Abstract: Ludwig Lachmann famously stressed that expectations are inherently subjective, resulting in the phenomenon of divergent expectations, i.e., differing interpretations of market conditions on the part of market participants; a phenomenon that, coupled with the ceaseless change characterizing market data, greatly undermines the presence of any process of error correction on the marketplace. This paper compares the views of Lachmann on this subject with those of Mises. It argues that Mises too viewed expectations to be subjective and believed that the phenomenon of divergent expectations could arise on the market. But contrary to Lachmann, he did not conclude that this phenomenon undermines the presence of a process of error correction. Thus, in Mises’ view of the market process, a thoroughgoing subjectivism goes hand in hand with a belief in the existence of a process of equilibration.
1. Introduction

One of the hallmarks of the Austrian School is the emphasis it places on analyzing price formation in a world of disequilibrium. Theorists working in this tradition, following in the footsteps of the founder, Carl Menger, focus on understanding the choices made, not by godlike, omniscient men, but by erring men who do not possess complete and perfect knowledge of the conditions that could impinge on the success of their actions. This approach stands in sharp contrast to the one followed by most of their Neo-classical colleagues who, working in the tradition of Leon Walras (1954 [1926]) and Vilfredo Pareto (1971 [1927]), focus their attention on analyzing a world of equilibrium, where all individuals possess perfect knowledge and where, therefore, all the available resources have already been allocated to their highest valued ends.

A key component of this Austrian focus on price formation in a state of disequilibrium is the theory of the market process; of an analysis of the existence as well as the workings of a gradual movement of prices and quantities towards a state of general equilibrium. Indeed, theorists working in the Austrian tradition are ideally placed to develop the micro-foundations of such a process. For as Mises observed, it is only the “logical economist,” i.e., one who studies actual human choices made in the real world of imperfect knowledge, who has the theoretical tools to develop a theory that shows how “the activities of enterprising men, the promoters and speculators, eager to profit from discrepancies in the price structure, tend toward eradicating such discrepancies and thereby also toward blotting out the sources of entrepreneurial profit and loss” (Mises 1998 [1949], p.352-3). The “mathematical economist,” on the other hand, who spends all his time analyzing a world of equilibrium, lacks the tools to elucidate the workings of such a process. He can only describe “a state of affairs in which there is no longer any action and the market process has come to a standstill” (Mises 1998 [1949], p.352).
Notwithstanding the common endeavor by theorists of the modern Austrian school to develop such a theory, disagreements and differences exist in the theories of the market process developed by prominent figures of the School in the postwar era.¹ These differences become especially significant when we move to the field of economic dynamics and the theory of a process towards an inter-temporal or dynamic equilibrium. And the key area of disagreement, in this context, is that of the nature of expectations; more specifically, the process by which expectations are formed and how the economic phenomena of the future are linked to those of the past.

This paper explores these differences and attempts to remedy some of the unresolved issues that exist within the Austrian School on the nature of expectations and the theory of the market process in a dynamic world. For, while it is of utmost importance that Austrian economists attempt to engage in constructive dialogue with the mainstream on the theory of the market process, dealing with unresolved issues that still exist within the body of thought of the Austrian School should come first.

The paper focuses, especially, on the views of Ludwig Lachmann and Ludwig von Mises in this regard, analyzing both the striking similarities of their views on the subjective nature of expectations and the different conclusions that they nevertheless draw regarding the existence of an error correction process pushing the economy towards an inter-temporal equilibrium. In the course of doing so, the views of F.A. Hayek and Israel Kirzner on expectations and the market process are also analyzed and the differences between their views and those of Lachmann and Mises are highlighted.

¹ For a broad overview of some of these differences see Vaugh (1994, p.130-161)
The paper is structured as follows: section 2 provides a discussion of the assumptions and conceptual underpinnings of equilibrium analysis, both in a static world characterized by timeless planning and in dynamic world featuring multi-period plans while Section 3 provides a brief discussion of the Hayek-Kirzner theory of the market process, thereby laying the foundations for an analysis of the views of Lachmann in section 4. Section 5 discusses Mises’ theory of expectations and the market process, and section 6 provides a conclusion.

2. Static and Dynamic Conceptions of Equilibrium

In his seminal paper on economics and knowledge Hayek (Hayek 1937) presented a path-breaking analysis of the conceptual underpinnings of economic equilibrium. In the simplest possible case, the isolated world of Crusoe, an individual will be in a state of equilibrium if all his actions over a period of time are part of a plan that he had envisaged and embarked upon at the start of the period.2 This notion of equilibrium can also be applied to the more complicated case of an economy with multiple individuals engaging in interpersonal exchange. Here too a state of equilibrium would require each individual to draw up a plan at the start of the period and carry it through without revision through the period in question.

There is, however, one important difference between the two scenarios considered. In the case of Crusoe, all that equilibrium requires is that his one plan be consistent, i.e., that its various constituent actions dovetail or fit with one another. In the case of interpersonal exchange, however, given that multiple plans need to be carried out without any revision, equilibrium not only requires each individual’s plan to be consistent. Instead, it also demands inter-plan

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2 In the words of Hayek: “Actions of a person can be said to be in equilibrium in so far as they can be understood as part of one plan,” and “equilibrium relations exist between the successive actions of a person only in so far as they are part of the execution of the same plan.” Indeed, a state of equilibrium requires actions to be “decided upon at one and the same moment, and in consideration of the same set of circumstances […]” (Hayek 1937, p. 36).
consistency, i.e., it requires the plans of the various individuals to be compatible with one another and to dovetail.³

Hayek’s analysis of equilibrium can be applied to different empirical scenarios or conceptual worlds. There is, for instance, the world of Walras (1954 [1926]) and Pareto (1971 [1927]), where the influence of time on individual plans is ignored. In this timeless world an individual draws up a plan of action without making any distinction between the present and the future. However, given that the various actions that constitute his plan cannot possibly be synchronous, what the assumption of timelessness actually involves is the existence of a planning horizon so short that considerations of time need not enter the picture. As a result, the various actions undertaken by each individual can, for all intents and purposes, be assumed to be taking place simultaneously by the economic theorist.⁴

Now, under what conditions would a state of equilibrium be established in such a timeless world? Crusoe, in his isolation, will draw up his plan after surveying the underlying conditions over his short planning period (the current period) that might affect its outcome. Thus, he will try and estimate the endowments of various productive resources currently at his disposal and his knowledge of how to combine these resources to yield consumer goods in order to form the most precise possible picture of his budget set, or the various bundles of consumer goods that the available resources and his technical knowledge would enable him to acquire. With this picture in mind he will try, given his rankings of various bundles of these consumer goods over the current period, to choose the one that will yield him the greatest possible satisfaction. If his

³ As Hayek notes, “For a society, then, we can speak of a state of equilibrium at a point of time – but it means only that the different plans which the individuals composing it have made for action in time are mutually compatible” (Hayek 1937, p. 41; italics in the original).
⁴ For a detailed analysis of the implications that follow from the assumption of timeless planning, see Lindahl (1939 [1929], p. 271-274).
subjective estimate of this data corresponds perfectly with the actual conditions he faces, the plan that he embarks upon will be one that he can carry out without any hindrance over the current period and he will thereby be in a state of equilibrium.

In the case of interpersonal exchange, however, the presence of multiple individual plans introduces complications. Whereas Crusoe was resource owner, producer and consumer all rolled into one, in a scenario featuring interpersonal exchange the available resources during the current period are distributed and allocated by different individuals to various production processes, there are multiple producers engaged in the production of different consumer goods using these resources and utilizing technical knowledge embodied in various production functions, and there are many consumers making decisions on how to allocate their incomes amongst the various consumer goods based on their preferences. The prices that prevail over any given period are thus the result of the interaction of the plans of the resource owners, producers and consumers.

At one set of prices of resources and consumer goods the economy will be in a state of general equilibrium; the plans of the resource owners, producers and consumers will all dovetail with one another and every individual would be able to carry out exactly that plan which he or she embarked upon at the start of the current period. In such a scenario each market participant in his role as consumer, resource owner and producer would use the relevant equilibrium prices to isolate the various plans that he can choose from under the given conditions and would then pick the one that achieves the objective underlying his plan, that of either maximizing satisfaction or maximizing profits, thereby bringing about a state of equilibrium in the various markets over the course of the concerned short period of time.

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5 This assumes, of course, that such a vector of prices exists, is unique and is stable.
What conditions, however, would need to be fulfilled for each individual to utilize equilibrium prices in drawing up his plans? With specialization the success of any individual plan depends not only on the endowment, the preferences and the production function of the individual concerned but also on those of the other market participants. Indeed, if each individual had perfect knowledge of these underlying conditions, i.e., if he knew the precise amounts of the various resources that are available as well as the preferences of all the other participants in their roles as resource owners and consumers and the production functions guiding the decisions of the producers, he would know the set of alternative plans that each market participant could choose from and which of these plans they would pick in every conceivable scenario. As a result, he would be able to deduce the vector of equilibrium prices implied in this data. This knowledge, combined with the requisite knowledge concerning the knowledge that other market participants possess, would imply that he would use the relevant equilibrium prices in isolating his set of possible plans under the given conditions and would then be in a position to choose the best plan out of this set. And if every participant had the same perfect knowledge of the underlying data and of the requisite knowledge of the knowledge that other participants have of this data then the plans that the various individuals pick would dovetail and yield a state of equilibrium.6

This conceptualization of equilibrium can also be applied to a world where time influences the plans of individuals. Individuals in such a world engage in multi-period planning; their planning horizons extend beyond the current period and considerations of the present and future play a role in which plans they choose to adopt. Crusoe, given his technological

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6 In the words of Professor Kirzner, “Each market participant must, at each instant, be fully aware (i). of the decisions that all fellow market participants would make under all conceivable price situations; (ii). of the decisions that are, in fact, being made by all fellow market participants; (iii). that all fellow participants have similar awareness, ad infinitum” (Kirzner 1997, p. 21-22). For a thorough analysis of the necessary conditions for the emergence of a state of equilibrium in a given short period in an economy with specialization see Kirzner 2011[1963].
knowledge in the current period, chooses to allocate the resources available to him to obtain a stream of consumer goods that accrues, not in the current period itself, but in various periods of the future. His planning horizon therefore extends beyond the present and into the future and the outcome of his plan will be influenced not only by the conditions that prevail in the current period but also by the conditions that would prevail in the relevant future periods. Similarly, consumers and resource owners in an economy with specialization could choose to allocate their endowments over a period of time that extends beyond the current period while producers could embark on production processes that only yield their output in future periods of time.

A Crusoe engaging in such multi-period planning would, while drawing up his plan, try to estimate not only the resource endowments and technological knowledge available to him in the current period (say, a day), but also those that might prevail during the relevant future periods of time (say, over the course of a week). He would then use his estimates of these conditions to obtain a picture of the various bundles of consumer goods that he could acquire. These bundles would include not only consumer goods obtainable today but also goods that could be obtained over the course of the week. If his subjective estimates of the relevant conditions over the multiple periods in question are accurate, then he will be able to carry out the plan that he chooses and will be in a state of equilibrium.

This state of equilibrium is compatible with change. Specifically, it is compatible with changes in the data over the relevant multiple periods that Crusoe is able to accurately predict and which he is thereby able to take account of in estimating his budget set and choosing his plan. Moreover, a sequence of multi-period equilibria is compatible with changing multi-period plans as Crusoe adjusts his actions to the expected changes in the underlying conditions over the course of his planning period. It thus differs from the static equilibrium that emerges in a world
of timeless planning. Each static equilibrium is associated with a given set of data that prevails during a short period of time. Moreover, a sequence of static equilibria could feature changes to Crusoe’s plans, but only in response to the changes in the data in each short period.

A multi-period equilibrium is thus dynamic in nature, and its emergence hinges heavily on the accuracy of the expectations that Crusoe holds regarding the development of the relevant conditions over the course of his more extended planning period. Indeed, given that each multi-period plan “involves the expectations that Crusoe holds, not only concerning the technological efficacy of the actions which he contemplates, but also concerning the future course of events as he expects them to unfold (in the absence of any actions on his own part),” a state of dynamic equilibrium only extends over a period of time during which “his anticipations prove correct” (Kirzner 2012 [1966], p. 21, italics in the original; Hayek 1937, p. 36).7

Similarly, the emergence of a multi-period, dynamic equilibrium in an economy with specialization will also crucially hinge on the expectations that the various participants hold regarding future prices. Indeed, we can analyze the conditions required for the emergence of equilibrium in this more complex scenario by simply extending our analysis of the timeless, static scenario. For in a world of multi-period planning we are dealing with inter-relationships between markets over a period of time; inter-relationships that are similar to those that exist between the various markets in a given current period. Thus, a dynamic equilibrium would emerge if the plans of consumers, producers and resource owners utilized the relevant equilibrium prices in formulating their multi-period plans. These prices will now include prices of goods in the current period as well as prices of goods in future periods of time. If each market participant embarked on plans that were chosen from a set of possible plans drawn up with the

7 For a more detailed analysis of multi-period planning in the isolated world of Crusoe, see Kirzner (2012 [1966], p. 18-34).
aid of these equilibrium prices, i.e., if each participant based his plans on the correct expectations, a vector of equilibrium prices would emerge over the course of the concerned planning period.\(^8\)

What conditions would have to prevail to ensure that the various participants have these correct expectations? Each participant would have to possess accurate knowledge of the various conditions that impinge on the outcomes of their plans; both of the relevant conditions that prevail now in the current period as well as those that will prevail in the relevant future periods. They would then need to deduce the vector of equilibrium prices implied in these conditions and, given the requisite knowledge of the knowledge that other market participants possess of the underlying conditions both in the present and the future, each participant would use the relevant equilibrium prices to formulate their plans. The interaction of these plans in the various resource and product markets would generate precisely that set of equilibrium prices that each participant utilized to draw up their plans.\(^9\) A state of equilibrium will emerge and the plans of all the participants will be consistent with each other, thereby allocating the stocks of the permanent resources\(^10\) to their highest valued uses.

3. The Hayek-Kirzner Theory of the Market Process

Given that men are not omniscient, a state of equilibrium is unlikely to emerge in the real world except as a result of sheer chance. No individual will have perfect and complete

\(^8\) For a discussion of the assumptions underlying multi-period or dynamic equilibrium and how it differs from the stationary state construct see Hayek (1984 [1928]; 1941, p. 3-28). Ingrao (1989) provides a historical overview of the development of the concept. Kirzner (2012 [1966], p. 335-344; 1966, p. 34-44) provides brief discussions of dynamic equilibrium in the context of interpersonal exchange, while Lindahl (1939 [1929]) and Hayek (1941) provide more detailed accounts.

\(^9\) In the felicitous words of Lindahl, in a state of dynamic equilibrium the “individuals’ ideas concerning the future are such that their actions bring about exactly the conditions which they anticipated” (Lindahl 1939 [1929], p. 285).

\(^10\) The permanent resources in this context would include all those resources that remain physically intact or which do not undergo any depreciation during the relevant planning period. On the definition of permanent resources see Hayek (1941, p. 50-58).
knowledge of the underlying conditions relevant to the outcome of his plan. Instead, the knowledge of the market participants is bound to be incomplete and fragmented. Moreover, it will, in all likelihood, be erroneous on many margins.\textsuperscript{11}

Moreover, individuals would also lack the necessary knowledge of the knowledge that other market participants have of the prevailing conditions. As a result, they will not utilize equilibrium prices in isolating their set of potential plans. Instead, plans will be made based on disequilibrium prices, thereby resulting in actual states of disequilibrium characterized by the failure on the part of many participants to carry out their plans. In other words, the plans of the market participants will be incompatible and as a result there will be much plan frustration.

The interaction of plans in states of disequilibrium, however, does reveal fragments of the underlying data to the market participants. This point could perhaps be best understood in a simple world of pure exchange with only two consumption goods. Thus, consider a world where there are two consumption goods A and B. Assume, moreover, that the price of B is fixed and known to all the potential buyers of commodity A who enter the market with endowments of money income and to potential sellers of A who arrive with endowments of the good. The buyers seek to convert their endowment of money income into the bundle of A and B that maximizes their satisfaction, whereas the sellers seek to do likewise with their endowments of A.

Given their ignorance of the underlying conditions as well as a deficiency regarding the knowledge possessed by the other participants, each buyer and seller would use some disequilibrium price of A and therefore a disequilibrium vector of prices of A and B to isolate his

\textsuperscript{11} In the words of Hayek, “The peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess” (Hayek 1945, p. 519).
budget set. As a result the market participants will choose to execute plans that are incompatible. Assume, for instance, that all of them utilize a price of A that is above the equilibrium price in drawing up their plans. As a result, some of the sellers of A are bound to suffer plan frustration; they will not be able to sell the quantity of A that they hoped to sell at this price. Similarly, buyers of A will suffer frustration of their plans at a price below the equilibrium price.

Nevertheless, the interaction of such incompatible plans will reveal some knowledge of the underlying data to the various buyers and sellers. Thus, at a price above equilibrium both buyers and sellers will learn about the plans that the other market participants choose in that particular price scenario (given, of course, the price of B). And similar knowledge of underlying conditions would be disseminated to the various participants at any other disequilibrium price. This gradual diffusion of knowledge would lead to a process of learning; and this learning on the part of the market participants would in turn give rise to a process that leads to a gradual compatibility of plans over the course of time.\(^\text{12}\)

Thus, assume that the same data reappears period after period. Then if a price above equilibrium prevails in a particular period, sellers, having had some fragment of data revealed to them, will use a lower price of A in making their plans for the subsequent period. Buyers would do likewise if the price were below equilibrium. Thus, over a sequence of these short periods, the plans of buyers and sellers would gradually become more compatible, as the price vectors used in their formulation gradually approached the equilibrium price vector.\(^\text{13}\)

\(^\text{12}\) The theory of the market process described in this section can be termed the Hayek-Kirzner theory. It was first outlined in the stream of important papers Hayek produced in the 1930s and 40s (Hayek 1937, 1945, 1948). It was then developed in great detail by Professor Kirzner in numerous works (see especially Kirzner 2011 (1963), 2012 (1966), 1973 and 1997).

\(^\text{13}\) In the words of Professor Kirzner, “the very fact of disequilibrium itself sets into motion forces that tend to bring about equilibrium (with respect to current market attitudes). If current attitudes were maintained unchanged […] then the initial state of disequilibrium would itself tend to bring about an eventual equilibrium. The very fact that
A similar process could take place in an economy with production. Over a sequence of short periods, given the reappearance of the same set of data, the plans of the resource owners, entrepreneurs and consumers would gradually become more compatible via a process of learning made possible by the interaction of disequilibrium plans. The prices used in the formulation of these plans would therefore gradually converge over a sequence of periods to the equilibrium price vector and the economy could be said to be on a path over time to a state of static equilibrium.

Two points are worth noting regarding this market process in a world of timeless planning. First, the process is primarily backward looking. The gradual revelation of the underlying conditions that takes place through the interaction of various incompatible plans constitutes the heart of the process. The prices and quantities in each period, therefore, share a connection with those of the previous period. Second, and this point is intimately related to the first, market participants are not viewed as engaging in any process of trying to understand the underlying data without taking recourse to past prices. In other words, the focus is on learning about the data via past prices; individuals do not seek to pierce through the veil of prices to try and form an independent judgment of the prevailing conditions. Nor, indeed, do they seek to acquire any knowledge about the knowledge of others. Instead, trading commences at a set of prices born out of the ignorance of market participants, and the gradual dispersal of knowledge via the prices that emerge through repeated trading in successive periods pushes the economy towards a state of equilibrium.

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14 For a detailed analysis of the market process in a pure exchange economy with two and with multiple goods see Kirzner (2011 [1963], p. 105-141), and for an analysis of an economy with production see Kirzner (2011 [1963], p. 210-265).
A similar process of gradual plan compatibility can be envisaged in a world of multi-period planning as well. In this scenario the key assumption would not be that of unchanging data but of data that changes in the same pattern over the relevant planning horizon. Given their ignorance of the underlying conditions and the knowledge that other participants have of these conditions both in the present and in the future, individuals will make their plans utilizing a set of prices (both present and future) that will not generate a state of dynamic or inter-temporal equilibrium. As a result, the plans of multiple market participants will be frustrated. Nevertheless, as in the earlier scenario, the interaction of these incompatible plans will reveal a fragment of the underlying conditions to the various market participants. The knowledge gleaned from such market interactions will set in motion a process of learning, with individuals gradually adjusting their expectations towards the equilibrium price vector. The heart of the market process is thus a process of converging expectations on the part of the participants. The data continues to change in a similar pattern period after period and the participants learn of this pattern of change through the interaction of plans in states of disequilibrium. Plans thus become more compatible over time as individuals learn from their failures in the past, thereby pushing the economy towards a state of dynamic equilibrium over the course of a period of time.

It is vital to note that this process, even in a world with multi-period planning, continues to be oriented towards the past. Despite the role that expectations play in the plans that individuals embark on, the focus is on the gradual learning of the underlying pattern of changes in the data, and on the process of converging expectations that this learning gives rise to. Moreover, as in the case of static equilibrium, the expectations of individuals in the successive periods are shaped primarily by the prices that emerged in the previous period. There is no attempt by any of them to actually study the data lying behind the prices. Nor is there any
attempt to estimate the knowledge that other participants possess now and in the future of the pattern of change in the data. Instead, knowledge of this pattern of change is obtained via the failure of plans endured at certain prices in the past.

4. Lachmann and the Theory of the Market Process

4.1 The Need for Interpretation

In the conceptual world of Ludwig Lachmann individuals engage in multi-period planning in the face of changing data. Indeed, trying to formulate and refine a theory of the market process, or a “theory of the path” (Lachmann 1982) to dynamic equilibrium under these conditions, was one of the key components of his research agenda. In the course of doing so, however, Lachmann raised a number of objections to the theory of the process sketched out in the previous section. His most fundamental criticism of this theory was regarding the proposition that individuals can learn about what plans to embark on now based solely on the knowledge of the disequilibrium prices of the past.

According to Lachmann it is only in a “quasi-stationary state” in which “changes are few and far between,” and where every change “has had its repercussions before the next change takes place” that “knowledge is guided by prices functioning as signposts to action” (Lachmann 1978 [1956], p.21). In such a world, he argues, individuals will be able to gain knowledge of the prevailing conditions through the prices generated in multiple rounds of trading activity and the proposition that “the price system integrates all economic activity” would definitely hold true. Indeed, given the assumption of how the data change, consumers could learn how to substitute one good for another and producers could learn which industries to enter and which ones to abandon by “observing price changes,” for “every significant change in needs or resources
expresses itself in a price change, and every price change is a signal to consumers and producers to modify their conduct” (Lachmann 1978 [1956], p.21).

It follows that it is only in under these restrictive assumptions that the theory of the market process as sketched out above holds true; for it is only in such a world that the price system can be viewed as “a vast network of communications through which knowledge is at once transmitted from each market to the remotest corners of the economy” (Lachmann 1978 [1956], p.21). Once this assumption about the pattern of changes in the data is dropped, however, a very different picture emerges.

Lachmann considers the quasi-stationary state to be an unrealistic construct. In the real world, he argues, “change does not follow such a convenient pattern” (Lachmann 1978 [1956], p.22). There are multiple changes that occur simultaneously or close together in time. Moreover, before the repercussions from any one change ripple through the economy, other changes occur and their repercussions are layered on top of the initial ones. In such a scenario, “knowledge derived from price messages becomes problematical,” i.e., these messages require interpretation and analysis (Lachmann 1978 [1956], p.22). Indeed, in a world buffeted by continuous change, “prices are no longer in all circumstances a safe guide to action” and do not “tell the whole story.” Although they do continue to “transmit information,” this information is “incomplete” in nature and thus “requires interpretation (the messages have to be decoded) in order to be transformed into knowledge [...]” (Lachmann 1978 [1956], p.22).

Indeed, in a dynamic world, individuals, while forming their expectations of the future, need to “analyze the situation” that they find themselves in (Lachmann 1978 [1956], p.23). They must attempt to isolate the various forces at work that produced the constellation of prices and other economic phenomena of the past, and must try and distinguish between the “major forces”
and “minor forces” at work, ignoring the latter while utilizing the former to help form their expectations and plans (Lachmann 1978 [1956], p.23).

Once these expectations and plans have been formed, they are put into operation. Individuals, based on their plans, enter various markets to buy and sell goods at various prices, thereby testing these plans in the marketplace. This testing of plans and expectations over the course of the relevant planning period throws up certain results which, in turn, yield further knowledge for plan formation in the subsequent period. But this experience, like all prior experience, also “requires interpretation and yields imperfect knowledge” (Lachmann 1978 [1956], p.24). The individual may have succeeded in achieving the objective of his plan or may have experienced failure; but he “may have been right for the wrong reason,” or may not “know how he could have been right” (Lachmann 1978 [1956], p.24). The utilization of the failure or success of past plans in drawing up future plans requires analysis and interpretation.

Thus, in Lachmann’s view of the market process, interpretation of experience is the crucial link that connects the past, the present and the future in a dynamic world with multi-period plans. As in the Hayek-Kirzner theory of the market process, the interaction of incompatible plans leads to plan frustration and therefore indicates to the market participants that plan revision is required. This experience and the prices that emerge as a result of it, however, while they do form the basis on which a new set of expectations are formed, do not provide any indication of what these expectations should be. Indeed, the process of gaining knowledge from these prices is no longer as straightforward as it seemed in the earlier theory of the market process. Individuals cannot make simple and obvious inferences of how to act in successive periods based on the frustrations and disappointments suffered at certain disequilibrium prices in past periods. The process of learning and the transformation of experience into knowledge that
guides the formation of a new set of expectations and a new set of plans is one that is complex in nature and hinges significantly on individuals interpreting their catallactic experience.

Thus, prices of the past and price changes that have occurred in the past need to be scrutinized and analyzed by individuals in order to cull and extract knowledge of the underlying conditions. Market participants, in other words, given the possibility of continuous change in a dynamic world, need to peer underneath the veil of past prices and must try and study the underlying data. Thus, for Lachmann success in a market economy “depends largely on the degree of refinement of one’s instruments of interpretation” (Lachmann 1978 [1956], p.22). The necessity of such interpretation, however, opens up a Pandora’s Box that ultimately ends up undermining the very existence of a market process in a dynamic world.

4.2 Subjective Expectations and the Market Process

In a dynamic world with multi-period planning expectations of future prices are critical to the formation of individual plans and thus to the market process. Moreover, as discussed above, in such a world, expectations are necessarily the result of an individual’s interpretation of market experience. Due to the presence of continuous change, experience of prices and quantities must be interpreted to obtain knowledge of the underlying patterns of change in the data. Thus, expectations are not formed in vacuo but are shaped by the “experience of economic processes” (Lachmann 1943, p.12). It follows, therefore, that expectations cannot be treated as data by the economic theorist as tastes and the endowment of resources can. Instead, the theorist must develop a theory of expectations. And any such theory of expectations is absolutely crucial to the elucidation of the theory of a market process in a dynamic world.

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15 For incisive discussions of the views of Lachmann on knowledge and expectations see Garrison (1986) and Lewin (1994).
Any theory of expectations, however, is faced, right at the outset, with a seemingly insuperable difficulty that stems from the inherently subjective nature of all human choice. It is one of the fundamental implications of the subjective theory of choice that two individuals may react very differently to the same external situation. When faced with the same constellation of prices, individual A may choose to adopt one course of action whereas individual B may opt for a completely different option. But if the formation of expectations is shaped by an individual’s interpretation of his past market experience, it follows that this subjectivism must stain expectations as well. For it implies that the same economic facts of the past, i.e., the same constellation of prices paid and quantities produced and sold, will be interpreted very differently by different individuals and will result in the formation of vastly different expectations regarding the course of future prices.16 Indeed, if one were forced to define any such given situation not in terms of objective economic facts but in subjective terms, one would be forced to conclude that “there will be as many “business situations” as there are different interpretations of the same facts, and they will all exist alongside each other” (Lachmann 1943, p.13).

Thus, while it is clear that expectations are formed on the basis of an interpretation of the recent and more remote economic past, “the modus operandi of the response is not the same in all cases even of the same experience” (Lachmann 1943, p.14). Any experience, as it proceeds through the process of interpretation and the distillation of knowledge, has to “pass through a “filter” in the human mind, and the undefinable character of this process makes the outcome of it unpredictable” (Lachmann 1943, p.14). Indeed, there is an inherent subjectivity to the process by which “we select those portions of our experience” that we “allow to affect our judgment of the

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16 Thus, “Two farmers confronted with the same observable event, a rise in apple prices, will take different views of the situation and react differently if one interprets it as a symptom of inflation and the other as indicating a shift in demand under the influence of vegetarianism” (Lachmann 1943, p.17).
future” (Lachmann 1978 [1956], p.21). Thus, as Lachmann concludes, the attempt to formulate a theory of expectations while adhering to the cannons of the subjective theory of choice ultimately leads to the recognition of two realms of subjectivism: the subjectivism of human wants and the subjectivism of interpretation and expectations.

The subjectivism of expectations, however, greatly undermines the existence of a process that pushes the market towards an inter-temporal equilibrium over a period of time. For in a dynamic world with multi-period planning the existence of such a process hinges on the gradual convergence of expectations to the equilibrium price vector. Indeed, it is only this gradual convergence of expectations that ensures a gradual compatibility of plans. The subjectivism of interpretation and the fact that an identical situation can give rise to many different and diverging sets of expectations, however, implies that expectations, instead of converging will instead tend to diverge.

Each period will witness a set of expectations and plans drawn up by individuals on the basis of their economic experience and their interpretation of the existing constellation of economic phenomena. These expectations, given the subjectivism of interpretation, will in all likelihood diverge from one another and will result in a set of disequilibrium prices with widespread plan failure and frustration. But this new situation will not necessarily result in market participants formulating expectations that converge closer to the equilibrium vector and therefore ensure greater plan compatibility. Instead, this situation will give rise, after a new

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17 It is this subjectivism that, according to Lachmann, makes expectations indeterminate (Lachmann 1943, p.18). Thus, expectations, in other words, do not constitute a mere reaction to a set of conditions and are not determined by them.

18 In the words of Lachmann, “The (economic) problem is usually stated in terms of (objective) “resources” and (subjective) “wants”. In a stationary world these terms may have an unambiguous meaning, but in a dynamic world what is a resource depends on expectations, and so does what constitutes a want worth satisfying. In a properly dynamic formulation of the economic problem all elements have to be subjective, but there are two layers of subjectivism, rooted in different spheres of the mind, which must not be confused, viz. the subjectivism of want and the subjectivism of interpretation.” (Lachmann 1943, p.18).
round of interpretation and analysis, to a fresh set of expectations and plans that continue to diverge. Thus, the complexity of the process of learning and knowledge acquisition and its inherently subjective nature throws up a significant obstacle in the path of a market process that leads to the gradual dovetailing of individual plans.

Moreover, this obstacle is especially relevant in the case of a capital intensive, modern economy with a relatively long planning horizon. For in such an economy the path to the equilibrium position involves multiple rounds of reallocation of the permanent resources until they are allocated in a manner that is in line with the inter-temporal preferences of the consumers. This process, however, will entail the production of capital goods with these permanent resources; in many instances of capital goods that are significantly durable.

These goods, given the inherently erroneous nature of the underlying expectations and plans, will often constitute malinvested resources and will have to be utilized for purposes different from the ones they were designed to perform, a process that is guided by the emergence of gains and losses in the values of these goods. Thus, it is predominantly in the markets for such capital goods and in the asset markets such as the stock exchange where shares in them are traded that the subjectivism of expectations and the associated phenomenon of divergent expectations will play the most amount of havoc with the market process. Indeed, asset markets are characterized by expectations that consistently diverge; a price established on such markets only bring into equilibrium the bulls and the bears and “thus reflects a balance of divergent expectations.” In light of these considerations, “it is hard to see how general equilibrium in a
market economy, which comprise both asset and commodity markets, could ever be established” (Lachmann 1994 [1975], p.202).19

5. Mises, Entrepreneurial Selection and the Market Process

5.1 Mises on the Nature of Expectations

All human action, according to Mises, necessarily takes place in time. Man, in acting, necessarily distinguishes between the present and the future; he strives now to substitute a future state of affairs that he considers more satisfactory for the less satisfactory one that he believes will emerge without his interference. Indeed, “it is acting that provides man with the notion of time and makes him aware of the flux of time; […] Man becomes conscious of time when he plans to convert a less satisfactory state of affairs into a more satisfactory state” (Mises 1998 [1949], p.100).

The lapse of time inherent in all action brings with it the possibility of change. In the period of time that lies between the commencement of an act and its completion, the underlying conditions confronting the actor can undergo changes. It is, in fact, this idea of change and the changing conditions that face the actor that help him distinguish between the present and the future. The present is that period of time which is consumed by a particular act. Certain conditions relevant to the outcome of the act prevail during this period of time. The future, on the other hand, is the span of time that commences upon the completion of a particular act. It is characterized by conditions that, firstly, differ from the present because the act itself aims at introducing change. Moreover, it also presents opportunities for action that cannot yet be undertaken. It consists of things that “cannot yet be done” and goods that cannot yet be

19 On this point also see Lachmann (1976).
consumed because “conditions for undertaking it (them) or the time for its (their) ripening have not yet come […]” (Mises 1998 [1949], p.101).

Every actor, in deciding upon a course of action, must be cognizant of the conditions and their patterns of change during the present, i.e., the period of time that the act will take to complete. In the process he must try and estimate as best as he can the conditions that will prevail in the future if he were to not act. Both Crusoe, in his isolated world, and the participants in a market economy must, while undertaking an action, try and form an estimate of these conditions and possible changes that they may undergo. The crucial difference, however, is that in a market economy the conditions that impinge on the outcome of an act include not just the individual actor’s preferences and certain events in the external world but also the preferences and valuations of other individuals. Thus, in the conceptual world of Mises, as was the case for Lachmann, individuals formulate and embark on courses of action that involve considerations of time and distinguish between the present and the future in a changing world. This future orientation of action implies that expectations form a crucial component of every act; indeed, all action necessarily involves the formation of some expectations about relevant events in the future.

It is important at this stage to take note of three characteristics regarding the nature and formation of expectations that are implied in Mises’ work; views that are strikingly similar to those of Lachmann’s on the same subject. To begin with, all expectations, for Mises, are necessarily based on imperfect knowledge, for changing conditions bring with them the specter of uncertainty. Indeed, the conditions that are crucial and often impinge on the success of an act, such as “future needs and valuations, the reaction of men to changes in conditions, future scientific and technological knowledge, future ideologies and policies” always remain partially
hidden to acting man and “can never be foretold with more than a greater or smaller degree of probability.” Every action is thus oriented and “refers to an unknown future” and necessarily involves “risky speculation” (Mises 1998 [1949], p.106).

Second, experience forms the basis on which expectations of the future are formed. The constellation of prices and quantities produced and sold in the past aid the acting individual in his attempt to peer into the future in order to anticipate the prices that will prevail then. But, as for Lachmann, there is, for Mises, no simple and straightforward relationship that prevails between the prices of the past and those of the future. The prices of the past and the market experiences of individuals at these prices do not in and of themselves serve as a guide to future action. Indeed, the only knowledge that a past price conveys is that “one or several acts of interpersonal exchange were effected according to this ratio.” It does not, however, “convey directly any knowledge about future prices.” The prices of the past, therefore, are “merely starting points” in the attempt of an actor to “anticipate future prices” (Mises 1998 [1949], p.213).

What the individual really needs in order to form expectations and plan future action in a world of change is knowledge of the underlying conditions and how they gave rise to these prices in the past. Acting man needs to peer underneath the layer of prices to form some opinion of why the market participants acted the way they did under the conditions that prevailed, for this is the raw material that he can utilize to appraise the valuations that will prevail in the future. And to do so he must draw on his store of “thymological experience,” on what he knows about “human value judgments, the actions determined by them and the responses these actions arouse in other people” in order to anticipate “other people’s future attitudes and actions” (Mises 2007 [1957], p.312).
How does a man acquire this thymological knowledge? He does so by interpreting and analyzing his prior market experience and his wider social experience and the valuations of others and his own valuations that underlay this experience. In order to gain this knowledge he must strive to analyze the various factors that might have caused individuals (including himself) to act the way they did under various conditions and must try and form an opinion, in each case, of which of these factors are important and which can be neglected. It is this vast store of commonsensical knowledge of how he and the other market participants will act under various conditions that he draws upon in formulating his anticipations of how people will act in the conditions that he believes will prevail in the future and in deciding his course of action.

Third, and perhaps most importantly, the accumulation of this thymological knowledge, according to Mises, is bound to be subjective. This, in fact, follows for him, just as it did for Lachmann, from the inherently subjective nature of value. The same external situation can give rise to vastly different courses of action on the part of different individuals. Given that these courses of action are decided upon on the basis of thymological experience and what the actor predicts will occur in the future on the basis of such experience, it follows that this experience must therefore be subjective and must vary from person to person. Thus, for Mises as well the ultimate valuations and actions in the marketplace, given that they incorporate the actor’s interpretation of the past and his appraisement of the future, reflect two layers of subjectivism: the subjectivism of his wants and how he ranks them in order of relative importance and the subjectivism of his expectations and anticipations.

This inherent subjectivism in the ability to understand the underlying conditions of the past and the future and to analyze the actions that individuals are willing to undertake under these conditions manifests itself in a “datum that is a general characteristic of human nature” and
is “present in all market transactions:” the fact that “various individuals do not react to a change in conditions with the same quickness and in the same way” (Mises 1998 [1949], p.256). Indeed, “the phenomenon of leadership is no less real on the market than in any other branch of human activities,” and here too there are “pacemakers” who are quick to adjust their actions to the underlying conditions and have “more initiative, more venturesomeness, and a quicker eye than the crowd,” and there are “others who only imitate the procedures of their more agile fellow citizens” (Mises 1998 [1949], p.255-56). This uneven distribution of the ability to accumulate thymological knowledge and appraise the future with its aid plays an important role in Mises’ theory of the market process.\(^{20}\)

5.2 Entrepreneurial Selection and the Market Process

Mises, as discussed above, shared views that were in many respects similar to those of Lachmann’s on the importance as well as on the nature of expectations. Crucially, their views regarding the importance of the interpretation and analysis of past experience in the formulation of expectations and the associated subjectivism of expectations share a striking similarity. Nevertheless, the acknowledgment of the subjective nature of expectations led them to very different conclusions regarding the existence of an error correction process pushing the market towards a state of inter-temporal equilibrium. For Lachmann, as we have seen, the subjectivism of expectations leads him to be highly skeptical of the presence of any market process in a dynamic world where market participants draw up multi-period plans. For Mises, however, it is precisely this underlying nature of expectations that forms the foundation for the existence of an error correction process in a world where all individuals need to engage in speculation while participating in inter-personal exchange.

The valuations of market participants, according to Mises, are tested every day in the process of exchange and price formation that takes place in the markets for various goods and services. Most crucially, the process of exchange serves as a daily referendum on the valuations of the entrepreneurs. Given that the prices of all goods and services result from the interaction of the momentary valuations of the participating buyers and sellers, the realized prices that emerge on markets everyday exploit all potential gains from trade and exhaust all reverse valuations.\textsuperscript{21} Thus, the factor prices that emerge everyday allocate the available stocks of these goods to their highest valued uses as encapsulated in the momentary bids of the various competing entrepreneurs. Similarly, the prices of consumer goods allocate these goods to their highest valued ends as represented by the prevailing valuations of the buyers.

These factor and consumer goods prices realized in the process of exchange also give rise to profits and losses. And it is through earning these profits and losses that entrepreneurs test their valuations and their ability to successfully predict future conditions. Those entrepreneurs that were successful in their appraisement of the future valuations of their customers earn a profit while those that failed in this endeavor are penalized with losses. Thus those entrepreneurs who are better able to accumulate accurate thymological knowledge and apply that knowledge successfully in determining what valuations their customers will have in the future accumulate resources while those that fail to do so successfully lose resources.

Every phase of the market process, by generating multiple rounds of profits and losses, helps weed out poor entrepreneurs and reward the successful appraisers. Indeed, in Mises’ opinion, one of the key functions of the profit and loss system is to “shift the control of capital to those who know how to employ it in the best possible way for the satisfaction of the public.”

\textsuperscript{21} On realized prices establishing a plain state of rest, or a momentary state of equilibrium with error, see Salerno (1994) and Manish (2014).
Indeed, “the more profits a man earns, the greater his wealth consequently becomes, the more influential does he become in the conduct of business affairs” (Mises 2008 [1951], p.23). Thus, the profit loss system essentially provides a mechanism for the selection of entrepreneurs; for the selection of who will be entrusted with making the all-important decisions of what, how, where and how much to produce. It is a part of the more widespread selective process that is generated by the process of exchange and the ensuing price structure whereby the market adjusts the “social apparatus of production to the changes in demand and supply” and assigns “definite tasks to the various individuals” (Mises 1998 [1949], p.308).

This entrepreneurial selection process that is inherent in the profit loss system, however, is what ensures that there are forces pushing the market towards an inter-temporal equilibrium. Given that this process rewards those who are better able to interpret and analyze the actions of their fellow men and are able to thus better appraise what market phenomena will emerge in the future, it ensures that at each stage of the market process the best equipped appraisers are on hand to make fresh decisions of how to allocate resources. This, along with free entry for potential entrepreneurs, is sufficient to ensure that there is an error correction process at work in a dynamic world. The constant shifting of resources from the less successful to the more successful entrepreneurs ensures that the factors of production are gradually allocated to their highest valued purposes and that over a course of time the factor prices approach those that will prevail in the evenly rotating economy.

6. Conclusion: Implications for the Theory of Market Exchange

Based on the discussion above, we can conclude that there are three theories of the market process that co-exist within the wider body of modern Austrian Economics. There is, to begin with, the theory as spelled out by Hayek and Professor Kirzner; the market, in their view,
moves over a period of time towards a state of inter-temporal equilibrium as a result of the
market participants adjusting their plans to the frustrations suffered at disequilibrium prices in
the past. In this theory, there is, as we discussed, a straightforward relationship between the
prices of the past and the current periods, with past prices providing the knowledge that helps
integrate the activities of the various market participants over multiple phases of the market
process.

There is, on the other hand, the theory of the process as elucidated by Lachmann. In his
view there is no simple connection between the prices of successive planning periods. Past prices
and the frustrations suffered at these prices do not in and of themselves, in a dynamic world
characterized by continuous change, provide any knowledge of the underlying conditions and
thus do not provide the basis for plan revision. Instead, market participants, in learning from the
past, need to analyze and interpret this experience; they need to try and understand why
individuals acted the way they did under the conditions of the past and must use this knowledge
to assist them in planning for the future. The inherent subjectivity of this endeavor, however,
dermines the very existence of any process pushing the market towards inter-temporal
equilibrium in a world where the data changes in the same pattern in subsequent planning
periods.

Finally, there is the theory of the process as sketched out by Mises. Mises stands between
the two positions laid out above. On the one hand, he agrees with the Hayek-Kirzner position
that there are forces active on the market that gradually correct errors and push the market
towards equilibrium. On the other hand, he agrees with Lachmann on the lack of a
straightforward relationship between the prices in successive planning periods; that individuals
cannot learn about what to do now based simply on their knowledge of the prices of the past.
They must, instead, analyze their market experience based on their thymological knowledge and use the results of this analysis to decide on a course of action for the future. Moreover, Mises also agrees with Lachmann on the inherent subjectivity of this process. However, the presence of an error correction process is ensured by the presence of the profit loss system that acts as a mechanism for entrepreneurial selection.

These differing views of the market process also have significant implications for the analysis of market exchange in the real world where the underlying conditions do not, as assumed in any theory of the market process, change in identical patterns over successive planning periods but instead exhibit varied and irregular patterns of change. Such a world, according to the Hayek-Kirzner theory of the process, is characterized by a movement of the market towards equilibrium in historical time. Individuals, given the underlying pattern of change in the data, acquire knowledge of the underlying conditions from past prices and gradually make their plans more compatible. This process, is, however, constantly interrupted by a new pattern of change in the data, pushing the economy now towards a new position of inter-temporal equilibrium. Nevertheless, prices and quantities produced and sold do move, in historical time, towards some position of equilibrium.

For Lachmann, however, the process of exchange in the real world is inherently open ended and kaleidic. There is no movement of prices and quantities in historical time towards a position of equilibrium and no inherent process of error correction. Changing patterns of data and the subjectivism of interpretation and the subsequent divergent expectations ensure that catacllactic activity does not proceed in historical time towards any end point.

For Mises as well the process of exchange is inherently open ended in a dynamic world of continuous change. There is no movement in historical time towards any end state of inter-
temporal equilibrium. Indeed, Mises’ position on this subject could be summed up aptly by Lionel Robbins and the latter’s statement that, “through history, the given data change, and though at every moment there are tendencies towards an equilibrium, yet from moment to moment it is not the same equilibrium towards which there is movement” (Robbins 1932, p.62). Nevertheless, the market economy is not kaleidic in nature. Instead, it has a process of error correction, but one that proceeds, not in historical but in logical time. The appraisements of the entrepreneurs and the ensuing process of entrepreneurial selection ensures that, at every moment in time, those individual who are best equipped to draw on their thymological experience and speculate about future conditions are at the helm, taking decisions about the allocation of the available resources.
References


