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I. THE *PARI PASSU* CLAUSE: COCCYX, THIRD MOLARS, OR THYMUS?

In 1893, Robert Wiedersheim published a book on human anatomy that claimed to identify eighty-six human organs that had been rendered functionless by the process of evolution.[1] A century of subsequent research has confirmed Wiedersheim's findings for some organs and has overturned others. It is now widely agreed that some parts of the body, such as the coccyx (the tailbone), are functionless but relatively harmless.[2] Others, like third molars (wisdom teeth), no longer serve a useful purpose and in some cases have become harmful and need to be surgically removed.[3] Still others have turned out to play important roles in the body, such as the thymus gland, which helps to regulate the immune system.[4]

Much of the recent debate surrounding the *pari passu*[5] clause in sovereign bonds has concluded that it is at best a coccyx and essentially meaningless, and at worst, a set of wisdom teeth that introduces unnecessary litigation risk and needs to be surgically removed from

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1. *See generally* R. WIEDERSHEIM, THE STRUCTURE OF MAN: AN INDEX TO HIS PAST HISTORY (G. B. Howes ed., H. and M. Bernard trans., London, MacMillan & Co. 2d ed. 1895) (classifying certain organs as vestigial in nature).

2. *See* J. SPEED ROGERS ET AL., MAN AND THE BIOLOGICAL WORLD 313 (1942).

3. *Id.*

4. Walter R. Benson, *The Thymus*, 199 JAMA 1013, 1013 (1967) (book review).

5. *See* MITU GULATI & ROBERT E. SCOTT, THE THREE AND A HALF MINUTE TRANSACTION: BOILERPLATE AND THE LIMITS OF CONTRACT DESIGN (forthcoming 2012) (manuscript at 21) (on file with the Hofstra Law Review).

future sovereign bond contracts (such is the position taken in the monograph by Mitu Gulati and Robert E. Scott,[6] which served as the starting point for this symposium). By contrast, in this Article I will argue that the clause is more aptly likened to the thymus gland—a clause whose meaning is not well understood and whose origin is perhaps lost in history, but that nonetheless fulfills a potentially important role that is likely to expand further in the future.

I begin by reviewing the historical context in which the introduction of the *pari passu* clause into sovereign bonds took place. I argue that this period was one in which concerns for fair and equitable treatment of creditors in the event of a sovereign debt restructuring were central to discussions between creditors and sovereigns, and that the introduction of the clause was a rational response to this environment; that is, the *pari passu* clause was the result of more or less intelligent design by debtors and creditors. I then review the evolution of concerns for the fair and equitable treatment of creditors over time, the evolving interpretation of what constitutes fair treatment, and the ways in which the term *pari passu* has been used by creditors.

I also argue that the growing use of the *pari passu* clause today, and the drift towards the "risky" version of the clause specifying *pro rata* repayment, is the rational response to expectations of future contractual and institutional changes that are likely to intensify concerns for inter-creditor equity and fairness in the future. I conclude with some reservations about Gulati and Scott's use of qualitative survey evidence to infer the rationality of actions.

II. WAS THE SOVEREIGN *PARI PASSU* CLAUSE THE RESULT OF INTELLIGENT DESIGN?

As documented by Gulati and Scott, the first sovereign bond contract to contain a *pari passu* clause was issued by Bolivia in 1871.[7] This places the genesis of the contract at a point in time that is important for at least two reasons. First, it establishes that the contract was introduced at the beginning of what is known as the "Golden Age" of international capital markets.[8] One of the key distinguishing features of this period is that sovereign lending took place in the shadow of the absolute version of the Doctrine of Sovereign Immunity (the

6. *See generally id.*

7. *Id.* (manuscript at 152).

8. Paolo Mauro et al., *Emerging Market Spreads: Then Versus Now*, 117 Q.J. ECON. 695, 695-96 (2002) (stating that the previous golden age for emerging market bonds and international capital flows was from 1870-1913).

"Doctrine").[9] Among other things, the Doctrine made it impossible for a sovereign to credibly pledge its assets as collateral against a loan, notwithstanding the existence of such pledges and earmarks in sovereign bonds.[10] Combined with the fungible nature of sovereign revenue streams, this meant that all sovereign loans were de facto claims against the future general revenues of the sovereign backed only by its "full faith and credit."[11] In such an environment, the only purpose of a contract that is not enforceable is to make public the expectations of the parties to the agreement so that it defines, in the event of future repayment difficulties, the boundaries of negotiations to restructure debts. It is in this context that the contractual terms of sovereign lending must be interpreted.

In the absence of legal enforcement, the primary incentive for a country to repay its debts was to preserve future access to credit markets.[12] The second reason why the 1871 origin of the clause is important is that it places its introduction at a pivotal time in the evolution of the mechanisms by which competing creditors interacted in negotiating with sovereign countries in default, and acted to limit future credit market access. For much of the nineteenth century, the largest and most liquid market for sovereign debt was in London.[13] In 1826, the London Stock Exchange adopted a rule that prevented the listing of new bond issues by sovereign countries that were in default and had not reached a settlement with its creditors:

> The committee will not sanction or recognize bargains made in new bonds, stock, or other securities issued by any foreign Government that has not duly paid the dividends on former loans raised in this country, unless such Government shall have effected and carried out a satisfactory arrangement with the holders of such stock, bonds, or other securities, on which the dividends have been left in arrear.[14]

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9. *See* Ugo Panizza et al., *The Economics and Law of Sovereign Debt and Default*, 47 J. ECON. LITERATURE 651, 653 (2009).

10. *See* 1 EDWIN BORCHARD, STATE INSOLVENCY AND FOREIGN BONDHOLDERS 81-82 (1951).

11. *Id.* at 82 (internal quotation marks omitted).

12. GULATI & SCOTT, *supra* note 5 (manuscript at 30-31).

13. PAOLO MAURO ET AL., EMERGING MARKETS AND FINANCIAL GLOBALIZATION: SOVEREIGN BOND SPREADS IN 1870-1913 AND TODAY 134 (2006); Mauro et al., *supra* note 8, at 698-99.

14. *Money-Market & City Intelligence*, TIMES (London), Nov. 23, 1868, at 8 (internal quotation marks omitted). *See also* 1 BORCHARD, *supra* note 10, at 172-73; Larry Neal & Lance Davis, Why the London Stock Exchange Dominated the First Age of Globalization, 1801-1914, at 19 (Oct. 1, 2005) (unpublished manuscript), *available at* http://www.cepr.org/meets/wkcn/1/1617/papers/neal.pdf.

The consequence was to make it if not impossible then at least more expensive for a sovereign country in default to obtain new loans in the London market until it had reached a satisfactory settlement in negotiation with its creditors.

In practice, the London Stock Exchange looked to creditors themselves for guidance as to whether or not a country in default had made a "satisfactory arrangement."[15] In the first few decades following the adoption of this rule, creditors in London would typically organize themselves into bondholder committees for the purposes of these negotiations.[16] The absence of a formal system, or any overarching creditor body, meant that it was not uncommon for rival creditor committees to form with competing settlement proposals.[17] Following the completion of negotiations with one creditor committee, individual bondholders were asked to register their acceptance of the agreement with either the committee or the sovereign.[18] This complicated the negotiation process for the sovereign (which had to bargain with multiple creditor groups), the London Stock Exchange (which had to determine which, if any, of several proposed settlements was satisfactory), and bondholders (who were reluctant to accept one set of terms when a rival committee might eventually secure better ones).

By the 1860s, motivated by the problem of rival committees, efforts to form a unified creditor organization were well underway and culminated in the 1868 formation of the Council of Foreign Bondholders, which became the Corporation of Foreign Bondholders ("CFB") in 1873.[19] Although initially envisaged as a body that would represent bondholders operating in all of the main creditor nations, the CFB was finally constituted to restrict itself to the representation of British bondholders, although also undertaking to coordinate with similar bodies in the other continental European markets.[20]

By the time of the Bolivian bond issue that included the first *pari passu* clause, concerns about conflict among bondholder groups, and the possibility of discriminatory settlements, were still very much in effect.[21]

15. BARRY EICHENGREEN ET AL., CRISIS? WHAT CRISIS? ORDERLY WORKOUTS FOR SOVEREIGN DEBTORS 20 (1995).

16. *Id.* at 19.

17. *Id.* at 19-20.

18. *Id.* at 20.

19. 1 BORCHARD, *supra* note 10, at 203, 205.

20. *See* MAURO ET AL., *supra* note 13, at 150.

21. *See* Rui Pedro Esteves, *Quis Custodiet Quem? Sovereign Debt and Bondholders' Protection Before 1914*, at 6-7 (Univ. of Oxford Dep't of Econ. Discussion Paper Series, Paper No. 323, 2007), *available at* http://www.economics.ox.ac.uk/Research/wp/pdf/paper323.pdf. *But see* MAURO ET AL., *supra* note 13, at 148.

In 1871, the long term viability of the Council of Foreign Bondholders was far from assured, and there was no mechanism for ensuring fair and equitable settlement terms for bondholders in different countries.[22] As a result, it seems reasonable to conjecture that the introduction of the *pari passu* clause was intended, at least in part, as a tool for preserving inter-creditor equity and fairness in negotiations.

III. THE EVOLVING CONCEPT OF FAIRNESS AND THE *PARI PASSU* CLAUSE

After 1868, the London Stock Exchange deferred to the CFB in determining whether a settlement with a country was satisfactory.[23] There is a great deal of material written about various specific negotiations, and about the nature of the debate on these settlements. However, it is not always obvious how much weight should be attached to various public arguments since different creditors appeared to be prepared to raise any argument necessary to ensure the most favorable settlement terms. Nonetheless, by looking at these materials we can discern some patterns as to whether certain settlement features were viewed by creditors as satisfactory.

One thing that is clear is that a satisfactory or fair settlement did *not* require that all creditors be treated proportionately. Recognizing the sovereign's right to tax income within its borders, creditors often conceded the right of the sovereign to treat domestic debts as junior to foreign debts (for example, Austria in the 1860s and the Dominican Republic in the 1900s).[24] Likewise, "funding debts"—debts that had been issued in a past debt restructuring—were often given priority on the grounds that creditors should not have their already reduced claims further reduced in value (for example, Greece in the 1930s).[25] Although there are some exceptions, it was also common for debts issued with some form of security or pledge to receive more favorable terms in negotiations,[26] while debts issued at different times received priority in some cases (for example, Egypt in the 1870s and Turkey in the 1880s).[27]

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22. *See* MAURO ET AL., *supra* note 13, at 132.

23. EICHENGREEN ET AL., *supra* note 15, at 20.

24. See 1 BORCHARD, *supra* note 10, at 359-60, but see *id.* for a list of exceptions to this principle. *See also Money-Market & City Intelligence*, TIMES (London), Mar. 10, 1868, at 10 ("Those who buy the internal stock of Austria must be prepared to conform to whatever fate awaits the Austrian public, but a coupon payable abroad in sterling should always be good for the amount it expresses on its face.").

25. 1 BORCHARD, *supra* note 10, at 338-42, 357 n.62.

26. *Id.* at 356-57.

27. *Id.* at 343, 344 & n.22.

In most of these cases, priority took the form of a greater claim on the general funds available for repayment, independently of whether or not any specific revenue source or asset had been pledged.[28]

There was also widespread agreement that certain forms of discrimination were not fair, the most notable of which being discrimination on the basis of the nationality of the creditor.[29] However, even where equal treatment was demanded, there was not always consensus as to what that meant. For example, during Chile's restructuring in the 1930s, British creditors protested at plans to pay a common but reduced rate of interest on all bonds (that were issued with different interest rates), insisting on a proportionate reduction in the interest rates on all bonds.[30] This proportionate rule seems to have become common thereafter.

Over time, concerns for inter-creditor equitable treatment have not diminished, and there is some evidence that they have converged somewhat on an insistence for *pro rata* repayment.[31] Although the International Monetary Fund demands priority of repayment on its loans, official sector lenders such as creditor country governments restructuring debts under the Paris Club routinely insist on comparable (or at least, no less favorable) treatment to private creditors, which is typically interpreted on a proportional basis.[32]

Private creditors have increasingly written clauses into sovereign debt contracts designed to constrain the ability of a sovereign to make discriminatory repayments. These include *negative pledge* clauses to ensure that the debtor will not pledge any of its assets to subsequent creditors, *mandatory prepayment* clauses requiring *pro rata* payments to all lenders in the event of a prepayment to any lender, and *cross-default* clauses allowing any lender to declare a loan in default should the debtor default on any other loan and so prevent early defaulting loans from receiving better terms.[33] The typical syndicated sovereign loan of the 1970s and 1980s went so far as to include a *sharing* clause that explicitly ensured pro-rated payments in the event of a default.[34]

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28. *See id.* at 356.

29. *Id.* at 338.

30. COUNCIL OF THE CORP. OF FOREIGN BONDHOLDERS, SIXTY-SECOND ANNUAL REPORT 27-32 (1935) [hereinafter SIXTY-SECOND ANNUAL REPORT].

31. *See* GULATI & SCOTT, *supra* note 5 (manuscript at 23).

32. NOURIEL ROUBINI & BRAD SETSER, BAILOUTS OR BAIL-INS? RESPONDING TO FINANCIAL CRISES IN EMERGING ECONOMIES 250-51, 256-57 (2004).

33. GULATI & SCOTT, *supra* note 5 (manuscript at 21 & n.16, 34, 36, 89).

34. Lee C. Buchheit, *Changing Bond Documentation: The Sharing Clause*, INT'L FIN. L. REV., July 1998, at 17, 17.

Set against this history, it seems likely that the *pari passu* clause was intended to be a component of a system designed to ensure inter-creditor equity, possibly as a substitute for these other clauses (in particular, the negative pledge clause), or perhaps even as a complement to them. To refine our understanding of the intention of creditors in introducing and using these clauses, we can look to various forms of evidence—both direct and indirect—as to creditors' interpretations of the *pari passu* clause.

Indirect evidence that the *pari passu* clause is viewed as a substitute for the negative pledge clause comes from Gulati and Scott's data on contractual terms. According to the data, of the 275 pre-World War II bonds issued that could be interpreted as being unsecured, only three contained *both* negative pledge *and pari passu* clauses.[35] Moreover, during the modern period in which the interpretation of the negative pledge clause has been broadened to address preferential arrangements that do not create formal security interests, the *pari passu* clause has been weakened.[36]

Indirect evidence that the *pari passu* clause is viewed as a complement to these other clauses, and in particular as a clause designed to ensure *pro rata* payments, comes from its use following the Brussels Court of Appeal decision in *Elliott Associates, L.P.*[37] As shown by Gulati and Scott, since *Elliott*, the clause has become more prevalent in international bonds, and moreover the version of the clause that favors a *pro rata* payment interpretation has become more widespread.[38] Direct evidence in favor of the *pro rata* interpretation comes from the fact that this interpretation has been used explicitly by creditors in responding to Ecuador's 2009 selective default.[39]

Ideally, we would like to have direct qualitative evidence of creditor attitudes to the clause along the lines of the qualitative evidence presented by Gulati and Scott on the attitudes of creditors' legal representatives. Gulati and Scott report some evidence that lawyers

35. GULATI & SCOTT, *supra* note 5 (manuscript 141-42). Albeit only ten of the pre-World War II bonds classified restrictively as "unsecured" possessed a *pari passu* clause, Gulati and Scott do not report the fraction of these bonds that possessed a negative pledge clause. *See id.* (manuscript at 146, 199 tbl.A7).

36. *See id.* (manuscript at 143-44).

37. General Docket No. 2000/QR/92 (Court of Appeal of Brussels, 8th Chamber, Sept. 26, 2000) (unofficial translation on file with the Hofstra Law Review).

38. GULATI & SCOTT, *supra* note 5 (manuscript at 87, 185-86).

39. *Id.* (manuscript at 185).

perceive their clients' interpretation to be one supporting *pro rata* payment:

> Can you imagine the negotiation dynamic? It doesn't matter that the creditors themselves disagree with *Elliott*. They like the notion of inter-creditor parity . . . you know, equal treatment. How do I go to the creditors and say that I want to remove a clause that says that all of you will be treated equally?[40]

Further qualitative evidence comes from examining creditor discussions of the clause in history. A quick review of the Annual Reports of the CFB reveals four instances in which the term *pari passu* was used. In three of these cases, the clause is used to denote a de jure or de facto claim for proportional repayment. In the case of the Austrian government's repayment of the German 1929 First Mortgage Sterling Bonds, the term is used explicitly to specify a proportional distribution of payments between two bonds (although other bonds were given priority).[41] In the case of the 1935 Province of Buenos Aires debt restructuring, the term is used to signify an equal claim on the funds available for the repayment of the debt.[42] In the Greek Public Works Sterling Loan of 1931, the government reserved the right to issue future debt that would rank *pari passu* for security, where that security took the form of the "surplus revenues" of the government.[43] Only in the case of the 1933 Colombian debt restructuring is the term used to denote an equal ranking of claims (for British and U.S. bondholders) without specific mention of payment.[44]

IV. WHY WAS THE *PARI PASSU* CLAUSE NOT SURGICALLY REMOVED FOLLOWING *ELLIOTT*?

I have argued above that the introduction of the *pari passu* clause was the result of more-or-less intelligent design by a debtor and its creditors in an environment in which concerns as to the fair treatment of different creditors in a debt restructuring were particularly active. Discussions of the clause by creditors following its introduction show that it has also evolved, taking on differing meanings at different times—at one point appearing to substitute for negative pledge clauses, and at

40. *Id.* (manuscript at 173).

41. *See* COUNCIL OF THE CORP. OF FOREIGN BONDHOLDERS, EIGHTY-SECOND ANNUAL REPORT 22-23 (1955).

42. *See* SIXTY-SECOND ANNUAL REPORT, *supra* note 30, at 20-21, 96.

43. COUNCIL OF THE CORP. OF FOREIGN BONDHOLDERS, SIXTIETH ANNUAL REPORT 240-41 (1933).

44. *See id.* at 30-31, 161-62.

other points complementing them by acting as a guarantee of at least equally favorable treatment, and in some cases explicitly proportionate repayment.

In this light, the problem that creditors and regulators have with the *Elliott* decision seems to be not so much with the *pro rata* interpretation of the clause, but with its application in that specific case. The creditors that had participated in the Brady bond[45] exchange with the Republic of Peru presumably would have been quite content if the *pari passu* clause were used to ensure that Elliott Associates, L.P. received the same proportional reduction in payment that they themselves had received in the exchange.[46] However, in combination with the fact that Peru was servicing the new but already-reduced claims under the Brady bonds in full, the creditors objected to the use of the clause in order to obtain full repayment of the original unreduced bonds.[47]

Nonetheless, given the risk of litigation and the potential continued problematic application of the principle, why was the clause not deleted, or at least modified to reduce this problem, in succeeding bond issues? I suspect that there were three reasons for the continued usage of the clause and the move towards the more explicit *pro rata* version of the clause. First, creditors continued to desire the protection against discriminatory settlements that the *pari passu* clause was perceived as providing. Indeed, the importance of this protection was illustrated with the discriminatory default by Ecuador in 2009.[48] Second, creditors believed (correctly) that changes in the operation of Euroclear and other payment-clearing mechanisms would prevent the clause from being used to block the repayment of funding bonds in the future.[49]

Third, and perhaps most importantly, creditors anticipated that there would be further changes in sovereign bond contracts and/or international institutions that would work to limit the misapplication of the *pro rata* interpretation, and that would make *pro rata* protection more important in the future. Creditors were correct in the former belief,

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45. Brady bonds were developed by former U.S. Treasury Secretary Nicholas Brady to restructure the debt of developing countries. FED. RESERVE BD. OF GOVERNORS, TRADING & CAPITAL-MARKETS ACTIVITIES § 4255.1 (1998), *available at* http://www.federalreserve.gov/Boarddocs/SupManual/trading/4000p2.pdf.

46. But see Transcript of Oral Argument at 12, 14, NML Capital, Ltd. v. Republic of Argentina, 2011 WL 4529332 (S.D.N.Y. Feb. 23, 2012) (No. 08 Civ. 6978 (TPG)) where this argument was raised but dismissed on the grounds that the Argentine restructuring agreement was a "voluntary exchange[] with sophisticated purchasers of bonds" which "gave participants in that exchange offer the right to participate in any future exchange offers but not the right to receive the same treatment as a bondholder that settles a lawsuit with Argentina."

47. *See* GULATI & SCOTT, *supra* note 5 (manuscript at 21).

48. *See id.* (manuscript at 183-84).

49. *See id.* (manuscript at 57, 192).

with the widespread adoption of *collective action* clauses in sovereign bond contracts making it possible, in principle, to impose common settlement terms on all holders of a given bond through a super-majority vote of bondholders, thus reducing the litigation risk from holdout creditors.[50]

Creditors may yet turn out to be correct in the latter belief as well. Following the example of Uruguay,[51] there has been some discussion of the possibility of the more widespread use of *aggregation* clauses that would allow the imposition of settlement terms on the holders of other bonds, provided that a proposed settlement be accepted by a super-majority of the holders of each bond, as well as a super-majority of all bondholders voting collectively. This discussion has intensified in the context of the current European debt crisis following the commitment by the Eurogroup to introduce aggregation clauses into all European Union area bonds starting in 2013,[52] which might lead to their more widespread adoption by other countries. The adoption of aggregation clauses opens the possibility that future debt restructuring operations will involve a more heterogeneous group of creditor claims than previously observed. In such an environment, the risk of a discriminatory settlement is enhanced, and the protection offered by a *pro rata* payment clause is likely to be more valuable.

V. WHAT SHOULD WE MAKE OF THE SURVEY EVIDENCE?

I conclude with some remarks on the use of qualitative survey evidence to infer the rationality, or irrationality, of actions. Gulati and Scott begin their piece with the "story of the jumping frog": a parable designed to illustrate the dangers associated with inferring the motivations for, and rationality of, a set of actions from data on the actions themselves alone.[53] Gulati and Scott aim to surmount this problem by surveying market participants directly as to the reasoning underlying their actions.[54] Confronted by an inability or unwillingness to articulate these reasons, the actions are interpreted as being irrational, and their persistence is attributed to the workings of the organizations within which the actions take place.[55]

50. *See id.* (manuscript at 37-38).

51. *See id.* (manuscript at 169).

52. Press Release, Eurogroup, Eurogroup Statement on European Financial Stabilization 1-2 (Nov. 28, 2010), http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ecofin/118050.pdf.

53. *See* GULATI & SCOTT, *supra* note 5 (manuscript at 7).

54. *See id.* (manuscript at 10-11).

55. *See id.* (manuscript at 12, 121).

While surveys that attempt to collect data on an agent's motivation have the potential to be very valuable, there remains a degree of hostility to their use within some branches of the social sciences. This is for at least two reasons. First, it is not always obvious that respondents have an incentive to answer truthfully. In the present context, there are at least two reasons, implicitly pointed out by Gulati and Scott themselves, why respondents might have an incentive to engage in ex post rationalization of their actions. For one, the survey itself could be interpreted as criticism of the lawyers' own drafting practice which may bias their answers.[56] For another, given the hostility of their clients to the Brussels interpretation, "the lawyers on the sovereign side had to conjure up a meaning for the clause (it would hardly do [anything] for them to be arguing to a judge that they knew that *Elliott* was wrong but that they had no clue as to what the clause actually meant)."[57]

The second reason for hostility is that, even if we accept that respondents have an incentive to answer truthfully, it is not entirely obvious that agents need to be able to explain the rational basis of their actions for their behavior to be rational. This argument is reminiscent of an old one due to Milton Friedman and Leonard J. Savage.[58] In that context, Friedman and Savage were responding to criticism of the economist practice of modeling human behavior as the (rational) outcome of a complicated mathematical optimization problem.[59] They used the example of a billiard player to argue that there was no useful empirical distinction between an agent that solved complicated mathematical problems as part of his or her decision making process, and one that merely acted *as if* he or she solved the same mathematical problems.[60]

> Consider the problem of predicting, before each shot, the direction of travel of a billiard ball hit by an expert billiard player. It would be possible to construct one or more mathematical formulas that would give the directions of travel that would score points and, among these, would indicate the one (or more) that would leave the balls in the best positions. The formulas might, of course, be extremely complicated, since they would necessarily take account of the location of the balls in relation to one another and to the cushions and of the complicated phenomena introduced by "english." Nonetheless, it seems not at all

56. *See id.* (manuscript at 126-27).
57. *Id.* (manuscript at 188).
58. *See* Milton Friedman & L. J. Savage, *The Utility Analysis of Choices Involving Risk*, 56 J. POL. ECON. 279, 297-98 (1948).
59. *See id.* at 287-88, 297-98.
60. *Id.* at 298.

> unreasonable that excellent predictions would be yielded by the hypothesis that the billiard player made his shots *as if* he knew the formulas, could estimate accurately by eye the angles, etc., describing the location of the balls, could make lightning calculations from the formulas, and could then make the ball travel in the direction indicated by the formulas. It would in no way disprove or contradict the hypothesis, or weaken our confidence in it, if it should turn out that the billiard player had never studied any branch of mathematics and was utterly incapable of making the necessary calculations: unless he was capable in some way of reaching approximately the same result as that obtained from the formulas, he would not in fact be likely to be an expert billiard player.[61]

In the present context, it should in no way disprove or contradict the hypothesis that expert sovereign debt practitioners are acting rationally if they are utterly incapable of articulating the rational basis for their actions; unless they are acting rationally in drafting these contracts, they would not be likely to be expert sovereign debt practitioners.

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61. *Id.*