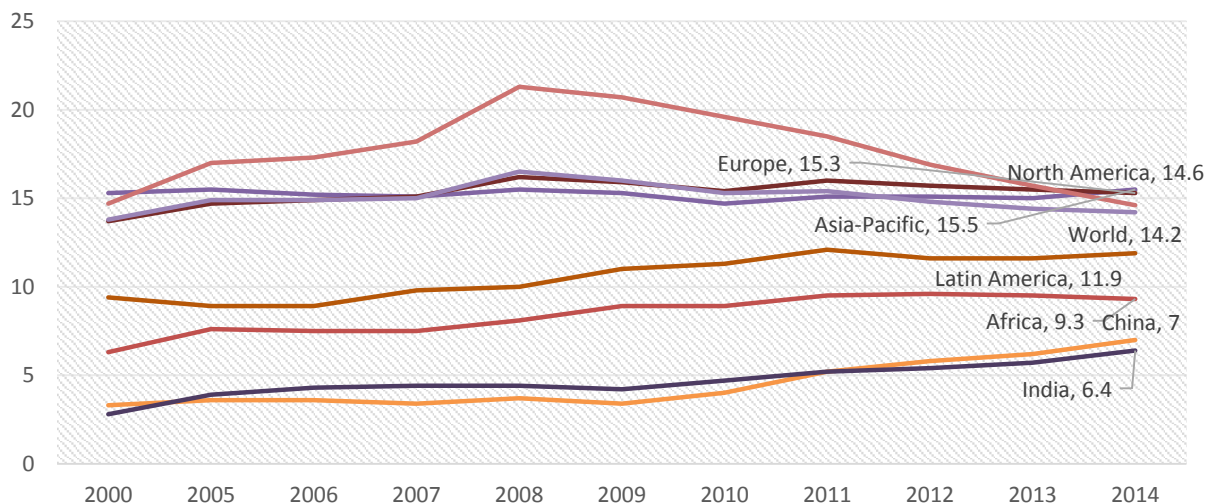
In the high and upper-middle income countries where financial products have the largest share in total household wealth, differences in the pace of capital market growth can further widen disparities among economies and households. While market capitalization, and thus wealth, rises faster in developed economies, i.e. in the centers of world finance, it does so at a slower pace in emerging markets (Erose and Ventura 2002, Albanesi 2007). The experience after the recent crisis has provided one such example, where emerging equity markets underperformed after 2009, and wealth growth decelerated (Credit Suisse 2014).

Figure 8.7 below depicts such difference in wealth growth, in relation to the evolution of asset prices between 2013 and 2014 in both developing and developed countries. In the United

household debt increased rapidly in most developed countries. It rose by 30% between 2000 and 2007, reaching an average of 130% debt-to-income ratio in OECD countries. The most important exceptions were Germany and Japan, where in the absence of a housing boom households did not accumulate as much debt as in the US or UK. After the crisis, debt levels dipped slightly in these latter countries, but overall (and especially in countries where property prices have declined), household debt levels have remained at historical high levels.

On average, debt levels tend to be lower in poor or emerging regions where financial intermediation is still little developed, but much higher in rich regions with developed financial systems. However, as you can see in Figure 8.9, household portfolios in India, Africa, or China are holding increasing shares of debt, from between 3% and 6% in 2000 to between 6% and 9% in 2014. The evolution of debt as a share of household portfolios is important for the distribution of wealth for two reasons. On the one hand, because monetary expansion and the subsequent price inflation are favorable to debtors, households with a higher proportion of loans in their portfolios benefit from the decrease in purchasing power, compared to households which rely relatively more on savings. This causal link works in the opposite sense too, however: because rising prices

Figure 8.9: Debt share (%) in household portfolio, by world region (2000-2014). Source: Credit Suisse Global Wealth Databook 2014.



discourage savings, the proportion of debt in total household assets tends to increase, and in turn this increases the demand for financial intermediation and banking services, which slowly leads to the development of financial markets.

On the other hand, and more importantly, the loan market widens wealth disparities, especially in the long run in the context of monetary expansion. As Hülsmann (2013, 10) explains, the loan market distributes wealth acquired on credit in a pattern that “does not simply mirror the distribution of the underlying incomes”: households with lower incomes can restrict consumption less, thus obtain smaller loans, or for higher interest rates than households with higher incomes; in other words, they acquire disproportionately less wealth (via credit) than the latter. Moreover, the beneficiaries of this leveraging effect of the loan market are the financial sector, as they constitute the very first receivers of the newly created credit. Thus, Hülsmann (2013, 10) concludes, the loan market leverages income differences into even larger wealth differences, an effect which is augmented and prolonged by the Cantillon effects of monetary expansion, and which contributes to widening the gap between wealth groups.

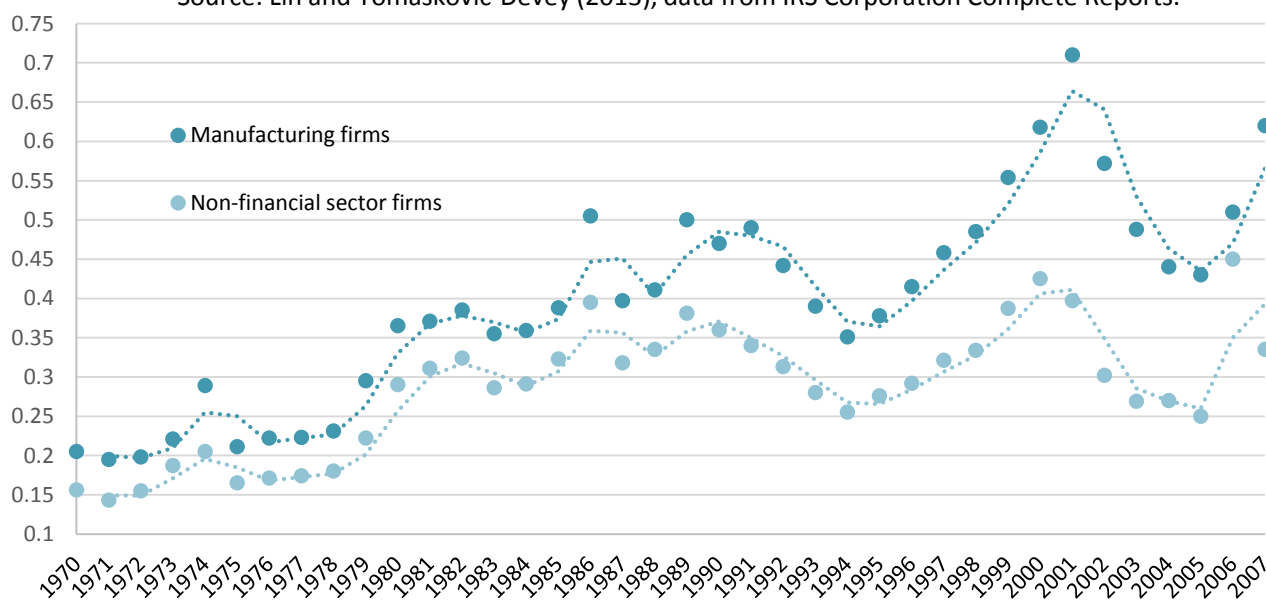
Finally, a third breakdown in household portfolio reveals another similar trend between developed and developing economies, as well as in between wealth deciles. In high and upper-middle income economies, the contribution of wages in total household revenue has been on a downward trend over the last decade compared to lower middle and low income economies. At the same time, the contribution of wages in household revenue has increased in the lower decile of the income ladder in almost all countries, but absolute levels of labor compensation have increased primarily or only in the top deciles (OECD 2011). This has also led to further wealth inequality, because wages have responded more slowly to the increases in the money supply and the depreciation of the monetary unit. The lower decile have thus had to pay for rising prices while a large share of their total revenue has remained behind the pace of inflation, while the situation was

the opposite for the top decile whose revenue increased faster or before the more general rise in prices.

Our discussion so far has focused on household income and wealth, and its evolution within countries and among regions of the world. There is however one more important analysis to be made with regard to wealth redistribution, that is for the case of firms. As Lin and Tomaskovic-Devey (2013) argue, one important tendency of the last decades has been the increased participation of both financial and non-financial firms on financial markets. The two authors analyze the ratio between the financial income (sum of interest, dividends, and capital gains) and profits for manufacturing as well as all non-financial firms in the United States—as depicted below in Figure 8.10. They discover that between 1970 and 2007, firms have become more and more financially driven, obtaining an increasingly smaller share of their income from the sale of goods and services (Krippner 2005), and about four times as much revenues from financial activities compared to 1970.

Figure 8.10: Ratio of financial income to profits for U.S. (1970-2007)

Source: Lin and Tomaskovic-Devey (2013), data from IRS Corporation Complete Reports.



The evolution of this ratio is also correlated with the development of financial booms, and as the figure above shows, it collapsed rapidly during financial crises (early 1990s, 2001). The larger the share of financial revenue in a company's total earnings, the more favorable the impact of monetary expansion will be on the value of a company's assets and total worth. At the same time, companies that continue to rely on revenues from product markets are, in these circumstances, the later receivers of the new money among companies, and thus they tend to earn less or even lose wealth in the process.

More interestingly, the ratio of financial income to profits for exporting and importing firms is at higher than average levels—because companies that trade on global markets often hedge against commercial, sovereign, and currency risk using financial market instruments such as derivatives, futures or foreign exchange market instruments. Thus, the income composition channel tends to benefit importing and exporting firms alike, compared to the income origin channel whose impact was mostly favorable to exporters.

In the longer run, as scholars argue (Fligstein 2001, Davis 2009) not only financial corporations, but also firms from the non-financial sector respond to a greater extent to changes in financial markets rather than product markets. This tendency of “financialization” is gradually reinforced with the passing of time and recurring inflationary episodes, which supports the arguments from the previous chapter that financial market development makes firms (who trade on global markets in particular) dependent on monetary expansion, and more likely to grow rapidly and malinvest their resources during booms.

Internationally, therefore, the geographical pattern described previously for the case of households is similar to that in the case of firms. Companies from developed countries—such as the United States, as shown in the Figure 8.10 above—are more likely to diversify their income sources sooner into financial markets, thereby outpacing companies from developing or transition countries,

where financial markets are little developed. At the same time, however, companies from developing countries have gradually increased their presence on financial markets. As Correa et al. (2013, 263) argue, this “has been a peculiar process of domestic accommodation to the dominant tendencies in the global economy”, transmitted to developing countries through global supply chains, international trade relations, as well as inter-government and inter-central bank cooperation.

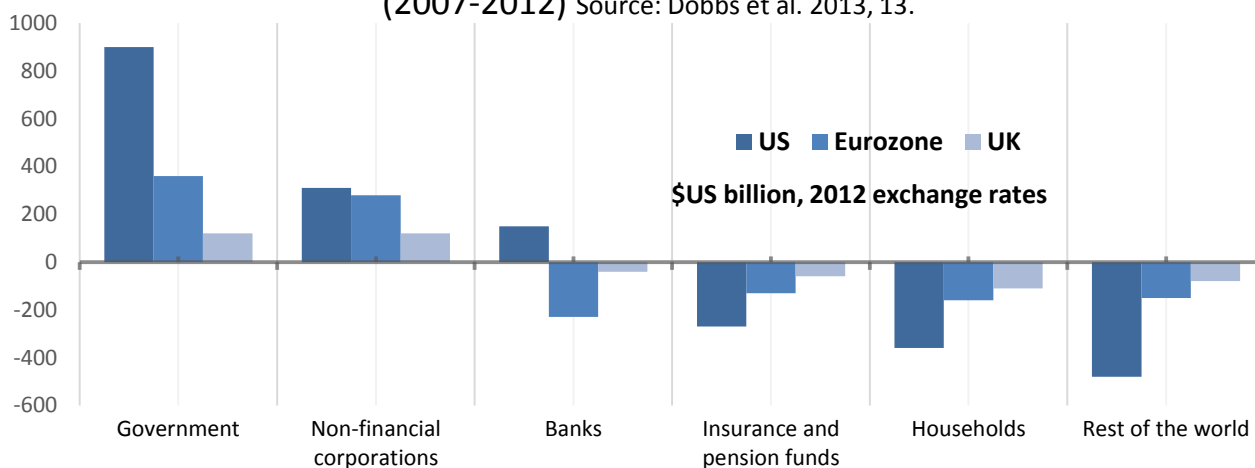
Deferred payments and interest income

Another effect of monetary expansion on the distribution of wealth works through the evolution of interest incomes and differential payments. This channel is not as important as the income origin and composition channels, because contracts can be indexed to compensate for anticipated changes in the purchasing power of money and interest rates. Nonetheless, the effect of this channel is worth analyzing in a little detail for two reasons: One, as we have seen in Chapter 2, the overwhelming majority of mainstream literature on monetary issues considers this channel the only one impacting wealth distribution through monetary policies. Two, insofar as contract indexing is an imperfect vehicle, entrepreneurial anticipations can be wrong, and government policy changes can be unpredictable, there is a small, but non-negligible impact of this channel on the distribution of wealth.

Furthermore, this impact is particularly important in relation to the income composition channel in the case of household portfolios: generally, because the composition of family household portfolios does not adjust quickly to changes in monetary policies—also because these households are less prepared to anticipate these changes—the changes in interest income can have a significant impact on the distribution of wealth. Figure 8.11 below shows the main direct beneficiaries and losers of changes in the interest rate and subsequently in interest income. First, governments and non-financial corporations (which tend to be net debtors to a larger degree than other market actors)

have benefited from the reduction in interest rates over the last period of monetary expansion. Between 2007 and 2012, governments in the Eurozone gained approximately \$US 360 billion, the UK government gained \$US 120 billion, and the US Federal Government gained \$US 900 billion in

Figure 8.11: Estimated cumulative change in net interest income (2007-2012) Source: Dobbs et al. 2013, 13.



net interest income. The reduction in interest rates allowed them to refinance their debts, to continue borrowing at lowering rates, but also to earn interest on the expansion of central bank balance sheets (Dobbs et al. 2013, 14). During these five years before and after the crisis, government interest earnings amounted to 4% to 8% of total public debt in US, UK and Eurozone. Non-financial corporations have also gained around \$US 710 billion in net interest income, because the interest-bearing liabilities on their balance sheets surpassed the interest-bearing assets. As Dobbs et al. (2013, 16) also point out, the larger the companies, the easier it has been for them to contract such liabilities (issue stocks, bonds, and commercial paper for the capital markets, and access additional bank loans), unlike smaller firms—or firms at the world’s financial periphery—which had less or no access to capital markets and bank loans after the crisis.

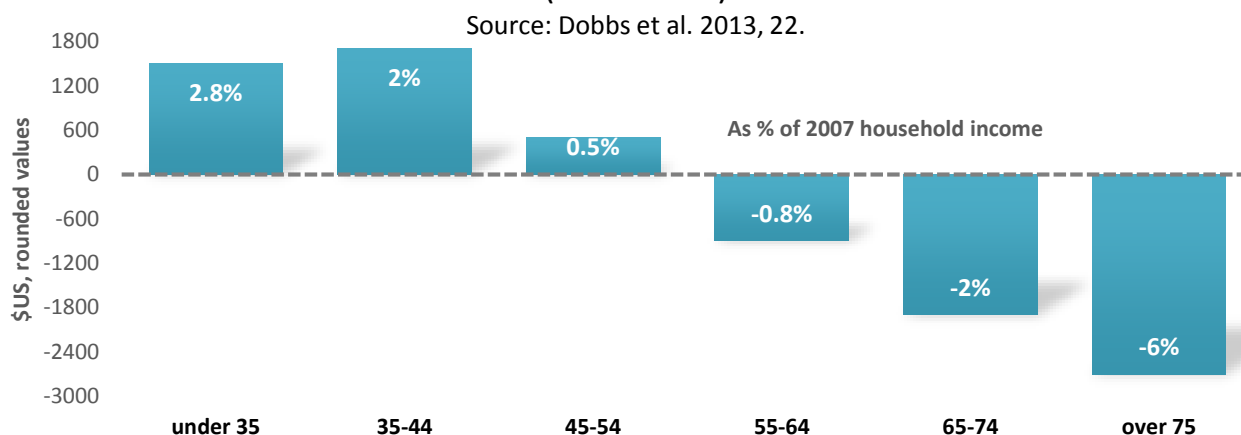
Financial intermediaries have experienced mixed effects. Commercial banks in the United States have incurred net interest income gains, unlike their counterparts in the EU and UK. This is because US banks did not keep loans on their balance sheets, but securitized them to a large extent (up to 54%) before and after the crisis. By contrast, Eurozone banks securitized only up to 20% of

their loans, which made them much more sensitive to decreases in interest rates (Dobbs et al. 2013, 19). At the same time, European banks have not been able to maintain their interest rate spreads (between interest paid on liabilities and received on assets) without losing most of their depositors, while in the US, the public has in fact increased saving deposits after the crisis.

In short, changes in interest income as a result of monetary expansion have rewarded risky bank behavior and punished the more prudent decision of financial intermediaries. Insurance companies and pension funds have also incurred interest income losses, because—unlike non-financial corporations—they held more interest bearing assets than interest bearing liabilities. Unfortunately, changes in interest income encouraged risky behavior among these companies as well: because their profitability has declined substantially with the implementation of monetary stimulus programs, insurers have compensated for these losses by moving into riskier, higher-yielding assets, which increased their likelihood of default.

Households in the UK, US, and EU cumulated the largest losses from changes in interest income: \$US 1.34 trillion over the same five-year period. A closer look at the differential impact of these changes on groups of households (Figure 8.12) further reveals some important trends. In particular, monetary expansion encouraged debtors, i.e. households with relatively more interest-

Figure 8.12: U.S. annual net interest impact across age groups (2007-2013)



bearing liabilities, while disadvantaging households holding interest-bearing assets. This redistribution of wealth from the latter to the former also overlapped with household age group. Younger households in the US, for example, held relatively more debt compared to older households who (usually) save more. In the 35 to 44 age group, households added on average \$US 1,700 to their income each year between 2007 and 2012 as a result of lower interest rates, while in the 75 and over age group they lost \$US 2,700 on average. In the longer run, if expansionist monetary policies continue and penalize savers, the already low saving rates in most countries are likely to decrease even further over the next decades.

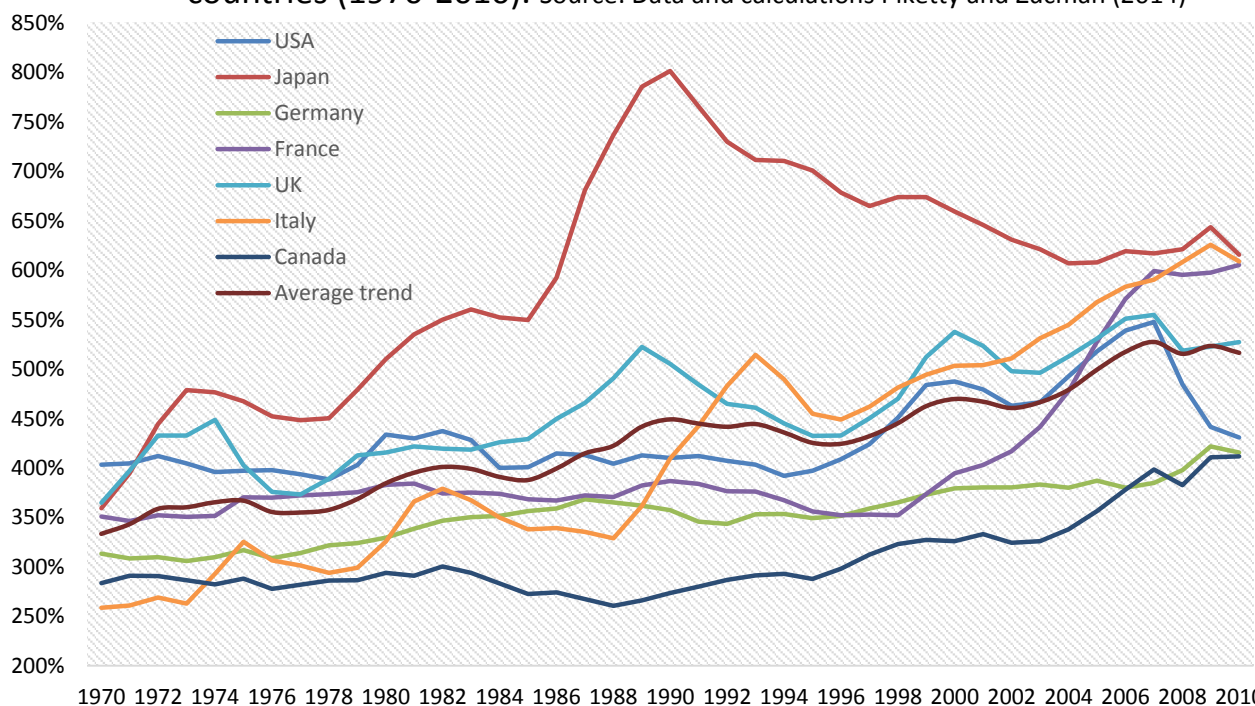
8.2 THE GLOBAL INCOME-WEALTH GAP

Measures of income inequality (income gap) and wealth inequality (wealth gap), as we have seen above, are fairly well defined and commonly used. The concept of an *income-wealth gap*—albeit not ignored—is comparatively less employed in analyses of economic disparities among households or across countries (Babeau 1983). Most recently, a somewhat similar concept was used by Piketty (2014) and Piketty and Zucman (2014a, 2014b), who analyze the ‘wealth-to-income ratios’ or the better known capital-output ratios over the last century. The two authors analyze the ratio of national wealth to national income, as depicted in Figure 8.13, and argue that an increase in this ratio over time is determined mainly by an increase in the rate of savings and the subsequent capital gains. Furthermore, because productivity growth and economic progress are, authors argue, allegedly due to technological advancement and not capital accumulation, Piketty and Zucman conclude that increasing accumulation of capital could only lead to an uneven accumulation of wealth at the top, and thus to widening economic disparities.

For the selected countries (i.e. the eight largest developed economies) in Figure 8.13, the wealth-to-income ratios have indeed been on an increasing trend since the 1970s, and on average,

national wealth levels increased from a triple of national income in 1970 to five times national income in 2010. Nonetheless, the underlying premises of Piketty and Zucman’s analysis are flawed.¹¹⁶ So before we delve into our own analysis of the income-wealth gap, let us discuss these premises and their shortcomings in more detail.

Figure 8.13: National wealth-national income ratios, selected countries (1970-2010). Source: Data and calculations Piketty and Zucman (2014)



First of all, as explained in Chapter 4, savings and capital accumulation are the drivers of economic progress, of what Piketty (2014) calls ‘productivity growth’, as well as of technological development. Second, capital’s rate of return, the pace of wealth accumulation, and more generally economic growth are not independent of the interest rate, as Piketty (2014) seems to assume, and thus not independent of monetary policies. The increase in capital gains and asset returns, and thus wealth, are artificially inflated by monetary expansion, while savings are discouraged. Third, the aggregated measures used obscure the true nature and extent of wealth redistribution among

¹¹⁶ For more detailed critiques of Piketty’s contributions, cf. Magness and Murphy (2015) and Reisman (2014).

households and individuals, as well as the gradual impact of inflation on stock, commodity, or product markets.

Most importantly, the increase in national wealth shown by Piketty's data, while it does take into account the rise in asset prices during periods of economic boom, does not pinpoint monetary expansion as the underlying cause of stock market bubbles. However, the correlation between expansionary periods and wealth growth is visible even when using aggregated data as in Figure 8.13. For example, Japan's wealth-to-income ratio peaked at around 800% in the early 1990s, at the height of the property bubble, and the US ratio rose significantly during the dotcom bubble in the late 1990s and during the most recent financial crisis in 2008-2009. On the other hand, countries where such bubbles have been less prominent—such as Germany or Canada—have also seen a rising wealth to income ratio, but their evolution has been less volatile and their growth less spectacular.

The shortcomings of this analysis notwithstanding, there is indeed a tendency for a growing income-wealth gap in the context of monetary expansion. These policies, by depreciating the value of a currency and artificially depressing interest rates, make it increasingly difficult for households to accumulate wealth. This gap, unlike the national wealth to income ratios, cannot be attributed simply to increasing capital gains, because on a free market, such disparities could be bridged by households accumulating wealth via savings. With monetary expansion, however, as wealth concentrates in the hands of the first receivers of the new money, and reduces the wealth of the last receivers, disparities become larger and larger with each inflationary episode. Furthermore, the general rise in prices and the decrease in the interest rate discourage savings, affect production and depress real income in the long run, thus making wealth accumulation more difficult. In addition, as Hülsmann explains, because the interest rate is kept at artificially low levels through monetary expansion, "the lower the interest rate, the longer one needs to work and earn income to accumulate

any given level of wealth” (Hülsmann 2013, 17), or in other words, the harder it is to bridge the gap.

Some statistical evidence can help illustrate the tendency for a growing income-wealth gap, and a good proxy is the ratio of the average wealth (net worth) and the mean income of *households* in an economy. *Ceteris paribus*, the higher this ratio, the wider the gap between wealth and income,

Table 8.3: The income-wealth gap in selected OECD countries

Source: Data from the OECD statistics database, Credit Suisse Global Wealth Databook 2014.

		2000	2004	2007	2008	2010	2014
Canada	average wealth	108,464	154,700	176,375	176,375	237,795	274,543
	household disposable income	20,890	24,042	27,370	28,226	29,183	29,236
	Ratio	5.19	6.43	6.44	6.25	8.15	9.39
Finland	average wealth	78,532	140,009	183,417	156,105	169,480	196,621
	household disposable income	16,854	20,820	24,284	26,087	27,610	29,479
	Ratio	4.66	6.72	7.55	5.98	6.14	6.67
France	average wealth	103,619	213,525	302,027	273,597	283,589	317,292
	household disposable income	21,319	24,807	27,437	28,348	29,476	30,811
	Ratio	4.86	8.61	11.01	9.65	9.62	10.30
Germany	average wealth	89,770	148,761	191,034	182,219	184,060	211,049
	household disposable income	21,433	24,882	28,044	29,269	30,972	33,406
	Ratio	4.19	5.98	6.81	6.23	5.94	6.32
Ireland	average wealth	91,334	177,133	222,823	188,249	180,491	209,976
	household disposable income	24,779	21,591	25,039	25,556	25,278	24,709
	Ratio	3.69	8.20	8.90	7.37	7.14	8.50
Italy	average wealth	119,773	208,301	260,171	239,436	243,407	255,880
	household disposable income	20,382	22,599	25,093	26,329	26,454	26,105
	Ratio	5.88	9.22	10.37	9.09	9.20	9.80
Japan	average wealth	191,877	193,383	177,062	214,771	225,274	222,150
	household disposable income	21,875	21,295	23,891	24,275	25,612	26,536
	Ratio	8.77	9.08	7.41	8.85	8.80	8.37
Spain	average wealth	64,521	116,390	159,468	139,675	126,983	134,824
	household disposable income	17,005	20,648	23,373	24,745	24,092	23,770
	Ratio	3.79	5.64	6.82	5.64	5.27	5.67
UK	average wealth	162,999	252,440	324,276	206,289	250,633	292,621
	household disposable income	21,084	26,065	27,688	27,620	26,932	27,517
	Ratio	7.73	9.69	11.71	7.47	9.31	10.63
US	average wealth	192,339	227,175	268,586	207,079	247,247	347,845
	household disposable income	28,704	33,923	38,489	39,941	40,204	42,920
	Ratio	6.70	6.70	6.98	5.18	6.15	8.10

and thus the harder it is for a household to catch up to the average level of wealth. As shown in Table 8.3 above, for the same countries analyzed by Piketty and Zucman (and additionally for Finland, Ireland, and Spain), the ratio between average wealth and average household disposable income has constantly increased between 2000 and 2008, and 2010, and has in fact been higher than the aggregate national wealth-to-income ratios throughout the same period. Ratios have slightly dipped in 2009, around the financial crisis, when the precipitous drop on stock markets, the collapse of housing prices, and a global slowdown of monetary expansion have temporarily depressed wealth levels. After the crisis, however, and after monetary stimulus programs rekindled financial market growth, household mean wealth has increased to levels even higher than before 2010, and so has the income-wealth gap.

Furthermore, these ratios can be used in conjunction with the interest rate to calculate how long it takes an average earning household to accumulate an average level of wealth. This exercise is particularly important to show how wealth is harder to accumulate through saving in liquid assets (currency and deposits) in the context of current monetary policies keeping interest rate at the lowest possible levels. In the Table 8.4 below, following Hülsmann's (2013) computations, I calculated the average amount of time it would take for a family earning a mean income to accumulate an average level of wealth in a particular economy. Table 8.4 below displays the results at a hypothetical 10% interest rate, constant from 1980 and 1990 (using data from Piketty and Zucman), 2000 and 2014 (data from OECD Household Accounts, also used above in Table 8.3). As you can see, the period required increased substantially over time, as the income-wealth gap widened with every decade: it tripled in the case of France, UK, and Italy, and almost doubled for the rest of the analyzed countries.

Table 8.4: Bridging the income-wealth gap (rounded values).

Source: Data from Piketty and Zucman (2014), OECD Financial Database, own computations.

At a constant 10% interest rate (years)				
	1980	1990	2000	2014
Canada	39	27	52	94
France	38	39	49	103
Germany	33	36	42	63
Italy	33	41	59	98
Japan	51	80	88	84
United Kingdom	42	51	77	106
United States	43	41	67	81

Even more interesting, however, are the results calculated at the actual annual deposit rates in selected countries for the respective years. These calculations would reveal not only the effect of a widening income-wealth gap due to increased wealth concentration, but also the increased difficulty to bridge this gap because of the drop in interest rates. For 1980 and even 1990, for example, if we were to use actual deposit rates, the results would be slightly different from our hypothetical case—Japan, for example, had a 5% actual deposit rate, such that the actual time was double (between 100 and 160 years), while UK’s deposit rate higher than 10% such that the time was actually lower (approximately 35 to 40 years). After 1990, however, the period necessary for bridging this gap would increase considerably: in the last decade analyzed (2000 to 2010), when deposit rates have reached record low levels of 0.1% to 0.3%, the length of time needed to bridge the income-wealth gap also reached record levels of several hundreds of years, thus spanning multiple generations.

Because this exercise is a simple back of the envelope calculation, and takes into account only the returns on saving in liquid assets, it can be considered rather simplistic, and its results somewhat misleading. But while this assumption might be unrealistic for the majority of family

households in developed countries, it is much closer to reality for low-income, developing countries. As noted before, cross-country idiosyncrasies in economic and financial development do not equally allow households to opt out of saving in currency and deposits and invest instead in financial instruments or go into debt. For many families across the world, traditional saving remains the only option for wealth accumulation, a goal which has become an almost impossible feat. In addition, because wealth is redistributed through fiat inflation, and income differences leveraged into larger wealth differences through the loan market, the process of wealth accumulation itself is becoming a zero-sum game, where some earn what others lose.

On a free market, while wealth disparities would still be present, wealth accumulation would nonetheless benefit all households. With fiat inflation, however, this important relationship breaks down, and what masquerades as economic growth comes in fact with a loss of wealth for a large part of the population.

As to what regards solutions for bridging these gaps, it is important to point out that increased taxation on capital gains or social welfare programs (education and healthcare) will not produce the expected effects, for two important reasons. First of all, as discussed above, capital markets are running toward higher and higher asset price inflation due to monetary expansion, not due to the lack of financial regulation or taxation. Second, and most importantly, as long as fiat inflation policies persist, government redistributive effects will only affect economic efficiency, while wealth will continue to be redistributed from the last receivers to the first receivers of the new money. The social transformations of Cantillon effects, once set in motion, are irreversible. Low interest rates will continue to make wealth accumulation harder for the large part of the population. And as Mises (1998[1949], 412) pointed out, each of these policies (monetary and fiscal) will bring changes in the material situation of individuals and households without however compensating each other.

Finally, it is worth noting that the analysis on the income-wealth gap between households in an economy can be also applied at a firm level—a sphere of analysis neglected by mainstream research, where corporations are usually considered together with households in the total national private wealth. However, there is a trend of wealth redistribution among firms as well, which is also best revealed by the monetary explanation.

Loan markets leverage revenue and profit differences among companies into larger differences in company net worth, in a similar way as in the case of households. For example, large companies or older companies are able to obtain higher loans sooner than smaller or new firms, acquiring more gross wealth on credit before their competitors.

In a similar manner, it gradually becomes harder for firms in developing countries—which do not have access to loans and financial markets as easily, at the same time, and to the same extent as firms in rich countries—to penetrate global markets. For international trade patterns too, therefore, it makes a big difference if company A from country A gets the loan first instead of company B from country B. In a very competitive international economic environment, these differences can, in the longer run, shift the pattern of comparative advantage by providing some companies with an (undeserved) financial edge, and can thus represent the difference between success and failure in global markets.

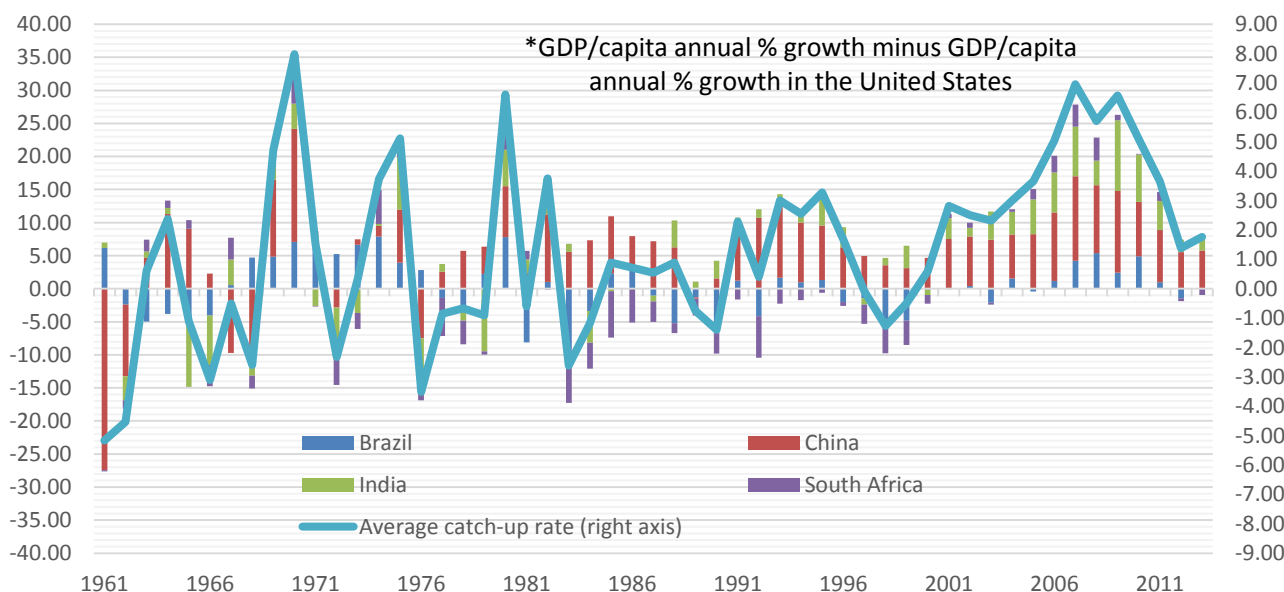
If Cantillon effects redistribute wealth among household and firms within a country, as seen above, the interconnected international monetary and trade system allows for similar effects across and among countries and regions of the world. As explained before, monetary expansion redistributes wealth from the countries at the periphery of the international financial system toward centers of international finance. Moreover, within this financial hierarchy, monetary expansion makes it increasingly more difficult for developing countries to catch up with rich countries'

wealth. Let us now, in the final section of this thesis, discuss this gap between developed and developing countries.

8.3 THE PLIGHT OF PERIPHERAL ECONOMIES

Most of the economics profession has argued for the past decades that the 21st century will be the century of the emerging world. Since 2000, India and China increased their GDP by more than 10% every year, and as a result, it was believed that this will soon lead to convergence with the developed world (Sachs and Warner 1995, Rodrik 2011, Gourinchas and Jeanne 2013). Nevertheless, these cross-country studies have mainly focused on the evolution of GDP per capita or Net National Income levels (Dufrenot 2003, Lin 2003, Artelaris 2011). In this context, as shown in the Figure 8.14 below, catch-up rates for Brazil, China, India, or South Africa have been rather volatile between the 1960s and 1990s. Over the last two decades, however, it appeared that emerging markets had finally settled on a steady course, with average catch-up rates peaking at 6% to 7% before the financial crisis.

Figure 8.14: Country GDP catch-up rate*, relative to the US (1960-2013). Source: World Bank Database, author computations.



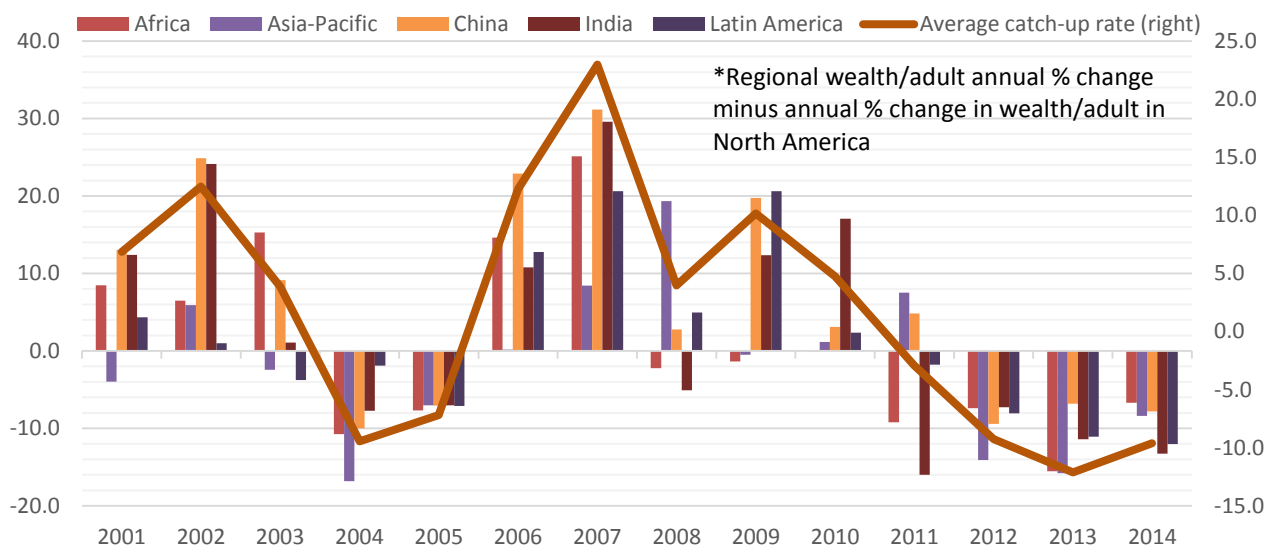
However, their growth rates have considerably slowed down after 2008, levelling off at around 1% according to most recent data. More importantly, the forces which appeared to be driving GDP growth and economic convergence were soon revealed to be artificial increases in investments, unsustainable in the long run: capital inflows retrenched rapidly, and the growth in international merchandise trade—which was double that of output for several years—was followed by a collapse in the volumes of exports, as well as of the global supply chains which had integrated most of the developing countries in the global economy. The rise in commodity prices, which had rapidly increased incomes in some emerging economies, was soon reversed by the recession and the difficult recovery afterwards. Moreover, after 2008, most developing countries returned to heavy fiscal policies and high trade barriers, which represented a further drag on growth.

However, because the global distribution of income and wealth has been linked almost exclusively to technological development and other human capital issues (Lin 2012, Nayyar 2013), the widening gap has also been linked to insufficient technology absorption, or education levels. But while it is true that cross-country idiosyncrasies—such as population growth, technological development or government policies—contributed to a large extent to such differences, this did not eliminate the significant contribution of the international monetary system to economic disparities.

The evolution of GDPs, therefore, which include government spending, did not capture the actual development of a country's wealth and prosperity. A better indicator of underlying disparities would require some disaggregation, e.g. the rate at which households from different countries and regions can catch up to the average level of wealth in other countries. One (imperfect) proxy for this rate is the difference between the annual increases in wealth per adult in every region compared to the wealth growth in the wealthiest region, North America. Because wealth growth has slowed down in the former regions (between 1% and -6%), and because wealth per adult in the North American region rose back to its previous crisis levels (around 6% year-on-year change), the gap

between North America and the rest of the world has widened (Figure 8.15), and the catch-up rate has dropped to negative levels over the last few years.

Figure 8.15: Regional wealth catch-up rate* compared to North America (2000-2014). Source: Credit Suisse Global Wealth Databook 2014.



The developing regions depicted in the Figure 8.15 above, and which are being left behind by the pace of wealth growth in rich countries constitute the ‘periphery’ of the economic and financial system. For example, African countries have only a few traded stocks and bonds on financial markets, banking systems are underdeveloped—with most of the population preferring to hoard their savings—while state nationalizations and heavy regulations usually keep foreign investors away. As a result, African countries are getting only a small part of the inflationary increases in money supplies in financial centers such as the US, EU, or Japan through capital inflows. They are also getting the new money much later, because Africa is one of the last destinations for these funds, which usually go to developed and high-income economies.

More importantly, the monetary policies of African governments also reduce household wealth at a much faster past than in developed economies: with no developed financial markets or banking systems, monetary expansion runs its course quicker through the economy (with a lower incidence of malinvestments), depreciating the value of the currency, and making imports more

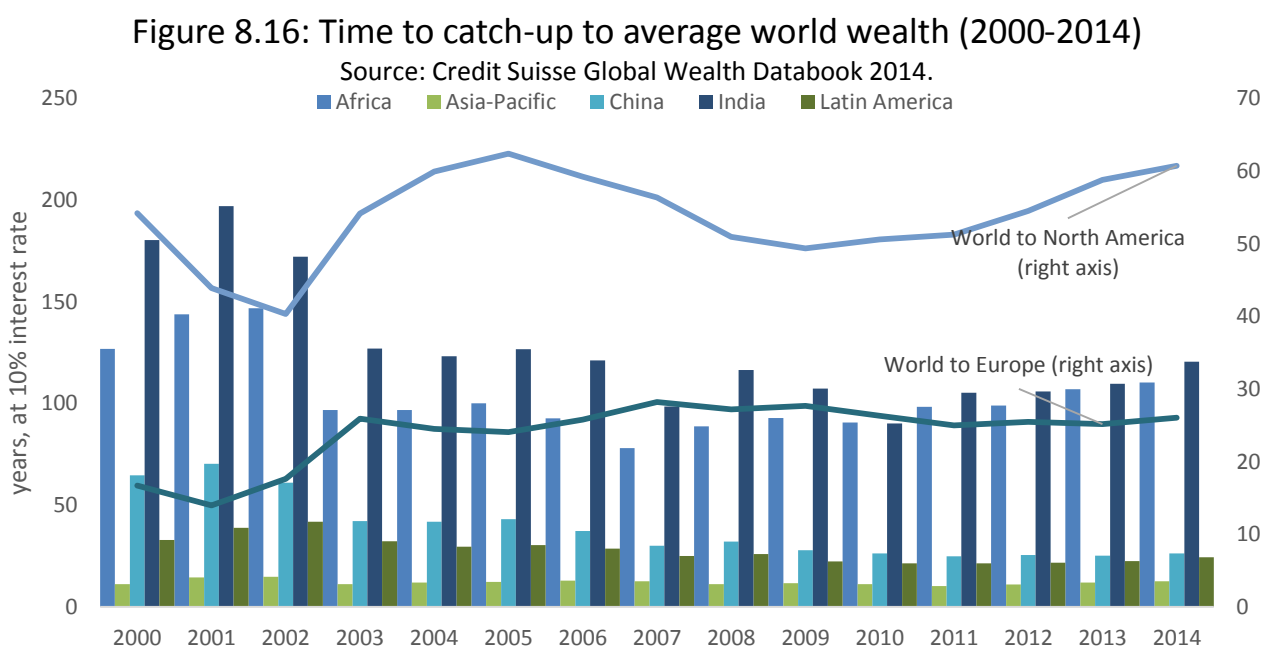
expensive. So while other regions of the world receive the new money sooner, the periphery of the world economy has to surrender most of the wealth. In a similar situation are Latin American countries and India: they uphold government policies which throttle foreign investments, and they also receive global monetary expansion at a later time. However, because there are more investment opportunities in these regions and capitalists are more willing to bear the associated risks, these countries are faring slightly better than states on the African continent.

In a much better position are the high-income emerging economies in Asia Pacific, where investment prospects and attractive policies bring in a large share of global foreign investment, and soon after the expansion of the money supply. Although, as we have seen in detail in the previous chapter, these inflows of capital funds bring with them a waste of capital goods through malinvestment, and an unsustainable trade bubble, these countries gain in the short run because they are closer to the point of monetary injections.

However, the best positioned countries in the world hierarchy are the centers of international finance: Western European countries, United States, and Japan, with China slowly emerging as a contender to the status of financial powerhouse. These countries' monetary policies direct and dictate the course of global fiat inflation. They have the best developed financial markets and banking systems, and their central banks cooperate to inflate at similar rates and coordinate depreciation rates and monetary injections. But their policies of inflation and reflation are also made possible by other countries which use their currencies (dollar, euro, and yen) as reserve currencies, and match or even pyramid more fiat inflation to maintain a stable exchange rate. This permits financial markets to continue growing, mainly to the benefit of rich countries and to the detriment of poorer countries.

A further comparison between household incomes in the less developed regions and net wealth levels in rich countries gives further indication of the width of the income-wealth gap across

countries. For example, in 2014, mean wealth in the United States was \$US 347,845, while the average household income in Mexico was \$US 12,850. At an interest rate of 10%, it would take the average Mexican household approximately 270 years to catch up to the average level of wealth in the US. Currently, however, the deposit interest rate in Mexico is about ten times lower (around 1%), and as a result, it would actually take about ten times more. Similarly, it would take an



average Romanian household about 360 years of savings to accumulate the average level of wealth in the United Kingdom at a 10% interest rate. But currently, the deposit interest rate is 2% in Romania, which means it would actually take about 1.800 years. Alternatively, households in Africa or Latin America would require between one and two centuries of savings at a 10% interest rate to catch up to the average world level of wealth (approximately \$US 30,000). In turn, it would have taken an average world household approximately 54 years in 2000 to catch up to the wealth level in North America, and approximately 61 years in 2014.

As long as current monetary policies are kept in place, Cantillon effects will continue to redistribute wealth from peripheral economies to the ultimate centers of world finance, and the ever decreasing interest rates will make it more and more difficult to bridge the income wealth gap. And

as Ludwig von Mises argued, “the disintegration of the international capital market... creates the plight of the underdeveloped countries” (Mises 1990, 169). Otherwise put, all possible options for these economies to enjoy a healthy growth—through saving and capital accumulation, import of technology, and foreign direct investments—are throttled by expansionist monetary policies. To be sure, it is important to point out that individuals in developing countries can in fact escape poverty even with rising inequalities, so it is important to put these growing inequalities in context. At the same time, it is also important to highlight that the levels of poverty reduction and inequality can also be due to different causes: while technological development, trade, and globalization help reduce poverty, this improvement could have in fact been larger had it not been for expansionist monetary policies redistributing wealth to the detriment of the poorest strata of the society.

This being said, there are three main tendencies going on in today’s global economy, whose interaction maintains and prolongs what Mises called “the plight” of peripheral economies.

First and foremost, monetary expansion in developed countries leads to the waste and consumption of the capital stock through malinvestment, capital which could be invested in poorer countries. In the longer run, this also means that capital and technological development become scarcer and more expensive for developing countries, making it more difficult to absorb technology. At the same time, capital inflows from developed countries have a “bubble-thy-neighbor” effect on these countries, and chances are that part of the foreign investments peripheral economies do receive are malinvestments. The changes in the pattern of trade, artificial and unsustainable, also affect developing countries to an even larger extent, as these countries tend to rely overwhelmingly on a limited number of exported commodities.

Second, developing countries waste their own capital stock with similar inflationary policies leading to misallocation of resources and capital consumption. The reduction in the national as well as global capital stock is the most important impediment to the development of these countries. As

Rothbard explains, capital is more important than technological knowledge: “while capital cannot engage in production beyond the limits of existing available knowledge, knowledge can and does exist without the capital necessary to put it to use...The relative unimportance of technology in production as compared to the supply of saved capital becomes evident... What is lacking in [developing] countries is not knowledge of Western technological methods... [but] the supply of saved capital needed to put the advanced methods into effect” (Rothbard 2009). Developing countries also adopt trade policies that promote export-led growth and discourage foreign investments, which further interfere with their comparative advantage. They are also quick to adopt expansionist monetary policies and financialization, and developing country governments are happy to engage in heavier redistributive schemes. But as Mises explained, “where there is very little to be distributed, a policy of an allegedly ‘fairer’ redistribution is of no use at all” (Mises 1990[1952], 170).

Third and finally, sound capital and wealth accumulation are possible only with sound money. A sound international monetary system, then, is crucial to economic progress in general, and especially to the development of peripheral economies. But there is also another important element that makes these conditions above possible, and that is the mentality of economic freedom and private enterprise. Unfortunately, as Mises explained, in both the developed and developing world, economists and statesmen are “peacemakers of inflation, deficit spending and confiscatory taxation” (Mises 1990[1952], 171). As a result, Mises continued, “the problem of rendering the underdeveloped nations more prosperous cannot be solved by material aid. Prosperity is not simply a matter of capital investment. It is an ideological issue” (Mises 1990[1952], 173).

The only lasting solution for a reconstruction of the international trade and monetary system, and especially for the development of poorer countries is a radical change in social mentalities. The abandonment of economic nationalism and government intervention, but especially

of policies of monetary expansion, will be possible only if and after a transformative change in social ideology and social morale occurs. What the international trade and monetary system needs in order to grow healthy are free markets, sound money, and entrepreneurs to maintain, accumulate, and employ capital for best satisfaction of consumers around the world.

CONCLUSION

This dissertation has attempted to show that it is possible to bridge the gap in international economics between the analysis of real and monetary phenomena by starting from the Cantillon effects of monetary expansion. This approach has been known for a long time, yet few economists have invested their energies to elaborate it and build it into a full-blown theory. As Mises argued for the 20th century, theoretical investigation into the causes and consequences of various economic phenomena had yielded “treatises on catallactics which dealt only incidentally and cursorily with monetary matters, and... books on currency and banking which do not even attempt to integrate their subject into the structure of a catallactic system” (Mises 1998 [1949], 204). This approach has enjoyed wide currency up to the present day, and Mises’s statement still applies, especially to mainstream international economics and its approach to the study of international trade and the international monetary system.

Although contemporary research has showed why this separation and its underlying assumption of money neutrality are detrimental to the realism and accuracy of economic analysis and its policy prescriptions, recent studies have attempted to bridge the gap by focusing on the short-run consequences of monetary policies on aggregate variables such as output, employment, or the balance of payments. In this study, however, we endeavored to show that an investigation into the Cantillon effects of a monetary expansion is a more fruitful way to broach this subject. We have studied step-by-step the differential effects of monetary expansion on individual prices, production, wealth, and the pattern of international capital and merchandise flows. This led us to shed some new light on some of the questions which are now raised concerning the recent evolution of trade finance, the volume, value, direction, and composition of trade flows, as well as the evolution industrial organization or wealth inequality.

Our approach leads to two important conclusions. First, the fact that international economics often falls short of a satisfactory explanation of current events does not represent a series of isolated shortcomings. It also results from one central assumption: that money and the money supply are a neutral element in the economic process, whose evolution cannot affect the real phenomena of the market in the long run. Second, given the central importance of these aspects in international economic analyses, it is safe to conclude that an examination of Cantillon effects is an appropriate avenue to reconsider the field of international trade and international monetary economics as a whole, in both its theoretical and policy aspects.

In the first three chapters of the thesis, I have analyzed the path-dependent evolution of international economics from the 19th century contributions of Ricardo and Mill—and their classical dichotomy—through the development of the Keynesian dichotomy in mid-20th century and up to the various theories of money non-neutrality in contemporary monetary and trade thought. This review of the literature led to the conclusion that for 19th century classical economics, just as for modern and contemporary international economics, money is merely a veil covering barter exchange ratios. Money is either held to be neutral to the ‘real’ economy in the long run, or it is supposed that the impact of changing monetary conditions can be neutralized by rational expectations or by a controlled adjustment of the money supply.

While Cantillon effects were neglected by this entire theoretical corpus, Ludwig von Mises and a handful of other economists gave a pivotal role to money and Cantillon effects, and treated the international monetary process as an integral part of the general economic analysis. Consequently, in Part II, I used the contributions of Ludwig von Mises to the theory of money, business cycles, and the international division of labor as the foundation for my analysis of the relationship between monetary expansion and international trade. After an investigation into the development of central bank cooperation, global inflation, and financial development in Chapter 4,

I analyzed the impact of inflation and fractional reserve banking on trade finance, and the transmission of these effects across national borders in Chapter 5. I then applied this framework in Chapter 6, to explain the evolution of merchandise and capital flows over the last decades, illustrating theoretical conclusions with statistical evidence from the most recent financial crisis and the global trade collapse of 2008-2009.

The results of the investigation in Part II can be summarized as follows: money begets the world-embracing division of labor, because economic calculation in monetary terms is essential for entrepreneurial production and trade specialization. Entrepreneurs in this sector are also very sensitive to monetary changes, because they must constantly monitor the evolution of capital markets and exchange rates. Their business decisions are therefore dependent on the availability of working capital loans, trade credit, or on the evolution of commercial and sovereign risks. Unfortunately, however, monetary expansion allows financial institutions to provide new money to these entrepreneurs for little conditionality, for poor collateral, and at artificially low interest rates, such that more firms find international projects profitable, or international transactions less risky or costly.

The new available capital is allocated internationally to the most profitable investment opportunities through flows of FDI, FPI, and trade finance, which brings about an artificial lengthening of the structure of production as a result of lower-than-market interest rates. Consequently, the allocation of the capital stock and labor force throughout the world is modified: raw materials, labor, and capital goods are bid up into the higher stages of production, which only temporarily appear to be more profitable. Furthermore, because international companies are part of global supply chains, or expand vertically and horizontally, the demand and production of capital goods increases, as does the global trade in capital goods. Products in the intermediate stages cross borders to be assembled and sold in different countries. The artificial reduction of risk, which is due

to the lower standards for bank loans and trade insurance, boosts trade flows in these capital goods, as well as for consumer goods and services. Existing firms expand their activities and existing trade flows grow in volume and value – the so-called intensive margin growth of global trade. But also, new firms enter global markets, and new commercial partnerships and new trade flows appear—so trade also grows at the so-called extensive margin.

Together with the increases in demand for and trade of capital goods—which are a symptom of malinvestment (or capital consumption)—, a period of monetary expansion is also characterized by an overconsumption boom. An artificial lowering of the interest rates also falsifies households' assessment of their wealth, and they become more inclined to use their home equity, for instance, to increase consumption of goods and services. Because the booms occur more or less globally, this increased consumption also takes on a global scope, which, further leads to an increase in merchandise trade.

In a nutshell, monetary expansion not only entails changes in the volume and value of trade, but also in the structure of trade (biased toward higher order goods) and in the direction of trade (depending on the pattern of entrepreneurial decisions and consumer preferences). The evidence analyzed in this second part bears the brunt of the judgment that the evolution of global trade over the last decades has been influenced to a significant and yet unrecognized extent by the expansionist monetary policies of governments around the world.

Finally, in Part III, I showed that this analysis of the effects of monetary expansion on international trade can also be used to shed light on several puzzling developments in international industrial organization and global wealth. For instance, in Chapter 7, I argued that the disappearance of middle-sized international companies, as well as the reckless financial decisions of exporting and importing firms can be traced back to their dependence on financial markets and bank loans, through which their decision making is affected by the expansion of money and credit.

Additionally, in Chapter 8, I showed that the latter expansion is also responsible for the increase in global income inequalities, as well as in the income wealth gap. The international financial hierarchy and expansionary monetary policies hamper the development of peripheral economies, and the possibilities for wealth accumulation of the poorer households across the world.

As mentioned throughout the thesis on several occasions, this analysis has certain limitations. First, the monetary explanation for the changes in the pattern of international trade, while of a central importance, should not be used to explain real-world events in a contextual vacuum. Therefore, I have several times endeavored to qualify this explanation with aspects concerning international demand, foreign policies, or other social and political considerations. Nonetheless, these other causes and their interplay with the monetary causes still remain a rather unexplored avenue, with significant potential for future research. Second, the exact quantitative impact of monetary expansion on trade is difficult, if not impossible to tease out of empirical evidence, because it is often camouflaged by changes coming from the commodity side of the economy—such as changes in technology or demand—or postponed by the particular circumstances of the international monetary system. That is why the case of the most recent financial crisis and global trade collapse can be used only as an illustration, or as an application, of theoretical arguments. Additionally, the paucity of more disaggregated data on the evolution of specific households' wealth and income, and their position in the income origin channel also hampers the relevance of statistical evidence used to depict the growing income-wealth gap.

The limitations of the present endeavor show, however, that while still in an incipient stage, the analysis of Cantillon effects in international trade has significant potential for future research. The key implications that this insight carries in its wake can transform the landscape of both international economic theory and policy through understanding the impact of money changes on

the structure of prices and wealth, and thus the repercussions of government intervention in international trade.

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Thèse de Doctorat

Carmen Elena DOROBĂȚ

L'EFFET CANTILLON DANS LA THEORIE DU COMMERCE INTERNATIONAL

L'impact de la monnaie fiduciaire sur le commerce, la finance et la distribution internationale des patrimoines

Résumé

Cette thèse vise à combler le fossé entre l'analyse de l'économie réelle et l'économie monétaire dans la théorie du commerce international. À cette fin, j'analyse l'effet Cantillon, i.e. l'impact différentiel de l'expansion monétaire sur les prix, la production, les patrimoines et la structure du commerce international. Dans la première partie, je passe en revue la littérature en économie internationale, à partir du 19e siècle jusqu'aux théories contemporaines. Dans la deuxième partie, j'utilise les contributions de Ludwig von Mises à la théorie de la monnaie et des cycles économiques comme fondement de l'analyse de l'impact de l'expansion monétaire sur le commerce international. Dans le chapitre 4, j'examine la relation entre le développement du marché financier et le commerce. Dans le chapitre 5, je discute l'impact de l'inflation monétaire sur les modes de financement du commerce et sur la transmission des cycles économiques. Les principaux résultats de ma recherche sont que l'expansion monétaire modifie la direction, la composition, le volume et la valeur des flux commerciaux et de capitaux. J'applique ce cadre théorique dans le chapitre 6, pour expliquer l'évolution des ventes de marchandises et des flux de capitaux au cours des dernières décennies, et d'illustrer mes conclusions avec les données statistiques de la plus récente crise financière et de l'effondrement du commerce mondial de 2008-2009. Dans la troisième partie, j'analyse l'impact de l'expansion monétaire sur l'organisation industrielle internationale et la distribution mondiale des revenus et des patrimoines. Dans la section finale, je présente les implications majeures de mon analyse pour le commerce international et les politiques monétaires, et son importance pour des recherches futures.

Mots clés

commerce international ; expansion monétaire ; effet Cantillon ; cycles économiques ; flux commerciaux ; flux des capitaux ; organisation industrielle internationale ; distribution des patrimoines.

Abstract

This dissertation endeavors to offer a way to bridge the gap between the analysis of real and monetary phenomena in international economics. To this end, I analyze Cantillon effects, i.e. the differential impact of monetary expansion on prices, production, wealth, and the pattern of international trade. In Part I review the standard literature in international economics from the 19th century to contemporary theories. In Part II I use the contributions of Ludwig von Mises to the theory of money and business cycles as the foundation for the analysis of monetary expansion and international trade. In Chapter 4, I focus on the relationship between financial development and international trade. In Chapter 5, I analyze the impact of inflation and fractional reserve banking on trade finance, and the transmission of business cycles across national borders. The main findings of my research are that monetary expansion modifies the direction, composition, volume and value of trade and capital flows. I apply this framework in Chapter 6, to explain the evolution of merchandise and capital flows over the last decades, and illustrate my findings with statistical evidence from the most recent financial crisis and the global trade collapse of 2008-2009. In Part III I analyze the impact of monetary expansion on international industrial organization, and the global distribution of income and wealth. In the concluding section, I draw out the major implications of my analysis for international trade and monetary policies, and its importance for future research.

Key Words

International trade ; monetary expansion ; Cantillon effects ; economic cycles ; merchandise trade flows ; capital flows ; international industrial organization ; distribution of wealth.