

ON A TRADE-OFF RESILIENCE – CONVERGENCE IN THE ECONOMIC INTEGRATION IN EU

*Emil Dinga, PhD., 1st degree Scientific Researcher**

Abstract:

The paper is focused on a possible trade-off which could arise between resilience and convergence in the process of Economic integration within European Union. The basic idea is the following: resilience requires some degree of differentiation, which is contradictory with the convergence in the economic field (but necessarily in the institutional one, as well). So, it seems the opportunity cost of the resilience is the convergence and vice versa. In such a context, the paper examines the risks and the associated costs in handling both the resilience property of the European integrated economy and the convergence process of the European integration. The main result is that the economic (and institutional) convergence must be limited to a sustainable degree which can also ensure the resilience of the European economy face to the rest of economic world.

Keywords: *resilience, convergence, EU, trade-off, opportunity cost.*

JEL Classification: *E02, F02, K00.*

Preamble

One of the most important processes of European integration is the process of convergence (at economic, institutional, maybe even at political level⁷⁸). The economic convergence (Herr & Ruoff, 2018) is, almost always associated (connected) with another process, of a great importance, too, namely the process of cohesion (towards the well know three directions: economic, social, and territorial). Since, European Union forms, in fact, an institutional block, there is a European border (from political, military, and economic perspectives) which separates European Union from the third parties (non-member states in Europe and in the world). In this context, at least from the economic point of view (but, of course, from a general one, as well), arises a question regarding the potential of such an institutional block like European Union to manage the perturbations from outside (as is, for example, the current COVID-19 pandemic, which is, related to European Union and to its member states, an external, singular, and non-economic shock). The paper examines this question from the perspective of the pair resilience – convergence, especially in the economic field, in order to find (if any) an appropriate ration between them so that the stability (or sustainability) of European Union (Jones et al., 2012), as well as, of the member states be preserved.

Research's Objectives

The research developed in the paper has three main objectives to be accomplished: a) to provide a logical and comprehensive (that is as general and abstract as possible) definition of the resilience; b) to provide a logical and comprehensive (that is as general and abstract as possible) definition of the convergence; c) to propose an appropriate institutional mechanism which connect, in a specific functional pair resilience and convergence. In fact, I think that between the two attributes – resilience, and convergence, respectively, there is a trade-off, even if it is not pervasive and not permanent.

Methodology Used

* *Romanian Academy – Center for Financial and Monetary Research „Victor Slăvescu”, 13 Calea 13 Septembrie, Building West, Floor 5, Room 5317, emildinga2004@gmail.com.*

⁷⁸ See, for example, the permanent polemical between the con-federalist option and the inter-governmentalist one.

The research will be conducted based on a qualitative approach, specially using the logical tools of sufficient predicates for each concept handled, so the mechanism identified or proposed be in an abstract (and general) way grounded. Concomitantly, the research uses the institutional approach, namely an approach based on the role of institutions (norms, laws, formal procedures and so on) (Calleo, 2003), in order to specify the logical instruments to the particular case of European Union functioning.

Organization of Research

The research is organized in four steps. Such a way, each one step is presupposed by the previous one, so a logical order is put in place regarding the research structure. Thus, firstly, the concept of resilience of a general system is defined and clarified, showing the general way of its role and functioning. Secondly, the same is delivered for the „paired” concept, namely the concept of convergence, without examining the details of this process.⁷⁹ Thirdly, the two concepts and mechanisms are put together into an embedded mechanism, in order to identify and characterize the „expected” trade-off between them, in a more analytical way. Finally, all the significant results obtained for the general and abstract case are particularized on European Union case, that is ,on the European phenomena of resilience and convergence and, correlatively, on a possible trade-off in this particular case.

On the Concept of Resilience

Resilience is a property of a system (Von Bertalanffy, 1968) to recover its previous state from which has been shifted by some perturbation (disturbance). From a logical point of view such a property must verify the following sufficient predicates in order to achieve the mentioned function:

- (S) *structuralness*: this means, the resilience must be placed and integrated in the system’s structure. More than that, the deeper positioned it is, the more effectively it works. Such a sufficient predicate is justified by the fact that resilience must accomplish a function (namely, to bring the perturbed system back to its previous state), but any function is the result of the structure, so the resilience „device” mandatorily must be inserted into the system’s structure;
- (M) *memory*: resilience must be endowed (by any mean), at any moment, with the capacity to memorize the image of the system’s state, so to „know” where it must bring that system from the perturbed state of it.⁸⁰
- (P) *procedure*: resilience must have the capacity to effectively recover the initial system’s state, which has existed before the perturbation had acted on it. Presupposing a procedure means to presuppose the resilience device can take decisions (again, either discretionarily or automatically) and, according to those decisions, can trigger actions which are aimed at to restore the previous state of the perturbed system. Formally, resilience (*R*) is the logical conjunction of the three sufficient predicates above mentioned:

$$R \leftarrow (S) \wedge (M) \wedge (P) \quad (1)$$

Thus, if some device of a system is cumulatively endowed with the three sufficient predicates, then that device qualifies as resilience device, and the system in case can be named as a resilient system (Linkov, 2019). From qualitative point of view, the property of resilience can be characterized as follows:

- (a) it acts as an state elasticity of the given system, since when the system is shifted from its place (or trajectory), its „elasticity” re-brings it in the previous place or on the previous trajectory;
- (b) resilience does not accumulate tension generated by the perturbation, because, if such a tension would be accumulated, it is „spent” totally when it re-brings the system in the previous state;⁸¹

⁷⁹ Like, for example, the kinds of convergence and the associated models.

⁸⁰ From logical point of view, it is not necessary that the capacity of memorizing and re-bringing the perturbed system in its previous state be provided automatically, they can be performed discretionarily as well.

(c) however, despite the non-accumulation of tension caused by the perturbation, resilience cannot be stretched as much – there is a threshold above which the system in case definitively passes to the new state provoked by the perturbation.

The general mechanism which resilience works through is synoptically shown in Figure 1.

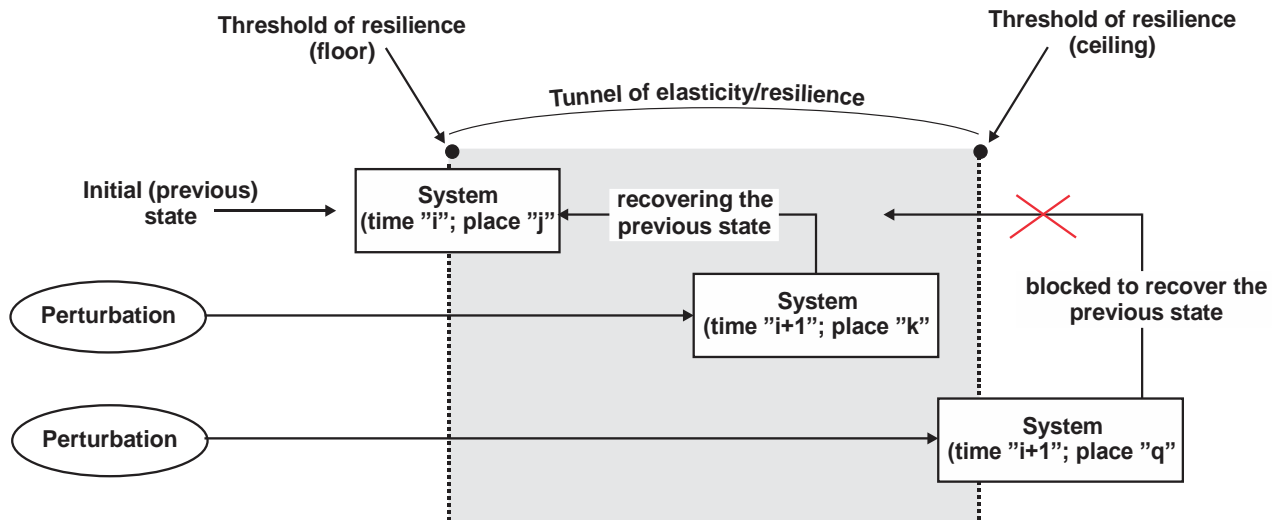


Figure 1 - The resilience mechanism in a generic system

Source: Author

On the Concept of Convergence

The general and based on the common sense concept of convergence means something as approaching to each other, or to go in the same direction or focusing on the same target and so on. For the needs of the paper we need, however, to provide a much more rigorous (and abstract) definition of the concept of convergence, so that we can operate with it in a non-ambiguous way.

- *firstly*, it must be said the convergence (Spence, 2012) is a property too. This property does, however, not address directly the system, but it addresses a process that is associated (in a way) with that system;
- *secondly*, in fact, the convergence of a given singular process does not make sense – to really have a convergence, at least two processes (either inside the same system or, usually, regarding more systems) must be put into relation;
- *thirdly*, even if two or more systems are taken into account to describe an embedding process of convergence, a benchmark must be established which entices the systems involved. This means the convergence per se does not make sense again, without be specified a target towards which the process of convergence in case goes;
- *fourthly*, the process of convergence must be also specified with respect to the very property (or properties) of systems in case which is expected to convergently move towards the established target.

Based on the above mentioned four sufficient predicates, now the concept of convergence can be defined as: *a process concomitantly assigned to at least two systems aimed at to develops a given property of those systems towards an established target accessible to all systems involved.*

Before to move forward, some qualitative considerations seems to be of usefulness regarding the general concept of convergence, as follows:

⁸¹ This is contrary to the *inertial* device of systems, which accumulate such a tension, so that when a given threshold of perturbation is reached (by such an accumulation of tension) the system in case jumps in another state definitively.

- the convergence process does not imply a punctual target, because its very definition – indeed, if a punctual target is focused to be reached, than the process of convergence disappears *eo ipso*. Here, an additional concept must be introduced. I propose such a concept, that will address the (mandatorily) non-punctuality of the systems engaged into the process of convergence, be called *homogeneity horizon* (HH) (Polyakov, 2020). This means the followings:
 - there is a gap between *the statu quo* of the convergence state and the target which is taken into account by that convergence, beyond which the convergence is finished as process and the systems involved must be considered as homogeneous from the point of view of the property that has been intentioned to converge;
 - the homogeneity horizon, in turn, cannot be theoretically established, it always is a contingent value (that is, socio-historically indicated);
- the convergence process does not imply fully homogeneity of that process – indeed, in the process of convergence, some episodes of non-convergence (that is, maintaining of the gap between *statu quo* and the target) or even of divergence (that is, increasing of the gap between *statu quo* and the target) could occur;⁸²
- but a question should not be ignored here: what about the process of convergence in the case of which the degree of convergence enters into the homogeneity horizon? As suggested before, this could be a test for the convergence finishing. We shall see further that, from the perspective of resilience, until the homogeneity horizon is reached, another gap must be maintained, too. I would name this gap as *resilience horizon* (RH) (Čaleta, 2016) and I think it has two basic characteristics:
 - it corresponds, from structural (or even quantitative) point of view, the tunnel of elasticity/resilience of a system;
 - as, for the process of convergence, at least two systems are required (which are embedded into a supra-system), it results that the resilience horizon corresponds, in fact, to an overlapping of the tunnel of elasticity/resilience of the sub-systems involved in the process of convergence, according to Figure 2.

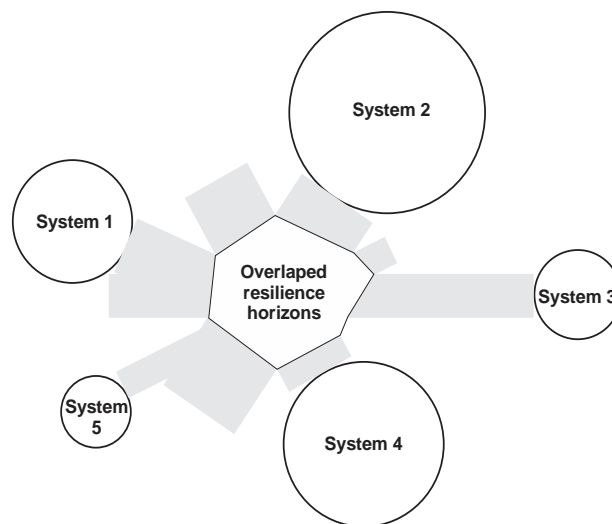


Figure 2 - The hard core of the resilience horizon among many systems

Source: Author

The general functioning of the process of convergence is shown in Figure 3.

⁸² Of course, such occurring is not non-causal although it could be random. An examination of concatenation of episodes of convergence with episodes of divergence seems to be (scientifically) very interesting – for example, a divergence episode could accelerate the convergence, as well as a convergence episode could accelerate the divergence, and so on. But, obviously, the topic of this paper keeps me away from such more analytical (and more fine, too) developments.

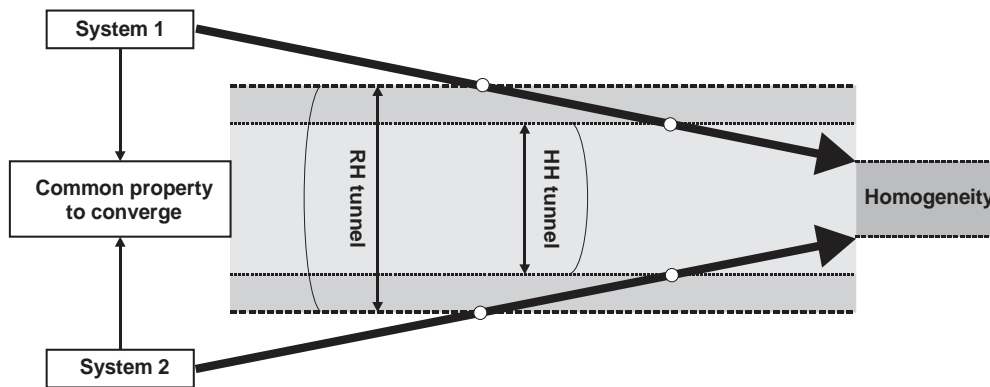


Figure 3 - The convergence mechanism in a generic supra-system

Source: Author

On the Pair Resilience – Convergence in Integrated Systems

After the brief clarification regarding the concepts of resilience and convergence, respectively, in this paragraph I shall put them together, in order to examine the joined mechanism resilience – convergence in an abstract (theoretical) supra-system which embeds a (usually not too high) number of sub-systems.

Basic Considerations

What it consists of, in fact, the trade-off between resilience and convergence? To find out, we must examine if there is an inverse proportionality between the dynamics of the two phenomena. To this end, a productive way is to see if there is a reciprocal relationship between their opportunity costs. The following statements could clarify this issue:

- (1) when the convergence of sub-systems approaches of RH (Herr & Ruoff, 2018), this means that, inside the supra-system, there is a high degree of homogeneity. In other words, the structures of sub-systems are highly similar, which further means that the transmission channels of any perturbation among those sub-systems are very well functioning. This way, the perturbation propagates easier and, consequently, the probability that perturbation cannot be recoverable increases. Thoroughly, the opportunity cost of the convergence is the resilience: when one increases, the other decreases, and vice-versa;
- (2) presupposing the resilience increases based on a process or event external to convergence (for example, by an institutional change), this means the channels of transmission perturbations among sub-systems become less performative, so the sub-systems behave as if they would be less convergent regarding the structure (Collins, 2019). Such a case indicates that, conceptually, the opportunity cost of the resilience is the convergence.

Based on the „game” between the two opportunity costs, we can justifiably draw the conclusion that there is a trade-off between resilience and convergence. Such a trade-off can be graphically drawn as in Figure 4.

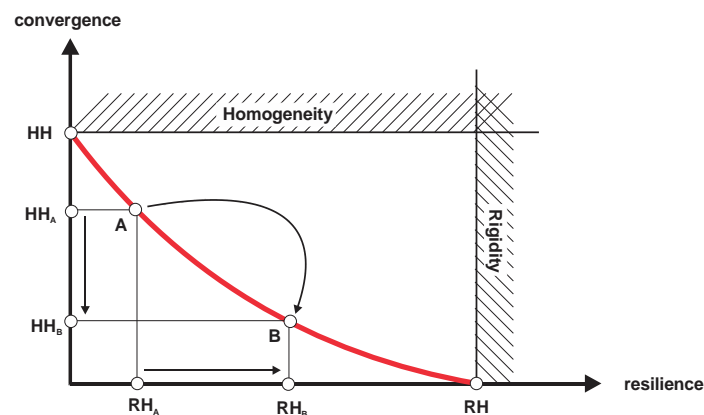


Figure 4 - The trade-off mechanism between resilience and convergence

Source: Author

Some Illustrative Formalisms

Firstly, some notations are needed:

- HH^t : the homogeneity horizon of the supra-system at the moment t ;⁸³
- RH_i^t : the resilience (or elasticity) horizon of the system i at the moment t ;
- RH^t : the resilience (or elasticity) horizon of the supra-system at the moment t ;
- $CP^{[t,t+\tau]}$: the convergence process evolving within the supra-system in the time interval $[t, t + \tau]$.
- $RP^{[t,t+\tau]}$: the resilience process evolving within the supra-system in the time interval $[t, t + \tau]$.
- RS^t : recoverable state of the supra-system at the moment t ;
- URS^t : un-recoverable state of the supra-system at the moment t ;
- P^t : perturbation exerted on the supra-system at the moment t .

Based on the notations, the following formal descriptions can be expressed, using the suggestions provided in Figure 4:

$$(CP^{[t,t+\tau]} > HH^{t+\tau}) \rightarrow URS^{t+\tau} \quad (2)$$

$$(RP^{[t,t+\tau]} > RH^{t+\tau}) \rightarrow URS^{t+\tau} \quad (3)$$

$$(HH^t < CP^{[t,t+\tau]} < HH^{t+\tau}) \rightarrow RS^{t+\tau} \quad (4)$$

$$(RH^t < RP^{[t,t+\tau]} < RH^{t+\tau}) \rightarrow RS^{t+\tau} \quad (5)$$

Combining conjunctively the above expressions, it can be written, too:

$$[(CP^{[t,t+\tau]} > HH^{t+\tau}) \wedge (RP^{[t,t+\tau]} > RH^{t+\tau})] \rightarrow URS^{t+\tau} \quad (6)$$

$$[(HH^t < CP^{[t,t+\tau]} < HH^{t+\tau}) \wedge (RH^t < RP^{[t,t+\tau]} < RH^{t+\tau})] \rightarrow RS^{t+\tau} \quad (7)$$

Specific Remarks on European Union

European Union is a typical case of a supra-system (Hood & Heald, 2012) (European Union as such) that integrates a (relatively small) number of sub-systems (the 27 member states). Since the process of (at least institutional and economic) integration is not yet completed⁸⁴, the structural differences among the sub-systems are still significant. As result, the convergence degree of EU is still below the level of HH. Consequently, EU has a relevant degree of resilience against external

⁸³ Including the moment of time when indexing of the homogeneity horizon of systems (as well as, further, the resilience horizon) is important because this gap (interval) changes in time, especially in medium and long term.

⁸⁴ The confusion between accession (a moment of time) to EU and integration (a process in time) into EU is very frequent among all sorts of experts and analysts (especially at enthusiastically TV debates).

(outside of EU) perturbations.⁸⁵ The problem that directly arises here is: how much the convergence process (especially at institutional level) should continue in EU? In stronger words, is the convergence process so desirable? And if yes, where this desirability ceases or where/when the process of convergence should stop from increasing, if the resilience is really a property which EU must preserve? Of course, these questions are themselves research topics and I think they should be urgently approached, especially as result of the recent Brexit (Baldwin, 2018) (and, possible, other X-exits tentatives). In my opinion, European Union should build an optimal ratio between convergence and resilience, and such an optimum must be the result both of political negotiations and of scientific grounding. The alternative is to increase the risk that, both from convergence and from resilience, the better currently placed member states (particularly from the economic structure and performance perspective) asymmetrically gain dividends from the process of European integration and, consequently to further encourage other X-exits (Terzi, 2020).

Results and Conclusions

The main result of paper is that resilience and convergence are strongly paired within any integrator supra-system. This pairing is based on the reciprocal opportunity costs of the two processes (and concepts), is non-linear and have specific „asymptotes” towards which they gravitate. Both concepts are of structural nature, so that they permanently deliver impulses in the supra-system functioning. None of them should be minimized as such, but an optimum ration between them is recommendable. When the supra-system is a social one, the political factor must be taken into account alongside the scientific grounding. European Union particularly faces precisely this trade-off between convergence (and cohesion) and resilience required by its environment (the so-called third parties) and a reform in this area seems be mandatorily in medium term. In such context, the new European Commission must be more imaginative, courageous and diligent.

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⁸⁵ I remind to reader that even the theories (models) of the optimal monetary area require (or presuppose) some degree of structural differences among the sub-systems embedded into the supra-system of that monetary area (for example, the model of free movement of labour force inside the monetary area concerned).