THE ROLE OF THE PRECAUTIONARY PRINCIPLE IN PUBLIC POLICY DECISION-MAKING

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Acknowledgments

When I first set foot at LUISS University in September 2012, I was eager to commence a new chapter of my life, yet extremely fearful when imagining what my near future was prepared to give me. I now find myself, having completed my dissertation, at the end of this fantastic, hard, stressful and extremely satisfying adventure. The finish line used to seem so far away and out of reach, yet, when I look back, I find myself closing a chapter of my life that seems to have gone too quickly. This is surely due to the presence of those people who supported me and stood by my side during these three years. It therefore seems appropriate for me to sincerely thank them for their support. First, I would like to thank my supervisors Professor Roberto Pardolesi and Alessandro Romano, who have constantly encouraged me in writing my dissertation. Next, I want to thank the people with whom I shared this three-year experience, and in particular Roberta, Eleonora, Chiara, Sara and Sveva, without whom I would never had made it. Then, my lifetime friends, who stood and stand by my side in my everyday life, thanks to Giorgio, Gaia, Francesca, Matteo and Guglielmo. Reaching the finish line without the support of my family would have been near to impossible. In stressful and happy moments they were always there for me, therefore I would like to thank my mother, my father and my two sisters Flavia and Olimpia. Last, but not least, my dog Masi who kept me company from the first to the last exam.

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Introduction

In this thesis I analyse the role of the Precautionary Principle (PP) in public policy decision-making. My objective is to determine whether the PP is desirable in diverse fields, specifically environmental law, trade law and financial law. In addition, I study if the PP is applied in a coherent fashion across the different fields.

In the first chapter I illustrate the origins of the PP, its rationale for action and its interpretations. Its wide spread acceptance have rendered the PP a frequently used policy tool. Its primary purpose was that of providing precautionary means for action in environmental policy. Yet, its rationale for action has been shifted to other dimensions. Therefore, the first chapter presents an overview of the economic rationale for the PP and its economic justification. Also, in this chapter I investigate if the PP and the Cost-Benefit Analysis can be reconciled. In the second chapter I illustrate the potential conflict between the implementation of the PP in the trade environment and the goal of trade liberalization, given that precaution may be used to justify protectionism. I further by analysing the role of the World Trade Organization in the trade setting, and its provision to limit overregulation in name of distorted incentives in the Genetically Modified Organisms dispute. The third chapter analyses the implications of precautionary behaviour in Financial Markets. In particular, some scholars believe that the severity of the 2008 Financial Crisis is attributable to harmonization of financial regulation under Basel Agreements. Therefore, they suppose that tailor-made regulation might prove more efficient in financial governance. This goal is feasible by allowing a shift of the burden of proof from the proponent of the regulation to the regulatory committee. I.e. the regulatory committee must prove that the tailor-made regulation increases the risk to block the proposed reform. In turn, this implies a more daring approach of financial regulation. I study if this is a sensible choice provided that the financial crisis has lead to damages comparable to those of environmental disasters in magnitude and distinctiveness.

My analysis shows that the debate regarding the validity of the PP’s application in diverse fields is still on going and controversial. Therefore, I will attempt the assessment of the role of precaution and in what cases it is desirable and achievable. My analysis suggests that the PP, framed in a consistent way, is applicable and desirable in diverse fields to enhance social welfare. Therefore,
for its invocation to be reasonable, policy makers and Governments have to determine when and in what fashion precaution is desired and feasible and whether its invocation conflicts with other regulatory goals.
Chapter I

Precaution and policy-making

1.1. Introduction

“Precaution: something you do in order to prevent something dangerous or unpleasant from happening.”\(^{1}\) In a general perspective, precautionous behaviour embodies actions aimed at offsetting all or part of the risks stemming from activities.

Life itself admits the presence of infinite risks. In this viewpoint, everyone in everyday life deals with precaution. Yet, sometimes people have to suffer consequences of actions and try to find remedial for them, before realizing that a precautionary approach might have been more efficient. At individual level corrective measures might be negligible and easy to implement, but when facing a global scale the issue becomes increasingly relevant and difficult. Policy makers and proponents of potentially risky activities might pose threats to the entire human race and to the environmental setting as a whole. Once these are damaged remedial is sometimes hard to be found.

The described setting is the one surrounding the origins, development and implementation of the Precautionary Principle (PP).

Therefore, once moving to the broader global dimension, it seems judicious for rational policy makers to frame regulation as a sort of ‘social insurance’. Regulatory architecture should encounter preventive course of action, aimed at smoothing potential dangerous situations. It only seems sensible for governing bodies to protect human beings and the environment from threats that, in the first place, stem from our high-tech era. The need for such a regulatory fashion is in fact quite recent, and mostly due to the increasing risks we face due to technological progress.

\(^{1}\) Longman Dictionary Online, www.ldce.com
Without any doubt science has produced extraordinary results, but the environment and human beings are finding damages stemming from these achievements increasingly harder to face. Therefore, Governments and policy makers are now committed to untangle such a complicated situation by implementing some ‘curative models’.

The satisfactory formulation of a model may have to encounter numerous trials; this is exactly what happened before the PP was formulated.

In a first stage, governmental action for environmental protection was based on a punitive principle, namely the ‘Polluter Pays Principle’. According to this principle, parties responsible of causing damage were obliged to bear the costs of its remedial. Soon Governments realized that the principle had to be necessarily accompanied by preventive action. Instead of having regulation aim at damage repair, it made sense for it to enhance a precautionary behaviour.\(^2\)

This lead to the development of a second model based on the axiom ‘prevention is better than cure’, namely the ‘Prevention Principle’. The rationale underlying this formulation was that science was able to reliably assess and quantify risks. Nevertheless, it was not long before increasing technological progress, industrialization and globalization lead to an increase in risks classifiable as unpredictable.\(^3\)

In response came the formulation of the Precautionary Principle. The PP is the third stage model and may be defined as an ‘anticipatory model’, needed to protect humans and the environment from uncertain risks.

In a very general form the PP states:

“if a threat of serious or irreversible damage to the environment or human health exists, a lack of full scientific knowledge about the situation should not be allowed to delay containment or remedial steps if the balance of potential costs and benefits justifies enacting them.”\(^4\)

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\(^4\) Business Dictionary Online, www.businessdictionary.com
The evolution since the first formulation lies in passing from *post-damage control* to *pre damage control* of risks\(^5\).

In this perspective, we can now define precaution as ‘taking action to protect human health and the environment against possible danger of severe damage’\(^6\).

### 1.2. Origins and definitions of the Precautionary Principle

The PP originates from the German concept of *Vorsorgeprinzip* developed in the mid 1970’s; this represented the grounds on which German environmental policy stood during that period. Translated as ‘taking care before we act’\(^7\), and initially aimed at securing pure air, it successively characterized as a duty towards future generations. By safeguarding the environment, future generations’ possibility to satisfy their needs was not put at stake by present generations’ needs. This concept embraces the meaning of the PP as a ‘principle of sustainable development’\(^8\), believing in the consciousness of ‘intra- and inter-generational equity’.

In subsequent decades, the precautionary rationale described by the German concept of *Vorsorgeprinzip* was frequently mentioned in international declarations and treaties. This characterized the steps towards the recognition that is now given to the PP. The definitions I mention show a common underlying concept, yet convergence to a unique definition is still far from being seen.


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The London Declaration of 1987 stated that:

‘Accepting that, in order to protect the North Sea from possibly damaging effects of the most dangerous substances, a precautionary approach is necessary which may require action to control inputs of such substances even before a causal link has been established by absolutely clear scientific evidence.’

It was not until the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992 that action driven by precautionary behaviour became a relevant issue at international level, given the presence of over a hundred heads of State at the conference. Principle 15 of the declaration stated that:

‘in order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.’

This is the most famous formulation of the principle. Its aim was to create a ‘guide for nations towards sustainable development’⁹. The goal was to design a principle applicable to situations endangering the environment or human health. Since then the theme of precaution has become a common element in many international treaties and declarations regarding environmental and health protection. The Rio Declaration also represents the benchmark against which future declarations of the principle have to confront with.

The 1998 ‘Wingspread Declaration’ brings the principle a step forward, by reciting:

‘When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not established scientifically. In this context the proponent of the activity, rather than the public, should bear the burden of proof.’

Another significant step characterizing the development of the principle is the EU Communication on the PP, dated 2 February 2000. Detailed in art. 191 of the Treaty of Functioning of the European Union, the declaration states:

‘The precautionary principle applies where scientific evidence is insufficient, inconclusive or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen by the EU.’

Phrasing, structure, and vocabulary show many differences among the cited declarations, but common features are striking.

First, the grounds for invoking the PP have to be surrounded by scientific uncertainty regarding causal links, probability, magnitude and nature of harm. A degree of scientific analysis must also be encountered to demonstrate that risks are plausible, even if not measurable. A non-quantifiable possibility of risk is a sufficient condition to invoke the principle as a rationale for action, provided that the situation implies risks leading to uncertain outcomes and with uncertain probabilities.

Another important factor is the moral reasoning embodied in the acceptability of harms. ‘Application of the Precautionary Principle is limited to those hazards that are unacceptable’

Moreover, intervention is required before possible damage, or certainty of such harms, occurs.

Therefore, the conditions allowing invoking the PP are:

- Cases in which the potential of serious threat or damages to environment and human health is plausible, meaning scientifically reasonable, and imply consequences having potential strong and irreversible impact.
- When action is to be taken under scientific uncertainty, which does not allow quantifying and characterizing the risks.

The PP may seem a generic formula, not giving specific guidance on what actions undertaken by Governments and policy makers are consistent with it. It prescribes rationale for action in situations that potentially lead to harm. Therefore, the measures implemented to reduce or contain these harms are submitted to constraints. Indeed, the range of strategies is/should be subject to the following constraints\textsuperscript{11}:

- Non-discriminatory
- Consistent
- Proportional
- Subject to continuous review and monitoring
- Chosen on the basis of consideration of the consequences stemming from action or inaction.

In light of such constraints the PP may appear to be a good response for the wholesale management of potentially damaging situations.

1.3. The interpretations of the Precautionary Principle

PP described declarations have some communality but also display some differences regarding use and implementation of such instrument. Many law reviews and articles regarding the subject contain attempts of their authors to define a hierarchical structure underlying the different declarations of the principle in terms of its degree of strength.

In particular, Cass R. Sunstein in the paper ‘Beyond the Precautionary Principle’ cites Professor Richard Stewart. The latter identifies four distinctive declarations of the PP from its weak to strong forms:

1. **Nonpreclusion Precautionary Principle.** Regulation should not be precluded by the absence of scientific uncertainty about activities that pose a risk of substantial harm.

2. **Margin of Safety Precautionary Principle.** Regulation should include a margin of safety, limiting activities below the level at which adverse effects have not been found or predicted.

3. Best Available Technology Precautionary Principle. Best available technology requirements should be imposed on activities that pose an uncertain potential to create substantial harm, unless those in favour of these activities can show that they present no appreciable risk.

4. Prohibitory Precautionary Principle. Prohibition should be imposed on activities that have an uncertain potential to impose substantial harm, unless those in favour of those activities can show that they present no appreciable risk.\(^\text{12}\)

In light of these distinctions, scholars have debated on the impact of the principle on policy decision-making. I will next analyse some of the points made.

### 1.4. Scholars interpret the Precautionary Principle

#### 1.4.1 Sunstein’s view of the PP

Among the most active debaters of the implications of the PP I cite Cass R. Sunstein. In his ‘Beyond the Precautionary Principle’ Sunstein claims that, taken in its strong version, the PP is paralyzing, given that it calls for inaction. The author provides some explanations of what, in his view, favours noticeable widespread acceptance of the PP. In his perspective it all “boils down” to the presence of cognitive mechanisms, brought forward by behavioural economists. In particular these are: loss aversion, the myth of a benevolent nature, availability heuristic, probability neglect and system neglect. According to Sunstein, these subjective features induce focusing on a narrow subset of what is at stake. He points out that the PP’s rationale is to provide ‘regulatory insurance’. In his view, given that individuals take precautions in their everyday lives, why should rational regulators not follow the same approach? The goals promoted by the PP surely should be supported, yet, he argues, there is a more direct and efficient strategy to target them. The PP is not fit to do so, given it is becoming a ‘staple of regulatory policy’. Indeed, when dealing with social problems, risks are to be encountered at all sides. Therefore, he states: ‘any effort to be universally

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precautionary will be paralyzing, forbidding every imaginable step, including no step at all\textsuperscript{13}.

Sunstein’s aim is not to criticize the wholesale existence of a principle prescribing precautionary measures, so long as the measures called for are not blindly precautionary.

In this merit, he accommodates the weaker versions of the principle, and in particular favours that brought forward by the European Commission. The most appealing point made by this specific formulation is the idea of a \textit{proportionate} response. This underlies the acceptance that risk ‘can rarely be reduced to zero\textsuperscript{14}. The EC’s formulation calls for precautionary action to be coherent with the chosen level of protection, and more importantly ‘based on an examination of the potential benefits and costs of action or of lack of action\textsuperscript{15}. In this view Sunstein deems the PP to be entirely sensible, for it ‘calls for attention of significant risks when the costs of control are not excessive\textsuperscript{16}.

Instead, in its strong version the PP would require regulation in face of any potential risk, regardless of the speculative nature of information and of the control costs implied. Indeed one of the most relevant economic critiques posed to the PP is the fact that our resources are, as a matter of fact, limited and that allocating them to speculative harms implies an unproductive use of them.

The intrinsic problem in the PP’s formulation lies in providing no guidance at all. In fact, it prevents from engaging in all kinds of action, including inaction. PP imposes a burden of proof on those who engage in potentially risky activities and requires regulation of such activities, even in absence of proof of the likeliness of producing harm.

When addressing important controversial environmental issues, such as GMO or global warming, the use of the PP leads to perverse results. The concern is that threats of harm stem from these environmental issues, which in turn are not assessable through scientific evidence. This implies that the burden of proof on the proponent is set at a standard that cannot be met. Based on such premises,

\textsuperscript{13} Cass R. Sunstein. (2014) \textit{Beyond the Precautionary Principle}, published by The University of Pennsylvania Law Review; page 1008

\textsuperscript{14} Cass R. Sunstein. (2014) \textit{Beyond the Precautionary Principle}, published by The University of Pennsylvania Law Review; page 1017, refer to note 60

\textsuperscript{15} Cass R. Sunstein. (2014) \textit{Beyond the Precautionary Principle}, published by The University of Pennsylvania Law Review; page 1017 refer to note 59

\textsuperscript{16} Cass R. Sunstein. (2014) \textit{Beyond the Precautionary Principle}, published by The University of Pennsylvania Law Review; page 1018
the PP would call for stringent regulation. Yet, would the adoption of stringent regulation be coherent with the principle’s itself demanded course of action? No, it would not. This is due to the fact that it would ‘deprive society of significant benefits’\(^\text{17}\), for sometimes regulation ‘eliminates the opportunity benefits of a process or activity’\(^\text{18}\).

Here lies Sunstein’s concern: in this perspective the PP might give rise to ‘substitute risks, in the form of hazards that materialize, or are increased, as a result of regulation’\(^\text{19}\) or of non-regulation. Later on, he concludes, ‘this is a common situation, for opportunity benefits and substitute risks are the rule, not the exception’\(^\text{20}\).

Therefore, the principle is paralyzing in the sense that every action it promotes invalidates its same recommendations: ‘it stands as an obstacle to regulation and non-regulation, and to everything in between’\(^\text{21}\).

1.4.2 Advocates of the PP in response

Widespread acceptance of the PP demonstrates that many believe that policy making in its framework is a sensible choice.

I next present some of the arguments brought forward by advocates of the PP.

One of the arguments put forth by supporters of the PP is the presence of ‘systematic biases’\(^\text{22}\). Advocates of the PP claim that current regulatory framework has sometimes proved negligent when facing environmental values. This might be due to the fact that people are optimistic, implying low attention towards low-level risk. Another important concern that rises, is that of myopia\(^\text{23}\): policy makers might fail to encounter risks that are not seen to materialize in the

\(\text{17}\) Cass R. Sunstein. (2014) *Beyond the Precautionary Principle*, published by The University of Pennsylvania Law Review; page 1023

\(\text{18}\) Cass R. Sunstein. (2014) *Beyond the Precautionary Principle*, published by The University of Pennsylvania Law Review; page 1023, refer to note 90

\(\text{19}\) Cass R. Sunstein. (2014) *Beyond the Precautionary Principle*, published by The University of Pennsylvania Law Review; page 1024, refer to note 97

\(\text{20}\) Cass R. Sunstein. (2014) *Beyond the Precautionary Principle*, published by The University of Pennsylvania Law Review; page 1025, refer to note 103

\(\text{21}\) Cass R. Sunstein. (2014) *Beyond the Precautionary Principle*, published by The University of Pennsylvania Law Review; page 1028

\(\text{22}\) Cass R. Sunstein. (2014) *Beyond the Precautionary Principle*, published by The University of Pennsylvania Law Review; page 1030, refer to note 125

\(\text{23}\) Cass R. Sunstein. (2014) *Beyond the Precautionary Principle*, published by The University of Pennsylvania Law Review; page 1030, refer to note 126
short run. Therefore, in this view, advocates claim that the PP may be seen as a safeguard to issues that might otherwise be overseen.\textsuperscript{24}

Moreover, the PP may be interpreted as a form of balancing. The concept of ‘prudent avoidance’ better explains this issue. This notion exhorts ‘people to take steps that have only modest costs’\textsuperscript{25}. In this understanding, the PP may be seen as a recommendation to implement measures at present that might reduce potential large damages.\textsuperscript{26}

An additional claim made in favour of the PP lies in its precious ability to address serious problems even when causal links are not identified. This serves a very important function, for it provides with rationale for action before ‘it is too late’. The PP may therefore be seen as a mean to promote strong moral goals, for it serves as a reminder of future obligations.\textsuperscript{27}

This argument is strictly related to the ethical dimension embodied in the PP. In fact, it does not seem hazardous to define the PP a ‘morality principle’. It prescribes action in the moral recognition of good and evil, exhorting policy makers to undertake actions that might prevent irreversible harm towards the human race and the environmental sector.

\section*{1.5 PP and Economics}

A general definition of the PP is difficult to find; different academic disciplines weigh on its diverse formulations. Among them is the economic one. In particular, Jonathan Aldred in his ‘Climate change uncertainty, irreversibility and the precautionary principle’, wants to provide an overview of the economic rationale for the PP. Surely an economic justification of the principle only captures part of the pleas made in the name of the PP, he claims, yet it ‘should make it more robust to criticism from economists and others’\textsuperscript{28}.

In particular, Aldred points out that, in regards to climate change policy making, some scholars favour a cost-benefit analysis (CBA), while other environmental

\begin{flushleft}
\textsuperscript{24} Cass R. Sunstein. (2014) \textit{Beyond the Precautionary Principle}, published by The University of Pennsylvania Law Review; page 1030
\textsuperscript{25} Cass R. Sunstein. (2014) \textit{Beyond the Precautionary Principle}, published by The University of Pennsylvania Law Review; page 1029
\textsuperscript{26} Cass R. Sunstein. (2014) \textit{Beyond the Precautionary Principle}, published by The University of Pennsylvania Law Review; page 1029
\textsuperscript{27} Cass R. Sunstein. (2014) \textit{Beyond the Precautionary Principle}, published by The University of Pennsylvania Law Review; page 1035
\textsuperscript{28} Aldred, J. (2012) \textit{Climate change uncertainty, irreversibility and the precautionary principle}, page 1052
\end{flushleft}
economists instead advocate the use of a more precautionary approach, namely the PP.

The caveat lies in the fact that climate change implies diverse kinds of uncertainty. On the one hand, that of the future course of climate changes, on the other that of economic and social impacts of such change. The presence of Keynesian uncertainty is the most significant critique made to mainstream economists who advocate the use of a CBA. Its presence implies absence of probabilistic information on the possible outcomes that stem from policy maker’s decisions. More specifically uncertainty is increasing, endogenous and non-linear in the climate change field. The above considerations lead some economists deem fit the use of the PP to inform climate change policy.

1.5.1 The Option Value Argument (OVA)

The mainstream economic interpretation of the PP is a model influenced by the option value theory: if better information about alternative courses of action will be available in the future, it is valuable to maintain flexibility by avoiding irreversible commitments now. In his paper, Aldred critiques the role of this model as a rationale to invoke the use of the PP, given that neither uncertainty nor irreversibility are captured adequately.

Before illustrating the arguments put forth by the author let us briefly describe what the option value refers to. In particular, those economists justifying the use of the PP settle on an optimization model, which defines precaution as the rational choice.²⁹

This model’s reasoning lies in an option value argument (OVA), defined by Arrow and Fisher in 1974. In 2001 Fisher summarized the OVA as follows³⁰:

Where a decision problem is characterized by (1) uncertainty about future costs and benefits of the alternatives, (2) prospects for resolving or reducing the uncertainty with the passage of time, and (3) irreversibility of one or more of the alternatives, an extra value, an option value, properly attaches to the reversible alternative(s). This is the value of retaining the option to choose any of the

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²⁹ Aldred, J. (2012) Climate change uncertainty, irreversibility and the precautionary principle, page 1053, refer to note 2
³⁰ Aldred, J. (2012) Climate change uncertainty, irreversibility and the precautionary principle, page 1053
The option value that Fisher refers to is preserving flexibility. ‘Keeping one’s options open’ gives a chance to wait for new information on alternatives. This would allow policy makers to avoid irreversible commitments at present.

We now come to the point: while some deem the expected utility framework behind OVA be a fit interpretation for the PP, the author raises some issues. The option value argument calls for a specific course of action: avoid engaging in irreversible commitment under risk. Yet what do we mean with risk? Decision takes place under risk when all possible outcomes stemming from policy makers’ actions have a probability attached to them; otherwise we are dealing with Keynesian uncertainty. This caveat allows stating that the two frameworks do not consider akin the notion of uncertainty, especially when assuming that the PP is advocated in the presence of Keynesian uncertainty. This is the central node underlying the incompatibility of the OVA to the PP: whereas the rationale of the first lies in the resolution of uncertainty though the acquisition of better information in the future, the PP refers to a problem of uncertainty per se. While the latter refers to a static problem of scarcity of information, OVA calls for precautionary action in a dynamic setting. Gollier and Treich: OVA implies that ‘while prevention aims at managing risks, precaution aims at managing the wait for better scientific information’. This description illustrates the clear discrepancy in the interpretation of precaution. On the basis of such, we may understand why some deem OVA an ambiguous argument to justify the PP.

If this is the case, what was the rationale leading some scholars deem fit the justification of the PP though OVA? The mere fact that taking precautions in an uncertain setting may involve the notion of ‘keeping one’s options open’. Yet, as demonstrated above, in the author’s view, this does not seem enough.

Another source of conflict between OVA and PP regards the issue of flexibility. While OVA always favours flexibility, precautionary action does not. In fact,

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32 Aldred, J. (2012) *Climate change uncertainty, irreversibility and the precautionary principle*, page 1052
33 Aldred, J. (2012) *Climate change uncertainty, irreversibility and the precautionary principle*, page 1054
precautionary behaviour may sometimes lead to a reduction in flexibility. This is due to the fact that, through precautious behaviour, policy makers are sometimes willing to precommit, to prepare now in case outcomes turn out to be worst than expected. In addition, reduction of flexibility comes as a ‘by-product’ in the shape of sunk costs. This means that precautionary action may sometimes reduce flexibility by favouring financial investments that are irreversible. Yet, on the other hand ‘flexibility with respect to future mitigation in increased’ through precautionary approach.

The author advocates how models of OVA, applied to climate change policy, have raised some interesting results. Among these he illustrates the conflict between ‘climate irreversibility and investment irreversibility’. On one hand OVA calls for abatement now, while waiting for better information in the future, to avoid posing irreversible threats to the environment. Yet, simultaneously it also calls for less abatement now, for abatement would require high investments at present, that would in themselves be irreversible.

Another conflict arising between the option value argument and precautionary behaviour lies in their divergent understanding of irreversibility. Based on specific cases of Epstein’s theorem, models presenting OVA do not refer to distinctive irreversibility. The salient feature is that no decision is irreversible per se, only that some decisions are more irreversible than others. What renders them more or less irreversible are the costs of reversion. This implies that ‘expected benefits of an irreversible decision should be adjusted to reflect the loss of options it entails’. Here lies a crucial point: this means that OVA is not able to capture the distinctiveness of environmental irreversibility. This is the main draw back posed to those advocating the use of OVA as a rationale for the PP.

OVA should therefore be complemented by the ethical significance of irreversible environmental loss in order to fit the scenario adequately.

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35 Aldred, J. (2012) *Climate change uncertainty, irreversibility and the precautionary principle*, page 1055
36 Aldred, J. (2012) *Climate change uncertainty, irreversibility and the precautionary principle*, page 1055
38 Aldred, J. (2012) *Climate change uncertainty, irreversibility and the precautionary principle*, page 1055
39 Aldred, J. (2012) *Climate change uncertainty, irreversibility and the precautionary principle*, page 1056
The concept of reversibility is strictly linked to that of replaceability, which in turn depends on the value of the ‘asset’ in question. Yet, the problem lies in the ‘notion of value’ adopted by many neoclassical economists. In their view ‘there is a single, all-encompassing value, usually termed utility’. In this perspective, everything is perfectly replaceable if another good is able to return the exact same amount of utility. In this viewpoint, environmental assets too are never considerable as irreplaceable, and as such do not have a distinctive meaning.

In order to award environmental assets with ethical significance one must reject the monist view and introduce an important concept: that of incommensurability. Sunstein defines an incommensurable good as one ‘that is qualitatively distinctive, and that when we lose it, we lose something that is unique’. This claim is of fundamental importance for goods to be considered as irreplaceable, for they would otherwise only be reversible at greater cost. OVA does not take into account this distinctive feature; this means that it is not fit to reason precautionary behaviour, which in turn is strictly dependant on the uniqueness of environmental losses. Indeed, if we consider environmental losses as irrereplaceable, one may deem sensible the adoption of precautionary behaviour, even if there is no prospect of availability of future information. In OVA’s view, one would instead view irreversibility as a general structural feature and call for precaution in the view of a partial resolution of uncertainty, through availability of future information. Yet, this is not the argument brought forward by the PP; in fact, the use of the PP should stem from the willingness to avoid irreplaceable losses.

Summing up, OVA is neither able to capture the uniqueness of environmental losses, nor is fit to deal with the Keynesian uncertainty surrounding climate change.

1.5.2 The Rawlsian Core PP (RCPP)

In view of the flaws demonstrated by the OVA Gardiner (2006) describes a different interpretation of the PP, which appeals both to uncertainty and incommensurability. This perspective stems from Rawls’ maxmin decision rule.

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40 Aldred, J. (2012) Climate change uncertainty, irreversibility and the precautionary principle, page 1057
According to this rule, policy-makers should pursue the outcome displaying the best ‘worst-case’ scenario. The maxmin approach becomes increasingly appealing when describing the conditions justifying action under such rule:

- The situation must be uncertain. By this we mean that outcomes have no probabilistic information attributable to them;
- ‘The decision maker cares relatively little for the potential gains to be made by following a strategy other than maxmin’;
- Among the possible outcomes some of them are considered as unacceptable.

In Gardiner’s view, the combination of the rule to its conditions, which he labels ‘Rawlsian Core Precautionary Principle’ (RCCP), is fit to justify precautionary action. The RCCP is in fact able to adequately capture the concepts of uncertainty and incommensurability.

The central node lies in the prescription that the decision makers ‘care little for gains’. This suggests that there is a qualitative difference between the gains and the potential losses stemming from possible outcomes. More specifically, potential gains are less valuable than the losses that may be incurred. This view is further supported by the third condition, which labels some outcomes as simply unacceptable, as worst in a distinctive manner. ‘Putting the ‘care little for gains’ and ‘unacceptable outcomes’ conditions together, implies that the unacceptable outcomes are incommensurable with all other outcomes’.

Summing up we can understand why some scholars deem the maxmin rule be a better fit in justifying the use of the PP with respect to the mainstream option value argument. This is due to the fact that it captures adequately the idea of irreplaceability implied by the formulations of the PP.

The whole reasoning also fits the PP in a generalized view. The principle’s aim is in fact that of prescribing rationale for action in situations in which the stake is elevated, but the knowledge of likelihood is impossible.

Precautionary behaviour in such situations seems a sensible response, yet one must remember it should not be an excuse. RCCP contains some limitations that allow the principle to take shape only in determinate scenario; it calls for

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42 Aldred, J. (2012) Climate change uncertainty, irreversibility and the precautionary principle, page 1060
preventive behaviour only in situations implying unacceptable outcomes. This is fatherly demonstrated by the fact that policy makers are conscious that best-case scenarios will never lead to higher gains than the potential lost value. In my opinion, this interpretation of the PP seems very sensible. On the one hand, it captures the distinctive characteristics of possible outcomes, and prescribes a course of action in line with them. On the other, it provides with necessary limitations that might otherwise distort the incentives of policy makers invoking it.

1.6 PP versus Cost-Benefit Analysis (CBA)

The PP and CBA have long lastly been considered opposite rationales for action. Yet, some scholars deem possible their reconciliation a feasible goal.

Regulation of risky activities has recurrently been treated through the use of CBA. CBA exhorts decision-makers to weigh potential costs and benefits of different policy options\(^{43}\). It only seems sensible to compare potential harms stemming from activities in view of the potential benefit they offer. Yet, the CBA may not be the most appropriate tool to judge uncertain and irreversible issues such as those invoked by the PP.

Advocates of the PP claim CBA unable to encounter a morality factor, given that it focuses primarily on economic aspects and on utility. In fact, when assessing benefits and costs, CBA mostly does it in quantitative terms. According to PP advocates, the issue of irreversibility issue is not addressed coherently when considering that environmental assets embody an incommensurable value. The fact that environmental goods are assumed to be comparable to manufactured goods and ‘replaceable without overall loss of welfare’\(^ {44}\) implies two things, namely the claims made by advocates of the PP. Firstly, absence of moral and ethical considerations, and secondly the nonappearance of the understanding of irreplaceability. In addition to this, the fact that CBA does not adequately consider the distribution of benefits and losses.\(^ {45}\)


It seems very difficult to untangle such controversy. On one hand the PP is associated to environmental extremism and focuses on a qualitative analysis, on the other CBA is associated to balancing and conducts its analysis in quantitative terms. Advocates of PP claim that CBA does not account for sensible precaution, and therefore describe it as an enemy of environmental progress. Supporters of CBA claim the PP pointless, when considering alternative rational solution to problems, and therefore view it as a threat to our economy.

Yet some scholars deem their reconciliation possible. Among them is David Dreiser, who in the paper ‘Cost-benefit Analysis and the Precautionary Principle: can they be reconciled?’ illustrates some issues able to demonstrate no grounds for their contradiction.

If we consider the PP an instrument able to justify inaction uniquely in the name of uncertainty, then no conflict with CBA is identifiable. This stems from the fact that all other rationales for inaction would remain feasible. More specifically, justification for inaction due to high regulatory costs would still stand. The central issue lies in the fact that both frameworks are deemed to address the same goal, issue which reasons their potential conflict. Nevertheless, Driesen raises an interesting point; surely triggers must be science-based, yet policy makers must undergo some precautionary analysis when, for example, ruling out some categories of pollutants. This is due to the fact that it is close to impossible to perform a CBA on each single pollutant. In this view, the PP is only a means to assess danger and to predicate CBA. Therefore when limiting the scope of the PP no grounds stand for their contradiction.

Advocates of CBA point out that the conflict with the PP stems from the fact that the PP calls for radical precaution. Yet there is very thin support to this thesis. In fact the numerous declarations, and specifically the most important ones, such as the Rio Declaration, do not entail the concept of radical precaution. In conclusion, if the scope of PP is restricted, then their conflict may be overcome. Yet, in turn CBA must be able to account for regulatory benefits that

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46 Driesen, D.M. *Cost-Benefit Analysis and the Precautionary Principle: can they be reconciled?*
47 Driesen, D.M. *Cost-Benefit Analysis and the Precautionary Principle: can they be reconciled?*
48 Driesen, D.M. *Cost-Benefit Analysis and the Precautionary Principle: can they be reconciled?*
49 Driesen, D.M. *Cost-Benefit Analysis and the Precautionary Principle: can they be reconciled?*
are not quantifiable. This might allow the long desired goal of harmonizing ‘CBA with non-radical precaution\textsuperscript{50}.

\textsuperscript{50} Driesen, D.M. Cost-Benefit Analysis and the Precautionary Principle: can they be reconciled?
Chapter II

Is precaution an excuse for protectionism?

The previous chapter proved the importance of precautionary behaviour in public policy-making when addressing issues concerning the protection of human health and the environment.

Yet, some concerns come to mind when the same rationale is invoked to solve trade disputes. The problem lies in the fact that Governments may invoke the PP in name of protectionist goals. In fact, some trade measures may not be justifiable in scientific terms, but only defensible through the PP supported by the presence of uncertainty.

In this perspective, I deem an interesting subject the analysis of precaution in International Policy and Law concerning trade.

2.1 Precaution as a structural challenge to trade liberalization

Principles may not necessarily be characterized by mandatory obligations, yet they usually gain power through broad acceptance and ample application.\(^5\)

Therefore, the advantage of using principles lies in having an additional tool to address public regulatory goals.\(^6\) Thus, PP’s characteristics may not be as beneficial in trade disputes as they proved to be in the context of environmental protection.

The issue lies in structural differences between the environmental field and the trade one. Although both trade liberalization and human and environmental


protection aim at strengthening human welfare, they achieve the goal in a structurally diverse fashion.\textsuperscript{53}

Trade disputes are usually settled through agreements aimed at abating trade barriers and encouraging liberalization, by restricting government intervention. ‘International obligations on trade are consequently almost exclusively “negative”, in the sense that they place constraints on governmental action\textsuperscript{54}. Therefore, trade agreements can be defined as \textit{deregulatory}.\textsuperscript{55} In contrast, environmental protection calls for government intervention aimed at anticipating potential damages stemming from market failures. An observation made by David A. Wirth render\textsuperscript{56} their structural difference clearer:

‘Obligations in trade agreements \textit{proscribe} certain governmental behaviours that impede trade, while environmental agreement regulation \textit{prescribe} governmental actions to protect public health and ecosystems.

The central node lies in the fact that trade agreements do not prescribe minimum standards of protection; instead they deem environmental measures an obstacle to free international trade.

Therefore, shifting the rationale embodied in the PP to the trade dimension might lead to perverse results. Indeed, openness of trade barriers might increase the uncertainty of the scenario. For example, the provenance of food from disease zones might lead to potential devastating effects on human health and consequently on the environment. Yet, a precautionary prescription in face of uncertainty might enhance excessive regulation in the trade setting. This demonstrates why international regulatory bodies refrain from applying the same

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precautionary approach to diverse fields, which demonstrate inherently different goals. Indeed, it illustrates the importance of finding a compromise between precaution and its application in divergent areas.

2.2 The World Trade Organization

The World Trade Organization (WTO) is the main global international organization ruling trade matters between nations. The WTO ‘is a rules-based, member driven organization’\(^{57}\). It was established on the 1\(^{st}\) January 1995 in Geneva, and praises the membership of 161 countries up to date. Its scope is stated in the organization’s website:

‘The World Trade Organization (WTO) deals with the global rules of trade between nations. Its main function is to ensure that trade flows as smoothly, predictably and freely as possible.’\(^{58}\)

All decisions concerning trade disputes are discussed among member states. The WTO represents a forum, where member governments seek agreements to solve trade issues among them. In fact, the rules formulated are the result of member states’ negotiations. The WTO agreements are the building block of the organization and are individually signed and ratified by parliaments of trading nations claiming membership. The common goal is to enhance the best conditions for producers of goods and services, exporters and importers to conduct their business.\(^{59}\)

Trade liberalization is surely one of the main goals of the WTO. Yet, this objective is pursued to the extent that its effects are positive. In fact, the WTO might sometimes ratify agreements aimed at maintaining trade barriers, if this limits threats of damage to consumers or to the environment. This serves to demonstrate that the organization pursues goals intended to enhance human welfare in a general sense.

In this perspective, one of the WTO’s agreements serves the scope of our analysis in regards to the influence of the PP in trade disputes.

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\(^{57}\) World Trade Organisation website, https://www.wto.org/

\(^{58}\) World Trade Organisation website, https://www.wto.org/

\(^{59}\) World Trade Organisation website, https://www.wto.org/
2.3 Sanitary and Phytosanitary Measures

Among the WTO trade topics, there exists an agreement regarding sanitary and phytosanitary measures, namely the Sanitary and Phytosanitary Agreement (SPS Agreement).

The agreement’s text is composed of 14 articles and solves a very important function in regulating international trade affairs. It was enforced with the establishment of the WTO in 1995 and it is a crucial part of the organization’s establishment treaty.

The agreement’s goal is described in the WTO’s website as follows:

‘Problem: How do you ensure that your country’s consumers are being supplied with food that is safe to eat — “safe” by the standards you consider appropriate? And at the same time, how can you ensure that strict health and safety regulations are not being used as an excuse for protecting domestic producers?’

Therefore, the SPS Agreement deals with measures applicable by individual Governments to deal with food safety and animal and plant health. At the same time, it provides restrictions needed to solve perverse incentives that might exhort governments to raise trade barriers.

In line with the agreement, Governments may in fact implement tailor-made regulation in the trade field. Yet, individual governments’ SPS measures are subject to some constraints. The text of the agreement commences as follows:

‘Members,

Reaffirming that no Member should be prevented from adopting or enforcing measures necessary to protect human, animal or plant life or health, subject to the requirement that these measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between Members where the same conditions prevail or a disguised restriction on international trade;’

The SPS Agreement prescribes Governments’ SPS proposals be based on:

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60 World Trade Organisation website, https://www.wto.org/
61 World Trade Organisation website, https://www.wto.org/
Recognized international standards, particularly those of the “three sisters” – FAO/WHO Codex Alimentarius Commission, the World Organization for Animal Health (OIE), the International Plant Protection Convention (IPPC);

Science, including scientific assessment of risk;

A temporary precautionary principle in the absence of international standards or scientific evidence.\textsuperscript{63}

In this perspective, the goal of the SPS Agreement is to differentiate true beneficial regulation for food safety, from cases that are potential excuses for protectionism. It pursues this goal by restricting measures, to be either based on scientific evidence of risk, or established on recognized international standards. This is an important aspect of the agreement. It does not violate governments’ right to provide the deemed adequate level of protection, provided that it does not create unnecessary trade barriers.

The core requirement of governments’ SPS measures is that of a science-based analysis. Article 5.1 specifically requires risk assessment and measures to be based on scientific results. Therefore, the agreement enhances and encourages consistent decision-making. Article 3.3 requires any SPS measure differentiating from those appearing in international treaties be backed by scientific justification.\textsuperscript{64}

Nevertheless, even if the SPS agreement provides a certain degree of freedom, by not imposing harmonized regulation, it praises governments to adopt international standards. These standards are not formulated by the WTO, but by highly expert teams in the field. Notably, international standards are usually higher than those tailored at domestic level, especially when referring to developing countries. Therefore, if a country, at national level, were to implement higher requirements than those set at international level, it should provide justification of such decision, demonstrating that it is not intended to pursue a protectionist goal.

\textsuperscript{63} World Trade Organisation website, https://www.wto.org/

The inherent flexibility demonstrated by this agreement is, in my opinion, a very sensible choice. In fact, harmonized applications might not be beneficial in countries displaying diverse climate and environmental scenarios. Moreover, flexibility is accompanied by transparency: on the one hand through risk assessment in scientific terms, on the other, by requiring obliged disclosure of changes in domestic sanitary and phytosanitary measures.

Therefore, focusing on scientific measures is core to the SPS agreement. Yet, one must remember that a certain degree of uncertainty is embedded in the trade scenario. The SPS agreement takes this factor into consideration, when prescribing national SPS’s be based on a ‘temporary precautionary principle in the absence of international standards or scientific evidence’. In particular, Article 5.7 goes as follows:

‘In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time.’

This exhortation surely differs from those found in declarations of the PP, yet its interpretation introduces precautionary behaviour in the SPS framework.

In this perspective, the SPS agreement seems to solve many of the problems inherent to trade disputes, namely competition and uncertainty of the scenario. Firstly, it prescribes a flexible regulatory architecture, providing a chance for individual Governments to adopt safety measures they deem adequate. At the same time, flexibility is not undermined by potentially perverse incentives, because SPS measures must be science-based. Lastly, it considers the uncertainty of the setting and allows the presence of a precautionary approach in this perspective. Therefore, it proves a very efficient tool to assure safety of food and health, while simultaneously refraining precaution from enhancing overregulation.

Therefore, regulation of trade disputes in this perspective may be considered an appropriate device to enhance the long lasting debate on the goals of trade liberalization and deregulation of the trade scenario, while still allowing Governments to care for the safety of their consumers.

2.4 Case Study: The WTO Dispute over Genetically Modified Organisms (GMOs)

Among the crucial WTO disputes there exists that concerning trade of Genetically Modified Organisms (GMOs). In this case the US, Argentina and Canada, acted against the European Communities (EC). The dispute was pursued under the complainants’ claim of violation of the SPS Agreement in regards to EC’s regulation concerning import of agricultural biotech products. The EC regulatory framework demanded for governmental approval prior to the introduction of GMOs in the market place. In particular, it required the proponent private party to demonstrate that the substance could meet safety provisions and not cause adverse effects. In this perspective, the complainants deemed EC guilty of a de facto general moratorium, deemed to be a protectionist measure. Therefore, a panel was established to deal with such matter on the 7th of August 2003.

The Understanding on Dispute Settlement (DSU) is the ‘WTO agreement outlining the rules for dispute procedures’ and requires the WTO dispute panels and WTO Appellate Bodies to understand the WTO rules established with their ‘ordinary meaning’, including reference to past WTO disputes and ‘relevant rules of international law applicable in the relations between the parties’. Therefore, the first step undertaken, once the panel was established, was identifying the relevance of international law. In particular, the EC advocated the application of the Biosafety Protocol and the Precautionary Principle. The Biosafety Protocol is

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an ‘international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health.’ The panel stated that not all the parties in question, specifically the US, had ratified it, therefore rendering it inapplicable to the dispute. In regards to the PP, the panel claimed it to have an unsettled legal force, rendering it inapplicable to the dispute in question. Yet, the pre-market approval inherent to the EC’s regulatory framework clearly brings to mind a precautionary approach; the shift of the burden of proof on the proponent demonstrates that EC’s directives make clear reference to the PP.

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Before moving to an in depth analysis of the dispute and of the panel’s decision, I will list the claims brought forward by the complainants. In particular, the measures at issue were three:

(i) the general moratorium applied by the EC in regards to the import of GMOs;
(ii) the delay in the process of approval of specific GMOs;
(iii) individual EC member states’ prohibition to import specific GMOs, despite the previous approval of behalf of the EC as a whole.

The argument brought forward by the complainants was EC’s violation of the WTO Agreement on the Application of Sanitary and Phytosanitary measures. In this perspective, the panel’s objective was to assert whether the challenged measures were applicable to the SPS Agreement. In particular, challenged measures have to fulfill some requirements in order to be covered by the SPS Agreement. Challenged measures ‘have to be either ‘SPS measures’, or measures relevant to the operation of SPS measures’. A further in depth analysis of the claims made will demonstrate that not all allegations were resolvable in the SPS framework.

72 Convention on Biological Diversity website https://bch.cbd.int/protocol
(i) The accusation of a general moratorium

In regards to the first claim brought forward by the complainants, namely the presence of a general *de facto* moratorium, the panel found its existence until at least 2003, when the panel was established. The moratorium was defined as general, because the pre-market approval was applied to all biotech products. Its definition as *de facto* is instead inherent to the lack of formal adoption.\(^\text{76}\) In fact, in 1999, five EC members - Denmark, France, Greece, Italy and Luxembourg - released a statement, deemed to be an 'across-the-border moratorium'\(^\text{77}\), disclosing that 'in accordance with the preventive and precautionary principles, they will take steps to have any new authorizations for growing and placing on the market suspended'\(^\text{78}\).

The panel ascertained that the EC-level applications were not classifiable as 'SPS measures'. This is due to the scope intended by those same applications. In fact, according to the panel's findings, the implementation of the so-called moratorium was not in line with the purpose of the SPS agreement. Its application was instead 'a procedural decision to delay final substantive approval decisions'\(^\text{79}\). Therefore, the panel denied the claim that measures were adopted to comply with the SPS agreement. In fact, if that had been the case, the decision would have been taken to achieve the adequate EC level of sanitary and phytosanitary protection. In such perspective, the panel deemed EC provisions of moratorium not consistent with two articles of the agreement, namely Articles 5.1 and 2.2, inherent to risk assessment. The Articles go as follows:

**-Article 5:** Assessment of Risk and Determination of the Appropriate Level of Sanitary and Phytosanitary Protection

1. Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human,
animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.\textsuperscript{80}

\textbf{-Article 2: Basic Rights and Obligations}

2. Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5.\textsuperscript{81}

In pursuing its analysis, the panel tried to ascertain whether the general moratorium was consistent with other conditions of the SPS agreement. In particular, it tried to examine whether the general moratorium violated the provision banning 'undue delay'. In this perspective, it made reference to Article 8 and Annex C(1)(a) of the SPS agreement, which go as follows:

\textbf{-Article 8: Control, Inspection and Approval Procedures}

Members shall observe the provisions of Annex C in the operation of control, inspection and approval procedures, including national systems for approving the use of additives or for establishing tolerances for contaminants in foods, beverages or feedstuffs, and otherwise ensure that their procedures are not inconsistent with the provisions of this Agreement.

\textbf{-Annex C: Control, Inspection and Approval Procedures}

1. Members shall ensure, with respect to any procedure to check and ensure the fulfilment of sanitary or phytosanitary measures, that:

(a) such procedures are undertaken and completed without undue delay and in no less favourable manner for imported products than for like domestic products;

In addressing this matter, the panel deemed important to remember that the requirement banning undue delay does not proscribe the application of a precautionary approach. On a case-by-case basis, demand for additional information in scenarios implying the evolution of science might positively justify postponing decisions. Yet, it concluded, this must not be interpreted as a mean to

\textsuperscript{80} World Trade Organisation website, https://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm

\textsuperscript{81} World Trade Organisation website, https://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm
tolerate and authorize Governments to undertake a ‘sort of holding pattern’\textsuperscript{82}. Later on,

‘evolving science, scientific complexity and uncertainty, and limited available information or data are not, in and of themselves, grounds for delaying substantive approval decisions.’\textsuperscript{83}

The presence of uncertainty, instead, should be dealt with by invoking Article 5.7. This Article, as illustrated in Section 2.3, embodies the concept of uncertainty and prescribes courses of action aimed at implementing provisional measures, while waiting for additional information.

Having analysed all aspects of this claim, the panel decided in favour of the complainants.

(ii) Delay in approval process of specific GMOs

The second claim brought forward by the three plaintiffs is an allegation of ‘undue delay’ with respect to the approval process of specific GMOs. In addressing this matter the panel, once again, made reference to Article 8 and to Annex C(1)(a). In analysing product-specific approval procedures, it found out that twenty-four out of twenty-seven applications questioned demonstrated the presence of ‘undue delay’\textsuperscript{84}

Notably, the first two claims forwarded by the US, Argentina and Canada, in the panel’s view were not justifiable by Article 5.7 of the SPS agreement, as instead claimed by the EC, for the applications were unable to be considered ‘SPS measures’.


The suit regarding ‘national safeguard measures’ relates to the accusation made to six EC member states—Austria, France, Germany, Greece, Italy and Luxembourg—in regards to nine national-level applications. The allegation regarded the possibility of appealing to the EC directive, allowing ‘tailor-made’ applications of trade measures. In particular, EC member states were empowered to ban specific GMOs at national level, justified by the presumption that individual Governments deemed them dangerous for health or for the environment, even if the EC at community level had already ratified their presence on the market. The member states justified such measures by invoking Article 5.7. The panel found its invocation plausible; contrarily to community level applications, national-level ones were classifiable as ‘SPS measures’, given they ‘had resulted in final actions in the form of prohibitions on use’. Therefore, when addressing this specific claim, the panel deemed sensible an in depth analysis of the requirements in Article 5.7.

The panel established that ‘the trigger for applicability of Article 5.7 was not the characterization of the measure as provisional by the WTO Member State, but, rather insufficiency of scientific evidence’. The analysis of Article 5.7 is strictly linked to Articles 2.2 and 5.1. In particular, as already discussed, the first requires analysis be based on scientific principles, the latter an analysis based on risk assessment. The dynamics of invocation of Article 5.7 were thoroughly analysed by the panel. In particular, the panel concluded that, once Article 5.7 is invoked, the plaintiff must demonstrate that the respondent did not comply with all the article’s requirements. Consequently, the accused party must instead demonstrate that all the requirements are met. If the respondent is not able to do so, then the measure is addressable though the rest of the SPS Agreement.

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which includes Articles 2.2 and 5.1. Indeed, invocation of Article 5.7 is only considerable in cases in which Article 5.1 is found not to hold.

This excursus served the function of illustrating the approach undertaken by the panel to assess the case. On the basis of such, the panel concluded that sufficient scientific measures, to conduct a risk assessment analysis in line with Article 5.1, existed. Therefore, the six EC member states were not justified in invoking Article 5.7. Moreover, they were accused of not having complied with Article 2.2 either; the requirement prescribing application of measures be based on scientific principles was not met.

### 2.5 May precaution and trade liberalization be reconciled?

The dispute concerning GMOs thoroughly demonstrates the potential conflict, and its implications, between precautionary measures in trade disputes and the goal of trade liberalization. In this perspective, and after the analysis of a case study, some points come to mind.

Firstly, and most interestingly, it is not hazardous to state that, taken in its general framework, the SPS agreement seems to accommodate the presence of precaution. The provision banning ‘undue delay’ may serve this function. In fact, the assessment of ‘undue delay’ does not require scrutiny ‘as to whether a product should be approved, but whether more information about it is appropriate before a decision is made’ \(^9^\). This scenario clearly brings to mind a precautionary dimension.

Yet, as demonstrated, precaution may pose threats to a trade setting that is pursuing a goal of free trade. Indeed, precautionary behaviour in trade disputes is almost always deemed to disguise a protectionist goal.

In fact, the establishment of a ‘juridical dimension’, namely the WTO, was needed to solve this conflict. In particular, the goal was assigned to agreements such as the SPS Agreement, whose purpose is to ‘provide for international scrutiny of an allegedly protectionist trade barrier’ \(^9^0\).


Still, as demonstrated by the GMO case study, the tension between consumers’ health and the environment, and enhancing the absence of trade barriers, seems far from being solved.

The difficulty in solving this dichotomy might be linked to the fact that both preventive behaviour and the goal of trade liberalization embody a mutually corresponding target: enhancing ‘social welfare and non-discriminatory public policy’\(^91\). Trade liberalization would enhance economic welfare, and consequently social welfare in numerous ways; it would increase competition, create incentive to specialize in sectors in which countries have competitive advantage and lower prices for consumers. Precautionary behaviour too, is aimed at increasing social well-being; it encounters the importance of preservation of human health and the environment, and targets its possible threats.

The inherent complexity lies in the fact that, in the trade dispute field, precautionary approach might be a ‘threatening weapon’. In this perspective, one understands the rationale leading WTO Panels and Appellate Bodies nearly out-due the notion of precaution in front of the rights and obligations of WTO members. In this perspective, the WTO treats precaution in a different manner from its wide accepted customized view. In fact, it simply eliminates precaution ‘as a legitimate basis for governmental decision-making’\(^92\).

Yet, an issue comes to mind. Since its establishment, the WTO has gained a central role in dictating pertinent approaches to regulation. One may ask: if precaution is a double-edged sword in the trade field, does it make sense for other governmental regulatory processes to use it as a rationale for action, as they do at present? In fact, even if the concept of precaution, and its implied behaviour, are not well established, its rationale for action is widely accepted. Indeed, members of the WTO are the same that ratified the Rio Declaration. Therefore, the WTO cannot afford the elimination of precaution from its jurisprudence all-together. Undoubtedly, Governments deciding to act in a precautionary manner will not always be disguising a protectionist goal. Sometimes they might act in ‘good faith’, and might really be interested in establishing minimum safety levels for risk purposes. The wholesale elimination

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of precaution might risk enhancing Governments in general to diverge ‘from good practice standards established outside the trade context’\textsuperscript{93}. Yet, even in this perspective, the WTO seems to treat precaution as if it were part of a different dimension. Scholars and policy makers express their concern in these regards, for this behaviour might distort precautionary application in other fields too.

In my opinion the SPS Agreement shows a positive and significant step towards an extremely desirable goal: framing precaution in a more consistent way. The rationale that leads scholars and policy-makers to consider the PP as a potential weapon is linked to the fact that it does not have a univocal meaning. In this perspective, Governments are nearly always allowed to invoke it, and respondents may always deem its invocation ascribable to perverse incentives. The GMO case study demonstrated that a coherent design of the PP allows solving disputes in an impartial fashion. The SPS Agreement prescribes specific conditions allowing appeal to precautionary behaviour. In the trade setting, this favours application of precaution in the name of safety standards, and not of ‘undue delay’. The panel ascertained that the EC moratorium was not intended to meet safety requirements; therefore the measures were not even definable as ‘SPS measures’ and consequentially not in line with SPS’s prescriptions. This allowed the panel to safely rule out the EC’s claim of moratorium in name of safety provisions. Instead, the panel ascertained that national safeguard measures were justifiable under the SPS Agreement. Nevertheless the measures proved not to be consistent with the agreement because there existed availability of scientific information. Thus, the panel was able to securely decide in favour of the complainants.

Therefore, the SPS Agreement provides a narrower meaning of the PP, framing it in a more consistent way. This allows the PP to gain the verifiable legal status, which has long been desired. A definite connotation of the general formulations of the PP would better enhance its consistent invocation. In this perspective, reference to precaution would probably be made in the name of positive intentions. This seems an extremely desirable goal, when considering that, in the first place, precaution should be intended to enhance social welfare.

Chapter III

*Should the Financial Environment be treated more flexibly?*

### 3.1 Basel I, II, III and an overview of the 2008 Financial Crisis

The severity of the 2008 Financial Crisis demonstrated that banking activity can severely affect our living environment. The systemic crisis that stemmed from the worst economic downturn since the Great Depression shows that the financial system can impact our world in ways that are comparable to the effects of environmental disasters. People losing jobs, cuts in funds of environmental and sanitary sector have indirectly put at stake many lives. On the basis of such premises one may deem the importance of a preventive approach be implicit in the formulation of the rules regulating the financial setting. This is the rationale that led to the establishment of a financial regulatory framework, to be applied to all large international banks, which aimed at decreasing systemic risk by creating incentives for banks to limit risk taking in the ordinary course of business. Yet in this field some influential scholars have advocated the introduction of a “daring principle”. My objective is to investigate whether there exists such a substantial difference between the environmental and the financial field that invalidates the use of opposite forms of regulation.

In a globalised world with increasing financial innovation, banking activity is continuously and increasingly exposed to many risks, for which ad hoc regulation and supervision are needed.

Among the many shapes that regulation can take is prudential regulation, to be defined as ‘market-friendly’, for it does not openly constrain any banking activity, but exhorts to limit risk taking.

The set of rules developed and put forth by the Basel Committee on Banking Supervision, namely Basel I, Basel II and Basel III, are based on such premises and were conceived to serve as a set of international banking regulations to be applied to all large international banks.

These standards, meant to decrease credit risk and to increase the stability of our financial system, are at the basis of a process to be defined as ‘harmonization’ of economic regulation, in the sense that, through such a
regulation, equal standards and requirements are to be applied to all large international banks.

In particular Basel I, established in 1988 by central bankers of the G-10 countries, had two specific goals: to strengthen the soundness of the international banking system, equipping it for a better response in situations of crisis, and diminish the competitive inequality among international banks. Its main focus was on credit risk, targeted through the use of one main instrument: the Risk Weighted Asset Capital (RWA). This required internationally active banks to keep a minimum level of capital buffer, the ratio of capital to assets, weighted according to categories of relative riskiness, greater than 8%. Through this banks were not prevented from engaging in any kind of activity, even riskier ones, so long as their capital buffer was proportionate to their risk-taking level.

In 2004 the first accord was revised and led to the implementation of Basel II. Financial innovation required more stringent and complete regulations, known as the ‘three pillars’. The first pillar still called for a minimal capital buffer, and, in addition to credit risk, it also focused on market and operational risk. The second pillar referred to a supervisory review process, while the last imposed market discipline in order to enhance transparency and comparability.

However the harshness of the 2008 Global Financial Crisis proved that these set of rules were inadequate to effectively regulate an unstable and unpredictable environment such as the financial one. The policy response was not set up to modify the structure of the regulation system, but instead to further revise the preceding accord as to render it more effective. This set the basis for the enhancement of a new accord, Basel III, approved in 2010 by G-20. Yet the question that some scholars posed was: is it was advisable to modify the accord once again, instead of formulating an alternative mechanism that might have set the basis for a more effective regulatory frame? In particular Roberta Romano, Sterling Professor of Law at Yale Law School, describes a “Diversity Mechanism” whose functioning and rationale deviates entirely from that posed by the Basel Accords. The central node is that the proposed mechanism calls for a course of action that is not definable as ‘precautious’, for it sets the balance of power in the hands of individual nations. These would in fact be empowered to file a regulatory proposal subject to a presumption of approval on behalf of the Basel Committee. The presumption of approval would violate the PP usually applied to environmental law, which states that ‘when an activity raises threats of harm to
the environment or human health, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically\textsuperscript{94}, for the proposed departure would be enforceable unless rebutted by the Committee upon demonstration that there exists a substantial possibility that it will increase systemic risk.

For a better understanding of the rationale behind the policy maker’s decision of the enhancement of Basel III, as a modified version of the preceding accords, in response to the crisis, I briefly review the 2008 Financial Crisis.

The 2008 Financial Crisis was triggered by a bank run in the shadow-banking sector: a ‘financial intermediary involved in facilitating the creation of credit across the global financial system, but whose members are not subject to regulatory oversight’\textsuperscript{95}. For the purpose of my analysis it is important to note that, within this market, long-term assets are financed by short-term debt, which in itself is secured by the long-term assets being financed. Due to this, investors require AAA credit ratings for these assets, in order to allow full recovery of the loan amount through the collateral, were the loan repayment not honoured. The problem was that in 2008 Mortgage Backed Securities (MBSs) composed the majority of collaterals in the shadow-banking sector. This explains why panic in this market directly followed the weaknesses suffered in 2007 by the US subprime mortgages. According to Professor Romano, the panic and the subsequent collapse of banks worldwide was linked to Basel’s Capital Requirements. This statement can be demonstrated by the undeniable ‘pattern of differential exposure’\textsuperscript{96} between Basel regulated and non-Basel regulated institutions. The first were in fact greatly exposed to those assets whose deficiency led to the financial panic. Asymmetric information played a key role: the ‘quality of the assets securing shadow market debt’\textsuperscript{97} was not transparent, meaning that investors were ‘unable to determine the extent of defaulting subprime mortgages held by borrowing institutions and comprising their

\textsuperscript{94} Science and Environmental Health Network. http://www.sehn.org/ppfaqs.html
\textsuperscript{95} Investopedia Website, www.investopedia.com
\textsuperscript{96} Romano, R. (2013) For Diversity in the International Regulation of Financial Institutions: Critiquing and Recalibrating the Basel Architecture, page 17.
This led to the subsequent collapse of the short-term financing market: borrowing institutions were in fact unable to replace the capital withdrawn when institutional investors refrained to “rollover debt”. The liquidity crisis therefore turned into a solvency crisis. Panic, among others, can be characterized as a proximate cause of the global crisis, states Professor Romano. The demonstration lies in the fact that the first crashes happened in foreign banks operating in the shadow-banking sector.

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99 Romano, R. (2013) For Diversity in the International Regulation of Financial Institutions: Critiquing and Recalibrating the Basel Architecture, page 16. Gorton and Andrew Metrick trace how initial problems in the subprime market became transformed into a classic bank run, as panicked investors required ballooning haircuts on securitized assets used as collateral in the repo market that had no relation to subprime assets, such as securitized automobile loans, as the crisis peaked in 2008. Gary Gorton and Andrew Metrick, Securitized Banking and the Run on Repo, 104 J. Fin. Econ. 425 (2012). The problems starting in subprime in 2007, also in 2008, led to panic in the money mutual fund market. See Patrick E. McCabe, The Cross Section of Money Market Fund Risks and Financial Crises, Federal Reserve Board working paper 2010-51 (2010). Although money market funds had suffered losses in 2007 with the increase in subprime defaults, there was no run because the fund sponsors (banks and fund families) backstopped the losses; they did not in 2008. Id. The 2008 run was not entirely random, as money market funds with the weakest sponsors experienced the greatest outflows. Id. Arvind Krishnamurthy and colleagues emphasize the run in the ABCP market (detailed in Covitz et al., supra note 28) as the source of the crisis, rather than the events in the repo market on which Gorton and Metrick focus. Arvind Krishnamurthy, Stefan Nagel and Dmitry Orlov, Sizing up Repo, NBER Working Paper No. W17768 (2012), available at http://ssrn.com/abstract=1987953. Given that market dynamics and incentives provided by Basel capital requirements were no different in these two markets, this article’s analysis does not depend on which one was the more significant contagion source.

It is important to stress that most of the institutions operating in the shadow-banking sector were complying with Basel II’s globally harmonized capital requirements. When comparing their performance to that of non-Basel-compliant institutions, we find the latter to be less leveraged and less exposed to MBSs during the crisis\textsuperscript{101}. The explanation of this fact is quite straightforward: Basel architecture created incentives to hold such securities, when meeting capital requirements, for it treated them more favourably than others; residential mortgages were in fact subject to lower capital requirements. Banks therefore rather held these assets in order to minimize the amount of capital to be held. However this choice actuated a domino effect, it “further encouraged an increase in leverage, thereby increasing returns and, correlatively, risk of loss”\textsuperscript{102}. The fact

\textsuperscript{101} Romano, R. (2013) For Diversity in the International Regulation of Financial Institutions: Critiquing and Recalibrating the Basel Architecture, page 19. It has been estimated, for instance, that over 2002-08, hedge fund leverage ranged between 1.5 and 2.5, compared to an average 14.2 for investment banks and 9.4 for the financial sector as a whole. Andrew Ang, Sergiy Gorovyy and Gregory B. van Inwegen, Hedge Fund Leverage, NBER Working Paper 16801, at 25 (2011). Hedge funds were far less leveraged than banks at least in part because, ever since the collapse of the hedge fund Long Term Capital Management in 1999, dealer-banks have required full collateralization of hedge fund transactions, an ironic contrast with the banks’ own positions. In addition, as Sebastian Mallaby puts it, because “hedge fund bosses mostly have their own money in their funds,” in contrast to bank managers and traders, who are “simply risking other people’s money,” they can be expected to be more conservative regarding risk (i.e., voluntarily to have lower leverage ratios). Sebastian Mallaby, More Money Than God: Hedge Funds and the Making of a New Elite 12 (2010). In support of Mallaby’s contention, Ang et al. explain their finding that hedge funds reduced their leverage levels during the financial crisis (in contrast to investment banks, whose leverage increased) as due to hedge fund managers’ actively managing leverage to reduce their risk, and not due to curtailment of credit by brokers, because the drop occurred six to eight months before banks adjusted their own leverage in late 2008, and anecdotally, brokers were apparently not increasing funding costs in 2007 when the decline in hedge fund leverage commenced. Ang, et al., supra, at 26-27.

This is not to say that there was no variation in individual financial institutions’ behavior. Some banks did not suffer as great a loss as others during the financial crisis, as they had taken on less MBS and CDO risk. E.g., Gillian Tett, Fool’s Gold (2009) (discussing J.P. Morgan’s more conservative approach to the sector). There were also some hedge funds heavily invested in CDOs that failed at the outset of subprime troubles: hedge funds sponsored by Bear Stearns were the earliest casualties of the financial crisis, as was their parent less than a year later. E.g., Julie Creswell and Vikas Bajaj, $3.2 Billion Move by Bear Stearns to Rescue Fund, New York Times, June 23, 2007, at A1. In addition, a few hedge funds profited handsomely during the crisis, as they were heavily invested on the short side of the market, the opposite of most financial institutions’ positions, although the funds had considerable difficulty assembling large short positions. E.g., Gregory Zuckerman, The Greatest Trade Ever (2009) (recount of challenges in John Paulson’s successful effort to short the subprime market).

that more or less 100 nations were compliant with the Basel architecture means that many banks worldwide had incentives to perform as displayed above. This rendered the cross-border transmission effect devastating when the US subprime market collapsed. The effect was in fact amplified by the tendency to herd, propensity facilitated by Basel itself, by setting global harmonized standards and by giving incentive to hold those assets that in fact were more precarious and risky. This is due to the incentive to hold Residential mortgage asset class, and in particular subprime mortgages and not prime mortgages, for the first provided a higher return, due to a higher risk, with the same capital provision as the latter. The ‘common shock of fundamentals’ was therefore one of the main drivers of the financial distress suffered by banks worldwide. The point Professor Romano makes is that banks’ motivation to invest in MBSs was not only due to the fact that capital requirements for these were more negligible than others, but also because Basel created greater incentives to undertake such a behaviour. This renders the ‘cost-benefit calculation of a securitized transaction decisively different’ for subject and non-subject Basel institutions, as demonstrated by the different business strategies undertaken by the two. When speaking of incentives given to EU member states, Basel went even further, by treating sovereign debt of all member states as riskless under the risk weights. This lead nations to

103 Romano, R. (2013) For Diversity in the International Regulation of Financial Institutions: Critiquing and Recalibrating the Basel Architecture, page 22. Holding the riskiest asset within a risk class is sometimes referred to as “reaching for yield,” and is observed in other contexts in which regulatory requirements depend on risk, such as, corporate bonds held by insurance companies, whose capital requirements, like those of banks, are tied to the credit ratings of their investment holdings. See Bo Becker and Victoria Ivashina, Reaching for Yield in the Bond Market, Harvard Business School Working Paper No. 12-103 (2012), available at http://ssrn.com/abstract=2065841. This is not to say that within an asset class, banks hold only the riskiest assets. The point is, rather, that Basel incentivized banks to hold such assets, and across the board, they did so. Most certainly, just as banks commonly hold more than the minimum required capital to avoid an economic shock pushing them below the minimum and subjecting them to regulatory action, it is improbable that they would hold solely the riskiest assets, as they would seek to avoid the increased regulatory scrutiny that such positions would at some point entail.

104 Romano, R. (2013) For Diversity in the International Regulation of Financial Institutions: Critiquing and Recalibrating the Basel Architecture, page 23. Reinhart and Rogoff, supra note 10, at 244 (Examples of countries besides the United States experiencing all three factors are Iceland, Ireland, New Zealand and Spain).


prefer public debt over private debt and moreover to hold debt whose higher return implied a greater risk without having to raise capital.

The Basel III accord was drafted in response to the crisis, after having acknowledged that the international regulation agreed upon in Basel II was not effective. New capital provisions were added and risk weights were refined, but the content does not substantially differ from that of the previous one. It seems sensible to ask: what is the rationale behind a slight modification of a system that has abundantly proved not to be fit for an efficient regulation of the financial sector, but that has actually created incentives that rendered the possibility of a systemic crisis exponentially more viable? Nevertheless we should anyway focus on some of the differences between the two accords. In particular it is interesting to note that Basel III required its only objective to be that of enhancing financial stability. No mention of the second goal to render domestic banks more competitive at international level is made. This does not mean that the goal in reality does not exist; it is the simple consequence that derives from the extended implementation of this accord. Basel III was in fact agreed upon very quickly, but the new architecture implied a variable time frame, needed for banks to catch up and meet the new requirements. The reason behind this decision lies in the fact that the economy’s recovery could have been put at stake by immediately requiring banks to meet much higher capital requirements and by not giving them time to adjust to these through an ‘increased earning retention’. Moreover the time lag allowed for an observation period of the new requirements. The mere existence of the “phase-in” effect demonstrates the still existing presence of the dual goal of Basel, for it creates time for weaker banks to adjust, by ‘equalizing the playing field’. Another important issue to address is the insertion of macro-prudential capital regulations, which take into account system-wide risk through

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*Institutions: Critiquing and Recalibrating the Basel Architecture*, page 27. As Jeffrey Friedman put it: Only [banking regulators’] errors can explain why the banks regulated by them proved, on the whole, to be so homogeneously susceptible to the lure of agency bonds, and high-rated PLMBs [private label mortgage-backed securities] in comparison to other classes of investors. Agency MBSs and PLMBs were bought in quantities by banks of every size, and in immense disproportion to their purchases by other institutions. Pension funds, hedge funds, general (as opposed to monoline) insurance companies – they, too, invested in MBSs, including PLMBs, but their investment portfolios were sufficiently diversified that none of these financial sectors, as sectors, were wiped out. However, they were not subject to Basel I, the Recourse Rule, or Basel II.
the inclusion of a leverage ratio which is ‘independent of the core risk based
capital requirements’ and countercyclical capital requirements.

Improvements have surely been made and probably regulators have learned
from their mistakes, but what Professor Romano argues is that Basel had already
proved to be ineffective before the crisis, proved devastating during the crisis and
nevertheless the response is to further refine an international regulatory frame
that already proved inadequate. Surely, she argues, the ‘phase-in’ effect, as a
means to obtain an observation period, shows the acknowledgement of the fact
that there is a lot we do not know and we will never know in a dynamic and
uncertain setting such as the financial one, but this is not enough. What we need
is a more flexible structure, a ‘trial and error’ approach. By permitting regulatory
experimentation on a national basis, which will generate greater information and
prevent a global-level trial of possible ineffective regulation, she argues, we might
be able to reach this goal.

3.2 “The Diversity Mechanism”\textsuperscript{107}: Professor Romano’s initiative to
foster experimentation and flexibility in international financial
regulation

The mechanism proposed by Professor Romano is one in which diversity,
flexibility and experimentation are at the basis of the international regulation. The
suggested system could be ‘introduced with minimum dislocation in present day
set up’\textsuperscript{108}, and involves three steps:

(i) Initiating action by member-states’ noticing a plan to adopt a regulatory
approach or requirement divergent from Basel;

(ii) Assessment of the proposal by the committee of peers;

(iii) On-going monitoring and periodic reassessment of approved
departures.\textsuperscript{109}

\textsuperscript{107} Romano, R. (2013) \textit{For Diversity in the International Regulation of Financial
\textsuperscript{108} Romano, R. (2013) \textit{For Diversity in the International Regulation of Financial
Institutions: Critiquing and Recalibrating the Basel Architecture}, page 38.
\textsuperscript{109} Romano, R. (2013) \textit{For Diversity in the International Regulation of Financial
Institutions: Critiquing and Recalibrating the Basel Architecture}, page 38.
(i) Member-state initial proposition

The ‘diversity mechanism’ proposed by Professor Romano aims at rendering more flexible the implementation and subsequent departure from multilateral accords that govern the international regulatory mechanism. The proposed system in fact allows for the introduction and implementation of the propositions put forward by member states without the need to revise the entire multilateral pact. The fact that there is a ‘lower hurdle for revision’ will most likely also increase flexibility of initial negotiation and render it easier.

According to the proposed system, a Basel Committee should be appointed for the specific task of receiving the proposals of departure from Basel. The national regulator should notify the proposal of departure and accompany it with documentation concerning the specification of the proposed departure from Basel requirements and an economic analysis. The economic analysis should be developed using several measures, such as regressions. It should also include additional documentation analysing the impact that the proposed deviation might have on weak points of individual institutions and on the financial system as a whole. An interesting point to stress is that Professor Romano states: ‘Even though non-committee members are under no obligation to comply, they should be encouraged to participate in the review process to receive approval of departure from an accord requirement(s), just as if they were a member otherwise obliged to conform.’

This point is consequential to the fact that non-Basel Committee members need not to comply with Basel requirements; nevertheless over 100 states have adopted the requirements voluntarily. We have to remember that the organizational structure of the financial sector in a country is the sine qua non for financial regulation to be efficient in trying to decrease systemic risk. This is why the diversity mechanism proposed can benefit non-members: through their inclusion in the review process they would be able to access policy proposal, through which they could improve quality of decision-making. In addition, and more importantly, they would be able to access international regulation in a tailor-made fashion if their financial sector is too different from that of members. Also members would benefit from this inclusion, by gaining access and information on the regulations of different financial institutions.

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(ii) Peer Review Process

The second step is the peer review process. The 'peer review process' phase is the second 'chapter' of the diversity mechanism proposed by Professor Romano. At this point the proposed departure from Basel has been filed by the Basel-departing nation and a peer review committee has to be established to evaluate the motion proposed.

The recommended course of action is the establishment of an ad hoc standing committee. In order to minimize the possibility of conflict of interest, members would in fact rotate on a periodic basis. The rationale behind this indication lies in the fact that 'strategic self-advantage can be drastically reduced' for communication of the members would not be made in advance. The peer review committee has to limit its scope to an effective assessment of whether the proposed course of action could negatively impact systemic risk and whether it might have adverse effects on global financial stability that could be anticipated. Here lies the motivation that encourages the implementation of the diversity mechanism: in fact, according to Professor Romano, if nations are not incentivized to follow similar business-strategies, due to the fact that they are subject to different financial regulation, then it is possible to reduce the risk that an error stemming from it might lead to negative effects on global systemic risk. At this point the committee will have the chance to scrutinize and review the documents submitted by the proposing nations. It is implied that, where necessary, the committee shall have a chance to request for additional information and to conduct an independent analysis. Moreover it shall have a chance to interview officials and regulatory staff of the proponent nation.

In order to assess the impact that severe shocks would have on the global financial system, various technical measures could be used. Among the proposed is a stress test, 'in which bank portfolios' hypothetical performance is evaluated by perturbing relevant economic variables by exogenous shocks that are thought to be plausible, but severe, including tail (remote) as opposed to average outcomes.'

It is important to note that it makes sense to accompany

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this analysis with an evaluation of the degree of interconnectedness of the departing-nations' banks in order to try to assess whether global contagion would be an issue. This is because the issue of systemic risk contagion should be addressed proportionally to the global interconnectedness; in order to efficiently assess whether a departing provision has a within-nation effect that is better or worse than that under Basel regulation and whether this could lead to global contagion a correct understanding of this measure is needed. In order for the committee to be positive about the quality of the analysis submitted by the departing nation an audit of the information system of that same nation shall be carried out.

Once the review is complete and the nation receives the approval of the review committee, then it is entitled to immediately implement the regulatory departure. Surely the proposed mechanism seems straight forward up till now, but we have still not taken into consideration two fundamental components. The first is the possible presence of a 'status quo bias'. In lieu of the fact that regulators usually prefer status quo to alternatives and that until now Basel regulations account as best regulatory practices, problems could arise. The proposed solution, and key point of the diversity mechanism, is that 'review process is structured to start with a presumption of approval, rebuttable upon a demonstration of the proposal's substantial likely hood of having an adverse impact on system stability.' This means that 'in order to reject the proposal the committee will have the burden of proof in that it should be required to conclude affirmatively that a proposal would be likely decisively to increase systemic risk.' In order for negative incentives to be kept at a minimum, the standard of proof for rebuttal should be set quite high: not to preponderance of evidence (more likely that not), but to clear and convincing evidence (substantially more likely than not).

In the wake of the above considerations, another impediment could arise: the possibility of a deliberate laggard arising from the fact that the committee cannot sustain the burden of proof to rebut the presumption of approval. This issue is to be addressed not naively. The proposed solution is the identification of a relatively short time frame, after which the proposal is automatically approved and can be immediately implemented. It is obvious that this time frame should be

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shaped on the basis of some variables: the completeness of the analysis and documentation submitted by the departing nation, the scope and magnitude of the departure and the number of proposals the committee has to evaluate. Upon conclusion of the review process, the peer review committee may reject the suggested departure. If this were to be the case then the committee should provide the nation with written documentation, including an economic analysis, to explain the reasons behind the rejection and those aspects that in its vision were deemed to possibly increase global systemic risk. Moreover, if the committee was able to identify an alternative course of action that could minimize the impact on systemic risk, it shall notify this to the nation. The nation shall thereafter be empowered to respond to the rejection by revising those issues deemed to possibly adversely affect financial stability and to resubmit the proposal with its modifications. It would be ideal to establish a sub-committee in charge of dealing with the appeals of those nations whose proposal was rejected. Transparency is of fundamental importance for the well functioning of this alternative regulatory frame. This is why all documentation, regarding proposals, possible rejections and possible disagreements among committee members, shall be made publicly available. Transparency will allow to increase the quality of proposed regulatory departures, for proponent nations will be incentivized to take better care in their proposals and in the analysis submitted. The public will also assess and consider more favourably transparent descriptions, motivations and analysis of departures.

(iii) On going Oversight and Evaluation

What happens after the approval of the peer review committee is of fundamental importance for a positive outcome of the proposed departure. It consists in an on going oversight and evaluation of the effects that the departure has on the within-nation financial sector and institutions. The environment we are trying to effectively regulate, namely the financial one, is a dynamic and uncertain setting. Regulation is most often rendered obsolete due to increasing financial innovation. This is why it is often likely that the outcome of proposed regulation might negatively impact financial stability. This issue acquires increasing importance and likelihood when considering that the proposed diversity system allows for short time intervals and for scaling standard of reviews. This is why the
subsequent regulatory review has to necessarily be dynamic, for we can never know with certainty the impact of financial regulation on the economy. The time lag passing between the approval of departure and subsequent periodic reassessments might leave grounds for changes in the deemed impact of proposals on the financial sector stability. Approved departures should therefore be subject to ongoing monitoring and to full periodic reassessments that will serve for the collection of new information.

This monitoring function should be at the expense of a Basel sub-committee which should also have the power to prioritize and make exceptions on monitoring requirements, in other words the possibility to 'fashion parameters'. Sharing of information between the proposing nation's institutions and the monitoring sub-committee is of fundamental importance and should be constant. If something worrying comes up an immediate full review shall be initiated. The indicators of financial stress should be both subjective and quantitative.

The proposed mechanism calls for various typologies of reviews: event-triggered, full reassessment on fixed periodic schedule and periodic full or partial reviews. Fixed interval full reviews should be accompanied by a self-analysis of the departing nation on the effects that the diversified regulation has on its financial sector. After several full post-approval reviews have been undertaken the committee shall have the discretion to decide whether to increase the time lag between the subsequent ones or to allow the nation only to undergo periodic reassessments, in order to effectively conclude whether the conditions analysed at initial approval have changed. Trigger-initiated reviews render the committee's analysis a little more complicated. In this case the committee shall in fact conduct an analysis aimed at assessing whether the negative effects on the financial system are due to the Basel-departing regulation or if they are due to exogenous. In the former case the sub-committee will have the power to retire the approval of departure, either entirely or in part. The nation will have to comply with the decision of revocation. Its motives shall be communicated in written form to the nation, and in line with the principle of transparency, the documentation shall be made public. The burden on the sub-committee for revocation in the case the review is event-triggered would be less demanding, for faster intervention might be necessary in such cases. This should be accompanied by appeals mechanism, through which those nations who have seen their departure revoked, could obtain and expedited review of the decision. 'Expedited appeal would afford a nation the opportunity to
rebut the committee's analysis of the departure's impact with its own analysis of the situation or of the committee's work, or to document that reversing the departure would disrupt or destabilize the financial system far more than would maintaining or modifying it.'

3.3 Where might this approach take us?

It is important to remember that risk can never be entirely eliminated. This is extremely true for financial markets, due to their inherent complexity. The massive damage suffered at global level during and subsequent the financial crisis suggests how a failure in this field can severely affect our present, and especially our future, in an irreversible way. What should therefore be the incentive to allow a more hazardous course of action? Why should the fact that we do not have a scientific demonstration of the cause effect relationships be treated differently in the financial field with respect to issues concerning environmental law?

As the diversity mechanism calls for the presumption of approval by the Basel Committee is what allows us to describe its proposed course of action as not precautionary. Moreover, the burden of proof that it would have to face for rebuttal is set to clear and convincing evidence. This means that, if the Committee were not able to meet this standard, the departing nations would be allowed to implement their proposed strategy.

Professor Romano suggests to limit this issue by introducing an on-going review process that the departing nation would be subject to; in addition the possibility of immediate revocation of the departing course of action if data were to suggest the presence of risk for the stability of the financial system. Yet, an issue comes to mind: we have seen that the effects of a crisis in the financial setting may probably lead to irreversible damage, exponentially more severe if there is a risk of contagion; what is the benefit of having the power to revert a departure if damage has already been made? This issue is augmented if the review process is motivated by a trigger-event. Moreover, she argues, when assessing the member states' initial proposition, the Committee shall thoroughly analyse the degree of interconnectedness of the departing-nation's financial sector to the global one. Considering this variable is of crucial importance because it may determine the extent to which a situation of financial stress may be transmitted across borders. However, it is precisely the uncertainty of the financial
environment that does not allow us to reliably assess the interrelation of national institutions.

In my opinion this means that the corrective measures described are not sufficient to counterbalance an initial precarious and possibly unsafe course of action stemming from the presumption of approval. Surely it is important to remember that historical records show a significant trend: the possibility that a global systemic financial crisis is set off by financial problems at national level is quite remote. Moreover the possibility of outskirting of financial stress is usually associated to a situation in which there is a collapse of common fundamentals.\textsuperscript{113} Yet the elimination of this scenario is the primary goal of the proposed diversity mechanism. Nations would in fact be incentivized to follow similar business strategies only if their financial setting and institutions are akin. The instrument that would allow an efficient assessment of whether the departure could be replicated by others is that of requiring all information to be publicly available. This will allow ‘to compare efficacy of Basel with departure from it. The data will in fact provide data on effectiveness of alternative regulation, which could give a chance of reassessment of Basel in other countries or even of Basel emendations.’

It seems that the proposed diversity mechanism could correct for many of the gaps incidental to the harmonization under Basel, such as the rigidity of the regulation and the problems stemming from the wholesale adoption of rules that may quickly become obsolete. According to certain scholars these were among the drivers of such a severe outcome. So one may argue: it is true that this mechanism calls for action even in a situation of uncertainty, but the crisis has demonstrated that the precautionous fashion of Basel regulation has not proved to be efficient. Others instead deem that an uncertain field such as the financial one should be among those requiring an analogous strategy to that described by the PP in environmental law. This debate is surely very complex and the stakes are very high.

When describing the social impact of the financial crisis the World Bank states:

‘The financial crisis that hit the world economy in 2008-2009 has transformed the lives of many individuals and families, even in advanced countries, where millions

\textsuperscript{113} Romano, R. (2013) \textit{For Diversity in the International Regulation of Financial Institutions: Critiquing and Recalibrating the Basel Architecture}, page 50.
of people fell, or are at risk of falling, into poverty and exclusion. (...) Countries hardest hit by the crisis lost more than a decade of economic time.\textsuperscript{114}

The scenario described for developing countries is even more devastating. The severity of the crisis has lead to an increase in income inequality, and a significant slow down in the ‘progress to meet the Millennium Development Goals by 2015’\textsuperscript{115}. The path that these countries will have to follow in order to recover from these damages is way steeper than the one they had to face when catching up with developed countries. Some were not managing then, what are their chances now?

The description above allows visualizing more vividly that the effects caused by the crisis of ‘intangible’ variables such as the US subprime market translate into tangible and easily observable disasters. The mere possibility that, after the disastrous outcome that stemmed from a preventive approach, the policy would become perilous might not be the best response.

Later on:

‘As the efforts to strengthen the financial systems and improve the resilience of the global financial system continue around the world, the challenge for policy makers is to incorporate the lessons from the failures to take into consideration the complex linkages between financial, fiscal, real, and social risks and ensure effective risk management at all levels of society.’\textsuperscript{116}

The efficacy of risk management is of fundamental importance for a well functioning of financial regulation. The ‘diversity mechanism’ calls for an on going monitoring process, course of action that is in line with an efficient risk management strategy. Yet this approach would probably not effectively


counterbalance the risks threatening our living environment due to the uncertainty of the financial field.

We may argue, in line with Professor Romano’s idea, that the precautionary formula has not reached its desired effect. Moreover the harmonization approach has contributed to a more severe outcome. This could lead to the presumption that a more hazardous design might not necessarily conduct to a worst possible outcome. Yet, in line with the idea that precautionary measures are still preferable, we could pose an alternative: a prudent stratagem implemented at individual level. This decentralization of intents might not require the trade-off between precaution and flexibility. Yet this would still mean that some nations would follow a more uncertain path. On would deem reasonable this path be followed by ‘safer’ nations, both in regards to the quality of their financial institutions and to their degree of interconnectedness. Yet, in my opinion, these two characteristics are almost always mutually exclusive. Foreign Directed Investment (FDI) rates are in fact always higher in those nations displaying high quality financial setting and institutions, and these are therefore most likely to have a high degree of interconnectedness to the global scenario. In addition to this, the impact of the severity of the crisis on individual institutional behaviour must be considered. The damage suffered would probably render nations prone to observing others’ practice. While hazardous paths would still lead to innovative proposals, precautionary ones might lead to stagnation in the fear of mistakes. This leads me to state that, if precautionary measures were to be adopted, then the most efficient strategy would be a wholesale adoption. Yet a large-scale ratification leads us back to the issue of rigidity: taking precautions most of the time implies being less flexible. Probably flexibility is another fundamental goal that the regulators of this uncertain field should target.

Another issue I deem important to raise is the fact that the accommodation of precarious behaviour on behalf of policy makers might not create positive incentives. The role of regulation is that of limiting unsafe course of action. The PP aims at posing boundaries on implementation of mechanisms that entail risks, even if these are not measurable scientifically. This is in line with the ‘better safe than sorry’ approach. For example the inherent possibility that introduction of faulty goods on the market would lead to disastrous outcomes on the health of population may be partially avoidable if invoking the PP. This serves as an instrument to limit possibly lucrative intentions of producers. The crisis has
demonstrated that those precise profitable paths were the main cause of the severity of the outcome. So one might deem the importance of establishing the right incentives a fundamental issue for two reasons: firstly in regards to the uncertainty of the fallout of events, secondly for the disastrous outcome that financial crisis might lead to.

Reaching to an affirmative conclusion as to whether the financial field should be treated in a less precautionary fashion that the environmental one is very difficult. Surely a more hazardous trial phase could reasonably be considered a variable alternative. Yet, once again, if the outcome were to be severe as the one we just faced, the possibility of recouping would be drastically reduced.
Conclusion

In this thesis I analyse the role of the Precautionary Principle (PP) in public policy decision-making. In particular, the absence of a univocal meaning of the PP allows its invocation in disparate fields and disputes. As the PP does not prescribe any specific behaviour, it allows Governments and policy makers to appeal to it in diverse settings. This makes its invocation possible in diverse situations. Yet, as I argued, the figure of speech ‘better safe than sorry’ implied by the PP, might not always lead to the desired outcomes. In this vein, scholars and policy makers have long debated on the PP’s role within the international regulatory framework. If precaution is desirable to protect human health and the environment, why should it not be applied in all regulatory fields? According to many scholars and policy makers this is because precautionary behaviour might be used as a mean to defend a regulation otherwise not justifiable on scientific grounds. Then, in what cases is the invocation of the PP plausible? This thesis tries to answer this question.

In the first chapter, I investigated the economic justification of the PP. According to mainstream economists, the PP is justifiable by the Option Value Theory, which exhorts avoiding engagement in irreversible commitment under risk. This explanation relies on the idea that uncertainty will disappear when additional information is available. Yet, this reasoning proved not able to justify the PP, for the latter deals with a problem of uncertainty per se, when considering that the environmental field is characterized by the presence of Keynesian uncertainty. Therefore, OVA and the PP do not consider akin the notion of uncertainty. In addition to this, OVA proved inefficient in capturing the distinctiveness of environmental losses. In OVA’s framework, decisions are not irreversible per se, only some are more irreversible than others, depending on the costs of reversion. My investigation shows that an economic justification of the PP is better obtainable through Rawls’ maxmin decision rule and the formulation of the ‘Rawlsian Core Precautionary Principle’ (RCPP). The intuition lies in the fact that RCPP is able to adequately capture the concepts of uncertainty and incommensurability. The first is captured by the maxmins’ first condition: precautionary action is justified in the presence of uncertainty, where by uncertainty we mean that outcomes have not probabilistic information attributable to them. The concept of irreversibility is seized when implying a qualitative
difference between gains and potential losses, because some outcomes are unacceptable and decision makers care little for gains. The additional appealing feature lies in RCPP’s prescription for preventive behaviour only in situations implying unacceptable outcomes. Therefore, there exists an economic rationale for the PP, and the RCCP proves to be a very sensible interpretation of it: it captures distinctive characteristics of possible outcomes, while providing necessary limitations.

The chapter furthers by investigating the possible reconciliation between the PP and the CBA. While these frameworks have always been considered incompatible, grounds for their compromise instead proved feasible. The CBA focuses on economic aspects, assessing benefits and costs in quantitative terms. This implies its inability to capture incommensurable value and the consequential exclusion of moral considerations. In this perspective, the PP seems a good response tool because it takes into account an ethical dimension. Assets deemed to have incommensurable value are granted a special status. However, their reconciliation is feasible only if the scope of the PP is limited. Therefore, if we consider the PP an instrument able to justify inaction uniquely in the name of uncertainty, then no conflict with CBA is identifiable, for all other rationales for inaction would remain feasible.

In the second chapter I examined whether precaution and the goal of trade liberalization can coexist in the trade setting. Their incompatibility stems from the fact that policy makers and Governments might be incline to invoke the PP in the name of protectionist goals. My analysis shows that the formulation of precaution put forth by the WTO in the SPS agreement seems sensible and able to appease the incompatibility between precaution and trade liberalization. Indeed, the agreement prescribes risk assessment to be carried out in scientific terms, while allowing precautionary behaviour in the face of uncertainty, when circumstances require it. As demonstrated by the GMO case study, this allows ascertaining more easily Governments’ intentions when invoking the PP. If there exist grounds to perform risk analysis in scientific terms, then reference to precaution is inadmissible. Therefore the SPS Agreement provides a narrower meaning of the PP, framing it in a more consistent way. Thus, a desirable and potentially feasible goal is framing the PP in general in a more coherent way. This would allow PP’s rationale for action and invocation to be verifiable, allowing this tool to gain a more structured and potentially more efficient status. Still, one must remember
that, when considering that PP’s invocation is plausible when facing setting uncertainty, formulation of constraints becomes exponentially harder.

My last objective was to evaluate whether regulation of financial markets can be feasible and desirable in a non-precautionary fashion. According to some scholars preventive behaviour in financial market regulation, shaped in the form of harmonized regulation, proved inefficient. This illustrates how action in the name of precaution may not be beneficial even in cases in which intentions are positive. In particular, I illustrated the Diversity Mechanism presented by Professor Roberta Romano. In her perspective, Governments should be proponents of tailor-made regulation, subject to presumption of approval by the Basel Committee. In her opinion, this regulatory framework would enhance flexibility and limit risks stemming from hazardous courses of action, through on going review process. Yet, my analysis identified some flaws. Why should absence of scientific demonstration of cause-effect relations be treated differently in the financial field with respect to the environmental one? The 2008 Financial Crisis suggested that failure in the financial field leads to irreversible outcomes and to incommensurable losses. Moreover, the uncertainty of the setting does not allow a reliable assessment of the risk of contagion and of the consequences of out skirting of financial distress. In my opinion, this issue becomes exponentially more serious when considering the difficulty of accurately estimating the degree of financial interconnectedness of nations. Moreover, the inherent complexity and the dynamism of the financial setting imply that regulation might rapidly become obsolete. This means that the on-going review process would be hard because the committee would have to supervise rapidly evolving tailor-made regulations at national level. In this perspective, a more perilous course of action does not seem an efficient option. Nevertheless, I found unquestionable one of the claims made by Professor Romano: if the complexity of the setting implies that regulation might rapidly become obsolete and not applicable to all nations is the same fashion, then uniform standards might not prove to be adequate either, as demonstrated by the Financial Crisis. I did not manage to reach to an affirmative conclusion as to whether a daring or a preventive behaviour might be best suited to regulate the financial market. On the one hand, the magnitude and the distinctiveness of the losses caused by financial distress would suggest precaution to be the desired rationale for action. On the other, harmonization and rigidity in such a dynamic setting might not lead to positive outcomes.
This thesis served the function of illustrating the controversy revolving around the PP. My analysis proved that the debate regarding the validity of its appeal is still glowing and far from being solved. Therefore many questions still remain open. What role should the PP acquire in the context of international and national policymaking? What are the prescriptions it should entail in order for its invocation to be plausible in determinate situations?
Bibliography


• *Convention on Biological Diversity website*  
  https://bch.cbd.int/protocol

• Driesen, D.M. *Cost-Benefit Analysis and the Precautionary Principle: can they be reconciled?*

• *EC-approval and marketing of biotech products, WTO Dispute Settlement: One-Page Case Summaries*

• Investopedia Website, www.investopedia.com

• Longman Dictionary Online, www.ldce.com

• Monaghan M., Pawson R., Wicker K. (2012) *The precautionary principle and evidence-based policy*


• Palmer, A. (2006) *The WTO GMO dispute: Implications for developing countries and need for an appeal*

• Peterson, MJ. (2008) *The EU-US dispute over Regulation of Genetically Modified Organisms, Plants, Feeds, and Foods*, Appendix A


• Science and Environmental Health Network website http://www.sehn.org/ppfaqs.html

Meets International Trade Law, Vermont Law Review 37, no.4: 1153-1188