

# Agriculture in the hands of finance

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## INTRODUCTION

The financial crisis that struck in 2008 revealed the new relationships of agriculture with the financial sphere.

From the industrial era onwards, the agricultural production sector has become gradually and significantly integrated with the merchant economy. Its financing needs have also reached the market, and this has led to an organised distribution of bank loans, mainly through mutual institutions that, due to their specialisation, were in a better position to cater to the specificities of production. Similarly, various types of risks, amongst which climate risks, have created a need for hedging against production-related economic risks. Such modern technologies as futures and call or put options emerged in the 19<sup>th</sup> century as a way of providing producers, traders and processors with a market instrument, allowing them to preset price levels, and therefore to have a say in the price formation process in physical markets, for agricultural products derived from major crops.

The development and extension of these instruments and markets to other sectors of economic and financial life have shaped the contemporary financial economy. The 1929 crisis was the starting point of state interventions aiming at correcting the undesirable effects of market flaws. Subsequently, in the wake of World War II, the reconstruction needs justified that public policies imposing strict rules on the operation of agricultural markets be continued, both for price stabilisation and to better guarantee the producers' income.

Starting in the 1980s—at the time when managed economies collapsed—the “fascination” that the political class developed for the model of a virtuous and self-regulating market has gradually changed the underlying goals of national and international public policies. Deregulation has become a keyword. Following the decoupling of agricultural policy instruments, the liberalisation of trade on the basis of reduced customs protection and the financial intervention in developing countries by institutions controlled by the wealthiest countries, conditional on the implementation of liberal policies, the agricultural sector has become highly deregulated, similarly to the financial markets.

Meanwhile, there has been an unprecedented growth of sophisticated financial market instruments, used by operators with no connection with the real economy of agricultural commodities, in parallel with an explosion of financial transactions on all kinds of underlying assets: interest rates, currencies, state and private debt, real estate, commodities, etc.

Starting with this context, this article offers an analysis of the sequence of events that occurred, showing the recent changes that led to the 2008 crisis. For each topic of this review, the changes of economic thought have been described, against the background of the doctrines applied in public policies.

This method highlights the limitations of an over-implementation of the theories and models that have shaped the neo-liberal doctrine, when their underlying thinking is not challenged. Beyond the consensus on the need to apply strict rules to ensure

financial market transparency and integrity, the goal is to reflect upon the mechanisms of the agricultural and land markets that are necessary for them to offer the services that society expects from them. What new regulations will be required in these areas so that supply meets demand, while contributing to global food security? Our concluding remarks are part of a reflection effort in which all stakeholders are called upon to build an agriculture that finds its place in a global financialised economy.

## 1. THE FINANCIALISATION OF THE ECONOMY CAN BE SEEN AS A CONSEQUENCE OF THE EVOLUTION OF MONEY

These days, the debt issue draws the attention of all the actors of economic and political life. The solutions that allow states or economic agents—businesses and consumers—to finance their activity through debt have now reached a level of growth and sophistication that is unprecedented in economic history. The term currently used, “*financialisation of the economy*,” covers a complex reality: there has been a move from conventional financing by the banks to financing by the markets, as a result of the development of a very large number of much diversified financial products. The banks are no longer the only operators of financial activity, an activity that has grown exponentially thanks to the liberalisation of capital movement and market deregulation.

From a legal perspective, money lending is based on a formal contract in which the rights and duties of both parties are stated: the lender—who is the creditor of his counterparty—commits himself to providing a determined amount, while the borrower—who becomes his debtor—promises to reimburse the money to him within a determined timespan and to compensate him on the basis of an interest rate. In economic terms, both partners are taking a double bet option:

- The creditor believes on the one hand that the interest rate he is going to derive from the deal will be at least equivalent to the profit that he would have made, had he invested the money directly in an economic activity and, on the other hand that he will receive a compensation and reimbursement at the end of the contract.
- The borrower bets, on one hand, that the financing he has secured will enable him successfully to perform his productive or commercial activity and, on the other hand, that he will generate enough money to be compensated after he has compensated and reimbursed his creditor.

It is necessary to recall these basic economic and legal concepts in order to understand that these deals do not occur in a vacuum. They occur in markets where loan volumes and interest rates are determined by the expectations expressed by the different categories of actors, both in terms of rate of return on productive investment and in terms of debtor reliability. In other words, the

resulting loans and debts are acts of trust. The fundamental difference between a private individual's or a company's debt and a government debt is therefore clear. When a state borrows money, its creditors believe that the loans that they grant it are practically riskless, since the state has the power to levy taxes and the probability of its vanishing is next to nil <sup>1</sup>.

The moral issue of interest-bearing loans emerged with the birth of economic thinking. In Antiquity, the Greek philosopher Aristotle—while he justified the existence of money—condemned them: “The most hated sort, and with the greatest reason, is usury, which makes a gain out of money itself, and not from the natural object of it. For money was intended to be used in exchange, but not to increase at interest. And this term interest <sup>2</sup>, which means the birth of money from money, is applied to the breeding of money because the offspring resembles the parent. Wherefore of all modes of getting wealth this is the most unnatural” <sup>3</sup>.

In its history, the Church, which was strongly influenced by Aristotelian thinking, formally condemned interest-bearing loans. Clerics were forbidden to practice them already before the Middle Ages, and the ban applied to all Christians in the 12<sup>th</sup> and 13<sup>th</sup> centuries. And although the Church itself made ample use of this mode of financing, usurers were taken to religious and secular courts. In the 13<sup>th</sup> century, the theologian St. Thomas Aquinas condemned interest-bearing loans in similar terms to the ones used by Aristotle: money does not naturally breed money. Paradoxically though, around 1270 he admitted in his *Summa Theologiae* that a compensation could be due to the lender: “A lender may without sin enter into an agreement with the borrower, for compensation for the loss he incurs of something he ought to have, for this is not to sell the use of money but to avoid a loss”. Starting from the 16<sup>th</sup> century, Calvin and the Reform challenged the ban on interest-bearing loans and it was gradually abolished in the European countries. However, as long as the ban was in force, different forms of agreements based on risk- and gain-sharing between lenders and borrowers were designed in order to by-pass the ban. Nowadays, the development of “Islamic finance” has a number of similarities with the Christian prohibition of interest-bearing loans. Based on the ban on trade and usury or more precisely, on some forms of trade and usury mentioned in the Quran, in the mid-20<sup>th</sup> century some clerics recommended that an “Islamic finance” be established. Since the 1960s, the banks that have implemented it have developed legal and financial mechanisms to compensate creditors.

Did this condemnation of interest-bearing loans by moralists, philosophers and clerics really mean a total ban? Or was it aimed

at preventing the extreme situations that loan contracts could create, such as a borrower's total bankruptcy or debt bondage to his creditor? In order to ban usury—which is empirically defined as an abusive interest rate on a loan—it seemed more effective to ban interest-bearing loans altogether. Today, under the rule of law, usury is regulated. For instance in France, the Consumer Code <sup>4</sup> sets a maximum rate applicable to loans: it is set at 133% of the average rate for the previous quarter for similar loans, and it is published by the Banque de France for every loan category. While over the years, the issue of debt has first been discussed in ethical terms, it has also generated a fundamental topic of economic thinking: the question of value and its monetary expression in all economic relations:

- Do exchanged goods and services have intrinsic values?
- Do they have a subjective utility value that is assigned to them?
- Do they have a value resulting from an exchange?
- Or is this value based on the labour required for their production?
- Is value seen as consistent with reality?
- Or is this existential approach completely concealed by the price of items expressed in utility monetary units in economic life transactions?

The direct or indirect link to a reference has allowed money to be used in exchanges: namely as long as payment instruments were physical tradeable goods (animals, salt, mother-of-pearl, amber, metals, etc.), as long as precious metals such as gold and silver or subsequently payment documents were pledged against the value of these metals. Starting with the shells that served as primitive money, to the first currency known in Western Europe, seven centuries BCE in the kingdom of Lydia, money has fulfilled the three essential functions acknowledged by Aristotle: a unit of account, a store of value and a medium of exchange. Secular rulers extended their prerogatives to, and set the rules for minting coins and printing money, only after the different types of money became generally used.

But many centuries later, 19 March 1973 was a real breakpoint: direct or indirect pegging to a weight of metal was abandoned by the main currencies exchanged in the Code of the international monetary system. Floating exchange rates were established between the main currencies. This change is formalised on 7 and 8 January 1976 by the signature of the Jamaica Agreement that provided for the removal of fixed exchange rates and entrusted the monitoring of the system to the International Monetary Fund (IMF). Special Drawing Rights (SDRs) became major elements of the international monetary system, as they were substituted for any reference to gold. This was a real economic revolution: the value of currencies was now assessed based on a general evaluation of the economic system of which they were the monetary instruments, whether these were states or groups of states identified as monetary zones. At the same time—

1. Later we will see however that some states have defaulted or can default, and that specific financial products have been developed to cover these risks and therefore to bet on the successful fulfilment of the deals.

2. The Greek term «Tokos» means both loan and income from money.

3. Aristotle – Politics, Book 1, Chapter X.

4. Article L 313-3.

according to the assumption that markets make it possible to set a fair value on goods and, especially, on money—the central banks gradually moved towards independence from the governments that operated in their zones. The governance of monetary instruments, long identified as part of the sovereign power of the state, was separated from it, becoming an independent regulatory institution such as for instance the U.S. Federal Reserve or the European Central Bank.

With this new configuration, the monetary adjustments that national authorities had been used to resorting to in order to re-balance their finances were no longer available. To address the burden of their debt, such states as the United States or the countries of the eurozone have no other choice but to re-balance their budget or to reduce their budget deficit drastically.

Monetary systems that operate on these principles have been established in most of the developed countries. But they have to co-exist with other systems where state governance continues to prevail, in developing countries that are not part of a monetary zone of developed countries and in the main emerging countries. This situation generates imbalances in international trade, simply because currencies fluctuate relative to one another, according to different rules (dollar–yuan, euro–yuan). In this context, financial markets have found a huge growth area, since the lack of a standard reference for the main currencies leads to the trading of securities that are their multi-factor components. In this respect, the recent—and very robust—financialisation of the economy can be interpreted as a consequence of the evolution of money, and the current financial crises as symptoms of a more general monetary crisis <sup>5</sup>.

## 2. FINANCING AGRICULTURE: THE SPECIFICITIES

Agricultural activity is not immune to the consequences of these recent evolutions. But, before analysing its characteristics, agriculture’s specificities with respect to finance must be described. Agricultural activity has two essential characteristics that explain the specific links it has with financial activity:

- The relationship to time: most of the activities linked to crops, animal farming and a fortiori forestry have long production cycles that are generally and necessarily related to the cycle of seasons.
- The relationship to space: directly or indirectly, farming requires access to productive areas, in line with social conventions that guarantee successful completion.

The implications of these specificities are found in two areas: financing agriculture and hedging against market risks.

### 2.1. Financing agricultural production

The specificities of agricultural production in its relationships with finance were conceptualised in economic thinking in the 18<sup>th</sup> century, at a time when an agricultural revolution was paving the way for the industrial revolution of the 19<sup>th</sup> century. The most significant developments came from the French economist François Quesnay (1664–1774) whose ideas were further developed by his supporters, in a school of thought that Pierre-Samuel Dupont de Nemours <sup>6</sup> named “*Physiocracy*”.

From the 16<sup>th</sup> century until the first half of the 18<sup>th</sup> century, the theory of mercantilism had dominated European economic thinking. In the Iberian Peninsula, the society was accumulating wealth thanks to the precious metals from the New World colonies. In Holland and England, wealth came only from foreign trade, while in France, Colbertism entrusted to the state the role of promoting and protecting commercial activity.

Because he wanted to counter the idea that the wealth of a nation had its source in trade, François Quesnay decided that agriculture had the exclusive role of creating wealth. In his “*Economic Table*”<sup>7</sup> published in 1758, he considered three social classes: the productive class, the class of landlords, the king and the “*decimators (receivers of tithes)*”<sup>8</sup> and, lastly, the unproductive class containing all other categories, among which artisans, manufacturers and traders. The “*Economic Table*” is useful in that it shows the “*advances*” that landlords and the so-called unproductive class made for the productive class. Pierre-Samuel Dupont de Nemours made the same distinctions between the classes as François Quesnay, but he further described the mechanism of “*land advances*”, “*primitive advances*” in agriculture and annual expenditures. “*By acquiring ownership of the land, he wrote, a man acquires the ownership of the fruits produced on this land. Ownership of the fruits is the goal of all expenditures and labour incurred in order to acquire or create land property. Without this goal, nobody would incur such expenditures, or such labour; there would be no landlords and the land would remain idle, to the great detriment of the population that lives and will live. If a man, becoming a landlord by the lawful use of his personal wealth and property, associates himself with another man to continue working his land or even, if after having incurred all the land expenditures, he arranges with another to take responsibility for all expenditures of said labour, there will be a natural and free agreement by which each of the contracting parties will have, through the fruits, ownership of a share in proportion to his labour and expenditures, so that*

6. The French economist and politician Pierre-Samuel Dupont de Nemours (1739-1817) was the father of the French chemist Eleuthère-Irénée Du Pont de Nemours (1771-1834) who during the French Revolution settled in the United States where in 1802 he set up a gunpowder factory that expanded later into the Du Pont de Nemours group.

7. In *Of the Origin and the Progress of a New Science*– Dupont de Nemours, 1768.

8. Namely the person who was entitled to receive tithes in a parish, the tithes being usually equal to the tenth fraction of the product of crops and animal raising.

5. La monnaie, histoire d’une imposture – Philippe Simonnot, Charles Le Lien – Perrin, 2012.

the right to personal wealth and property of both be preserved in their entirety (§2). We have just seen that independently from land advances, farming requires a perpetual fund of advances which, jointly with the land, is what one could call the raw material of his labour, such as implements, carts, working animals, the necessary livestock to fertilize the land, etc. These primitive farming advances are perishable and subject to various accidents. They need to be maintained, repaired, and renewed continuously. Annual expenditures for the wages and maintenance of all men and animals whose labour participate in working the land are also required. It is therefore absolutely essential that every year an amount sufficient to maintain the primitive advances and to cover the annual farming expenditures the following year, be taken from the value of the harvest; failing that, one would attract onto farming a noticeable and gradual deterioration, to which would inevitably be tied a proportional reduction of the mass of renewed production and of the population. It is also necessary that this amount to be taken from the harvest in order to sustain farming not be measured so restrictively on the basis of the operating costs that must be paid, that it would deprive farmers of the means to face up to major accidents caused by seasonal bad weather, such as frost, hail, crop diseases, floods, etc.; failing that, these unavoidable accidents would deprive farmers of the ability to continue their labour and would destroy not only the harvest of one year, but those of the following years. These amounts, which must be used every year to sustain the crops, are what are called farmer's provisions. Making sure that they are taken is the subject of free agreements concluded between farmers and landlords (§3)<sup>9</sup>.

So the need to finance agricultural production is really broken down into financing campaigns, financing the working capital and financing the land. It is interesting to note that the land advances that were incumbent on the landlords included improvements to make land productive. Though the "Economic Table" did not describe the capital committed by the productive class and by the landlords' class, it is nonetheless understood that it was amortised over several years.

Notwithstanding the errors made by these first "economists"<sup>10</sup> for whom the unproductive class did not contribute to the creation of wealth in the economy of a society, one must admit that their merit lies in their precise analysis of the workings of agricultural production and of the corresponding different categories of financing needs.

Since the 18<sup>th</sup> century, the uninterrupted modernisation of agricultural production has entailed adapting financing interests to the specific needs of farms: short-term financing to cover "advances" for crops (seeds, fertilizers, plant health products) or the needs in working capital for non land-based productions, medium-term financing of all the production means amortised

over more than one year (livestock, agricultural equipment, buildings) and long-term financing for land purchase.

## 2.2. Hedging against agricultural risks

In essence, the nature and duration of agricultural cycles mean that producers are faced with two uncertainties: uncertainty on quantity on the one hand and uncertainty on prices on the other. Life sciences contribute to the improvement of techniques for growers and animal farmers, whose mission is to ensure the tightest possible control over production as regards climate risks. Nonetheless, the variability of crop and animal production outputs is a specific risk that can be mitigated via different strategies, although it cannot be totally done away with.

The diversification of activities is undoubtedly the most widespread empirical mode used to avoid exposure to production risks. But with this type of strategy, optimising resource allocation by choosing the most profitable production types is not possible; for this reason, two other types of instruments have been designed to cover this risk: crop insurance and stocks to hedge against economic risks.

- Crop insurance is made available to farmers by agricultural insurance brokers; the state-supported share varies from country to country. In France, the state shoulders 65% of the insurance premiums.
- Building and using stocks to hedge against combined yield and price risks are similar to a tax arrangement for precautionary savings. In France, the *contingency tax concession* (Déduction pour aléas - DPA) created in 2002 allows farmers to deduct a fraction of their taxable surplus every year. Later, the initial restrictive conditions of this arrangement were made much more flexible, in terms of the deductible amounts for the provisions (26,000 euros per farm) and of the conditions whereby these provisions can be mobilised. This income-smoothing instrument has the advantage of being applicable to both animal and crop productions.

Regarding the major crop productions, other risk-hedging instruments can also be used. It was precisely to allow the price of wheat to be preset—without the risk of counterparty default—that the first modern futures market was created in Chicago in the 19<sup>th</sup> century. When a farmer decided to pre-sell his future crop for a determined price to a trader or a user, he ran the risk of not being paid on delivery, while his buyer ran the risk of not being delivered the goods. In 1848, the first Chicago Board of Trade was created to relieve economic actors from the risks attached to forward contracts. This grain market gathered buyers and sellers in one place and the first wheat futures contract was organised and launched in 1864.

The principle of futures contracts dates back to older times, however. It was designed in the 18<sup>th</sup> century in Japan, where a prosperous rice market led to the creation of a rice exchange in Dojima, near Osaka, with the shogun's permission. This market allowed the samurais, who were paid in rice, to convert their

9. In *Of the Origin and the Progress of a New Science*—Dupont de Nemours, 1768.

10. The Physiocrats were in fact the first to call themselves "economists".

payments into cash. But in 1733 the combination of a bad harvest and market manipulation by the traders who held large stocks resulted in a price collapse and riots. In 1735, the shogun decided to set a minimum price for the transactions, organised in a complex system of credit and pre-setting of the price of rice. This organisation lasted until 1939, when it was dissolved and replaced with the Government Rice Agency.

In India, the Bombay Exchange came into existence in 1875, under the name of The Native Shore and Stock Brokers Association. Later it became the Bombay Stock Exchange, but a futures contract on cotton was negotiated there right from its creation. In Western Europe, the first futures contracts appeared in Holland in the 18<sup>th</sup> century, around the tulip bulb trade. The bulbs came from Turkey and by the late 16<sup>th</sup> century they were grown in the United Provinces. The fad for oriental plants, in particular for tulips, was such that they became a status symbol. The bulbs' growing cycle allowed cash transactions only between June and September. But the trading of bulbs continued in the form of forward agreements during the rest of the year. However, the Trade exchange formed of buyers and sellers did not guarantee the fulfilment of the transactions. Escalating prices resulted in transactions on parts of the bulbs. In 1636 and at early 1637, prices skyrocketed until they crashed in February 1637, when it appeared that none of the contracts were going to be fulfilled. A number of economists and historians have commented on the birth of these first over-the-counter financial derivatives contracts in the United Provinces and the financial crisis that they generated is considered to be the first example of the bursting of a speculative bubble. Anyhow, the genesis of modern financial contracts and markets has shown that they came into existence in order to meet the needs of the buyers and sellers of farm products who were not able to fulfill transactions immediately, since the product was not available, but nevertheless wanted to pre-set a price; and this, within a market organisation that allowed price information to be public, but did not make it compulsory to physically deliver the product at the expiry date of the contract, and protected the buyers and sellers fully against possible counterparty default.

Adding to their disappointment, the wealthy burghers of the United Provinces paid the price for the inconvenience of forward contracts, just as the Japanese samurais had suffered from market manipulations by brokers and dealers. In Chicago, the creation of a clearing-house within the Board of Trade guaranteed contract fulfilment for U.S. farmers and traders.

The transposition of these principles of fungibility and transaction guarantee to financial assets—shares, bonds, currencies, interest rates—was going to build the economic and financial organisation called for by the industrial revolution of the 19<sup>th</sup> century, which structured the development of the market economy throughout the 20<sup>th</sup> century, up until now.

### 3. THE GROWTH OF THE FINANCIALISATION OF AGRICULTURE

Over the last three decades, agriculture and agribusiness have undergone rapid changes and breakthroughs caused by changes of their institutional environment. Yet these changes find a common source of inspiration in the implementation of theories and principles developed by some economists.

While Quesnay's supporters were the first to call themselves "economists", the late 18<sup>th</sup> century and the 19<sup>th</sup> century—from Adam Smith through Ricardo to Karl Marx—was marked by the works of philosophers, moralists and prescriptors of economic policies. In the 20<sup>th</sup> century, the subject that was commonly called "political economy" became an "economic science" equipped with mathematical expressions and tools<sup>11</sup>. Those who served and taught the subject wanted the study of economics to be recognized as a science. But in reality, the claim that relationships can be found between the measured variables of economic life on the basis of theorems (as in mathematics) or laws (as in physics) relies on assumptions about human behaviours that are most often invalidated when assessed against real life. Therefore, the separation of economic science from other social sciences has considerably reduced the capacity to understand economic life phenomena.

In order to decipher and understand the major changes occurring in the agricultural economy and its place in the modern economy it is necessary to map economic, political and social facts against the economic thinking at play.

Immediately after World War II, in the Western countries, agricultural activity was focused on economic restructuring after the catastrophic consequences of the conflict. North America, and especially the United States with the implementation of the Marshall Plan, had an export activity, whereas the most affected countries wanted to control the conditions of their food supply. The agricultural economies of Japan and continental Western Europe grew thanks to border protection and state intervention, the goal being to both encourage production and regulate consumer prices for essential food items. But the Bretton Woods Agreements signed on 22 July 1944 were to structure the international economy for many years<sup>12</sup>. Drawing the lessons of the 1929 crisis and of what ensued in the 1930s, the goal was to agree on a set of economic policy principles to guarantee the conditions of a lasting peace for all the countries that did not

11. Léon Walras – Pareto.

12. Among the initiators of the Bretton Woods Agreements, the name of the British economist John Maynard Keynes (1883-1946) who led his country's delegation, must be cited. The ideas he had been developing since the 1929 crisis—recommending in particular public stimulus policies and the creation of an international currency, Bancor, pegged to gold—were the basis of a compromise favourable to the United States' ambitions. The U.S. received the assurance that the dollar was to be the central currency of a system aiming to develop world trade and economic activity of which it would be the main beneficiary.

adhere to the options offered by the communist regime in the USSR and in its satellite countries:

- The International Monetary Fund (IMF) came into existence in July 1944. It designed an international monetary system based on the supremacy of the U.S. dollar since this was the only currency defined by its value in gold<sup>13</sup>. All the other currencies were pegged to the U.S. dollar through fixed exchange rates.
- The Bretton Woods Agreements also spawned the International Bank for Reconstruction and Development (IBRD). Created in late December 1945, now it is the most important component of the World Bank group.
- Lastly, in 1947, the GATT, or General Agreement on Tariffs and Trade, was created<sup>14</sup>. Its initial goal was to reduce customs protection in order to develop world trade and flourishing economies. For the implementation of liberalisation policies in global trade (in harmony with IMF and World Bank guidelines), the agreement referred to the theory of comparative cost formulated by the British economist David Ricardo in 1817 in *“On The Principles of Political Economy and Taxation”* and to its contemporary translation into the principle of comparative advantage. However, regarding commodities markets, the signatory states first appeared to be in favour of international product agreements in order to regulate prices by means of arrangements combining buffer stocks and price ranges.

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Since World War II, the history of international relations has been marked by many conflicts, including those surrounding decolonization. But the Cold War between the communist block around the USSR, and all the developed countries that practised a market economy led to a gradual radicalisation of economic thought currents intending to restrict or minimise state intervention in economic life.

Agriculture has not been immune to this evolution. It even crystallized the pressures for the liberalisation of markets and international trade, for abandoning the tools of public intervention and agricultural policies and for the promotion of economic development in Third World countries, based on these principles. We therefore need to explore these four topics in order to explain the new forms of the financialisation of agriculture, the symptoms of which are “excessive price volatility”, “hunger riots” or “land grabbing” in developing countries, which add to the pessimistic views about the ability of global agriculture to feed a fast-growing population.

### 3.1. Market effectiveness and efficiency

The commonplace confrontation of supply and demand in the market for a product has inspired economists to explore how prices and quantity to be traded are defined. This is in practice

the experience of all the markets that have been used for transactions.

Leaving aside for a moment the concept of value and focusing on the concept of price formation, the model of “pure and perfect competition”<sup>15</sup> was the reference. This theoretical construction attracted the attention of the supporters of the French economist Léon Walras<sup>16</sup> who based the concept of the value of goods on their utility, and who, like their mentor, believed in a general-equilibrium model. According to this construction, all quantities and prices of goods and services could be calculated in an optimal situation for all. Furthermore, by assuming that this general equilibrium—which allows free competition—maximises the utility that every economic actor draws from the system, Léon Walras declared himself an advocate for the individual capitalist system of the late 19<sup>th</sup> century.

For competition to be “pure” on a market, it must fulfill three conditions:

- Atomicity: a large number of buyers and sellers whose size does not confer on any of them the power to set a market price.
- Product homogeneity: having characteristics and qualities that make them fungible.
- Transparency of information: for all the agents, access to complete information on all the others and on the traded good.

For competition to be “perfect”, it must fulfill two additional conditions:

- Free market entry and exit: no obstacle to the entry of each buyer or seller.
- Free movement of the production factors—capital and labour—so they can immediately be applied to the production of goods in the different markets.

Clearly, all five conditions can never be simultaneously fulfilled in the market for a good or service and a fortiori in all the markets of an economy. Nonetheless, following the thinking of the French economist Jean-Baptiste Say, the neo-classical economists adopted his “*Law of Markets*” (“*Say’s Law*”), according to which supply generates its own demand, and consequently generates an income, through an equilibrium situation that excludes overproduction<sup>17</sup>. This idea is also to be found in the work of the British economist John Richard Hicks, together with the finding that the markets are able to self-regulate<sup>18</sup>. This self-regulation principle was used as a hypothesis or axiom in the works of all the economists who advocated for the virtues of a market free from public intervention. But in the meantime, they lost sight of the fact that the markets in question did not, as regards competition, meet the prerequisites for self-regulation.

In agriculture, where demand is generally inelastic, price formation occurs over time, following an unstable process<sup>19</sup> called

15. Franck Knight – Risk, Uncertainty and Profit –1921.

16. Léon Walras (1834-1910).

17. Jean-Baptiste Say (1767-1832). In *Treatise on Political Economy* (1803).

18. John Richard Hicks (1904-1989). In *Mr Keynes and the classics* (1937).

19. The cobweb theorem – M. Ezekiel, 1938.

13. 35 U.S. dollars for one ounce of gold.

14. General Agreement on traffics and trade

a “cobweb”. The price existing at a given point in time is a decisive factor for the producers who, after the necessary production delay—in other words, at the time of market introduction—are faced with a new price level that in turn is a determinant of new decisions. If demand is inelastic, the process tends to maintain price instability<sup>20</sup>.

The model of pure and perfect competition postulates that equilibria occur instantly and that consequently the model is exempt from the concept of time: this weakens its impact even more.

Regarding financial markets—whose characteristic is to factor in value changes of assets over time—the concept of market efficiency has been the topic of much research. The U.S. economist Eugene Fama<sup>21</sup> formulated the famous Efficient Market Hypothesis according to which the price of an asset is equal to its theoretical value in an efficient market. From this, he derived investment strategies depending on the level of market efficiency. But those who popularised this work only retained the principle of financial market efficiency. This was a kind of return-to-the-past theory, with the ghost of the “invisible hand” developed by Adam Smith, the Scottish economist of the 18<sup>th</sup> century, and the illusion that all market actors wanting to satisfy their own personal interest would produce an optimum situation for the benefit of all.

### 3.2. How “decoupling” was implemented in agricultural policies

The application of the virtuous principle of the market advocated by the school of liberal economists resulted in the concept of *decoupling* (see Box 1), a change in the agricultural policies in effect in OECD<sup>22</sup> member states—especially those of the European Union—by removing the systems of guaranteed prices for the producers.

As soon as 1987, in a Ministerial Communiqué, the Organisation committed its member states to adopt a reform process for agricultural policies for the “*long term objective is to allow market signals to influence by way of a progressive and concerted reduction in agricultural support, as well as by all other appropriate means, the orientation of agricultural production*”. The OECD’s work on the review of agricultural policies and analysis of their mechanisms, whether or not they affected the relative prices of farm outputs or inputs, has paved the way for the provisions of the *Uruguay Round Agreement on Agriculture* negotiated as part of the GATT and signed in Marrakesh in April 1994.

20. *Instability: an accidental or structural phenomenon* – Jean-Marc Bousard, 2007.

21. *Efficient Capital Markets: a Review of Theory and Empirical Work* – Journal of Finance – E. Fama, May 1970.

22. Established in 1961, the Organisation for Economic Co-operation and Development is a group of “governments wanting to promote the principles of democracy and the market economy” to whom it provides a framework for exchange and common reflection ([www.oecd.org](http://www.oecd.org)).

>>> Box 1

#### OECD Glossary of terms

In a report dated from 2001<sup>\*</sup>, the OECD offered a definition of the concept of decoupling, with a specific reference to the work of the Canadian economist Sean A. Cahill, published in 1997<sup>\*\*</sup>.

- **Decoupling** is a general concept taken from the policy debate. This concept is inspired by the general criterion established in Annex II of the URAA (the green box) and it applies to policies having no impact on trade and production. More precise concepts of decoupling such as full decoupling, effective full decoupling and degree of decoupling can also be used.
- **Full Decoupling** is a formal concept taken from Cahill (1997). A policy is fully decoupled if it “does not influence production decisions of farmers receiving payments, and if it permits free market determination of prices”. That is, full decoupling is a very restrictive concept that requires no change in the way farmers and consumers take decisions. It is a concept centred on the adjustment process and not only on equilibrium values. After the introduction of a fully decoupled policy, both the shape and the position of the supply and demand curves should not be changed.
- **Effective Full Decoupling** is a formal concept also introduced by Cahill (1997). A policy is effectively fully decoupled if it results in a level of production and trade equal to what would have occurred if the policy were not in place. This concept is centred on the equilibrium quantities. The shape of the supply or demand curves could be changed by an effectively fully decoupled policy, even if the equilibrium production and consumption are not changed.
- **Degree of decoupling (DD)** is an index to measure effective full coupling independently from the units used to measure production. If the DD index value is one, this means that the policy is effectively fully decoupled; that is, it has a zero effect on production and/or trade. If the DD is zero, this means production and/or trade effects of the policy are equal to those of a PSE-equivalent increase in effective output prices. DD could also be higher than 1 (negative production effects) or negative (production impact higher than for an equivalent PSE change in the form of market price support).
- **Risk aversion** is a characteristic of individual preferences when decisions are taken in an environment with some uncertainty. An individual is risk averse if he prefers a sure income rather than a lottery with the same expected value. Absolute risk aversion is usually assumed to decrease with income (DARA assumption), meaning that if the individual becomes richer, he will be more willing to take risks.

\* *Decoupling: a conceptual overview*– OECD, 2001

(<http://www.oecd.org/agriculture/agricultural-policies/25481500.pdf>)

\*\* Cahill, SA 1997, “Calculating the rate of decoupling for crops under CAP/oilseeds reform”.

The concept of “*Aggregate Measurement of Support*” (AMS) was designed to grade agricultural policy instruments, according to whether “*the effects of distortions on trade or on production*” were nil or more or less strong. Furthermore, the agricultural policies evolved through the use of the “*Producer Support Estimate*” (PSE), according to whether this was a form of support to market prices, as part of the “*Policy Evaluation Model*” (PEM).

Among the arguments in favour of decoupling, the references to neo-classical economic analysis were explicit, including in the analysis of decoupling in an uncertain world<sup>23</sup>. Thus, the programs that are coupled under certainty “often have a bigger impact on (the farmers’) decisions than similar but decoupled programs.”

The first reform of the Common Agricultural Policy (CAP) since its inception occurred in 1992, to align it with the way in which the articles of the GATT’s Uruguay Round had been negotiated. The goal was to reduce guaranteed price levels to adjust them to world prices and to compensate for their drop through direct aids, but also to introduce production control measures (land set-aside, limitation of the stocking density per hectare of forage crops, etc.). In 1999, the next reform (Agenda 2000) reinforced the 1992 measures, especially for grains and beef, with compensations through direct aids; this arrangement paved the way for the enlargement of the European Union to the ten new member states of Central and Eastern Europe. Decoupling was finally achieved with the 2003 reform. A single farm payment calculated on a theoretical basis was introduced, subject to agri-environmental and animal welfare conditions. The 2003 reform explicitly ensured that the producers’ decision-making could respond directly to market signals, which from now on were world market signals, because of the reduction or abolition of border import protection and export refunds.

From a liberal perspective, decoupling has played its role first by allowing control of the budgetary expenditures used to finance the CAP, secondly by providing for their gradual reduction. It has also allowed the reduction, then the elimination of public stocks resulting from producers exercising their right to intervention without any limitation of quantity or guaranteed price levels. Lastly, it placed the farmers in a situation of semi-uncertainty: there was short-term certainty regarding the amount of aids; relative uncertainty regarding their medium-term amount; and high uncertainty in the short and medium terms regarding market prices and the continuation of aids.

But while the internal coherence of the decoupling system had borne its fruits, the question remained open regarding the nature and value of market signals. Hence the volatility of agricultural prices and its consequences on supply and demand equilibria that suddenly returned to the forefront of the international stage as soon as 2007-2008, and again in 2010 and 2012. None-

theless, the “decoupling” of agricultural policies hinges on the liberalisation of international trade of farm products and the Marrakech Agreements have substantially altered the rules of agricultural international trade, alongside the agricultural policy reforms initiated on both sides of the Atlantic.

### 3.3. The liberalisation of the international trade of farm products

The 1944 Bretton Woods Agreements, and later the 1947 General Agreement on Tariffs and Trade (GATT) referred to the principle introduced by classical economists, according to whom trade liberalisation was a source of peace and wealth. Initially there was a multilateral liberal code of conduct aiming to lower tariff and non-tariff barriers to trade:

- The Agreement provided for the negotiation of tariff reductions by product. Negotiated duties were deemed “*bounded*”: they could not be increased, except under exceptional circumstances when the safeguard clause applied.
- The *Most Favoured Nation clause* (MFN) extended a special favour implemented between two countries to all the signatories of the Agreement and they committed to treat all products, whether national or imported, in a non-discriminatory way on their territories.
- Quantitative import reductions, dumping and export subsidies were normally prohibited and trade disputes had to be settled through a specific procedure (conciliation, panel and possibly sanctions).
- Lastly, the developing countries could access privileged markets in the developed countries due to the *Generalised Preference System* (GPS), but they could not benefit from the *most favoured nation clause*.

It must be noted that until and including the Dillon Round in 1960-1961, the negotiation cycles only covered industrial products. In the years following World War II, the production and trade of agricultural products remained directly subordinated to the goals of securing food supply in the importing countries; these had undertaken to modernise their agricultural sector rapidly and they stayed away from the negotiations. But in 1958 the signature of the Rome Treaty between France, Germany, Italy, Belgium, the Netherlands and Luxembourg, establishing the European Economic Community, triggered some debates regarding the implementation of one of the principles of the General Agreement: the principle that the creation of free trade areas or customs unions should include compensation of the third countries harmed by the duties levied by such free trade areas or customs unions. So at the close of the Kennedy Round (1964-1967), the Community agreed to provide compensation—through zero bound tariffs for its oilseeds and oil meal imports—for the measures that the Agricultural Common Market was applying to protect the European grains market, i.e. setting a threshold price and applying variable import levies to ensure Community preference.

23. Decoupling: a conceptual overview— OECD, 2001 (<http://www.oecd.org/agriculture/agricultural-policies/25481500.pdf>).

The Tokyo Round started in 1973 and ended in 1979; it saw a confrontation between the United States and the European Community. But due to the 1972 massive wheat purchases by the Soviet Union, to the 1973 oil crisis and its consequences, and to the U.S. embargo on soy exports in 1976, the agricultural discussions did not come to any substantial conclusion. The situation was very different during the Uruguay Round that started in 1986, as this was no longer a bilateral negotiation between Europe and the United States. Other agro-exporting countries formed the Cairns group<sup>24</sup> supporting U.S. demands for market access and the abolition of export subsidies. At the same time, within a European Community that had meanwhile grown to include twelve member states, the principles of the Agricultural Common Market were challenged due to the budgetary cost of the CAP and the growth of intervention stocks. Liberal ideas were moving forward, promoted by the United Kingdom and the Scandinavian countries. In 1988, the implementation of budget discipline and land set-aside paved the way for the 1992 reform. But in the main the idea that decoupling and the liberalisation of the agricultural product trade went hand in hand was gradually imposed.

The Uruguay Round ended in April 1994 with the signature of the Marrakech Agreements by 123 countries. These agreements were a historical turnpoint, both for trade and agricultural policies. The World Trade Organisation (WTO) came into existence on 1 January 1995 and from then onwards agriculture became a part of multilateral agreements.

The market access pillar was going to alter the initial Community preference mechanism in a substantial way. The agreement covered the “tariffication” of the so-called non-tariff protections; for the European Union this meant converting import levies into fixed bound duties. Besides, there were commitments to lower the level of export subsidies, and the volumes eligible for subsidies, in all the signatory states. These commitments were made against a reference period (1986-1990) and for a duration of six years, starting from 1995. But the most important innovation concerned support measures:

- All the support measures that could be classified as “green box” and as a result were considered as non trade-distorting, required no commitment.
- Aids linked to supply control programmes were classified as “blue box” and were not specifically targeted by reduction commitments. For Europe, these were in particular the monetary compensatory amounts implemented in the 1992 reform. However, for each product, the total support provided by the Total Aggregate Measurement of Support (Total AMS) and by the aids classified as “blue box” was not to exceed the total support granted during the 1992 campaign.

- Lastly, the “amber box” or Total AMS, which included price support and aids coupled with production, was to be reduced by 20% over a period of six years, against the reference period of 1986-1988.

Without going into the details of the Agreement on Agriculture, the treatment of agricultural products became similar to that of industrial products – for which the GATT had been signed in 1947 – and this meant the emergence of an uninterrupted process of trade liberalisation on agricultural products.

Regarding the price of grains, in the 16<sup>th</sup>, 17<sup>th</sup> and 18<sup>th</sup> centuries, economists always demonstrated a link between domestic market prices and the provisions to facilitate or slow down imports and exports. In France for instance, in the late 17<sup>th</sup> century, Pierre Le Pesant, Sieur de Boisguilbert – as a proponent of the Natural Order and a forerunner of Adam Smith, the Scottish economist of the 18<sup>th</sup> century – advocated for the freedom of trade and wheat prices<sup>25</sup>. At the same time in England, Gregory King<sup>26</sup> was exploring what constitutes the wealth of a nation and the relationship between grain harvest and grain price levels, observing that prices were rising following a ratio that was more than proportional to the reduction of quantities. Following in David Hume’s<sup>27</sup> footsteps, who in 1752 had in his “Political Discourses” expounded upon the idea that trading with foreign countries was essential in order to increase the wealth of a nation, Adam Smith advocated for the absence of export barriers (duties on grains exports) and for the advantages of free trade, since nations specialise in the productions in which they excel: this was what he qualified the absolute advantage<sup>28</sup>. But it was the British economist David Ricardo<sup>29</sup> who developed the theory of “comparative cost”. Taking the example of trade between England and Portugal, the theory concluded that trade freedom contributed to the wealth of both nations, since each one was selling goods for which its domestic costs were lower and was buying goods for which the costs were higher. John Stuart Mill added to this demonstration by highlighting that the determination of international product prices responds to supply and demand: it acts on the volumes traded and as a result determines the terms of trade between the nations<sup>30</sup>.

The debate on free trade crystallised in England during the first half of the 19<sup>th</sup> century, with the “Corn Laws”. In 1815, British farmers obtained the passing of the first “Corn Law Act”, which allowed a ban on imports when the price of wheat was lower than a threshold price. Ricardo opposed these laws, arguing that they had harmful consequences, namely that they brought about a drop in entrepreneurs’ profits and economic

25. Pierre Le Pesant, Sieur de Boisguilbert (1646-1714). In *Le Détail of France* (1695).

26. Gregory King (1648-1712).

27. David Hume, Scottish philosopher, historian and economist (1711-1776).

28. Adam Smith (1723-1790). In *The Wealth of Nations* (1776).

29. David Ricardo (1772-1823).

30. John Stuart Mill, British philosopher and economist (1806-1873). In *Principle of Political Economy* (1848).

24. Established in 1986, this group has nineteen member countries, including Australia, South Africa, Argentina, Brazil, New Zealand and several other Latin American and Asian countries.

decline. The “Corn laws” were finally repealed in 1848, after a vast social mobilisation and a very heated political debate.

While Ricardo and John Stuart Mill considered that product prices were determined by their labour value, the marginalist school, with Léon Walras and Vilfredo Pareto<sup>31</sup> in the late 19<sup>th</sup> century, based value on the marginal utility of goods and services. The French, Austrian and Anglo-Saxon schools developed further the general equilibrium models, but the mathematical tools of marginalist analysis allowed to complete the formulation of the law of comparative advantage. The “Heckscher – Ohlin<sup>32</sup> – Samuelson”<sup>33</sup> model, named after the three researchers who developed it, represents international trade as the result of the differences in the allocation of production factors. This was going to pave the way for the proponents of free trade, for the conclusion of the GATT agreements and subsequently led the U.S. economist Milton Friedman<sup>34</sup> and the Chicago school to develop the contemporary liberal dogma that was later to structure relationships between developed and developing countries.

### 3.4. Financing developing countries and its impact on agriculture

In the second half of the 20<sup>th</sup> century, from the geopolitical point of view, the world revolved around the confrontation of two blocks: the developed countries with market economies, and the communist countries with planned economies. At the same time, thanks to decolonization a large number of African and Asian countries became independent, joining the Latin American countries that had achieved independence in the early 19<sup>th</sup> century, initially called “under-developed countries”.

The third-world countries had economies that were largely dependent on the primary sector (agriculture and mining) and on product exports to the world market. Moreover, they had a strong population growth that their growing agriculture found difficult to follow, especially as the domestic distribution of wealth was not equal and agricultural production was reserved for foreign markets. They depended on imports for their industrial products, and they had serious problems mobilising the capital required for the nation’s agricultural and industrial development. Lastly, the pattern of land ownership was often inherited from colonial regimes, which made life difficult for poor and little educated rural populations.

Their strong economic dependence on foreign countries, and the political instability that began in the developing countries as early as the 1950s resulted in their fluctuating between socialist economic regimes (China, North Korea, Vietnam, Cuba) and regimes that combined free market and state-managed economy

(Mexico, Egypt). The latter category used customs barriers to reduce their dependence on foreign countries. They nationalised the sectors that were considered strategic and created monopolistic state agencies, either for commodity exports or for supplying the domestic market with basic commodities. Some countries also implemented agricultural land reforms with a view to redistributing lands, following the examples of Uruguay in the 19<sup>th</sup> century, the 1910 Mexican revolution or the 1917 Russian revolution.

For their industrial development, they used customs barriers because they allowed them to implement import substitution policies and to establish investment codes restricting the control of national enterprises by foreign investors. But in actual fact, the developed countries had also used economic reforms where state intervention was used to remedy economic disorders in the wake of the 1929 crisis.

At that time, the economic policies of both developed and developing countries were inspired by “Keynesianism” which was going to be in the postwar years a source of inspiration for the establishment of international economic cooperation organisations. The thinking of the British economist John Maynard Keynes, his publications and his economic policy advisor role<sup>35</sup> challenged the neo-classical theory, built a new theoretical corpus and contributed to the creation of public intervention instruments. In his «General Theory of Employment, Interest and Money» published in 1936, he demonstrated that a market economy is not the product of an automatic mechanism allowing full employment of resources, especially as regards the labour market. He challenged the laissez-faire theory developed by the French economist Jean-Baptiste Say<sup>36</sup> and justified state intervention in money supply and credit control, the economic information system and the savings-investment equilibrium.

However neo-classical theories made an ideological comeback, gradually taking over the major institutions spawned by the Bretton Woods Agreements. The so-called Chicago school, with Milton Friedman<sup>37</sup> as its lead, was to reverse the flow of economic policy thinking. First it returned to the quantity theory of money that explained price changes by changes in the money supply<sup>38</sup>. In 1962, in the context of the Cold War, Friedman published «Capitalism and Freedom», to huge international acclaim. This was a series of arguments in favour of capitalism seen as the only means of building a free society. Later, he attracted more popular support for his ideas with another book<sup>39</sup>, and these ideas were to be an inspiration in particular for Thatcherism in the United Kingdom, Reaganism in the United States and Augusto Pinochet’s government in Chile. Thanks to

31. Léon Walras, French economist (1834-1910). Vilfredo Pareto, Italian economist and sociologist (1848-1923).

32. Ohlins’s doctoral thesis directed by Eli Heckscher (1933).

33. W. Stolper, Samuelson – Protection and Real Wages (1941).

34. Milton Friedman (1912-2006).

35. John Maynard Keynes (1883-1946).

36. Jean-Baptiste Say (1767-1832).

37. Milton Friedman, 1976 Nobel Memorial prize in Economics (1912-2006).

38. “*he Quantity Theory of Money: a Restatement*” (1956).

39. “*Free To Choose*” (1980).

the influence of its teaching, the Chicago School of economics was to change the direction of economic philosophy in “international institutions”.

As was mentioned previously, the OECD was preparing the methodological tools to allow “decoupling” and the issues discussed in the negotiation of the 1994 Agreements on Agriculture. Yet it was the IMF and the World Bank that took up the issues raised by the Chicago school, in order to define their own modes of intervention in developing countries, especially in those that were going through a debt crisis.

From their inception, the IMF and the World Bank had imposed on the countries receiving their interventions a duty to implement economic reform actions. This “conditionality” took the form of “structural adjustment programmes”. In the case of the IMF, borrowing countries pledged to implement austerity policies, to privatise state-owned enterprises, to fight corruption and to improve the status of foreign investments or not to discriminate against them. The World Bank imposed similar conditions and, given its sectorwide modes of intervention, generally imposed foreign trade liberalisation policies, including a reduction of customs duties.

The conditionality of structural adjustment programmes was further described by the U.S. economist John Williamson in 1989<sup>40</sup>. He coined the term «Washington Consensus», a list of ten proposals which in his opinion should be implemented<sup>41</sup>:

- Fiscal discipline
- Reordering public expenditure priorities towards activities that simultaneously provide a high return on investment and have the potential of reducing income inequality, such as basic healthcare, primary education and infrastructure
- Tax reform, with moderate marginal tax rates and a broad tax base
- Competitive exchange rates
- Foreign trade liberalisation
- Liberalisation of foreign direct investment
- Privatisation
- Deregulation, easing barriers to entry and exit
- Securing property rights.

After about twenty years of a strict application of these principles, the most severe criticism came from within the international financial institutions themselves. In 2000, Joseph Stiglitz, Vice-President and former Chief Economist at the World Bank<sup>42</sup>, resigned from his position, denouncing the negative

consequences of structural adjustment programmes. Doing so, he was challenging the Washington Consensus. In “*Globalization and Its Discontents*” published in 2002<sup>43</sup>, Stiglitz severely criticised the action of the IMF during the Asian crisis, during the transition of the former communist countries to market economies and in the resolution of the debt problems of developing countries.

In 2001, Stiglitz was awarded the Nobel Memorial Prize in Economics<sup>44</sup> for his work on the information economy. More precisely, he demonstrated<sup>45</sup> that “*whenever markets are incomplete and/or information is imperfect, even competitive market allocation does not generate a Pareto optimum*”. In his opinion, markets cannot be efficient because of the production of positive or negative externalities and because these have unfavourable effects in asymmetric information situations. In 2007, he further declared: “*The theories that I and others helped develop explained why unfettered markets often do not only lead to social justice, but do not even produce sufficient outcomes. Interestingly, there has been no intellectual challenge to the refutation of Adam Smith’s invisible hand: individuals and firms, in their pursuit of their self-interest, are not necessarily, or in general, led as if by an invisible hand, to economic efficiency*”. Lastly, in “*Free Fall: America, Free Markets, and the Sinking of the World Economy*”<sup>46</sup>, he explained the 2008 financial crisis in these terms: the bursting of the housing bubble, the dissemination of risks through securitisation, states becoming indebted in order to save the banks. He spoke as a neo-Keynesian in favour of an energetic and fast-acting stimulus package, and recommended far-reaching reforms of worldwide governance and financial regulation.

In its 2007 annual report, the World Bank announced a new strategy in line with Joseph Stiglitz’s analyses. Entitled “*Fighting poverty*”, the report introduced eight Millennium Development Goals:

- 1) Eradicate Extreme Poverty and Hunger
- 2) Achieve Universal Primary Education
- 3) Promote Gender Equality and Empower Women
- 4) Reduce Child Mortality
- 5) Improve Maternal Health
- 6) Combat HIV/AIDS, Malaria and Other Diseases
- 7) Ensure Environmental Sustainability
- 8) Develop a Global Partnership for Development.

Commentators viewed this report as “*the end of the Washington Consensus*”, but it must be acknowledged that following the 2008 financial crisis, the joint actions of the IMF and the World Bank in countries engulfed in the debt crisis have little departed from previously-applied principles, namely structural adjustment programmes with a neo-classical inspiration.

40. “*What Washington Means by Policy Reform*” – Chapter 2 from the article *Latin American Adjustment: How Much Has Happened?* published in April 1990 by the economist John Williamson. In Institute for International Economics (which became the Peterson Institute in 2006 – <http://www.iie.com/>). The article can be downloaded from: <http://www.petersoninstitute.org/publications/papers/paper.cfm?researchid=486>.

41. In “*What Should the World Bank think about the Washington consensus?*” – Peterson Institute for International Economics, July, 1999 (<http://www.iie.com/publications/papers/paper.cfm?researchid=351>)

42. Born in 1943, the U.S. economist Joseph Stiglitz was advisor to President Clinton from 1993 to 1997, during his first term as President of the United States. He was then appointed Vice-President of the World Bank in 1997.

43. “*Globalization and Its Discontents*” – 2002.

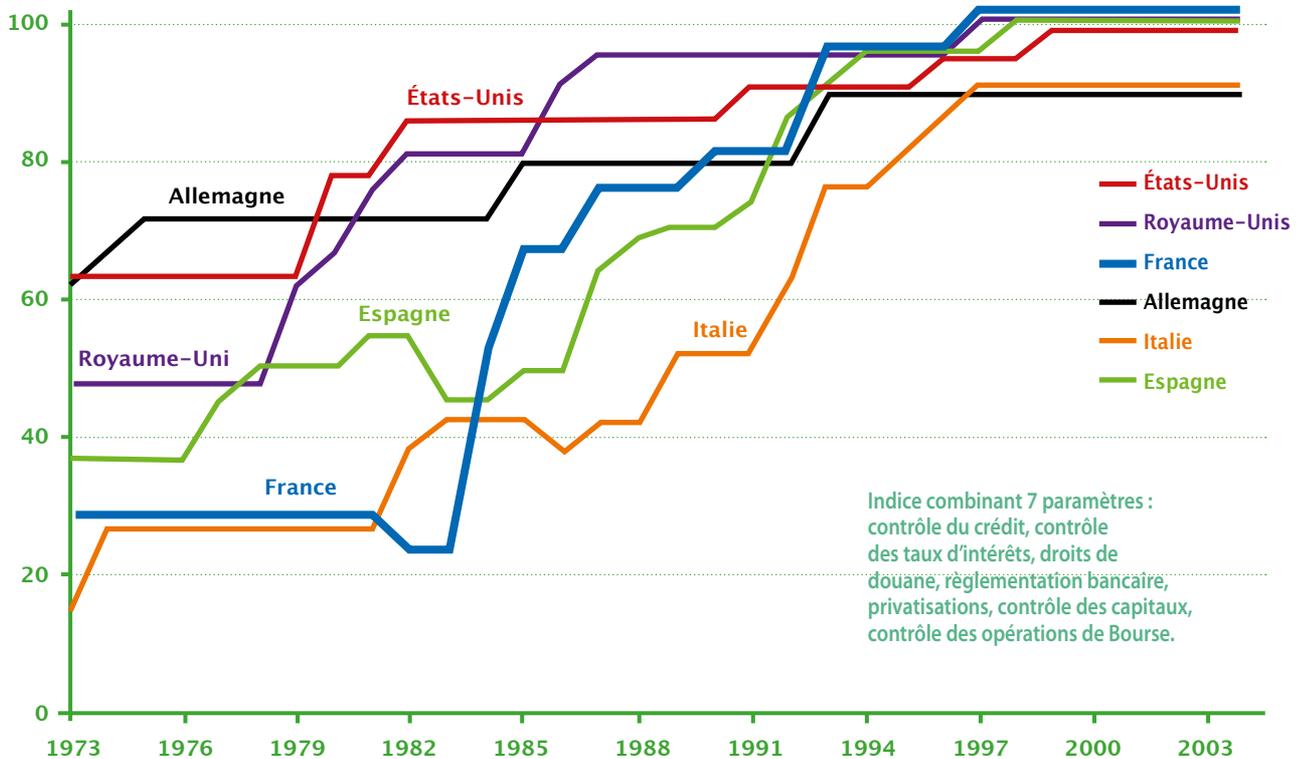
44. The Prize was awarded jointly to Joseph Stiglitz, G.A. Akerlof and A.M. Spence.

45. Research directed by Bruce Greenwald.

46. “*Freefall: America, Free Markets, and the Sinking of the World Economy*” – 2010.

Figure 1  
Évolution de l'index de libéralisation financière entre 1973 et 2005  
aux États-Unis et dans les grands pays européens

(Données FMI : l'indice varie de 0, c'est-à-dire aucune libéralisation à 100, libéralisation totale) Source : Olivier Berruyer, [www.les-crises.fr](http://www.les-crises.fr)



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Without reviewing the impact of these programmes on the agriculture of developing countries, it must be recognized that for the poorest countries, liberalisation and privatisations have accelerated dependence on foreign aid, weakened their subsistence agriculture and degraded the food security situation.

#### 4. THE FINANCIALISATION OF AGRICULTURAL COMMODITY MARKETS

While the neo-classical and neo-Keynesian economists were still debating fundamental economic topics—the foundations of wealth, the nature of value, the role of money, market mechanisms, the virtues of state intervention versus non-intervention—in 2008 the first decade of the 21<sup>st</sup> century underwent a crisis, the effects of which are still being felt, with the states and formal international institutions (IMF, World Bank, WTO) or

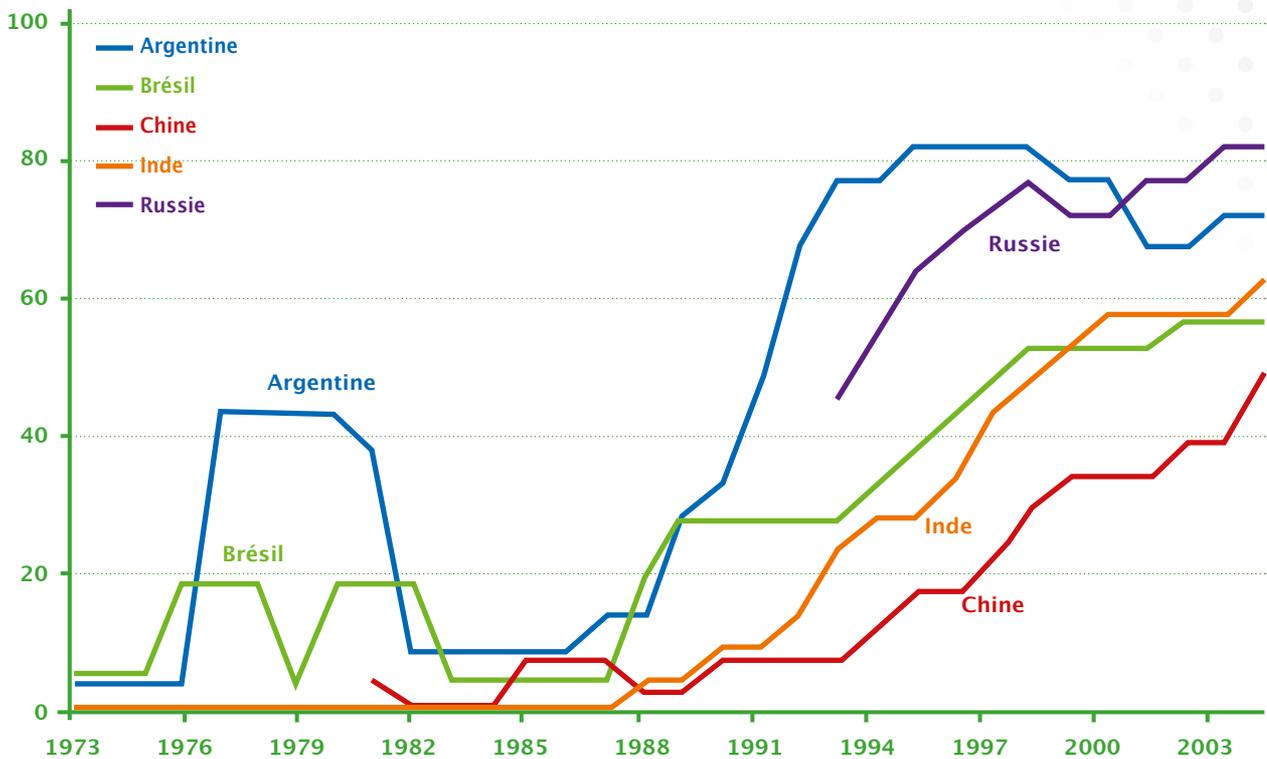
informal international institutions (G8, G20)<sup>47</sup> being unable to provide fast and effective remedies.

All the concerns about population growth, climate change, the reduction of arable land, the potential drop in yields, the rise in fertiliser prices or water shortage have placed world agriculture at the heart of a medium-term planetary challenge. But addressing these challenges entails in the much shorter term taking up to two aspects of the financialisation of the economy that affect agricultural production and agricultural markets: the financialisation of agricultural commodity markets and financial investments in land ownership in developing countries.

47. The G20 was established in December 1999. The Finance Ministers and Central Bank Governors of the industrialised and emerging countries meet annually to facilitate international cooperation in economic matters. Confronted with the 2008 crisis, the group turned into an economic review authority that convenes major public representatives. Since then, the G20 has met regularly and has become the main forum for economic and financial cooperation. In 2011, the French presidency of the G20 decided to address the issue of agricultural price volatility and to prevent food crises. This initiative resulted in an *Action plan on the volatility of food prices and on agriculture*.

Figure 2  
Évolution de l'indice de libéralisation financière entre 1973 et 2005  
dans les grands pays émergents

(Données FMI : l'indice varie de 0, c'est-à-dire aucune libéralisation à 100, libéralisation totale) Source : Olivier Berruyer, [www.les-crises.fr](http://www.les-crises.fr)



In a report published in June 2011 by the United Nations Conference on Trade and Development (UNCTAD), on the financialisation of commodity markets and the role of information<sup>48</sup>, it is suggested that the term “*financialisation of commodity trading*” should be understood as the “*increasing role of financial motives, financial markets and financial actors in the operation of commodity markets*”. In the authors’ opinion, during the recent period, investors have been looking for portfolio diversification, for ways to hedge against the effects of inflation or changes of exchange rates, but also for the deployment of a growing number of financial instruments based on monetary and financial underlyings involving commodities.

The process of financialisation of the economy is complex in and by itself. But the release of the potential for value changes in all asset categories has played an essential role in encouraging economic actors to hedge their funds and/or take bets on these changes. There is a close link between the volatility of an

underlying asset and the interest that volatility has for financial operators on the lookout for gains that can be derived from price differences, while in the real economy, operators themselves are looking for insurance instruments to hedge against the variations of the same underlying asset. The markets for interest rates or currencies exemplify this. The strong growth of the economies of developed countries from the end of World War II to the late 1960s was accompanied by inflationary trends and by a strong pressure on currencies, so that the removal of fixed exchange rates and of the dollar-gold convertibility translated into a strong growth of financial operations.

In the 1980s, in the United Kingdom and in the United States, the two countries where most of the financial news was focused, Margaret Thatcher’s Cabinet and Ronald Reagan<sup>49</sup>’s administration implemented the Chicago school’s principles of neo-clas-

48. “Price Formation in Financialized Commodity Markets: The Role of Information” – UNCTAD (United Nations Conference on Trade and Development), June 2011 ([http://unctad.org/en/Docs/gds20111\\_en.pdf](http://unctad.org/en/Docs/gds20111_en.pdf)).

49. Margaret Thatcher, who was born in 1925, became the leader of Britain’s Conservative Party in 1975. After the Tories had won several elections, she is appointed Prime Minister in 1979 and re-appointed to that position in 1983 and 1987. She resigned in 1990. In the United States, Republican Ronald Reagan (1911-2004) was elected President in 1980 and reelected in 1984. His Vice-President, George H. W. Bush, succeeded him in the White House in 1989.

TABLE 1  
**Notional amounts outstanding of OTC derivatives**  
*(in billions of US dollars)*

|                            | June 2010      | June 2011      | June 2012      |
|----------------------------|----------------|----------------|----------------|
| Foreign exchange contracts | 53 153         | 64 698         | 66 645         |
| Interest rate contracts    | 451 831        | 553 240        | 494 018        |
| Equity-linked contracts    | 6 260          | 6 841          | 6 313          |
| Commodity contracts        | 2 852          | 3 197          | 2 993          |
| Credit default swaps (CDS) | 30 261         | 32 409         | 26 931         |
| Unallocated                | 38 329         | 46 498         | 42 028         |
| <b>Total Contracts</b>     | <b>582 685</b> | <b>706 884</b> | <b>638 928</b> |

Source : Bank for International Settlements

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sical liberalism. They drew into this tide of deregulation nearly all OECD countries and a number of developing countries that were subjected to structural adjustment programmes in order to receive loans from the IMF and the World Bank. To measure the degree of financial liberalisation, the IMF designed an index based on seven parameters: credit control, interest rate control, customs duties, banking regulation, privatisation of state-owned enterprises, capital control and control of stock exchange operators. Each of these indicators was ranked on a scale of 0 for complete regulation to 1, 2 or 3 for complete deregulation depending on these parameters. As shown in *Figures 1 and 2*, the evolution of this index shows the direction taken from 1973 to 2005 by the main developed countries (United States, United Kingdom, France, Germany, Italy, Spain), and by the emerging countries (Argentina, Brazil, China, India, Russia).

After the creation of this index, several research projects were carried out within the IMF. In 2008, two economists, David Hauner and Alessandro Prati, presented the findings of a study covering 91 countries from 1973 to 2005<sup>50</sup>. They demonstrated that trade liberalisation was a leading indicator of financial liberalisation for the reduction of tariff and non-tariff protection precedes financial liberalisation. They also highlighted that reforms leading to the liberalisation of agricultural markets are also an essential factor in financial liberalisation in low - and middle - income countries. Relying on an empirical model based on statistical data, their demonstration is close to the theoretical models of the neo-classical economists and its application is efficient with regard to the goals pursued. Deregulation has released

the potential for market and financial instrument diversification and led to the emergence of new actors.

Regarding the markets, most of the financial transactions were originally almost exclusively carried out by the banks through organised markets: stock exchanges and futures markets. After the 1929 crisis and drawing the lessons of the stock market crash, the United States reformed its financial system (*Glass-Steagall Act* or *Banking Act of 1933*<sup>51</sup>), separating deposit banks from investment banks. This rule was already applied in other industrial countries, and it had placed the banking activity and consequently the financial activity durably under control. But in 1973 the move to a floating exchange rate system encouraged U.S. financiers to by-pass the regulation, setting up subsidiaries of U.S. deposit banks in London. The *Glass-Steagall Act* was to be repealed in 1999 by the Clinton administration, but this decision was a mere reflection of the reality.

In France, banking deregulation went through different stages: the Banking Law of 1984, the financial deregulation of 1986 and simultaneously the implementation of EU directives on the free movement of capital in 1988.

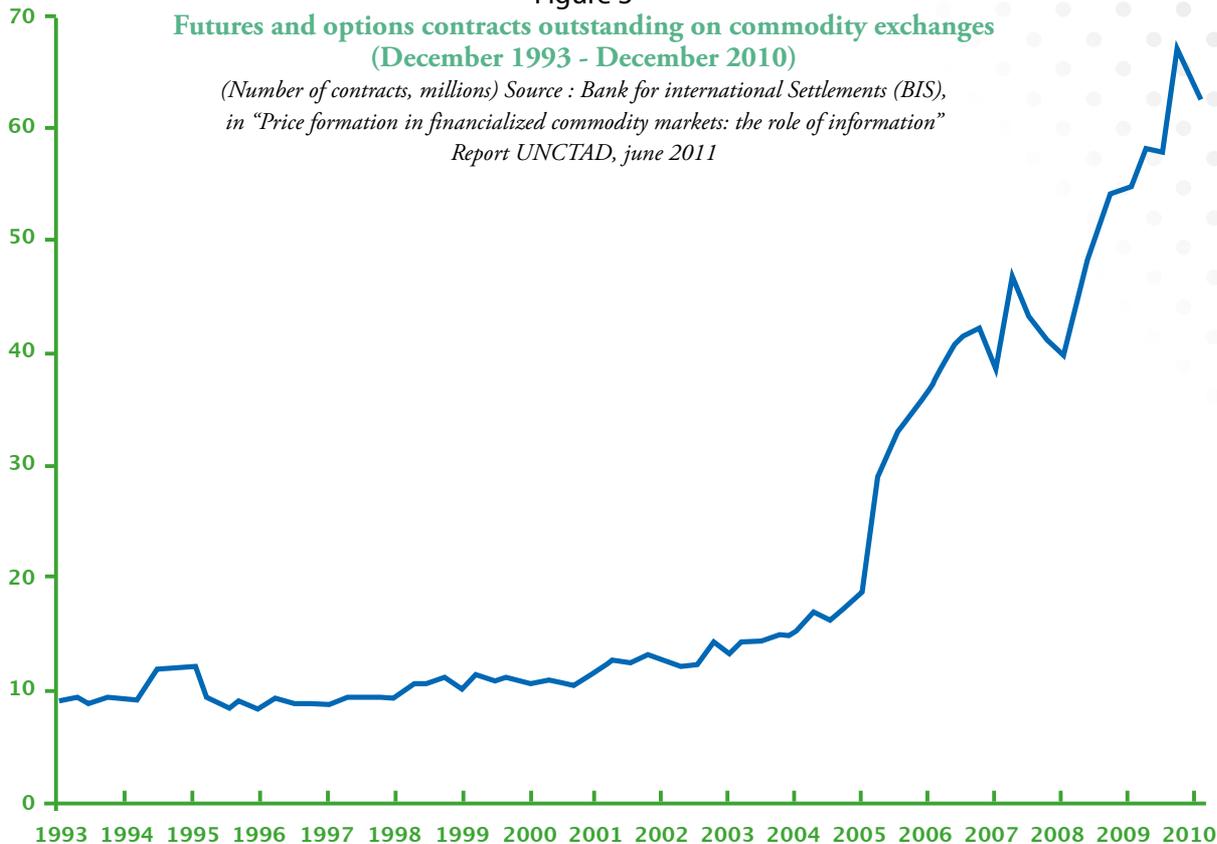
Alongside investment funds whose activity was regulated, a special category of investment funds, "*hedge funds*", was developed; their activity was not regulated and was therefore reserved for individuals with a sizeable wealth and for institutional investors. Although their origin harks back to the early 20<sup>th</sup> century and although a number of them disappeared during the monetary and financial upheavals of the 1970s, their number and activities have considerably increased. In 2009, there were about 10,000 funds worldwide, managing about 1.76 billion dollars, as compared to 2.13 billions in early 2012.

50. "Openness and Domestic Financial Liberalization: Which Comes First?" IMF, February 2008 (<http://www.imf.org/external/np/seminars/eng/2008/sturereform/pdf/openness.pdf>).

51. Full text: "<http://archive.org/details/FullTextTheGlass-steagallActA.k.a.TheBankingActOf1933>".

**Figure 3**  
**Futures and options contracts outstanding on commodity exchanges**  
**(December 1993 - December 2010)**

(Number of contracts, millions) Source : Bank for international Settlements (BIS),  
 in "Price formation in financialized commodity markets: the role of information"  
 Report UNCTAD, June 2011



**TABLE 2**  
**Notional amounts outstanding of OTC equity-linked and commodity derivatives**

(in billions of US dollars)

|                                  | June 2010    | June 2011    | June 2012    |
|----------------------------------|--------------|--------------|--------------|
| Gold                             | 417          | 468          | 523          |
| Other precious metals            | 127          | 144          | 133          |
| Other Commodities                | 2 307        | 2 585        | 2 337        |
| <b>Total Commodity Contracts</b> | <b>2 852</b> | <b>3 197</b> | <b>2 993</b> |

Source : Bank for International Settlements

Thanks to the growth of derivatives engineering, the financial industry has equipped itself with increasingly sophisticated market instruments. It has used mathematical disciplines – with a specific contribution of the French school<sup>52</sup> – to design new products based on the most common ones (call and put options) listed in the organised markets, and to define operational strategies. These new products have found their preferred application

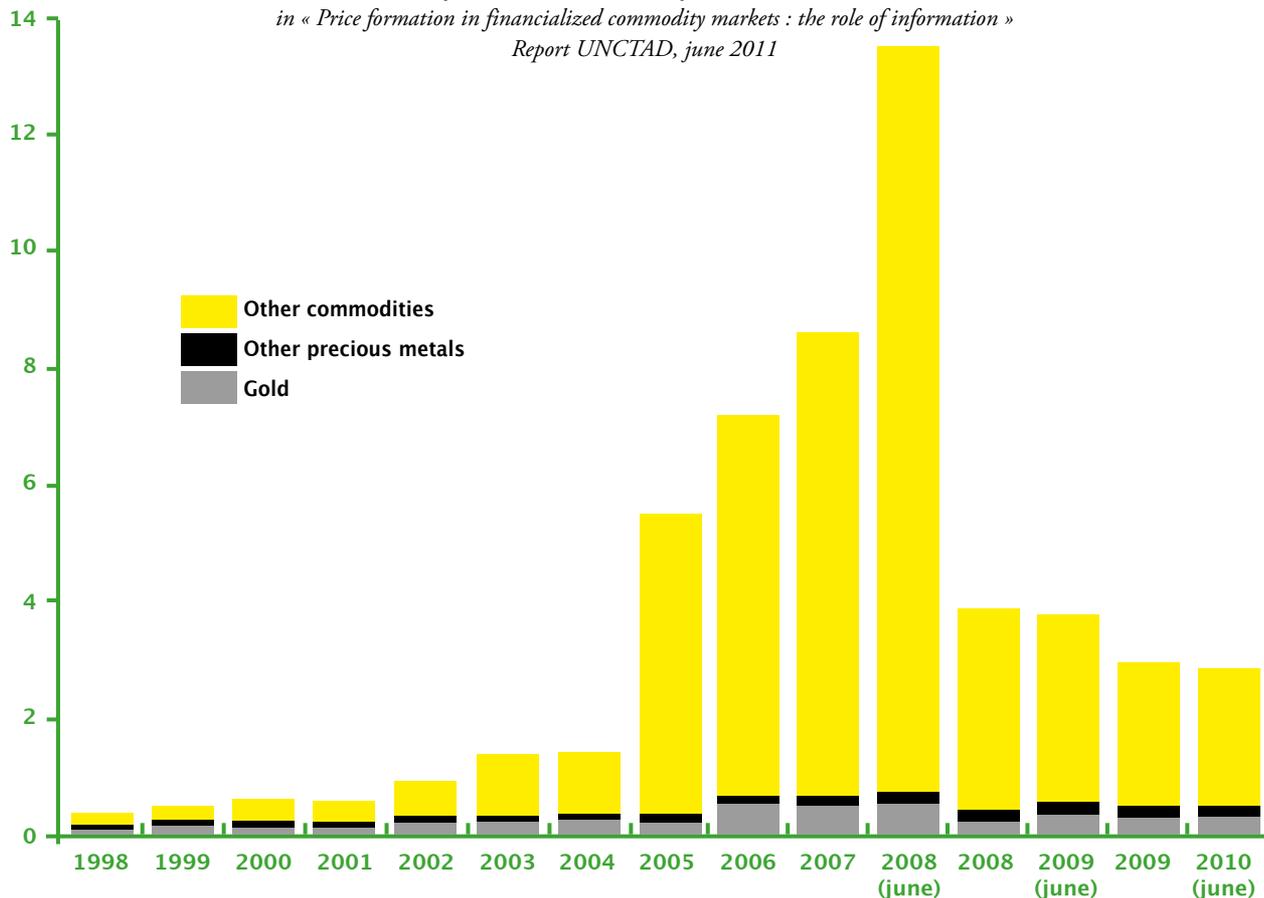
area in over-the-counter (OTC) transactions. Since the 1980s, the development of OTC derivatives has been considerable and they now account for the largest share of financial markets, all assets combined. By comparison, the gross world product was estimated at 69,110 billion dollars, i.e. less than 10% of the estimated value of OTC deals in June 2011 (Table 1).

The operators of financial markets are interested in all commodities. From 1993 to 2010, as shown in Table 3, the number of

52. Nicole El Karoui, Professor at University Paris VI, France.

**Figure 4**  
**Notional amount of outstanding over-the-counter commodity derivatives**  
**(December 1998 - June 2010)**

*Trillions of dollars – Source : Bank for international settlements  
 in « Price formation in financialized commodity markets : the role of information »  
 Report UNCTAD, june 2011*



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commodity contracts has grown almost seven-fold. Similarly, the notional amount<sup>53</sup> of OTC derivatives contracts on commodities has literally soared, exceeding 13,000 billion dollars in June 2008, at the height of the commodity price rises (Figure 4), before returning to notional amounts on the order of 3,000 billion dollars (Table 2).

The total lack of transparency of the OTC commodity contract market—which the current financial reforms are meant to remedy in part—unfortunately does not allow a breakdown of aggregated data by type of products. Nevertheless, one can assume that energy (oil, gas, electricity) has a large share in the value of the contracts, most likely leaving for agricultural products a share similar to what it is in organised markets.

As was mentioned previously, the agricultural policy reforms implemented in developed countries, based on the decoupling

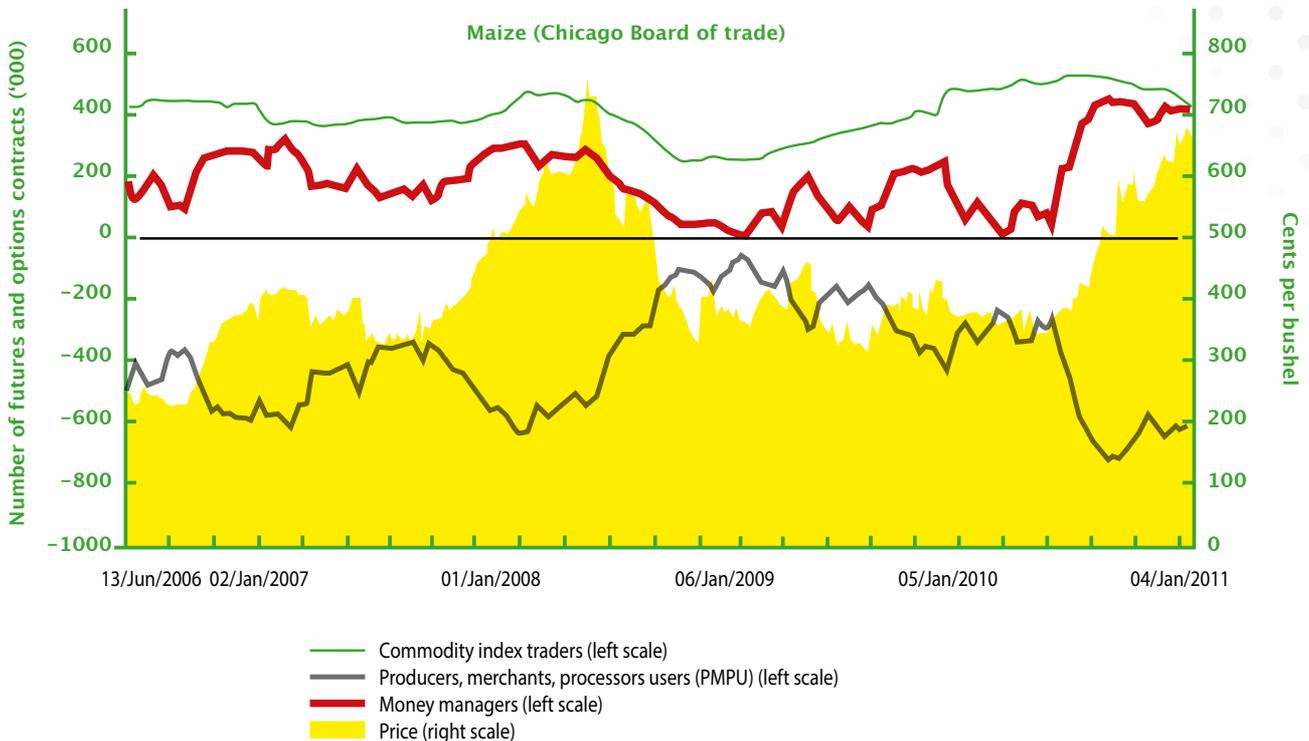
principle and on a reduction of tariff or non-tariff barriers to agricultural trade, and the implementation of structural adjustment programmes have created the conditions for globalised world markets for the main agricultural commodities: corn, wheat, soybean, grains, oilseeds and oil meals, sugar, coffee, cocoa, cotton. Besides, reduced public market interventions and the subsequent elimination of public stocks have contributed to establishing market regimes that are structurally much more imbalanced.

#### 4.1. Physical markets and financial markets

For every commodity and for every agricultural product that has the fungibility and conservation characteristics of a “commodity”, the concept of market has considerably changed. The relevant concept is probably that of an «extended market», covering the physical trading of products and the financial markets in which every product is the underlying asset.

53. The notional amount is the value of the contract agreed between the parties, therefore the actual value of the transaction, as opposed to nominal issue value.

**Figure 5**  
**Maize : prices and net long financial positions by traders category (June 2006 - February 2011)**  
 UNCTAD secretariat calculations, based on weekly data from Bloomberg and CFTC



With the exception of a few contracts that can be fulfilled immediately, most of the contracts in the physical market are concluded at a fixed price for future delivery. They are generally drawn up using standard forms that are adapted according to the terms of the transfer and the ownership transfer points and they may provide for dispute settlement (Incograin contracts of the Paris Syndicate, GAFTA-, FOSFA-, NAEGA-based contracts, etc.). They may more generally include the general and specific terms and conditions for sales concluded between buyers and sellers. But these fixed-price contracts must not be confused with so-called “forward” contracts that are already considered as derivatives when what remains to be set is the price, based on the price of the corresponding underlying product.

Since contracts concluded in physical markets are not registered or declared, their individual volume and price information is confidential and restricted to the parties concerned. Naturally, as intermediaries, brokers are likely to publicly report on the price levels used at different delivery points, as requested by the

press or the public authorities that publicise them. Similarly, transactions concluded through tenders are generally reported with the name of the successful bidders, the volumes and prices allocated to every successful bidder. But, with these exceptions, physical markets still exhibit very little transparency. “Supply-demand” tables are created from public or private estimates of different items, except for those that have to undergo a public registration or counting procedure (regulated professions, public stocks, imports and exports that are subjected to a declaration procedure). Regarding the consolidation of tax information on domestic market transactions, the time delay is such as to rob the data of all its informational value.

Futures markets are the venues for standardised buy and sell futures deals (quality, quantity of the underlying and delivery points are defined by market operators), and for call and put options deals on the same underlying, with set timeframes. Moreover, a clearing-house guarantees the fulfillment of contracts for buyers and sellers, thus eliminating the counterparty risk. That

is the operating mode of the *Chicago Board of Trade* (CBOT), the oldest of the modern futures markets, which recently was merged with the *Chicago Mercantile Exchange* and the *London International Financial Futures and Option Exchange* (LIFFE), itself the product of successive mergers with the *London Traded Options Market* (LTOM) in 1992, with the *London Commodity Exchange* (LCE) in 1996 and with the Paris futures exchange (the former MATIF, operated by Euronext). The concentration of market operators has led to LIFFE and Euronext being taken over by the *New York Stock Exchange* (NYSE). But in late December 2012 the U.S. operator InterContinental Exchange (ICE) announced its takeover of NYSE–LIFFE–Euronext, making it the first global exchange manager, subject to the decisions of the relevant competition authorities.

For the operators of physical markets classified by the U.S. *Commodity Futures Trading Committee* (CFTC) as “*commercials*” (producers, traders, processors and users), futures market provide services such as *price discovery* (information on future prices) and the possibility of hedging deals<sup>54</sup>, namely the possibility of setting ahead a buying or selling price, for deals to be fulfilled in the physical market at a later date. For a futures market to operate properly, there is a need for sufficient liquidity, with a sufficient number of operators. This was the original, subsidiary goal of actors whose main mission was not to deliver or to take delivery of goods. But the current situation is the result of the attractiveness of commodity markets for financial operators, who are often prevailing in futures markets due to the number of deals that they make. The CFTC has this distinction between two main categories of financial operators:

- “*Swap dealers*”, namely operators who use futures markets to hedge between variable-price or variable-rate contracts and fixed-price or fixed-rate contracts.
- “*Money managers*”, namely funds managers who perform operations on behalf of their investor clients.

The Chicago Board publishes weekly information on the positions held by these various categories of operators, so that their respective market shares can be monitored (*Chart 5*). This level of transparency is still missing from the contracts processed on the Paris Euronext market.

Lastly, the over-the-counter commodity derivatives market, although the largest in volume, is for the time being completely opaque, since there is no *reporting* obligation. In OTC derivatives markets, the confidentiality of deals remains total and operators can save on the guarantee deposits, transaction fees and margin calls that are the rule in futures markets. But this exposes their participants to the risk of counterparty default. The “*subprime*” crisis and the bankruptcy of the Lehman Brothers investment bank have demonstrated the disastrous consequences of this situation.

54. See, in this Cahier, the article “*Futures markets and managing agricultural risks*” by Messrs Portier and Gentile.

## 4.2. The 2008 financial crisis and financial reform

In 2007–2008, the soaring prices of commodities, followed by a financial crisis, have given rise to countless experts’ consultations, parliamentary inquiries, conferences, symposiums, research projects and other debates and disputes.

This being an international crisis, it appeared necessary for the governments of the world’s main economic powers to address it. In the framework of the G20, a consensus was reached at the Pittsburgh Summit in September 2009, about the need to undertake and implement financial reforms in order to regulate the derivatives that are traded in organised markets or over the counter. The essential principles of these reforms – as recommended by the International Organisation of Securities Commissions (IOSCO) – concerned transparency, better effectiveness of market and competition arrangements and market integrity.

The “*Dodd–Franck Wall Street Reform and Consumer Protection Act*” that was signed into law in July 2010 by the United States represents the overall financial reform piece of legislation and its ambition is embodied in its name. In compliance with the prescriptions of international regulators, the aim was first of all to provide oversight over OTC derivatives<sup>55</sup> through:

- on one hand, the obligation to register deals for the so-called standardised products: the information would remain confidential, but accessible to market authorities;
- on the other hand, the obligation to use clearing-houses, with a goal to eliminate systemic risks linked to possible defaults.

The operation of organised markets was also strengthened, while the principle of the separation of banking activities was restored.

In the European Union, a financial reform was undertaken in 2010 with the creation of European authorities in the banking sector (European Banking Authority, headquartered in London), in the insurance sector (European Authority for insurance and occupational pensions, headquartered in Frankfurt), and market authorities (European Securities and Markets Authority, headquartered in Paris), as well as a European Systemic Risk Board. Furthermore, the EMIR regulation published on 27 July 2012 made it compulsory in the European Union to clear OTC derivatives, to establish risk management procedures and to report transactions to *trade repositories* for the purpose of registering them.

In October 2010, the EU Commission also published draft directives and regulations for reviewing and improving the financial directives currently in force: the *Market in Financial Instruments Directive* (MiFID) and the *Market Abuse Directive* (MAD). The European Parliament discussed these proposals in 2012 (MiFID II and MiFIR; MAD II and MAR). They were to be finally adopted at the conclusion of the so-called *trilogue* (tri-partite dialogue) between the Commission, the European Par-

55. Title VII of the *Dodd – Franck Act*.

liament and the Council. But implementation provisions will have to be developed: in other words, these Directives will not come into force until late 2014 or early 2015. The same goes for the United States: although the Act was passed in 2010, the development process of the technical provisions has been subjected to slow and lengthy negotiations – 2012 being an election year – between pro- and anti-regulators, so that a final date in 2014/2015 also seems to be a realistic guess.

### 4.3. Applying financial reform to financial commodity markets

At the request of the G20, the IOSCO Technical Committee also set up a “task force” on futures commodity markets. In a report submitted in November 2010, the task force confirmed the need for all countries to undertake reforms of OTC commodity derivatives and to improve the transparency of both futures and physical markets. But while the report stresses the need to undertake such reforms in the energy sector, there remains some scepticism about the existence of a systemic risk for the other “commodities”.

From November 2010 to November 2011, the G20’s French presidency took the initiative of organising an agricultural G20 whose work was focused on food price volatility and agricultural product markets. The report requested by the G20 Agriculture Ministers and prepared by the experts of ten international organisations<sup>56</sup> contained recommendations that were adopted at the G20 Agriculture Ministers meeting in Paris in June 2011: more specifically, a research programme to improve agricultural yields, an *Agricultural Market Information System* (AMIS), a *Global Information and Early Warning System* and a project of emergency food reserves in prepositioned locations<sup>57</sup>.

Regarding the commodity derivatives markets, the G20 Agriculture Ministers relied on the expertise of IOSCO’s Technical Committee<sup>58</sup>. In September 2011, the committee submitted “twenty-two principles for the regulation and supervision of com-

modity derivatives markets”<sup>59</sup>. The report detailed the rules that market operators were required to implement, the rules that market authorities had to enforce, and the implementation of registration and clearing obligations for OTC commodity derivatives.

The G20 summit met in Cannes in November 2011 and adopted all the proposals made by the Agriculture G20, and the recommendations submitted in the IOSCO report. A global financial reform process is therefore in motion, especially in Europe and in the United States. But its effects will really be felt only seven-eight years after the 2008 crisis and a number of questions about price formation in the agricultural markets still remain unanswered.

### 4.4. Financialisation and price formation

The global financialisation of the economy has spawned the concept of an “*extended global market*” in which the development time of every farm product depends on the more or less standardised nature of the traded goods. The extension is complete for the grains and fibers markets that are the most traded (cereals, rice, oilseeds and protein crops, sugar, coffee, cocoa, cotton) and for some of the products based on them (oils and oil meals). It is not so complete for animal productions, dairy or meat productions, for which feed price indexing (poultry) or the listing of futures are implemented directly (pork) or indirectly (butter and milk powder).

Therefore, in order to understand how prices are formed, the relevant elements of these broader markets have to be taken into account, as well as the relations of the different market segments among themselves. The time of the “*historical*” notion of commodity markets, whose fundamentals (producer, user, foreign trade and stock) were sufficient to determine prices and volatility, is over. The increasing share of investors in organised markets and in OTC derivatives markets based on underlying agricultural products has to be viewed according to the different aspects of the specific strategies of each category of actors:

- **Institutional investors** strive to protect the value of their portfolio. They go for commodity index funds where the links between the prices of products are more rigid due to the product basket composition and because of the necessary re-arbitraging of index funds in the derivatives markets for each product in the funds. Product interdependence has become even stronger for plant productions, whose value can be directly (energy) or indirectly (biofuel production) linked to that of energy. Institutional investors participate in the rise of global demand, since they believe in a long-term rise of commodity prices in general, and more specifically in a rise of the prices

56. “Price volatility in Food and Agricultural Markets: Policy responses” – 2 June 2011 (<http://www.oecd.org/tad/agriculturaltrade/48152638.pdf>). The ten organisations were: the United Nations Food and Agriculture Organisation (FAO), the Organisation for Economic Cooperation and Development (OECD), the World Bank group (World Bank), the International Fund for Agricultural Development (IFAD), an international financial institution and a specialised United Nations agency), the United Nations Conference on Trade and Development (UNCTAD), the World Food Programme (WFP), the World Trade Organisation (WTO), the International Monetary Fund (IMF), the International Food Policy Research Institute (IFPRI) and the United Nations High-Level Task Force on the world food security crisis (UN-HLTF).

57. [http://agriculture.gouv.fr/IMG/pdf/2011-06-23\\_-\\_Action\\_Plan\\_-\\_VFinale.pdf](http://agriculture.gouv.fr/IMG/pdf/2011-06-23_-_Action_Plan_-_VFinale.pdf), English version: [http://un-foodsecurity.org/sites/default/files/110623\\_G20\\_AgMinisters\\_Action\\_Plan\\_Agriculture\\_Food\\_Price\\_Volatility.pdf](http://un-foodsecurity.org/sites/default/files/110623_G20_AgMinisters_Action_Plan_Agriculture_Food_Price_Volatility.pdf)

58. *The International Organisation of Securities Commissions* (IOSCO) was created in 1983. Its headquarters is in Madrid. The organisation consists of the regulators of the world’s large stock exchanges. Its mission is to develop international standards to strengthen stock market efficiency and transparency, to protect investors and to facilitate cooperation between regulators, in order to fight financial crime.

59. Principles for the regulation and supervision of commodity derivatives markets—Final Report— IOSCO Technical Committee – September, 2011 (<http://www.iosco.org/library/pubdocs/pdf/IOSCOPD358.pdf>).

of products whose value is indexed on the value of resources deemed to be running out (oil reserves).

- **Fund managers** of all categories have short-term, even very short-term strategies (*high frequency trading*) relying on automated systems. Their strategies are based on a systematic use of price differences between the different derivatives and in particular, of the volatility of each underlying product. This explains to a large extent the accelerating impact of price changes when the onset of an instantaneous volatility change is triggered due to specific events.
- **“Swap dealers”** assume in a way the risk of a deal for which they receive compensation, by trading a fixed price for a variable price. Swap dealers are likely to be active both in physical markets and in derivatives markets, be they organised and not, receiving their own re-insurance from arbitrage deals. “Swap” activities have grown considerably as a result of the demand of economic agents who are not in a position to assume their risks themselves and/or prefer to reduce them through such means. Financial institutions and trading companies (cooperatives or merchants) provide these services for both producers and industrial processors. Operators who manage *swap* portfolios contribute to the dissemination of risks in the global market.

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In the report submitted to the G20 Agriculture Ministers in June 2011, the experts of the ten international organisations who were consulted acknowledged the massive investment in financial derivatives markets in the mid-2000s, but they found that analysts disagreed on the role of financial “speculation” as a driver of agricultural commodity price increases and volatility<sup>60</sup>. Without taking a clear stand on either theory, they insisted that in their opinion “*well functioning derivatives markets for agricultural commodities could play a significant role in reducing or smoothing price fluctuations*».

It is a fact that most of the research projects<sup>61</sup> using mathematical methods for processing of the data available on organised commodity markets have not found causal relationships between the positions of financial investors and futures prices. However several fundamental questions must be raised:

Are the available data relevant enough to establish a relationship between the strategies—rather than the positions—of financial investors and price formation?

Is it sufficient to take into account only organised derivatives markets in order to account for all the price formation mechanisms?

Regarding the latter point, analysts agree on a distinction of “*moments*”<sup>62</sup> in the life of markets, for which explanatory factors do not comply with the laws of continuous causality, but are series of episodes where the configuration of the players’ strategies can converge or express themselves in an antagonistic way. With this pattern in mind, it can be understood that conventional statistical models can conceal the reality of these “*moments*” by relying on an assumption that causal relationships apply in an uninterrupted fashion.

So the economists still have a broad field of research and debate open to them. From that perspective, the importance of the resonance between the different market segments must be underlined: the continuous display of quotations for futures contracts with different expiry dates provides information which is broadly disseminated and therefore determines price formation for contracts in physical markets, whereas information relating to physical market prices flows in a very imperfect way and its ex-post publicity (publication of the prices recorded the previous day in the press or by official bodies) can be used as an indicator or a reference for the price formation of delayed-delivery contracts. Lastly, beyond the issue of economic market analysis, other disciplines must be used. Applying the information theory—especially in asymmetrical information situations that correspond to the current reality of markets—calls for improved access conditions to all the data on which both physical market and derivatives market actors base their decisions<sup>63</sup>. A new approach to the value theory<sup>64</sup> drawing on other social sciences is also likely to make important contributions to understanding the mechanisms of financialised markets. As a way of explaining the behaviour of financial market operators, John Maynard Keynes had developed the metaphor of the beauty contest<sup>65</sup>, taking the example of a competition organised by a London newspaper for its readers; a beauty prize was to be awarded to a selection of young women and the photographs of about a hundred of these women were published: the winner was to be the reader whose choice would be closest to the six most selected photographs. In this competition that was similar to what happens in financial markets, in order to win it was necessary not to select your own personal choice, but to anticipate the decisions that all the other actors were going to make.

Beyond the anecdotal (yet this was checked by means of mathematical experiments) and the description of herd behaviours<sup>66</sup> that can lead to the emergence of speculative bubbles when all the actors share the same opinion, it is the very foundation of the value concept that needs to be revisited. If things did not have

60. Paragraph 27 in “*Price volatility in Food and Agricultural Markets: Policy Responses*” – 2 June 2011 (<http://www.oecd.org/tad/agricultural-trade/48152638.pdf>).

61. Index Trading and Agricultural Commodity Prices: A Panel Granger Causality Analysis – Gunther Capelle-Blancard and Dramane Coulibaly – CEPII, December 2011 (<http://www.economieinternationale.eu/CEPII/fr/publications/wp/abstract.asp?NoDoc=3937>).

62. This is “*moment*” in the sense of “*momentum*”, commonly used as a stock market technical indicator.

63. Price Formation in Financialized Commodity Markets: The Role of Information – UNCTAD, June 2011 ([http://unctad.org/en/Docs/gds20111\\_en.pdf](http://unctad.org/en/Docs/gds20111_en.pdf)).

64. L’empire de la valeur. André Orléan. Le Seuil, October 2011.

65. The General Theory of Employment, Interest and Money.

66. Price Formation in Financialized Commodity Markets: The Role of Information – UNCTAD, June 2011 ([http://unctad.org/en/Docs/gds20111\\_en.pdf](http://unctad.org/en/Docs/gds20111_en.pdf)).

an intrinsic value, if value could not be measured on the basis of its labour content, of its marginal utility or of its exchange value, could it be described as the result of a belief “*circumstantially*” shared by the social groups involved in the production, trading and consumption of goods and services? The decompartmentalisation of economic, sociological and ethnological disciplines could allow lifting the veil on a concept that has occupied since Antiquity a pivotal place in how the functioning of human societies can be explained.

## 4.5. Agricultural land financialisation and market

The purchase of or control over agricultural land by foreign investors in developing countries, and the changes of the ways in which agricultural land in developed countries is financed are two different facets of the common process of financialisation of the agricultural land market.

Undoubtedly, the financial investors’ opinion about a medium- or long-term rise of the value of agricultural productions, especially of the major crops used for food or industrial production, has had an impact on the way they analyse the value of the agricultural land likely to bear these crops. This analysis was reinforced by the price surge of 2007-2008, then by the climate events in the countries surrounding the Black Sea in 2010 and by the drought that hit North America in 2012.

Large-scale investment in agricultural land has a two-fold goal: it provides the opportunity to earn revenue gains in the short term and the possibility of an increased land value in the medium and long term, since the future value of the land may be equal to the capitalisation of agricultural income by the same time horizon. Meanwhile, because of the food security concerns of countries that are highly dependent on food supply imports, those who have the financial means to do so, have become actively interested in controlling land property abroad, in order to reduce food dependence or to balance their import expenditures.

## 4.6. “Land grabbing”

The purchase or renting of agricultural land in developing countries by foreign investors has been denounced by non-governmental organisations<sup>67</sup> who are considering these deals as emblematic of the struggle of Third World peasant movements since the 1990s, under the term “*land grabbing*”.

The increased number of such deals since 2008 and the media publicity surrounding them have led the World Bank to conduct a study, the results of which were published in September 2010 under the title “*The Rising Global Interest in Farmland: Can it Yield Sustainable and Equitable Benefits?*”<sup>68</sup>. This study was a milestone in acknowledging the situation and it is the first

67. GRAIN: [www.grain.org](http://www.grain.org) – OXFAM: [www.oxfam.org](http://www.oxfam.org)

68. “*The Rising Global Interest in Farmland: Can it Yield Sustainable and Equitable Benefits?*” – Klaus Deininger and Derek Byerlee – World Bank, September 2010 ([http://siteresources.worldbank.org/INTARD/Resources/ESW\\_Sept7\\_final\\_final.pdf](http://siteresources.worldbank.org/INTARD/Resources/ESW_Sept7_final_final.pdf)).

**Table 3**  
**Agricultural land investments abroad**

| <b>The top investing countries</b> |                            |
|------------------------------------|----------------------------|
|                                    | <b>Hectares of land</b>    |
| United States                      | 3 147 473 ha               |
| Malaysia                           | 3 097 607 ha               |
| United Kingdom                     | 2 829 104 ha               |
| China                              | 2 385 182 ha               |
| United Arab Emirates               | 2 252 856 ha               |
| Républic of Korea                  | 2 096 297 ha               |
| India                              | 1 934 509 ha               |
| Australia                          | 1 547 616 ha               |
| South Africa                       | 1 442 968 ha               |
| Canada                             | 1 329 793 ha               |
| <b>TOTAL</b>                       | <b>22 063 405 hectares</b> |

| <b>The most targeted countries</b> |                            |                        |
|------------------------------------|----------------------------|------------------------|
|                                    | <b>Hectares of land</b>    | <b>Number of deals</b> |
| Indonesia                          | 7 527 760 ha               | 23                     |
| Malaysia                           | 4 819 483 ha               | 20                     |
| India                              | 4 616 760 ha               | 109                    |
| Brazil                             | 3 871 824 ha               | 61                     |
| Philippines                        | 3 191 021 ha               | 30                     |
| Sudan                              | 3 123 430 ha               | 17                     |
| Ethiopia                           | 2 412 562 ha               | 56                     |
| Madagascar                         | 2 176 241 ha               | 36                     |
| Mozambique                         | 2 017 912 ha               | 96                     |
| Argentina                          | 1 505 020 ha               | 22                     |
| Other countries                    | 13 567 180 ha              | 454                    |
| <b>WORLD TOTAL</b>                 | <b>48 829 193 hectares</b> | <b>924</b>             |

Source : Land Matrix (<http://landportal.info/landmatrix>)

diagnosis of its kind by an international organisation. First, the authors reminded us that:

- From 1961 to 2007, the area of farmed land expanded by about 3.8 million hectares per year: this increase was the result of a gain of 5 million hectares per year in developing countries, minus a decrease of 1.2 million hectares per year for the other countries;
- There has been an increase in agricultural productivity through changes from small farm holdings to large-scale farms that optimise economies of scale.

The report went on to qualify the idea that this recent “land rush” is a new phenomenon. It mentions old settlements and partnerships entered into by food and agribusiness groups looking to secure their supplies. It concludes on the need for a well-reasoned approach, involving all parties concerned, taking into

Figure 6

## Land acquisitions by category of production : number of projects

(Source : Land Matrix Report : Transnational Land Deals for Agriculture in the Global South, April 2012)

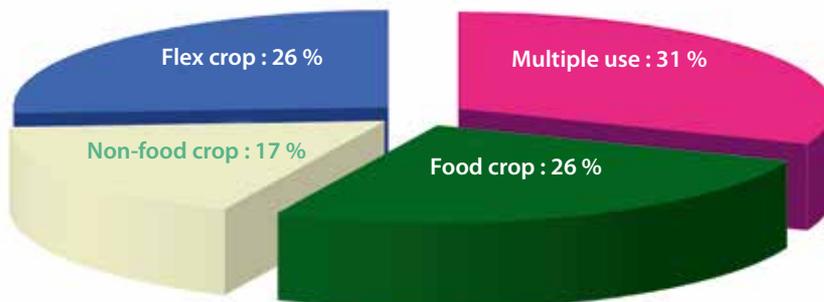


The “flex crops” (soybean, sugarcane and oil palm) are so called because these crops can either be used for food or non-food purposes (particularly for biofuel). The importance of flex crops and multiple use projects makes the real balance between food and non-food production difficult to determine. It also suggests the importance to investors of flexibility in the face of risks linked to price volatility, commercialization, and so on.

Figure 7

## Land acquisitions by category of production : hectares

(Source : Land Matrix Report : Transnational Land Deals for Agriculture in the Global South, April 2012)



account the agricultural development benefits linked to these large-scale investments, but also the social and economic difficulties that may arise for the rural populations of the areas concerned. It also underlines the weaknesses of local governments that do not prevent these problems, and the fact that many of the listed projects will never be implemented.

GRAIN, a non governmental organisation, did not give a warm welcome to this project, arguing that some agricultural plans of land purchase are financed with the support of the International Finance Corporation (IFC), an investment banking institution that is part of the World Bank group, and that credit–insurance is provided by the Multilateral Investment Guarantee Agency

(MIGA), a specialised agency of the World Bank group. Moreover, this topic remains highly controversial and a number of projects and the land areas in question are challenged on both sides: GRAIN has found 463 projects, predominantly in Sub-Saharan Africa, covering 46 million hectares between October 2008 and June 2009, whereas according to the World Bank report only 21% of these are operational and most of the others have only received approval.

In this context, it was necessary to draw an inventory that was as objective as possible, in order to collect quantitative and qualitative information on foreign land investments in developing

countries. Five institutions<sup>69</sup> pooled their resources to create an online databank<sup>70</sup>. This databank lists all the projects and for each project, it provides the investor's name and home country, target country, the area of land purchased and the crops involved. Project data is collected upward of a 200-hectare threshold and the projects are checked by the project partners.

In total, in early February 2012, 924 projects had been studied, starting from the year 2000. They cover 48.83 million hectares of land, among which 68% of surfaces belonging to 10% of the investors (Table 3). Lastly, 35% of these lands are in Africa.

The first analytical report based on the Land Matrix database was published in April 2012<sup>71</sup>. Out of the 1,217 land deals reported, covering 82.216 million hectares, 625 among them – i.e. 51.4% of the total, covering 32.735 million hectares – have been evaluated as coming from a reliable source of information.

The most targeted areas of the world are, in descending order, East Africa (more than 30 million hectares), followed by South-east Asia (12 million hectares), West Africa, North Africa, Central Africa and Eastern Europe. Most of the target countries, such as Sudan, Mozambique, Ethiopia, Madagascar or Tanzania (Table 3) have good quality land and a significant potential for increased yields. On the whole, the target countries are significantly poorer countries compared to the countries that are investing in them. And they are negatively affected by foreign investments looking for non-food crops or export crops (Charts 6, 7 and 8).

Investors are mostly private companies (442 operators, 30.3 million hectares). State-owned companies or public institutions number 172 operators and 11.5 million hectares, investment funds 32 operators and 3.3 million hectares and private–public partnerships, 12 operations and 600,000 hectares. Among the decision-making criteria, water plays a crucial role because investors are looking for areas with more abundant resources than are available in their own countries. But the largest projects are also focused on countries that allow investors to export agricultural productions, especially to their origin countries (Chart 8).

The Land Matrix experts do not have full data for all the projects. In order to assess the impact of the deals, they analyse subsets of data. From these observable cases, several elements stand out:

- Small farmholders account for 68% of users of the land before the deals, but only 15% of holders of title deeds, state property accounting for more than 56%. This gap seems to stem from

69. These are the *Agricultural Research Centre for International Development* (CIRAD), the *German Institute for global and area studies* (GIGA) based in Hamburg, the *Deutsche gesellschaft für internationale zusammenarbeit* (GIZ), the *Centre for development and environment* (CDE) of the Bern University and the *International Land Coalition* (ILC).

70. [landportal.info/landmatrix](http://landportal.info/landmatrix)

71. *Transnational Land Deals for Agriculture in the Global South* – CDE, CIRAD, GIGA, April 2012 (<http://landportal.info/landmatrix/medialimg/analytical-report.pdf>).

the fact that in Sub-Saharan African countries small farmers are allowed to work on the land on the basis of common law, the state being the legal owner. In this context, it is understandable that—in these observable cases—no prior consultations occurred in 59% of the deals, for the rural districts concerned and that only partial consultations occurred in 34%.

- In the 40 cases studied in detail, there seems to have been a large number of farmer displacements, since a quarter of the projects ended in more than 10,000 farmers per project being displaced.
- Regarding positive externalities, most of the deals provide a genuine improvement of infrastructures (77% of 117 observed cases), but also financial support (26%) and skill enhancement (20%). In terms of employment, of the 89 cases studied, 28% contributed—each—to the creation of more than 5,000 jobs, 12% in the creation of 2,500-5,000 jobs and 16% between 1,000 and 2,500 jobs.

The economic fallout from land purchase or renting by foreign investors would deserve more detailed analyses to measure its contributions to agricultural development, national economies and balance of trade. But in the meantime this “*land rush*” has drawn the attention of the governments of both investor and target countries, and the *Food and Agriculture Organisation of the United Nations* (FAO<sup>72</sup>) has decided to address it from the perspective of rules to be designed and enforced in order to prevent land deals from being concluded at the expense of weak legislations and target country governments, and to the detriment of the rural populations in the territories concerned. Following an in-house development and consultation process, on 11 May 2012 at its 38<sup>th</sup> session, FAO's Committee on World Food Security endorsed the *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security*<sup>73</sup>. Being developed through intergovernmental negotiations, these guidelines contain internationally-accepted principles and norms to encourage responsible practices. Their goals are clear:

- To improve governance of tenure by providing indications and information on internationally-accepted practices, in order to put in place systems of tenure for the use, management and control of land, fisheries and forestry;
- To contribute to the improvement and development of the political, legal and organizational frameworks that regulate the whole set of tenure rights over these resources;
- To reinforce the transparency of systems of tenure and improve their operation;
- To reinforce the capacities and operating mode of enforcement bodies, judicial authorities, local authorities, organisations of farmers and small producers, fishermen and forest users, pas-

72. The Food and Agriculture Organisation of the United Nations came into existence in 1945. Based in Rome, it defines itself as a “*leader in international efforts to defeat hunger, serving both developed and developing countries*” ([www.fao.org/index\\_fr.htm](http://www.fao.org/index_fr.htm)).

73. For detailed information: <http://www.fao.org/nr/tenure/voluntary-guidelines/en/>

tors, indigenous peoples and other communities, society, the private sector, the academic world and every person concerned by governance of tenure, and to promote cooperation between these stakeholders.

Implementation of the guidelines is left at the discretion of national authorities. However they represent a major step forward in the codification of an international regulation of tenure, at a time when national or foreign financial investors are making significant investments in farmlands.

#### 4.7. The financial model of the farm holding

The fact that investors who are not themselves involved in farming buy or control farmlands is not a new way of organising production. From very early times, the development of tenant farming and sharecropping has created a separation in agricultural economies between land ownership and working on the land.

However, it was in Anglo-Saxon countries—United Kingdom and United States of America—that the model of the financialisation of land property came into existence, at the time when the ways in which the land was farmed were evolving. These were specialised agricultural enterprises that operated and managed farm holdings held by investors who owned the land.

In a country such as France, the agricultural and rural society was structured within a political and legal framework that protected a model of family farm holdings<sup>74</sup>. The emergence of a financial model was therefore considerably delayed in particular because the status of tenant farmers had for a long time limited any interest they could have for land investment, by encouraging a wealth-building strategy.

From a strictly economic standpoint, the financialisation of land goes hand in hand with farm holdings moving towards an enterprise model, whereby ownership of the production means is partly or entirely separate from the labour force, agricultural employment growing as a substitute for family assets. This evolution moved at a fast pace in all the situations where the economic and legal framework allowed the creation of enterprises that, due to their size, derived maximum profit from economies of scale—which is borne out in most developing countries and has received a specific impetus in emerging countries.

This change has been the source of major economic and social upheavals, to the extent that – in the best of cases – traditional rural populations are forced to trade their production and subsistence modes for a new wage-earner condition or are displaced to other geographical areas, even migrating to urban centres. Similarly to changes in industrial activities, the financialisation of land and of the farmholding mode raise the issue of trade-offs between improving the economic activity of enterprises and the jobs that they provide, but with – additionally – an specific

dimension: the alteration of the relationship that the populations have with their territories.

## 5. CONCLUDING REMARKS

The recent developments in the financialisation of the economy have been marked by a series of crises, in which:

- Neo-classical economists see the stages of a readjustment of markets and production structures
- Neo-Keynesian economists see the effects of insufficient regulation.

With the capitalist model now the prevailing feature of the economic structure of practically every country of the world, and since these countries are now interdependent in a globalised economy, the concepts of the world's economic organisation have an unprecedented role to play for the future of human societies. Agricultural production and agribusiness, as involved in food security and biomass transformation, are not immune to the financialisation process of the economy.

Given this context, recent developments such as the financialisation of farm commodity and land markets require new regulations in order to reduce or mitigate negative externalities. In a globalised world, all the legislative and regulatory measures taken in this field require international coordination at the very least, strict discipline at best, as part of a world governance. This is what was done with the development of the principles of financial regulation reforms by the G20 or when voluntary guidelines for governance of tenure were developed in the FAO. But there remain conceptual differences in economic and political philosophy, at the core of the debates among nations, and within the national institutions of most countries.

Once the decoupling principle is implemented in agricultural policies, tariff and non-tariff barriers to trade are reduced, internal trade is liberalised and government-owned enterprises are privatised, the action of imperfect markets is an encouragement to reflect upon the design of new arrangements to capture the benefits of a financialised economy, to boost production and trade process effectiveness and to harness their economic, social and environmental consequences.

With this in mind and in order to adapt to the effects of financialisation, agricultural policies should implement new regulation mechanisms for the physical markets of agricultural products and for land markets:

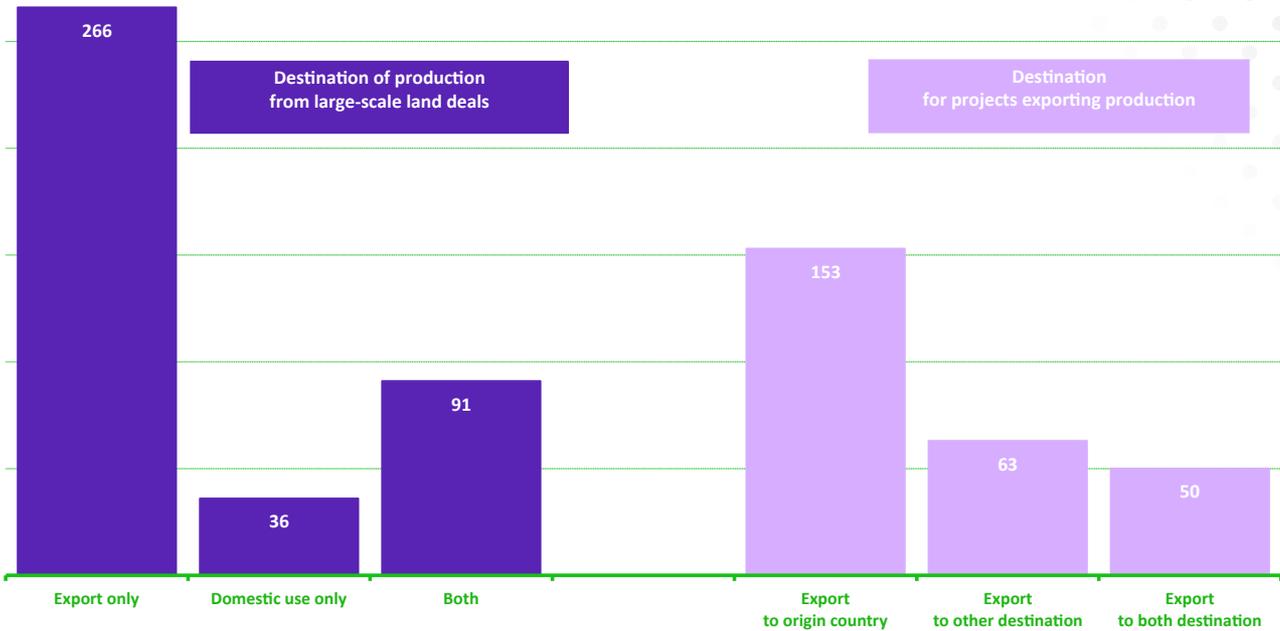
- **On the regulation of physical markets**, the European financial reform assumes that market authorities have sufficient information to prevent manipulations in physical markets that have consequences in financial markets and vice versa. For these provisions to be applicable, it will be necessary to apply comparable mechanisms to the main agricultural commodities listed in the European markets, to those already in place in the field of energy – electricity and natural gas – with the Agency for the Cooperation of Energy Regulators (ACER), which operates as part of the EU Regulation on wholesale energy

74. On this topic, please refer to the article of this Cahier on “*Financing agricultural land*” by Mr Robert Levesque, Director of *Terres d'Europe – Scafi*.

Figure 8

Large-scale land acquisitions for agriculture : destination of production

(Number of cases – Source : Land Matrix : Transnational Land Deals for Agriculture in the Global South, April 2012)



market integrity and transparency (REMIT). The transactions registered with the regulators have given access to the necessary information in real time, in order to avoid manipulations of physical or financial markets.

Furthermore, the quasi-full decoupling of the Common Agricultural Policy planned for after 2013 is going to test the operation of liberalised agricultural markets. Except for crisis mechanisms that trigger limited systems of public or private stocks, existing producers’ organisations or inter-branch organisations will soon see the limits of their actions in terms of correcting the market imbalances that are inherent to agricultural productions. In the European Economic Area, no individual actor or group of actors, no state or group of states could in isolation support the necessary measures benefiting all market actors. Faced with the lack of public policies, collective actions must be devised by public-private or private bodies, with the participation of all actors; furthermore there will need to be negotiations about their compatibility with competition rules. There is a vast scope for reflection, combining the search for market integrity and transparency and effective interventions in the markets.

- **On land markets**, given financial investors’ growing interest for the high prices of agricultural commodities, it will be necessary to better monitor and control investments. This is a concern – that is very strong in developing countries due to the contradictions between land law and common law – that applies differently in developed countries, especially in the

rule-of-law states that are members of the European Union. Beyond the land market monitoring procedures that are in place, all the legal forms allowing non-farming investors to purchase land must be encouraged, provided that the rights of the farmers-producers are preserved. Indeed, economies of scale justify that an increase in farmholding size should be sought since it is easier to invest in productive capital when it is not competing with land purchase. From this perspective, there could be a conflict between the benefits of land financialisation and political theories that favour restrictions on farm size or the socioeconomic model of farmholdings, directly or indirectly interfering with the right to receive direct aid resulting from decoupling.

The economic crises of the 19<sup>th</sup> century and of the first half of the 20<sup>th</sup> century have been explained in terms of financial allocation to profitable activities, to the point of causing overproduction, and the stock market crashes are the result of disequilibria between production and consumption. The remedies offered by Keynesian-type economic policies have consisted in a better control over the savings-investment relationship. But the economic crises that have shaken market economies since the 1960s have all revolved around the formation and bursting of speculative bubbles on currencies, commodities, housing and more recently on sovereign debt. Drawing the lessons of insufficient control of and oversight over financial markets, the world’s main powers have agreed on the need of financial regulation to reduce the

risks of a systemic crisis. However, does setting up strict rules on financial derivatives markets help to prevent the disruptions that are specific to the differential rates of return of the real economy and the financial economy?

In the agricultural sector, it is obvious that financial investors prefer to allocate their capital to agricultural commodity derivatives markets in the short term, rather than investing in the productive sector itself. Therefore, rather than imposing a penalty on investment in financial markets (tax on financial transactions) that is not likely to re-balance capital allocation, it will be necessary to devise more complex regulation systems in order to better adjust the allocation of financial investment between the real economy and the financial economy.

The application of ratios to financial operators in the commodity derivatives markets would introduce a duty to finance produc-

tive investment as a proportion of their participation in commodities markets. So, rather than imposing a tax, the amount of which would probably not be a deterrent in order to prevent overspeculation, and would not be re-allocated to production, the goal is to discourage a differential allocation of capitals: the lack of productive investment perpetuates market tensions that encourage volatility, and that makes investment in the corresponding derivatives very attractive. The determination of a duty to participate, directly or indirectly, in the financing of commodity production – in this case in the agricultural productions concerned – could be established to be equivalent to the prudential ratios that are set for bankers by the Basel Committee. This mechanism would have the merit, in a medium- to long-term prospect, of mitigating the causes of excessive volatility, while contributing in an effective way to the goals of food security.