Moral language in the Basel Accords: A quantitative analysis.

Hadar Yoana Jabotinsky

School of Law, Hebrew University, Jerusalem, Israel

Eyal Sagi

Psychology Department, University of St. Francis, Joliet, Illinois

Abstract

Technical documents are generally perceived as objective and free of opinion. The Basel Accords, a global financial regulatory standard, fall into this category. Therefore, political texts have to appear as morally neutral. In this paper we argue that some moral arguments and convictions can be found in most texts, including technical ones. To test this hypothesis, we employ a novel quantitative analysis, based on corpus statistics and uncover elements of moral language that are present in the Basel Accords. In particular, we investigate the differences between the language used in different parts of the Accords and how it evolved over time. Our results show an increase in moral language that emphasizes fairness following the financial crisis of 2007-2009. In contrast, moral language relating to authority greatly decreased in the most recent version of the Accords.

Keywords: Basel Accords; Financial Regulation; Global Standards; Moral Language; Latent Semantic Analysis.

1 INTRODUCTION

Scientific and professional texts, written by experts, are often considered to be technical documents. Technical documents are viewed as factual and objective and therefore devoid of opinion. Consequently, they are expected to be free of moral arguments and justifications. Some legal and political texts, such as legal rules dealing with technical economic standards, are seen almost as scientific texts[1] and as such are perceived by the public, and to some extent also by local politicians, to be technical and hence "morally neutral".[2] This paper argues that contrary to this perception, technical legal texts do in fact contain moral language.

Political texts often employ moral and emotional language to enhance their message and influence the readers. In fact, it is very difficult to find such texts which do not make use of moral arguments or present specific moral positions. In a democratic society, the use of moral language in political texts stems from an assumption that issues which deal with ethics and morals should be agreed upon by the majority of the citizens (when possible).[3] On the other hand, it is usually believed that professional technical decisions can and should be left for experts. Therefore, political texts have to either convince their audience that they are following the opinion of the majority of the public or else present themselves as being "morally neutral".

Things get even more complicated with the adoption of global standards. When a state is considering adopting a global regulatory standard, it implies giving up on some of its sovereignty. This might come at a cost to democracy: By adopting the global standard the state

[1] Especially if we consider economics a science.
[2] See for example the way in which the European Banking Authority refers to the standards which are derived from Basel III as "technical standards" on their official website: < http://www.eba.europa.eu/regulation-and-policy/implementing-basel-iii-europe> (last accessed 10/02/2015).
[3] For a widely cited discussion on the legitimacy of legislation see: Bernard Manin et al., *On Legitimacy and Political Deliberation,* 15 POL. THEORY 338 (1987).

adopts a set of rules which reflect global rather than national politics. [4] This has the potential to undermine democratic principles, and as such is an argument against standardization of regulation on a global level.[5] The reason it might undermine democratic principles is that even though adopting the standard is made in a democratic way, once a country signs the convention and adopts the standard there are several things which make it difficult for it to withdraw from the convention (global political pressure, behavioral bias etc.) and so, even if the local opinion has changed, the global standard often remains.

Therefore, in order to adopt a global standard it is necessary to convince the citizens of the adopting state to "allow" the state to surrender its power and delegate up.[6] It is for this reason that states are usually keener to join in on what might seem at first glance as global standards which employ "neutral" language, i.e. standards which do not imply or endorse any particular moral stance. If the standard appears to be technical it is perhaps easier to convince the citizens of the adopting state to leave it to the experts' opinion.[7]

As an example, consider a treaty that aims to provide punitive guidelines for drug offenders. If such a treaty is based on the argument that drug use is morally reprehensible and corrupts social norms its adoption might encounter more objections than if it makes the argument that drug use has adverse economical implications and results in an increase in crime. Moreover,

[4] Allen Buchanan & Robert O. Keohane, *The Legitimacy of Global Governance Institutions*, 20 ETHICS & INT'L AFFAIRS (2006), Manuel Puppis et al., *The Political Communication of Independent Regulatory Agencies*, 20 Swiss Pol. Science Rev. 388, 389 (2014).
[5] Manuel Puppis et al., s*upra* note 4, at 389-390.
[6] Manuel Puppis et al., s*upra* note 4, at 390-391.
[7] Dieter Kerwer, *Rules that Many Use: Standards and Global Regulation*, 18 GOV. 611, 611 (2005), David Demortain, *Standardising through Concepts: The Power of Scientific Experts in International Standard-Setting*, 35 SCI. & PUB. POL'Y 391, 393 (2008).

while the latter can be supported by research and evidence, the former presents a particular moral point of view and may vary based on cultural differences.

This paper explores whether the Basel Accords, a global financial regulatory standard for banks' risk regulation, which is considered to be a technical global standard, is really as morally "neutral" as it seems. Specifically, we contend that even technical texts often convey their authors' moral convictions and beliefs through the use of particular words and terms. Identifying language that expresses a moral stance, whether the stance is made explicit in the text or is merely implied, is especially important in the case of treaties and accords, which carry significant political weight and whose interpretation forms the basis of international cooperation.

In order to facilitate answering this question we adopt a pragmatic definition of moral language, and base our measure on a set of words whose meaning incorporate specific moral implications. Nevertheless, it is important to note that such textual content often reflects the underlying representations and intentions of the authors and influences the representations drawn by readers, as evident by research on the framing effects of texts.[8]

1.1 The 2007-2009 Financial Crisis and its implications to financial regulation

The Global Financial Crisis of 2007-2009 which stemmed from the bursting of the American Housing Bubble and resulted in a steep decrease in the value of securities that were tied to the cost of housing in the USA, has spread to almost all markets around the world. Furthermore, it brought down financial conglomerates that were not previously considered to be linked with the

[8] E.g., Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice* (Science, 1981, 453-458) ; Eyal Sagi et al., *Identifying Issue Frames in Text* , 8 PLoS One (2013).

American market in any way.[9] This crisis has raised serious questions regarding the efficiency of financial regulation as it existed at that point in time, casting doubts on the approaches to financial crisis management taken by financial regulators, and on the effectiveness of financial regulation in preventing the collapse of systemically important global financial institutions.[10]

Following the crisis many changes have been made to global financial regulation. These include changes to the international standards of bank risk regulation, also known as the Basel Accords. The last version of the Basel Accords, Basel III, was enacted after the last financial crisis and is therefore interesting from a moral language perspective – specifically, it is interesting to compare the language used by the legislator in this latest version of the Accords to that of legislative texts issued by the same committee a while back before the eruption of the crisis. Such comparison can provide us with insights regarding the mindset and reasoning employed by the regulators while they were drafting the regulation. While the texts about financial regulation might be considered technical and somewhat formal, the precise phrasing used provides an undertone that reflects the thought processes of the drafters and can influence the interpretation drawn by the readers.

1.2 The Basel Accords

The Basel Accords are the result of the work of the Basel committee on Banking Supervision (BCBS). The committee was first convened in the 1980's in order to produce a global standard for financial regulation in an attempt to minimize the occurrence of future global financial crises and to create a level playing field. Such a level playing field is thought to increase competition

[9] Jonathan R. Macey et al., *Failure Is an Option: An Ersatz-Antitrust Approach to Financial Regulation*, 120 Yale L. J. 1368, 1376 (2011).
[10] *Id.,* at 1376.

among international banks by subjecting them all to the same capital requirements.[11] In 1988 the committee released the first Basel Capital Accord, also known as Basel I. The Accord consisted of uniform capital requirements that were agreed to by central bankers belonging to the G-10 countries.

In 2004, the Basel Committee on Banking Supervision (BCBS) released what is now known as Basel II,[12] a (then) new Capital Accord which was meant to bring remedy to the major shortcomings identified with the previous Basel Accord of 1998 (Basel I).[13]

The drafting of the Basel Accords had two main rationales: to promote stability in the banking system by reducing systemic risk and to equalize bank's competitive positions.[14] These two rationales are often indistinguishable, as it is difficult to separate the one from the other.[15] An example might be taken from the origins of Basel I: Equalizing international competition for banks was sought after by regulators in the US in order to prevent harmful regulatory competition (especially in comparison to the Japanese) and enable them to raise capital for domestic banks and strengthen the US's financial system.[16] In 1987 the US managed to sign an agreement with the UK on minimum capital requirements from banks in order to "level the

[11] Roberta Romano, *For Diversity in the International Regulation of Financial Institutions: Critiquing and Recalibrating the Basel Architecture* 1, 1 (YALE L. & ECON. RES.EARCH PAPER, Paper No. 452, 2013), *available at* SSRN: http://ssrn.com/abstract=2127749.
[12] Basel Committee on Banking Supervision (2004) *International Convergence of Capital Measurement and Capital Standards – A Revised Framework.* Basel: Bank for International Settlements and Basle Committee on Banking Supervision Publications.
[13] Basel Committee on Banking Supervision (1988) *International Convergence of Capital Measurement and Capital Standards*. Basel: Bank for International Settlements and Basle Committee on Banking Supervision Publications.
[14] Michael McAleer et al., *Has the Basel Accord improved risk management during the global financial crisis?,* 26 NORTH AM.J. ECON & FIN. 250, 251 (2013), RICHARD J. HERRING AND ROBERT E. LITAN, FINANCIAL REGULATION IN THE GLOBAL ECONOMY 50, 109 (1995), Romano, *supra* note *11*, at 1.
[15] Richard Dale, *Regulating the New Financial Markets*, in MALCOLM L. EDEY, ED., THE FUTURE OF THE FINANCIAL SYSTEM 215, 217 (1996)
[16] Romano, *supra* note *11*, at 9.

playing field". This agreement paved the way to Basel I and the international adoption of minimum capital requirements.

Basel II consists of three regulatory pillars: the first pillar, the central pillar of the Accord and a continuation of Basel I, is concerned with minimum capital requirements. Unlike Basel I, in which regulators fixed the risk rate according to asset categories, Basel II enlisted bank's internal risk management models used by banks in determining their capital requirements. The second and third pillars of the Accord are concerned with regulatory supervision and disclosure.[17]

Like the previous Accord, Basel II was meant to unify, to a certain extent, the financial regulatory standards which had to do with bank risk taking and reduce the risk that a bank will go bankrupt and bring down with it the entire financial system. In order to do so Basel II required banks to tie their capital to the risks embedded in their underlying assets.[18] The rationale behind these regulatory demands was that the bank's capital should serve as a buffer against unexpected losses (usually caused by the bankruptcy of one or more of its large borrowers) and aid the bank in avoiding a default.[19]

However, linking capital to risk is not cost free. After the 2007-2009 financial crisis Basel II was criticized based on the fact that instead of reducing the procyclicality[20] of banks

[17] Romano, *supra* note *11*, at 13.
[18] Ines Drumond, *Bank Capital Requirements , Business Cycle Fluctuations and the Basel Accords: A Synthesis*, 23 J. ECON. SURV. 798, 798-9 (2009).
[19] Ranjit Lall, *From Failure to Failure: The Politics of International Banking Regulation*, 19 REV. INT'L POL. ECON. 609, 610-11 (2012).
[20] Procyclicality refers to a tendency to fluctuate around a trend during a financial crisis. When a bank becomes procyclical it raises concerns about its stability (See: Michael B. Gordy and Bradley Howells, *Procyclicality in Basel II: Can we Treat the Disease Without Killing the Patient?*, 15 J. FIN INTERMEDIATION 395 (2006)).

during the crisis it increased it; if during a recession banks have to increase their capital based on the risks identified with their underlying assets (as a result of a downgrade of some of the banks' borrowers), there is a risk that banks will hold back on loans thus deepening the recession.[21]

Following this insight, many regulators and international committees have diverted their focus from a micro to a macro systemic risk approach: instead of focusing on the stability of individual banks, the goal is now to reduce banks procyclicality and prevent the cascading effect that a failure of a large financial conglomerate might have on the entire market.[22] It is on this background that Basel III has been brought forward by the BCBS in 2010-2011.

Basel III was meant to correct the flaws identified in Basel II following the crisis and provide banks with a unified global standard in order to address and minimize their systemic risks. Its power lies in its widespread adoption (over 100 countries around the globe adopted the regulation), however, this also seems to be one of its weaknesses.[23]

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[21] Drumond, *supra* note 18, at 799.
[22] *Id.*, at 799.
[23] Romano, *supra* note 11, at 4-7. In her article Romano (2012) criticizes Basel III for narrowing the diversity of financial institutions and thus leaving them vulnerable to regulatory mistakes which might actually aggravate systemic risk and expose all banks around the globe to risk. She further criticizes the regulation for regulating according to the known risks and their known solutions, demanding increased capital requirements from banks, rather than leaving the regulation flexible and more adapt to dealing with unknown risks. This type of criticism against globalizing regulatory standards was also raised by Herring and Litan (RICHARD J. HERRING AND ROBERT E. LITAN, FINANCIAL REGULATION IN THE GLOBAL ECONOMY 134-135 (1995)) and by Benston (George J. Benston, *International Harmonization of Banking Regulations and Cooperation Among National Regulators: An Assessment*, 8 J. FIN. SERVS. RES. 205 (1994)). Other scholars have raised concerns regarding the efficiency of Basel III in regulating banks claiming that demanding banks to hold contingent capital (i.e., capital which is converted from debt to equity during a crisis) might cause economic losses due to mistakes related to under or over capitalization and might be susceptible to manipulations (Robert L. McDonald, *Contingent Capital with a Dual Price Trigger*, 9 J. FIN. STAB. 230 (2013); Philip Bond et al., *Market-Based Corrective Actions*, 23 REV. FIN. STUD. 781 (2010)).

While much has been written about the Basel Accords from a functional perspective, little is known about the moral positions that might be implied by them. In this paper, we aim to explore the moral language of the Basel Accords, and in particular examine whether the global financial crisis has an impact on it.

1.3 Rhetoric in Legal Writing

Several scholars have made the link between rhetoric theory and legal writing.[24] Rhetoric is used in legal text in order to organize the substance of the text and to persuade judges, other lawyers and clients to accept the arguments brought forward in the text. Legal rhetoric reflects the historical and cultural settings in which human beings write, read, argue and decide upon legal arguments and from which the meaning making process emerges.[25] Legal language is one of the tools through which such rhetoric is conveyed.[26]

Following Sunstein (1996), we take the position that, in addition to its traditional role in guiding human behavior, the law also has an expressive function and that "…legal statements might be designed to change social norms."[27] However, we propose that this expressive function might not be entirely intentional. While Sunstein refers to the conscious rhetoric used by law makers to further social change, we suggest that there are also unintentional, perhaps even unconscious, elements to this rhetoric: we believe that regulators are affected by the social zeitgeist of their time and this affects their word selection when phrasing the regulation.

[24] See Michael R. Smith, *Rhetoric Theory and Legal Writing: An Annotated Bibliography*, 3 J. ASS'N LEGAL WRITING DIRECTORS 129 (2006) for a detailed bibliography of the articles in the field.
[25] Linda L. Berger, *Studying and Teaching "Law as Rhetoric": A Place to Stand*, 16 J. LEGAL WRITING INST. 2, 5-6 (2010).
[26] See Jack L. Sammons, *The Radical Ethics of Legal Rhetoricians*, 32 VAL. U. L. REV. 93, 99 (1997): "[Legal rhetoric] is not unbridled because this particular form of rhetoric is located ... within a particular rhetorical community with a particular rhetorical culture…"
[27] Cass R. Sunstein, *On the Expressive Function of Law*, 144 U. PENN. L. REV. 2025 (1996).

In his article from 1998, Cooter claims that the expressive use of the law is in creating a focal point for the system of social norms by expressing values. This function of the law might result in changes to the personal values held by rational individuals.[28] He further argues that "*…more people will express commitment to norms when doing so costs less*".[29] In this paper we track the use of moral language in the law. Following Cooter, we posit that this use of moral language is a natural consequence of the regulators efforts to convince the public that the regulation, and the values embodied by it, are socially desirable. It both reflects their motivations and intentions in fashioning the law, and explicates their expectations of its use. Moreover, if the target audience is persuaded that the regulation adheres to their basic values, it will cost them less and therefore they will be more inclined to accept it. Lastly, Cooter also argues that the makers of the law shape the law so it better reflects their own political and moral vision.[30] Our findings support this point of view and suggest some specific mechanisms through which the legislators' politics and morality are reflected in the text of the law.

Berger (2010) views legal rhetoric as an "*interactive process of persuasion and argumentation that is used to resolve uncertain questions in this setting and for the time being...*"[31] rather than viewing it as a technique. However, even though she does not refer to it as a technique, she does recognize that rhetoric can be used as an important tool in order to interpret and construct legal arguments.[32] Our paper backs up and further develops her claims, as it

[28] Robert Cooter, *Expressive Law and Economics*, 27 J. LEGAL STUD. 585, at 586 (1998).
[29] *Id.*, at 606.
[30] *Id.*, at 606. See also: Richard Posner, *What do Judges Maximize? (The Same Thing Everybody Else Does),* 30 SUP. CT. ECON. REV. 1 (1993), GEOFFREY BRENNAN & LOREN LOMASKY, DEMOCRACY AND DECISION: THE PURE THEORY OF ELECTORAL PREFERENCES (1997), Chris Guthrie et al., *Inside the Judicial Mind,* 86 Cornell L. Rev. 777, at 778 (2000).
[31] Berger, *supra* note 25, at 6.
[32] *Id.*, at 7.

demonstrates that not only do the legal arguments made adapt to fit the setting and time, but so does the underlying moral tone of legal texts .

Sammons (1997) acknowledges the influence of culture and community on the legal rhetoric used by jurists who belong to the same community.[33] Following Sammons, this paper suggests a possible connection between the general spirit of the time, the culture of the financial community and the moral language used by the regulators in the Basel Accords.

Goldsmith and Posner (2000) refer to the legal rhetoric used by nations in international law and claim that "*nations provide moral justifications for their actions...their legal or moral justifications, cleave to their interests, and so when interests change rapidly, so do the rationalizations…*"[34]

Stoddard (1997) examined the question whether law can be an effective tool for a positive social change and claimed that this can only happen where the law is not only "rule-shifting" but also "culture-shifting".[35] According to Stoddard this can happen where the law affects a large number of people, people are aware of the change in the law, believe it is legitimate and the government takes care to enforce it.[36] Feldblum (1997) adds to this that the change in the law must be accompanied by some kind of moral rhetoric.[37] In texts, the force of moral rhetoric needs to be expressed using words and phrases. In particular, moral language can be used to express the intended moral position and is therefore indicative of the moral rhetoric intended by the authors of the text.

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[33] Sammons, *supra* note 26, at 99. .
[34] Jack L. Goldsmith and Eric A. Posner, *Moral and Legal Rhetoric in International Relations: A Rational Choice Perspective*, 31 J. Leg. Stud. S115, S118 (2000).
[35] Thomas B. Stoddard, *Bleeding Heart: Reflections on Using the Law to Make Social Change*, 72 N.Y.U. L. Rev. 967, 970 (1997).
[36] See *id.* at 978.
[37] Chai R. Feldblum, Responses: The Moral Rhetoric of Legislation, 72 N.Y.U. L. Rev. 992, 993 (1997).

Black (2002) uses discourse analysis to discuss the regulatory making process. She argues that the language used by regulators is shaped so as to further their goals. She suggests that "*…language frames thought, and produces and reproduces knowledge…. language is intimately related to power:...it is marked by the values of social groups,…it encodes perspectives and judgements, and can instantiate certain perspectives or orthodoxies…*"[38] This paper provides support for these claims by illustrating that the moral language employed in the Basel Accords changed over time. We believe that these changes mirror changes in the social climate over the same period of time.

Finally, our results are in line with the literature with regards to global regulatory forums. Much like leaders of nations or other regulators, the drafters of the Basel Accords have their own opinions, morals and incentives, and they are also, like all other humans, affected when drafting the legislation by their surrounding environment. Whether they are aware of these influences or not, the words they choose when drafting the text have underlying moral implications embedded in them. While these influences are partly driven by the drafters' psychological makeup, they also reflect their intentions. Consequently, these texts can motivate and precipitate cultural change within the regulated institutions, i.e. most banks around the world.[39]

[38] Julia Black, *Regulatory Conversations,* 29 J. L &SOC 96, 166 (2002)

[39] Several scholars have dealt with the clarity of communication of financial regulators using different tools to measure the clarity of their communications. See: Pierre L. Siklos, *The Global Financial Crisis and Central Bank Speak: Central Bank Guidance in Good Times and in Bad* in COMMUNICATION AND LANGUAGE ANALYSIS IN THE CORPORATE WORLD (Roderick P. Hart ed., 2014) ; Carlo Rosa and Giovanni Verga, *On the Consistency and Effectiveness of Central Bank Communication: Evidence from the ECB*, 23 EURO. J. POL. ECON. 147 (2007); Ales Bulie et al., *Clarity of Central Bank Communication About Inflation* (IMF Working Paper, Paper No. WP/12/9 (2012) *available at*: SSRN: http://ssrn.com/abstract=1997722 and more.

1.4 Moral Language and Moral Foundation Theory

In order to study the moral language used in the Basel Accords, we first need to define it. For this we adopt the definition used in a 2014 paper by Sagi and Dehghani, whose approach for the analysis of moral language we will use in this paper.[40] They define moral language as "*the language used for advocating or taking a moral stance towards an issue by invoking or making salient various moral concerns*". The theoretical background for our analysis is provided by Moral Foundations Theory, a prominent theory of moral psychology.[41] This theory identifies five psychological systems, also referred to as moral intuitions or concerns that account for various aspects of our moral cognition. Each moral concern has both a positive aspect (virtue) and a negative aspect (vice).[42]

Moral Foundations Theory is most frequently applied as a tool for investigating political attitudes in the U.S.[43] As such, it focuses on the reasoning processes of the individual, like other theories in moral psychology. Nevertheless, it can also be adapted and used to analyze the moral language exhibited by texts. In 2009, Graham et al. introduced the Moral Foundations Dictionary

[40] Eyal Sagi and Morteza Dehghani, *Measuring Moral Rhetoric in Text*, 32 SOC. SCI. COMP. REV. 132 (2014).
[41] Jesse Graham et al., *Moral Foundations Theory: The Pragmatic Validity of Moral Pluralism*, 47 ADVANCES EXPERIMENTAL SOC. PSYCHOL. 55 (2013); Jonathan Haidt and Craig Joseph, *Intuitive Ethics: How Innately Prepared Intuitions Generate Culturally Variable Virtues*. 133 DAEDALUS 55 (2004).
[42] The Moral pairs include: Care/harm: Caring and protecting individuals from harm; Fairness/cheating: Concerns regarding acts of cooperation, reciprocity and cheating; Loyalty/betrayal: Characterized by expressions of patriotism, self-sacrifice, etc. as well as their vice counterparts such as betrayal and unfaithfulness to the group; Authority/subversion: Concerns regarding topics such as respect and insubordination; and Purity/degradation: Related to sanctity as a virtue and disgust, degradation and pollution as vices.
[43] For example, see Jesse Graham et al., *Liberals and Conservatives Rely on Different Sets of Moral Foundations*, 96 J. PERSONALITY & SOC. PSYCHOL. 1029 (2009) ; Spassena P. Koleva et al., *Tracing the Threads: How Five Moral Concerns (Especially Purity) Help Explain Culture War Attitudes*. 46 J. RES.PERSONALITY 184 (2012).

(MFD) as a resource to be used for such purposes.[44] This dictionary consists of 295 words and word stems related to each of the moral intuitions of harm, fairness, loyalty, authority and purity. In this paper, we use a text analysis method based on a statistical measure of semantic similarity together with this dictionary to explore the moral language used in the drafting of the Basel Accords.

It is important to note that we are interested in a very specific form of expression of moral convictions and beliefs, and consequently define it narrowly for the purposes of our research. Nevertheless, we believe moral language is indicative of an underlying moral rhetoric and, much like other types of rhetoric, functions behind the scenes to color and influence the interpretation of the text and in that it represents the moral reasoning used by its drafters. As such, we believe that the role of the moral language we observe in the texts we study can be viewed as similar to the role of rhetorical devices whose mechanisms have previously been studied and elucidated.

Following the reasoning of Goldsmith and Posner, we suggest that the moral language used in the Accords will reflect their historical and cultural settings.[45] In that regard, differences in the moral language between the 2nd and 3rd iterations of the Basel Accords can provide us with insight as to how regulators view the Global Financial Crisis of 2007-2009 and what style of reasoning they used when putting together regulations that are intended to prevent such crises in the future.

Indeed, one of the most important findings of this paper is that the underlying moral stance of Basel III is comprised of notions of fairness and loyalty to a much greater extent than is

[44] Graham et al., *supra* note 43; Spassena P. Koleva et al., *supra* note 43.
[45] Goldsmith and Posner, *supra* note 34.

apparent in the underlying rhetoric of Basel II. This is particularly interesting as the Basel Accords are thought of as technical standards which are not meant to reflect the regulators opinions (unlike, perhaps, judicial decisions or other legal texts).[46] This paper helps uncover the underlying moral position of the Basel Accords and helps affirm the claim that no legal text is completely "neutral". Instead, it is important to recognize that, like other texts, legal texts incorporate an implied expression of the convictions and beliefs of their drafters. [47]

By applying our analysis to a global standard, the Basel Accords, which is considered to be technical by nature, this research reveals the underling moral stances embedded in quasi-scientific political texts and helps expose their moral language. By doing so, it contributes to the study of democracy and adds an important insight to the study of international law and the adoption of what appear to be technical global standards.

2 METHOD

We based our measure of moral language on the method Sagi and Dehghani described in their 2014 paper. At the core of this measure is the notion of word co-occurrence patterns as used by methods such as Latent Semantic Analysis (LSA).[48] It is commonly assumed in language technology and computational linguistics that a word's co-occurrence patterns with other words

[46] JAMES BARTH, GERARD CAPIRO AND ROSS LEVINE, RETHINKING BANK REGULATION: TILL ANGLES GOVERN (Cambridge University Press, 2006).
[47] While we do not report on it here, we also conducted a similar analysis of the text of the 1st Basel Accords and found an even higher level of moral language, most notably language concerned with the moral foundation of *loyalty*.
[48] Scott Deerwester et al., *Indexing by Latent Semantic Analysis*, 41 J. AM. SOC'Y INFO. SCI. 391 (1990); Thomas K. Landauer and Susan T. Dumais, *A Solution to Plato's Problem: The Latent Semantic Analysis Theory of the Acquisition, Induction, and Representation of Knowledge*, 104 PSYCH. REV. 211 (1997).

provide a readily observable approximation of its semantic content.[49] The group of methods aimed at operationalizing this intuition is often collectively referred to as LSA, Methods in this group derive a measure of similarity between words from their pattern of co-occurrence in a corpus, most often a collection of documents. Formally, words are associated with vectors in a multi-dimensional space. The probability that two words would co-occur in the corpus is inversely related to the distance between their vectors within that space. The angle between the vectors is the most commonly used measure for this similarity, and for normalized vectors, the cosine of the angle is equivalent to the correlation between the vectors. This equivalence is useful because it provides a convenient avenue for interpreting the results of such an analysis. Importantly, these patterns of word co-occurrence within a text represent deeper regularities within the language and the cognitive system that underlies it. As such, words associated with related topics tend to occur together more frequently than unrelated words (e.g., moon and earth tend to occur with each other more frequently than either tends to occur with gun).

Furthermore, it is possible to compute a vector to represent a span of text by combining together the vectors of the words that occur with it. Formally, this vector is calculated as the normalized sum of its constituent word vectors. This vector provides an indication of the overall content of the span, similarly to the way the average indicates the central tendency of a set of numbers. For our purposes, we considered each paragraph as a separate span of text and computed one such aggregate vector per paragraph.

Next we calculated the distance in the space between each paragraph and a set of terms associated with a particular moral concern, as identified by the Moral Foundations Dictionary.

[49] JOHN R. FIRTH, PAPERS IN LINGUISTICS 1934-1951 (Repr. Oxford University Press, 1961); see also Deerwester et al., *supra* note 48; Thomas K. Landauer and Susan T. Dumais, *supra* note 48.

Averaging these paragraph-to-term distances provides us with an estimate of the degree to which the paragraph expresses the particular moral language. This results in a set of five moral language loadings (one for each style of moral reasoning) for each paragraph that are suitable for statistical analysis.

A similar approach to measuring moral language in text was proposed by Jesse Graham and his colleagues in 2009.[50] Their approach relies on counting the number of occurrences of particular terms. Because the overall frequency of occurrence of these terms in language is generally low, we believe such a technique is more suitable for large spans of texts which include millions of words, whereas the Basel Accords only contain less than 200,000 words in total. Because the approach we describe here relies not on the occurrence of words but measures the similarity in patterns of word co-occurrence we argue that it is more sensitive to subtle differences in language use and suitable for analyzing smaller texts, such as the Basel Accords. A more comprehensive review of these types of methods, as they apply to the field of psychology, can be found in a recent paper by Rumen Iliev and his colleagues.[51]

2.1 The Texts

The texts we analyzed in this paper were retrieved from the BCBS website. In particular, we analyzed the text "*International Convergence of Capital Measurement and Capital Standards*" (henceforth: BCBS128) as representing the 2nd Basel Accords and the texts "*Basel III: International framework for liquidity risk measurement, standards and monitoring*" (henceforth: BCBS188) and "*Basel III: A global regulatory framework for more resilient banks and banking*

[50] Jesse Graham et al., *Liberals and Conservatives Rely on Different Sets of Moral Foundations*. 47 J. PERSONALITY & SOC. PSYCHOLOGY 55 (2009).
[51] Rumen Iliev et al., *Automated Text Analysis in Psychology: Methods, Applications, and Future Developments*, 7 LANGUAGE & COGNITION 265 (2015).

systems" (henceforth: BCBS189) as representing the 3rd Basel Accords. We retrieved the PDF versions of these documents and converted them to texts. We separated individual paragraphs and calculated moral language loadings for each paragraph as described earlier.[52]

3 RESULTS

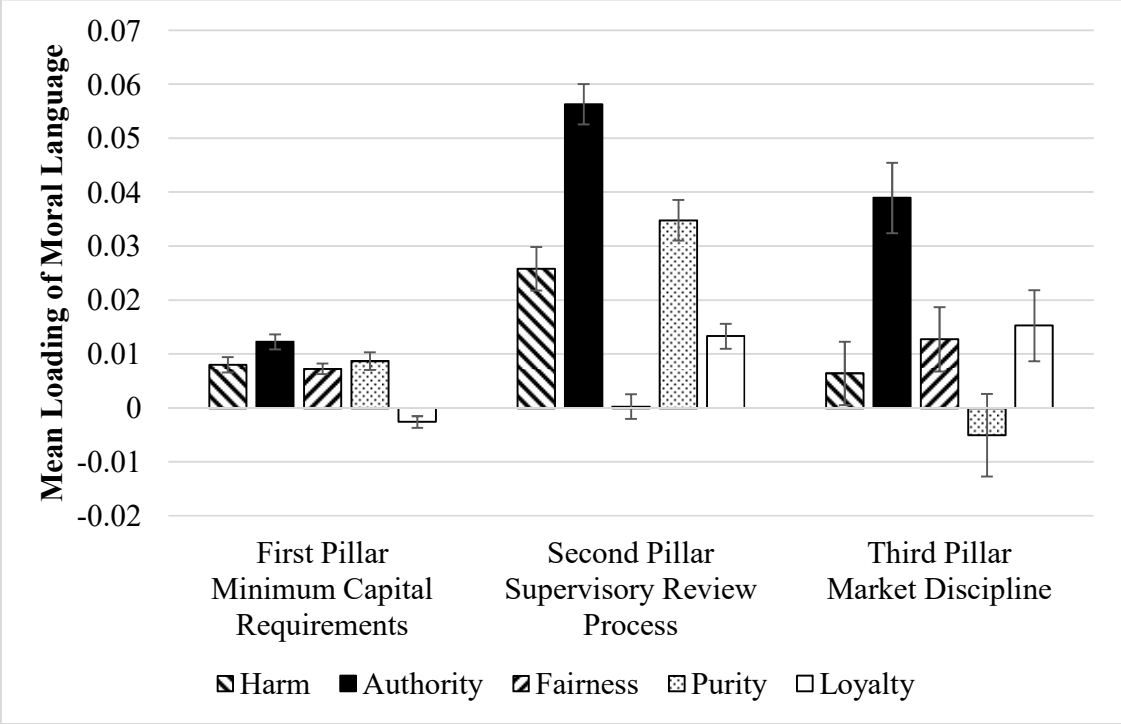

Figure 1 - Mean loadings of moral language in Basel II (BCBS 128), separated by pillar. Error bars represent standard error of the mean.

We first examined the moral language used in Basel II by comparing the average moral language loadings for each of the 3 pillars (Figure 1). Analysis of Variance for each pillar, with the moral language loading as the dependent variable shows significant differences in all 3 pillars

[52] We generated our semantic space using the paragraphs as individual documents. The software used for this purpose was *Infomap* (available from http://infomap-nlp.sourceforge.net/)

(First Pillar: $F(4, 3168) = 20.85$, $MSE = 0.0012$, $p < .001$, $\eta^2_p = .03$; Second Pillar: $F(4, 444) = 48.04$, $MSE = 0.0011$, $p < .001$, $\eta^2_p = .30$; Third Pillar: $F(4, 56) = 8.80$, $MSE = 0.0004$, $p < .001$, $\eta^2_p = .39$).

Perhaps not surprisingly, moral language related to *authority* dominates all pillars. This is especially noticeable in the second and third pillars, dealing with supervision and discipline respectively. Less obvious is the role of language related to *purity*, evident as the 2nd most prominent rhetoric in the first and second pillars. This can perhaps be attributed to the use of terms such as *integrity* and *refine* in these sections (e.g., "It has an operational risk management system that is conceptually sound and is implemented with integrity", pg. 148).

In our analysis, we are most interested in comparing the moral language used in Basel II with the language employed by the drafters of Basel III. Since, in its present form, Basel III is mostly contained within 2 separate documents, we analyzed these documents separately and compared them to the 3 pillars of Basel II.[53]

Figure 2 presents the mean moral language loadings for each document. As with Basel II, an Analysis of Variance shows that, in each of the Basel III documents, some dimensions of moral language are more prevalent than others (BCBS 188: $F(4, 740) = 97.66$, $MSE = 0.0007$, $p < .001$, $\eta^2_p = .35$; BCBS 189: $F(4, 472) = 27.76$, $MSE = 0.0009$, $p < .001$, , $\eta^2_p = .19$).

[53] For the purposes of this analysis we excluded the introduction section of the documents, although it should be noted that including those sections does not materially affect the results we report.

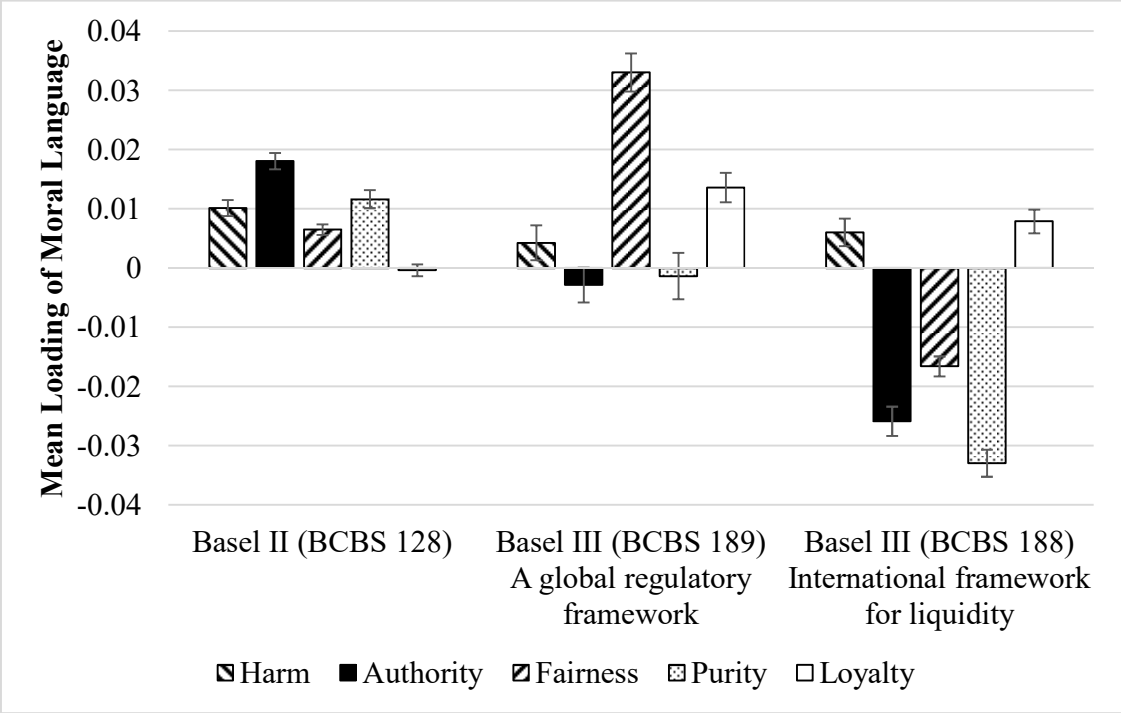

Figure 2 - Mean loadings of moral language in Basel II and Basel III. Error bars represent standard error of the mean.

Interestingly, and in contrast with our analysis of the 3 pillars of Basal II, the two documents differ substantially in their use of moral language. Specifically, moral language regarding *fairness,* which was not very prevalent in Basel II, is used very frequently in BCBS 189 (A Part of Basel III), a document that deals with the regulatory framework. This might be attributed, in part, to the use of terms such as *reasonable, fair value*, and *reciprocal* (e.g., "The Committee is introducing transitional arrangements to implement the new standards that help ensure that the banking sector can meet the higher capital standards through reasonable earnings retention and capital raising, while still supporting lending to the economy.", pg. 10). Perhaps not surprisingly, language that relates to *loyalty to the ingroup* is also fairly dominant, using

terms such as *individual* and *member*. However, this type of language use was also found in parts of Basel II, especially in the 2nd and 3rd pillars.

In contrast, BSBC 188, which deals with issues of liquidity, shows very low levels of moral language. This is perhaps not too surprising as it is a very technical document, and is the counterpart of the 1st pillar of Basel II which also showed low levels of moral language. Nevertheless, it is interesting to note that when it does exhibit moral language, this seems to focus on *loyalty* and *harm*.

Comparing Basel II with Basel III we note several key differences in their use of moral language. Firstly, as already mentioned, there is a dramatic increase in language relating to *fairness*. Secondly, the tone of *authority* that was very prevalent in Basel II does not appear in Basel III. Indeed, it is one of the least loaded dimensions in both of the Basel III documents we examined. Similarly, the use of terms from the domain of *purity* also plummeted in Basel III. Overall, it appears that in the aftermath of the housing crisis regulators have shifted from using authority and integrity (purity) as their primary justifications for regulation to a stance in which fairness and loyalty are the primary forces of underlying moral dimensions which are used in the legislative text to convince their community to accept the regulation.

To better understand these differences, we now turn to a more in-depth examination of the texts and look at the paragraphs that showed the highest loadings on each of these dimensions. The difference in *fairness* between the two accords is very visible. Whereas Basel II uses language such as "… *banks must take reasonable steps to ensure that the custodian segregates the collateral from its own assets*" (BCBS 128, pg. 33), in Basel III we find phrasing

that emphasizes the reasoning behind the directives and how they reflect on the overall performance of the economy. For example:

> *"It is not acceptable for banks which have depleted their capital buffers to use future predictions of recovery as justification for maintaining generous distributions to shareholders, other capital providers and employees. These stakeholders, rather than depositors, must bear the risk that recovery will not be forthcoming."* (BCBS 189, pg. 55)

Moreover, as the language in the above sample demonstrates, Basel III appears to also use less authoritative language than is common in Basel II – while Basel II uses terms of obligation, such as *must*, Basel III tends to use softer language, focusing on what behavior is deemed *acceptable* by the banks. This difference becomes even more apparent when we examine paragraphs that show a high loading on *authority* – In Basel II we find paragraphs that highlight the authority that governments and supervisors have over banks. One such example is:

> *"Therefore, supervisors will require banks to have in place appropriate written CRM policies and procedures in order to control these residual risks. A bank may be required to submit these policies and procedures to supervisors and must regularly review their appropriateness, effectiveness and operation."* (BCBS 128, pg. 213)

In contrast, the paragraphs that are most highly loaded on *authority* in Basel III tend to focus on promoting cooperation between banks and governments, as is evident in the following paragraph:

> *"The document entitled Guidance for national authorities operating the countercyclical capital buffer, sets out the principles that national authorities have agreed to follow in making buffer decisions. This document provides information that should help banks to understand and anticipate the buffer decisions made by national authorities in the jurisdictions to which they have credit exposures."* (BCBS 189, pg. 58)

To sum up this section of our paper we can conclude that the text of Basel III which was enacted after the 2007-2009 financial crisis does exhibit large differences in its underlying moral language as compared with the text of Basel II. These differences reflect a change in the way of thinking of the legislators and strengthen the claims that legislators are indeed influenced by the atmosphere of the time and place in which they are regulating. In the case of the Basel Accords, we found that the language used by its drafters shifted away from a style that emphasized *authority* to one that stressed *fairness*.[54]

4 SUMMARY AND CONCLUSIONS

Political texts often employ rhetorical devices and moral language to enhance their message and influence the readers. In this paper we used a quantitative text-based analysis to explore the moral language of the Basel Accords, a global financial regulatory standard. In particular, we investigated the differences between the language used in different parts of the accords and how it evolved over time.

[54] These differences do not appear in a baseline analysis we conducted in a corpus of US Senate speeches of the same period (2000-2013). We analyzed the moral language surrounding the use of the term 'tax' as representing a related domain that is under frequent debate in the Senate but not directly related to the financial crisis of 2009. The use of authority-based language was lowest in the period of 2000-2004 and showed subsequent increase. In contrast, moral language based on fairness declined after 2005 and remained relatively constant thereafter.

The results of our paper help shed light on the subtext used by the drafters of the Basel Accords, knowingly or unknowingly. This language is an integral part of the texts and their message as it guides their interpretation. Moreover, the style of reasoning that is indicated by such language can play a critical role in persuading the global legal and financial community to accept the changes made to the Accords. Not surprisingly, following the most recent financial crisis, we find that moral language relating to fairness and loyalty prevails in the legislative text to a much greater extent than in the text of the 2nd Basel Accord of 2004. However, this seems to come at the expense of using authority and integrity (purity) in the text as the primary justifications for regulation (as was prevalent in the 2nd Basel Accord but much less so in the 3rd).

Our findings are congruent with the intuitions of many legal scholars dealing with legal language and establishes that regulators are indeed affected by their surroundings and by the social climate of the time. Thus regulation is also a reflection of their opinions, morals and incentives and as such is a reflection of the time in which the legislators legislate.

This is especially interesting in the Basel Accords case as these Accords are perceived to be technical by nature. The analysis provided in our paper suggests that “technical” standards are not as technical as they appear to be at first glance and thus should be treated by the public and local politicians with the same suspicion as all other regulations and laws prior to being accepted.

APPENDIX A: TECHNICAL DETAILS

All varieties of LSA are based on the assumption that measures of semantic similarity or distance between words can be obtained by observing their co-occurrence patterns in large text corpora. Unlike traditional measures of collocational strength, which are typically defined for individual pairs of words, LSA derives similarity patterns globally for a large class of words or the entire lexicon. This is achieved by associating each word in the vocabulary with a word vector in a high-dimensional space. The most widely used measure of similarity between two words then is the cosine between the associated word vectors.

The word vectors used in our analysis were obtained using the open-source *Infomap* software package developed at Stanford University. From the word types in the corpus, filtered by a *stoplist* to remove high-frequency function words and other uninformative items (we used to default stoplist provided by the Infomap package), we choose a *vocabulary* V comprising the 20,000 most frequent non-stop words, and a set C of 1,000 *content words* consisting simply of the 50th through 1049th most frequent words. This purely frequency-based selection may seem arbitrary, but it has the advantage of not requiring any human supervision or prior knowledge of the corpus. For each word in the vocabulary we then derive a representation of its co-occurrence profile with the content words. Specifically, we assemble a $|V| \times |C|$ *co-occurrence matrix* each of whose rows represents a vocabulary item and each of whose columns is labeled by a content word. This use of a *term-term* matrix is the main distinguishing feature of the Infomap approach. Most other implementations of LSA rely instead on a *term-document* matrix in which columns are labeled by documents rather than content words. While term-document co-occurrence counts are appropriate for document retrieval, they are less suitable in building models of lexical

semantics. In contrast, term-term co-occurrence counts allow for a more localized notion of "co-occurrence."

Each cell $\langle w, c \rangle$ records the number of occurrences of *c* in a fixed window of ±15 words (less if a document boundary intervenes) around an occurrence of w in the corpus. These counts are weighed by a *tf.idf* measure on *c*. Here *tf* and *idf* stand for *term frequency* and *inverse document frequency*, respectively. The basic idea is to counterbalance the raw frequency of occurrence of a term by the number of documents in which it occurs, based on the assumption that terms whose occurrences are widely dispersed over are less useful in making semantic distinctions. The formula we used in these studies is $tf.idf(c) = tf(c) \times \left(\log(D+1) - \log(df(c))\right)$, where *tf(c)* and *df(c)* are the term frequency and document frequency of column label c and D is the number of documents in the corpus. The square root is taken to attenuate the influence of outliers and approximate a normal distribution, and the vectors are normalized. The matrix is then subjected to *Singular Value Decomposition* to derive three matrices *U, Σ, V** (Infomap uses the SVD implementation found in SVDPACKC). Only the left singular vectors in *U*, truncated to 100 dimensions, are used in the subsequent computations. Thus ultimately each vocabulary item is represented as a 100-dimensional vector.

The word vectors typically used in LSA applications correspond to word types (i.e., vocabulary items). In our analysis of moral language we are generally interested in how moral language is used in spans of text rather than the moral values associated with individual terms. To this end, once the word vectors are in place we make a second pass over the corpus to derive vectors for each paragraph in the text. For each paragraph p_i all occurrences of vocabulary items within the paragraph are collected, the corresponding vectors are added up, and the resulting vector is

normalized. The similarity of these paragraph vectors to those of various terms from the Moral Foundations Dictionary can then computed, using the cosine as a measure of similarity.