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Convergence to shareholder primacy corporate-governance: Evidences from a leximetric analysis of evolution of corporate-governance regulations in 21 countries, 1995-2014

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Convergence to shareholder holder primacy corporate governance: Evidence from a leximetric analysis of the evolution of corporate governance regulations in 21 countries, 1995-2014

Abstract

For the past two and half decades there has been a marked shift in the corporate governance regulations around the world. The change is most remarkable in developing countries where countries which previously had few if any provisions on corporate governance have adopted 'world class' standards. While there can be a debate on whether law in books actually translates into law in action, in the meantime it is interesting to analyse the law in books to understand how the corporate governance regime has evolved in the developing world in the last twenty years.

The article quantitatively tracks 21 countries, most of them being developing and emerging economies, over a period of twenty years. The time period covers 1995 to 2014, and thus traverses the two crises of 1999 and 2008. Thus, the article also provides a snapshot of the macrolegal changes that the countries engaged in in the hope of staving off the next crisis. This article, for the first time in the literature, uses over 50 parameters modelled on the OECD Principles of Corporate Governance 2004 to focus solely on calculating the relative shift towards shareholder primacy. Also, the article is the first in the corporate governance literature to use Item Response Theory (IRT) to index the relative corporate governance changes amongst the countries. Using this method, corporate governance is treated as a latent trait that influences law, this greatly improves upon the previous studies in the field as we are able to better calculate the relative shift in corporate governance.

The article confirms the suspicion that corporate governance norms in developing economies are converging on a shareholder primacy model. However, the rate of convergence was highest just before the financial crisis of 2008, with most developing countries reaching peak shareholder primacy aligned corporate governance norms, and has since then slowed down.

Keywords: *comparative leximetrics*, *Bayesian inference*, *international business law*, *corporate governance evolution*

1. Introduction

In comparative law, convergence has been an oft debated topic,[1] particularly in comparative company law and corporate governance, where one of the major areas of focus is on the question of whether transplantation leads to convergence.[2] Convergence of national corporate governance regulations can be functionally attributed to prolonged initiatives to unify commercial laws for ease of cross border trade and commerce,[3] transfer of 'best practices' through investment liberalisation as a result of investor pressure,[4] spread of 'neo-liberal pro shareholder value ideologies',[5] and the harmonising role of global financial institutions.[6] There are two main ideological branches of corporate governance – the shareholder model which can roughly be equated to a position that companies should be run for the benefit of shareholders who provide risk capital to companies and so have a claim to the surplus generated, a position traditionally favoured by 'free market advocates/neoclassical economists', and the stakeholder model which suggests

[1] See generally Anthony Ogus, 'Competition Between National Legal Systems: A Contribution of Economic Analysis To Comparative Law' (1999) 48 (2) International and Comparative Law Quarterly 405-418; Ugo Mattei, 'Efficiency in legal transplants: An essay in Comparative Law and Economics' (1994) 14 (1) International Review of Law and Economics 3-19; Filomena Chirico and Pierre Larouche, 'Convergence and Divergence, in Law and Economics and Comparative Law' in P. Larouche and P. Cserne (eds.), *National Legal Systems and Globalization* (Springer 2013)

[2] See generally John C. Coffee Jr., 'The Future as History: The Prospects for Global Convergence in Corporate Governance and Its Implications' (1999) Columbia Law School Center for Law and Economic Studies Working Paper No. 144 <http://ssrn.com/abstract=142833>; Klaus J. Hopt, 'Comparative Company Law' in Mathias Reimann & Reinhard Zimmermann (eds.) *The Oxford Handbook of comparative law* (OUP 2006); Alan Dignam and Michael Galanis, *The Globalization of Corporate Governance* (Ashgate Gower 2009); Andreas M. Fleckner and Klaus J. Hopt (eds.), *Comparative Corporate Governance - A Functional and International Analysis* (Cambridge University Press 2013); Joseph McCahery et al. (eds), *Corporate Governance Regimes: Convergence and Diversity* (OUP 2002); Arthur Pinto, 'Globalization and the Study of Comparative Corporate Governance' (2005) 23 Wisconsin International Law Journal 477 <http://ssrn.com/abstract=764844>.

[3] See The International Institute for the Unification of Private Law (UNIDROIT) <http://www.unidroit.org/about-unidroit/overview> and United Nations Commission on International Trade Law (UNCITRAL) <http://www.uncitral.org/uncitral/en/index.html>; see also Jan Dalhuisen, *Dalhuisen on Transnational Comparative, Commercial, Financial and Trade Law Volume 1: Introduction - The New Lex Mercatoria and its Sources* (A&C Black 2014) on the influence of international bodies on the harmonisation and convergence in commercial and financial laws; Louis Del Duca, 'Developing Global Transnational Harmonization Procedures for the Twenty-First Century: The Accelerating Pace of Common and Civil Law Convergence' (2007) 42 Texas International Law Journal 625.

[4] See Reena Aggarwal et al., 'Does Governance Travel around the World? Evidence from Institutional Investors.' (2011) 100 Journal of Financial Economics 154. See also CalPERS effect.

[5] See Susanne Soederberg, 'The promotion of Anglo-American corporate governance in the south', (2003) 24 (1) Third World Quarterly 7–27; Geoffrey Underhill and Xiaoke Zhang, 'Setting the rules: private power, political underpinnings, and legitimacy in global monetary and financial governance' (2008) 84 (3) International Affairs 535-554.

[6] See Stilpon Nestor, 'International Efforts to Improve Corporate Governance: Why and How' (2001) OECD <http://www.oecd.org/corporate/ca/corporategovernanceprinciples/1932028.pdf > accesed 10 May 2015; See also 'Corporate Governance and Financial Reporting Global Solutions Groups' (*The World Bank,* 18 June 2015) < http://www.worldbank.org/en/topic/governance/brief/corporate-governance-and-financial-reporting-global-solutions-groups > accessed 20 June 2018

that companies should be run for the benefit of all those who can affect the company and can be affected by the company, a position generally associated with 'left wing/interventionist or heterodox economists'.

The rise of modern corporate governance principles coincided with the rise to political acceptance and apparent success of neo-liberal economic principles during the 1980s, the fall of the Soviet Union in the early 1990s, and the relative decline of German and Japanese economies in the mid-1990s seemed to provide final proof of the superiority of free market principles. There followed a period of intense transplantation of legal and quasi-legal norms, and future legal historians will look back at this period and observe that, during the twenty-year period from 1995 to 2014, corporate law and governance around the world converged more rapidly than during any other period in history. The only period which even comes close is the period of imperialism and colonialism, and even then, the transplantation of law was a relatively slow process. The drivers of this new wave of convergence were not colonial powers but international financial organisations. One of the major corporate governance codes available during the late 1990s was the OECD Principles of Corporate Governance 2004, which was based primarily on the shareholder value corporate governance model, although it also offered a limited accommodation for stakeholder models. International financial organisations recommended that individual countries should model their corporate governance structures on OECD principles, so in effect what was being recommended to developing countries was a shareholder value regime based on the Anglo-Saxon model. While some scholars on the left would view these organisations as neo-imperialist, this paper is not a denouncement of any political theory or cause. This paper is limited to exploring whether the corporate governance regulations around the world, especially in the emerging economies, are indeed converging on a shareholder primacy model, based on the OECD Principles of Corporate Governance. This is the first paper in the literature to use Bayesian techniques to isolate the quantum and direction of shifts towards a shareholder primacy model of corporate governance in developing economies. As such, it represents an important and innovative methodological advance in the quantitative analysis of corporate governance change over time. The paper also showcases how Bayesian techniques are better able to isolate the quantum and direction of such changes by comparing the classical and Bayesian outcomes.

The research was undertaken in a number of steps. First, a database on the evolution of corporate governance in twenty-one countries for twenty years (1995-2014) was created. Local experts in corporate governance in those jurisdictions were asked to fill out a detailed questionnaire based on archival and allied qualitative research. The aim of this phase was to collect data on fifty-two separate company and corporate governance variables based on the OECD Principles of Corporate Governance 2004 and previous indices for twenty years (1995-2014). The variables were scaled polynomially, i.e., the value could be zero, or one, or two which meant the survey went beyond a simple yes/no response in order to take into account systems which use optional rules or 'soft law'. Second, a graded response model was used with a Kalman filter[7] to create a dynamic corporate governance index for twenty-one countries over a twenty-year period. This dynamic index allowed this paper to distribute the changes identified over a period of time rather than confining them to just one year. It is widely acknowledged that laws and regulations take some time to show their impact, hence considering development of corporate governance over a number of years was expected to yield more realistic results. All previous research in comparative corporate governance uses Classical test theory to build an index; this is the first time that Bayesian statistics is used for the purpose; an index utilising the Classical test theories was also created to compare the results with that of Bayesian methods.[8] Bayesian method allows the model to improve the prediction of corporate governance changes based on the previous year's corporate governance score for a particular country and also the corporate governance scores of other countries in that particular year. Thus, the Bayesian model allows the researcher to incorporate more data in creating the index than a frequentist system, where the calculation is isolated to one year and one country, and does

[7] A Kalman filter is an algorithm which allows for exact inference in a linear dynamical system (like in the present research where the corporate governance trait of countries might change every year but the shift only occurs over an extended period of time), which is a Bayesian model but where the state space of the latent variable is continuous and where all latent and observed variables have a Gaussian distribution (as has been assumed in this research). See Ramsey Faragher, 'Understanding the Basis of the Kalman Filter Via a Simple and Intuitive Derivation' (2012) IEEE Signal Processing Magazine 128-133 available at <http://www.cl.cam.ac.uk/~rmf25/papers/Understanding%20the%20Basis%20of%20the%20Kalman%20Filter.pdf> last accessed on 5 May 2018. Kalman Filter has a long an illustrious history in the state space literature, it is a very popular tool to filter out the noise and give the overall trend, but sometimes it oversimplifies the model leading to loss of useful local time variations. It would thus depend on the skills of the researcher and the need of the research to properly implement Kalman filter. A Kalman filter is mathematically represented as: $x_t = F_t x_{t-1} + B_t u_t + w_t$ Where x_t is the state in time t, F_t is the state transitional model in time applied to previous state x_{t-1}, B_t is the control model applied to control vector u_t and w_t is the process noise which is assumed to be multivariate normal with mean 0. See also Mohinder Grewal and Angus P. Andrews, *Kalman Filtering - Theory and Practice Using MATLAB* (Wiley 2001). The Kalman filter 'dampens' yearly variations and helps to discern the overall trend in the evolution of corporate governance. A by-product of ignoring yearly variations would be a more robust analysis of the long term effects of change in corporate governance on the growth of the financial market and any other economic parameter.

[8] For a general discussion comparing Bayesian and Frequentist methods, see M. J. Bayarri and J. O. Berger, 'The Interplay of Bayesian and Frequentist Analysis' (2004) 19 (1) Statistical Science 58-80.

not update itself with the changes in other countries and other years. Therefore, Bayesian modelling is able to better approximate the changes and shifts in law in real life than frequentist methods.

Finally, to check for convergence to a shareholder primacy corporate governance regime amongst the country studies, the dynamic corporate governance index was analysed, first by using various quasi-experimental methods like calculating the average corporate governance score amongst all countries and then tracking its growth, and second by assessing the difference between the highest and lowest corporate governance index to provide an estimate of the extent of differences in the adoption of shareholder value corporate governance norms among the countries studied. Once the preliminary results from the quasi experimental methods were obtained, the findings were confirmed by using experimental methods like coefficient of determination,[9] which makes it possible to track the relative deviation within the corporate governance of the countries studied in this research. The combination of these three methods was intended to give a robust answer as to whether corporate governance norms around the developing world are converging on the shareholder primacy model espoused by the OECD Principles of Corporate Governance.

This paper is divided into four major parts, in Part II we review the literature on quantitative comparative corporate governance, investigating the gaps especially in terms of the methods used; in Part III we discuss the methodology used focussing on the advantages of Bayesian techniques over Classical test theories; in Part IV the frequentist and Bayesian results are contrasted and analysed, showing that a Bayesian approach gives a more reliable picture of the extent to which convergence is occurring.

2. Literature review

While the origins of concern about corporate governance can be traced back to Adam Smith in the 18th century,[10] empirical research on corporate governance began in 1932 with the publication of *The Modern Corporation and Private Property*. In this book, through quantitative analysis, the authors Adolf Berle and Gardiner Means showed that due to the wide dispersal of ownership it was possible for a small class of managers, with very little share ownership, to effectively exercise

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[9] The coefficient of determination allows us to calculate the variance in a model. In this paper it is used to calculate how close the corporate governance regime have come to one another during the period studied.

[10] See generally Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776) Book V, Ch.1, Para 18

full control over very large companies. Though they did not code for the systems of governance, more importantly they showed that the impact of corporate governance can be coded from primary effects like board structure and ownership patterns.[11]

However, in spite of such pioneering work in the early days of law and finance, until recently little effort was expended on quantitative research in comparative corporate governance. One major reason that could be suggested for this trend is that the comparative study of corporate governance, before 1990, was limited to four major countries – the United States of America, the United Kingdom, Germany and Japan.[12] Given the low number of jurisdictions studied, these research projects focused on qualitative rather than a quantitative comparison. The other reason that can be ascribed to low academic output in quantitative corporate governance research was the unavailability of an acceptable uniform standard to judge the law and policy adopted by different countries. This was remedied to an extent in 1992 by the publication of the Cadbury Report,[13] which acted as a catalyst for a spate of academic papers on how countries fared in terms of protecting shareholder and investor rights.[14]

Before the mid-1990s 'no systematic data [were] available on what the legal rules pertaining to corporate governance are around the world, how well these rules are enforced in different countries, and what effect these rules have.'[15] This logjam was broken by a series of seminal papers from La Porta et al.,[16] where, with the aid of quantitative coding of corporate governance for

[11] See generally Adolf Berle and Gardiner Means, *The Modern Corporation and Private Property* (First published 1932, Reprint edition, Transaction Publishers 1991)

[12] A literature review of research articles from 1970-1990 would show that influential papers like Bernhard Grossfeld and Werner Ebke, 'Controlling the Modern Corporation: A Comparative View of Corporate Power in the United States and Europe' (1978) 26 (3) American Journal of Comparative Law 397-433; Jonathan Charkham, The American Corporation and the Institutional Investor: Are There Lessons from Abroad: Hands Across Sea (1988) 3 Columbia Business Law Review 765-774; Margaret Maureen Samuel, 'International Financial Markets and Regulation of Trading of International Equities' (1989) 19 (2) California Western International Law Journal 327-382; Vratislav Pechota, 'Developments in Foreign and Comparative Law' (1985) 24 (1) Columbia Journal of Transnational Law 191-230; Werner F. Ebke, 'In Search of Alternatives: Comparative Reflections on Corporate Governance and the Independent Auditor's Responsibilities' (1984-85) 79 (4) Northwestern University Law Review 663-720

[13] Financial Reporting Council, *Report of the Committee on the Financial Aspects of Corporate Governance* (Cadbury Report) (1992)

[14] See generally Lucian Bebchuk, 'Efficient and Inefficient Sales of Corporate Control' (1994) Quarterly Journal of Economics 957-994; Lucian Bebchuk and Luigi Zingales, 'Corporate Ownership Structures: Private vs. Social Optimality' (1995) Working Paper Series, University of Chicago; Denis Gromb, 'Is One-share-One-vote Optimal?' (1993) Working Paper Series, LSE; Luigi Zingales, 'The Value of the Voting Right: a Study of the Milan Stock Exchange Experience' (1994) The Review of Financial Studies 125-148; Luigi Zingales, 'What Determines the Value of Corporate Votes?' (1995) 110 Quarterly Journal of Economics 1075-1110.

[15] La Porta et al., 'Law and Finance' (1996) NBER Working Paper 5661, 3

[16] La Porta et al., 'Legal Determinants of External Finance' (1997) 52 (3) Journal of Finance 1131-1150; La Porta et al., 'Law and Finance' (1998) Journal of Political Economy 1113-1155; La Porta et al., 'Investor Protection and

comparative cross country studies, they examined 'how laws protecting investors differ across countries, how the quality of enforcement of these laws varies, and whether these variations matter for investment patterns around the world.'

In their 1996 NBER working paper, La Porta et al., coded for 16 factors.[17] In their subsequent papers of 1997 and 1998[18] they improved upon their coding and added a few more variables.[19] By 2000, La Porta et al. had distilled the quantitative coding of corporate governance down to three measures: shareholder protection, creditor protection and enforcement.[20]

As expected, the La Porta et al.'s articles were extensively critiqued from a variety of perspectives, but a quick review of these criticisms shows that it was the desire of La Porta et al. to link the bulk of their findings to judicial, political, and historical origins, differences which have garnered maximum disapproval.[21] Slowly the criticisms gravitated to the empirical aspect of the research and there were two influential papers which recoded investor protection and corporate governance digressing from La Porta et al.'s views.[22]

The first was written in 2005 by Simeon Djankov with the three authors of the original papers Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer. It focussed narrowly on self-

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Corporate Governance' (2000) 58 J. Fin. Econ. 3 <http://ssrn.com/abstract=183908>; La Porta et al., 'Do institutions cause growth' (2005) Journal of Economic Growth 271; La Porta et al., 'What Works in Securities Laws' (2006) Journal of Finance 1-32; La Porta et al., 'The Economic Consequences of Legal Origins' (2008) 46 (2) Journal of Economic Literature 285-332

[17] ibid Table 1: the factors were one share-one vote, proxy by mail, shares not blocked before meeting, cumulative voting or proportional representation, the oppressed minorities mechanism, percentage of share capital necessary to call an extraordinary general meeting (EGM), anti-directors rights, mandatory dividend, restrictions on filing a reorganisation petition, automatic stay on secured assets, secured Creditors first, management stays, legal Reserve, risk of expropriation, accounting standards, and repudiation of contracts by the government.

[18] See La Porta et al. (n 13)

[19] The anti-director rights index was improved and crystallised to six factors - (1) the ability to mail in a proxy vote (2) the lack of a requirement for shares to be deposited prior to proxy voting (3) the availability of cumulative voting (4) the presence of "legal mechanisms against perceived oppression by directors" against minority shareholders (5) the "pre-emptive right to buy new issues of stock" which can only be waived by a shareholder vote (6) whether "the percentage of share capital needed to call an extraordinary shareholders meeting" is at or below 10%.

Two new variables were added, a pre-emptive right which was coded as 1 when the pre-emptive right to buy new issues of stock could only be waived by a shareholder vote or 0 otherwise and a creditor rights index 'by adding 1 when (1) the country imposes restriction such as creditors' consent or minimum dividends to file for reorganisation; (2) secured creditors are able to gain possession of their security once their reorganisation petition has been approved (no automatic stay); (3) secured creditors are ranked first in the distribution of proceeds that result from the disposition of the bankrupt firm; (4) the debtor does not retain the administration of its property pending the resolution of the reorganisation. The index ranges from 0 to 4.'

[20] La Porta et al. (2000) (n 13) 10,11. Anti-director rights index - Proxy by mail, Shares not blocked before meeting, Cumulative voting/proportional representation, Oppressed minority, Pre-emptive right to new issues, % Share of capital to call and ESM ≤ 10%; Creditor rights index - No automatic stay on secured assets, Secured creditors first, Paid restrictions for going into reorganization, Management does not stay in reorganization; Enforcement - Efficiency of the judicial system, Corruption, Accounting standards

dealing aspects of expropriation by corporate insiders.[23] They code for the presence of features in security and company law such as ex-ante private control.[24] The code concludes with an index for public enforcement dealing with the availability and quantum of punishment for the self-dealing majority shareholder and the approving body such as fines, jail sentences etc.

The second paper was by Holger Spamann, who in 2006 followed up the La Porta et al. and Djankov et al. studies, coding his own version of the updated index with an emphasis on consistent coding and rigorous data collection. Unlike previous research, Spamann relied on experts qualified in local jurisdictions to offset any common law bias which may have crept in due to difficulties in translation, interpretation etc. He also extensively recoded the variables to take care of variations in local laws and regulations. To do this, he explained the variables in a comparably more detailed and objective way. He comprehensively explored and clarified each of La Porta et al.'s variables, trying to ensure that each variable is clearly defined and is consistent across all jurisdictions.[25] Unlike La Porta et al., Spamann took stock exchange rules into account. He similarly explained and recoded for variables on blocking of shares, pre-emptive rights and shareholder equality. On

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[21] See generally Ulrike Malmendier, 'Roman Law and the Law-and-Finance Debate' <http://emlab.berkeley.edu/~ulrike/Papers/JELDraft70.pdf>; Katharina Pistor, 'Rethinking the "Law and Finance" Paradigm' (2009) Brigham University Law Review 1647; John Armour, Simon Deakin et al., 'How Do Legal Rules Evolve? Evidence from a Cross-Coun try Comparison of Shareholder, Creditor and Worker Protection' (2009) 57 American Journal of Comparative Law 579; Ralf Micheals, 'Comparative Law by Numbers? Legal Origins Thesis, Doing Business Reports, and the Silence of Traditional Comparative Law' (2009) 57 (4) The American Journal of Comparative Law 765; John Reitz, 'Legal Origins, Comparative Law, and Political Economy' (2009) 57 (4) The American Journal of Comparative Law 847-862

[22] Simeon Djankov et al., 'The Law and Economics of Self-Dealing' (2005) <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=864645>; Holger Spamann, 'On the Insignificance and/or Endogeneity of La Porta et al.'s 'Antidirector Rights Index' under Consistent Coding' Harvard Law School Discussion Paper No. 7 (2006) < http://papers.ssrn.com/sol3/papers.cfm?abstract_id=894301>

[23] Djankov et al. formulated coding for public and private enforcement against self-dealing, based on a hypothetical case where a majority shareholder-director owns 90% of a private seller company and 60% of a public buyer company. The buyer company buys excess unwanted goods from the seller company. The coding looks for rights available to shareholders of the buyer company to hold the self-dealing majority shareholder and its board liable.

[24] For example seeking approval from disinterested shareholders, full disclosure before transaction, independent review by a financial expert; ex-post private control like disclosures in annual reports, the ability of minority shareholders to bring an action against the self-dealing majority shareholder. The code also looks for variables which may reflect the extent of liability like if the self-dealing majority shareholder can be held liable for civil damage for issues such as acting on bad faith, negligence, unfair transactions, oppressive or prejudicial actions, and whether the approving body can be held liable.

[25] For example, La Porta et al. coded proxy vote by mail as 1 if the company law or commercial code allowed shareholders to mail their proxy vote, and 0 otherwise. Spamann gave further explanation for this variable to make it consistent across all jurisdictions and at the same time to make it possible to highlight minute differences. Spamann codes the same variable as 1 'if shareholders can either vote by mail ('ballot by mail'), or if the firm is under obligation to accept proxies with directions about how to vote for them (the assumption is that no such obligation exists unless it is explicitly stated in the statutes, the literature, or in an opinion by a local lawyer). […] The firm must also provide a voting form on which the shareholder can mark his choices for each resolution to be voted. […] If the firm (or its

the basis of the new coding Spamann recalculated all the La Porta et al. (1998-2004) indices and found that the numerous empirical studies of La Porta et al. 'may have obtained erroneous results, and may have to be revisited.'[26]

In response to these academic critiques, La Porta et al. in 2006 further updated their investor protection index to include more facets of securities law.[27]

Alongside the development of quantitative coding by academics, various international organisations also developed a series of scales and codes for the comparative analysis of the adoption and implementation of corporate governance. Soon after the initial La Porta et al. papers, in May 1999, OECD published its non-binding Principles of Corporate Governance. In the same year the World Bank launched its *Reports on the Observance of Standards and Codes (ROSC)* initiative to 'benchmark the member country's corporate governance framework and company practices against the OECD Principles for Corporate Governance, assist the country in developing and implementing a country action plan for improving institutional capacity with a view to strengthening the country's corporate governance framework and to raise awareness of good corporate governance practices among the country's public and private sector stakeholders.'[28] ROSC provides one of the most comprehensive quantitative codings for comparative corporate governance compliance.[29] Scholars like Ruth V. Aguilera and Cynthia A. Williams believe that

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management) solicits proxies, the legal proxy rules require that they provide the shareholder with a ballot card that gives them the opportunity to approve or disapprove.'

[26] Spamann (n 19) 69

[27] The coding was widened to include disclosure requirements, liability standards, power and characteristics of the supervisor of the securities markets etc. It was hoped that along with the creditor's rights index and the anti-director rights index, the new public enforcement and securities index would provide a well-rounded quantitative analysis of the comparative corporate governance structure. The disclosure index consisted of a mean of six variables regarding the requirement of issuing a prospectus before selling securities, the requirement for the executive compensation to be disclosed in the prospectus, whether the equity ownership structure is disclosed, whether equity ownership by each director is disclosed, if the terms of 'material contracts made by the issuer outside the ordinary course of its business are disclosed and if all transactions in which related parties have, or will have, an interest is disclosed.' The liability standard index is comprised of the mean liabilities of issuer, director, distributor and accountant depending on what the aggrieved shareholder has to prove. The characteristics and powers of the supervisors of securities markets focused on the nature of the appointment, type of tenure, the rulemaking powers of the supervisor along with their ability to issue criminal sanctions against directors, distributors etc. See generally La Porta et al. (2006) (n 13)

[28] Reports on the Observance of Standards and Codes (ROSC), World Bank <http://www.worldbank.org/ifa/rosc_cg.html#country> accessed 1 June 2018

[29] The ROSC corporate governance coding template focuses on (1) Ownership and Control (2) Legal and regulatory frameworks (3) Historical influences on the current corporate governance system (4) checks on legal and regulatory requirements that affect corporate governance practices in a jurisdiction regarding consistency with the rules of law, transparency and enforceability (5) division of responsibilities among different authorities in a jurisdiction (6) rights of shareholders and key ownership functions – ownership registration, transfer of shares, basic shareholder rights, equitable treatment of shareholders (7) efficiency and transparency of market for corporate control (8) rights of

developments like ROSC can be traced to the La Porta et al. 1996 paper which 'provided intellectual support for a complex of policy prescriptions that are considered important in allowing financial markets to flourish.'[30] Another interesting, broad-based quantitative coding method, which evolved from La Porta et al., is the authoritative *Doing Business Survey* formulated by the World Bank which deals with comparative ranking on issues like starting a business, getting permits, electricity, registering property, taxes, enforcing contracts etc. The index also contains the shareholder protection index formulated by Djankov et al.[31] which, as discussed earlier, draws inspiration from the methodology of the 1996 paper by La Porta et al.

It is also interesting to note that around 2003 another new approach in terms of computing corporate governance indices appeared. This time instead of the macro index popularised by La Porta et al., the index focussed solely on firm level corporate governance performance. This micro level index was popularised by Paul A. Gompers et al.[32] This led to a series of similar works using different index components across different jurisdictions to compute the effects of corporate governance at a firm-specific level.[33]

stakeholders in corporate governance (9) prevalence of performance related pay (10) financial disclosure and transparency in globally accredited accountancy format (11) responsibilities of board of directors.

[30] Ruth V. Aguilera and Cynthia A. Williams, 'Law and Finance: Inaccurate, Incomplete, and Important' (2009) Illinois Public Law Research Paper No. 09-20 < http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1523895>

[31] Djankov et al. (n 31)

[32] Paul Gompers, Joy Ishii and Andrew Metrick, 'Corporate governance and equity price' (2003) 118 (1) Quarterly Journal of Economics 107 working paper available at < http://www.boardoptions.com/governancearticle.pdf>. In their seminal paper they studied 24 firm level corporate governance factors for 1500 large corporations for the period 1990-1999. The corporate governance provisions were divided into five thematic groups: tactics for delaying hostile bidders, director/officer protection, voting rights, other takeover defences, and State/laws. Paul A. Gompers et al. focussed on anti-shareholder provisions in the company's prospectus and other documents creating a 'G index' where higher scores meant lower shareholder rights. They then concentrated on two extreme ends of the index creating a 'Dictatorship Portfolio' of the firms with the weakest shareholder rights ($G \geq 14$), and a 'Democracy Portfolio' of the firms with the strongest shareholder rights ($G \leq 5$).'

[33] See generally L Bebchuk et al., 'What matters in Corporate Governance?' (2004) Harvard Law School John M. Olin Center Discussion Paper No. 491; Wolfgang Drobetz, Andreas Schillhofer and Heinz Zimmermann, 'Corporate Governance and Expected Stock Returns: Evidence from Germany' (2004) 10 (2) European Financial Management 267-293; P Mohanty, 'Institutional Investors and Corporate Governance in India' (2004) available at <http://ssrn.com/abstract=353820>; S Beiner et al., 'An Integrated Framework of Corporate Governance and Firm Valuation-Evidence from Switzerland' (2004) European Corporate Governance Institute Working Paper No. 34/2004; Y Cheung et al., 'Do Investors really value Corporate Governance? Evidence from the Hong Kong Market' (2005) HKIMR Working Paper No. 22/2005; B Black et al., 'Predicting Firms' Corporate Governance Choices: Evidence from Korea' (2006) 12 Journal of Corporate Finance 660-691; B Black et al., 'How Corporate Governance affects Firm Value: Evidence on Channels from Korea' (2009) available at <http://ssrn.com/abstract=844744>; M Ertugrual and S Hedge, 'Corporate Governance Ratings and Firm Performance' (2009) Financial Management 139-160; Ann Gaeremynck et al., 'Corporate-Governance Ratings and Company Performance: A Cross-European Study' (2010) 18

Most of the research work around this period (mid to early 2000)[34] was cross sectional in nature, i.e. they focussed on comparing the variables for many countries but were limited to a single year. At around this time dire/triumphant (depending on one's perspective) predictions were being made suggesting that shareholder primacy corporate governance had won over the stakeholder approach and that eventual full convergence was only a matter of time.[35] To investigate convergence empirically there was a need for time series cross sectional or panel data collection.

This was first attempted in 2005 by the project on Law, Finance and Development at the Centre for Business Research (CBR) in the University of Cambridge.[36] They developed two indices on shareholder protection in listed companies. The first one coded for 60 variables for 5 countries for the years 1970 to 2005.[37] The second index coded for 10 variables for 25 countries for the years 1995 to 2005.[38] The general finding on convergence from these studies was that 'convergence in shareholder protection has been taking place since 1993 and has increased considerably since 2001.'[39]

In 2006, the IMF developed a Corporate Governance Quality (CGQ) index based on firm level accounting and market data for 41 countries for the years 1994 to 2003.[40] They concluded 'that corporate governance quality has improved in almost all countries, and there is evidence of convergence.'[41]

A country level panel data set, similar to that of the CBR, was developed in 2010 by Marina Martynova and Luc Renneboog, coding for 55 variables for 30 European countries and the US for

(2) Corporate Governance: An International Review 87-106; Pankaj Varshney et al., 'Corporate Governance Index and Firm Performance: Empirical Evidence from India' (2012) available at < http://ssrn.com/abstract=2103462>

[34] One of the first proper attempts on a time series analysis of corporate governance albeit on a single country basis was done in Marco Pagano and Paolo Volpin, 'The Political Economy of Corporate Governance' (2005) The American Economic Review 1005

[35] See Hansmann and Kraakman (n 50).

[36] Law, Finance & Development, CBR (2005-2009) <http://www.cbr.cam.ac.uk/research/research-projects/completed-projects/law-finance-development/> accessed 10 May 2018.

[37] Priya Lele and Mathias Siems, 'Shareholder protection: a leximetric approach' (2007) 7 Journal of Corporate Law Studies 17-50, data is available at < http://www.cbr.cam.ac.uk/fileadmin/user_upload/centre-for-business-research/downloads/research-projects-output/Shareholder%20protection%20index%20data%205%20countries .xls> accessed 10 May 2018

[38] < http://www.cbr.cam.ac.uk/fileadmin/user_upload/centre-for-business-research/downloads/research-projects-output/Shareholder%20protection%20index%20data%2025%20countries.xls > accessed 10 May 2018

[39] Priya and Siems (n 34) 33

[40] Gianni De Nicolò, Luc Laeven, and Kenichi Ueda, 'Corporate Governance Quality: Trends and Real Effects' (2006) IMF Working Paper WP/06/293 < https://www.imf.org/external/pubs/ft/wp/2006/wp06293.pdf>

[41] ibid 20

the years 1990 to 2005.[42] They concluded that 'the global convergence of legal systems towards a single system of corporate regulation is unlikely, [but] there are still signs of increasing convergence by national corporate governance regulations towards a shareholder-based regime when the protection of (minority) shareholders is considered.'[43]

A mixed variable, firm level, multiyear corporate governance data set for 5 emerging countries was developed in 2013 by Black et al.[44] Although they did not focus on convergence, their study shows gradual convergence.[45]

In 2015 Dionysia Katelouzou and Mathias Siems expanded the second CBR shareholder protection index coding for the original 10 variables for 30 countries for the years 1990 to 2013.[46] They concluded that certain market-oriented conceptions of company law such as the requirement for independent directors have spread around the world.[47] They also found that the 'general trend shows, however, that all legal systems have strengthened both enabling and paternalistic tools of shareholder protection regardless of legal origin and stage of economic development.'[48]

3. Methodology

3.1 Limitations of existing research

One of the major drawbacks of the existing corporate governance indices in scholarly literature is the wide generalisation they employ. For example, La Porta et al. in their 2006 paper had to dilute their sole focus on macroeconomic corporate governance as they sought to explain not only financial market developments, but also control premium, ownership structure, firm valuation etc. Djankov et al., on the other hand focussed too narrowly on sanctions and remedies against expropriation by corporate insiders and never really moved beyond that sphere. The ROSC template, on the other hand, is quantitatively so vast that any meaningful time series or cross

[42] Marina Martynova and Luc Renneboog, 'A Corporate Governance Index: Convergence and Diversity of National Corporate Governance Regulations' (2010) CentER Discussion Paper Series No. 2010-17 <http://ssrn.com/abstract=1557627 >

[43] ibid 24

[44] Bernard Black, 'Methods for Multicountry Studies of Corporate Governance (and Evidence from the BRIKT Countries)' (2013) Northwestern University School of Law Law and Economics Research Paper No. 13-05 available at < http://ssrn.com/abstract=2219525 > accessed 10 May 2018

[45] ibid Table 3

[46] Dionysia Katelouzou and Mathias Siems, 'Disappearing Paradigms in Shareholder Protection: Leximetric Evidence for 30 Countries, 1990-2013' (2015) King's College London Law School Research Paper No. 2015-21 < http://ssrn.com/abstract=2579832 > accessed 10 May 2018

[47] ibid 33

[48] ibid

section survey for a host of countries is almost impossible at an individual level. Thus, none of the indices focus solely on the tension between a shareholder primacy regulation vis-à-vis a stakeholder approach.

Another major problem faced in quantitative legal research is the tension between hard law and soft law or between law and practice. It generally manifests itself in a multijurisdictional study where the mode and method of implementation varies. For example, in some jurisdictions there may not be a black letter law on the right of first refusal but it may be an established practice to do so, in some other jurisdictions there may be a non-binding code of best practice for directors for the issuance of new capital with a comply or explain provision, and in still other jurisdictions there may be a binding code which may not be strictly enforced due to judicial dilution. Similarly, provisions relating to performance related pay are generally put forward in a non-binding corporate governance code which is essentially a soft law and difficult to code in a dichotomous output survey. This problem is exacerbated by the choice of law – La Porta et al.[49] chose to only focus on company law, excluding stock market regulations, Djankov et al.,[50] on the other hand, focuses strongly on listing regulations while Spamann tries to oscillate between the two, depending on the variable.[51] None of the indices have any mechanism for comparing the intra-item variance towards hard law or soft law.

Even after consulting experts from their domestic jurisdictions it might still be difficult to properly interpret the law in order to complete the legal survey. A legal question can be answered in a different manner by lawyers from the same jurisdiction, it would depend on facts, regulations, judicial interpretations and even general practice. Therefore the reproducibility of the research even on the same fact situation is uncertain. Thus, there would always remain a question of the reliability of a quantitative legal survey which solely depends on primary sources, rather than a qualitative survey which takes into account secondary interpretations. Also, some countries may have sub-national legislation which may vary across states. However, as most legal surveys are designed to enter only one response per country, it would not be possible to accurately draw a complete legal picture of the entire country.

[49] La Porta et al. (1998) (n 13) 1120
[50] Djankov et al. (n 19) 6
[51] Spamann (n 19) 14

The problem of not adequately highlighting the shareholder primacy can be remedied by focussing on variables from the available indices and adding some which solely deal with the practicalities of shareholder-oriented corporate governance. As the present research focuses on finding out the answer to the question of whether countries are converging to shareholder primacy corporate governance, variables for the quantification of the corporate governance rules and policies of the sample countries should be chosen to reflect shareholder protection and primacy, and therefore not go beyond measures which attempt to address the 'agency problem'. This paper thematically follows the shareholder primacy corporate governance principle as outlined by Henry Hansmann and Reiner Kraakman: [52]

1. ultimate control over the corporation should rest with the shareholder class;
2. the managers of the corporation should be charged with the obligation to manage the corporation in the interests of its shareholders;
3. other corporate constituencies, such as creditors, employees, suppliers, and customers, should have their interests protected by contractual and regulatory means rather than through participation in corporate governance;
4. non-controlling shareholders should receive strong protection from exploitation at the hands of controlling shareholders; and
5. the market value of the publicly traded corporation's shares is the principal measure of its shareholders' interests

Based on this classification, this paper will broadly look into increased shareholder rights, enhanced market for corporate control,[53] and reduced managerial and stakeholder rights as outlined in the OECD principles of corporate governance. As most of the listed companies in developing countries have a dominant owner-manager,[54] this paper will also look at minority rights with an emphasis on reduction of self-dealing.

[52] Henry Hansmann and Reiner Kraakman, 'The End of History for Corporate Law' (2000) 89 Geo. L. J. 439 at 440-441

[53] See generally Henry G. Manne, 'Mergers and the Market for Corporate Control' (1965) 73 (2) The Journal of Political Economy 110; see also Henry G. Manne, 'The Higher Criticism of the Modern Corporation', (1962) LXII Columbia Law Review 399; M. C. Jensen and W. H. Meckling, 'Theory of the Firm: Managerial behaviour, Agency costs and ownership structures' (1976) 3 Journal of Financial Economics 305; Milton Friedman, 'The Social Responsibility of Business is to increase its Profits' *The New York Times Magazine* (New York, 13 September 1970)

[54] See generally Stijn Claessens and Joseph Fan, 'Corporate governance in Asia: A survey' (International Review of Finance 71; Stijn Claessens et al., 'The separation of ownership and control in East Asian corporations' (2000) 58 (1) Journal of financial Economics 81

The dilemma in choosing between hard law and soft law, between statute books, private contractual regulations (like listing rules) and non-binding governance codes impacts on the aim of the research. It can be methodologically dealt with to a large extent by following an ordered response model offering choice from multiple options instead of a binary option. Furthermore, financial markets are governed by listing rules and companies who want to raise money from these markets would have to adhere to these rules. Listing rules have become quite expansive over the years and in many ways set a higher disclosure and shareholder rights benchmark for companies than company law. However, soft laws, corporate governance codes, general practice etc., though non-binding and generally lacking the force of a statutory law or judicial precedent, are an equally important indicator of the overall trend of a country's corporate governance norms. Thus, for each variable this paper will first direct the legal survey towards the listing agreements of the share market with the highest market capitalisation in a country. If the variable is not addressed by the listing agreement then the survey will take into account the company and securities law focussing on statutes enacted at a federal level. For every variable which is addressed by hard law and enforceable, generally by the market regulator, and justiciable, usually by courts will be coded as 2. If the variable is not adequately dealt with by hard law the survey will move to soft law such as non-binding corporate governance codes, codes of ethics for company executives and self-governing codes like City codes etc. These variables would be coded as 1. If the variable is not dealt with by either hard law or soft law it will be coded as 0. Therefore, unlike the early research by La Porta et al., this research will not compile the compulsory minimum standard of corporate governance, neither will this research arbitrarily source some variables from hard law and others from soft law. For each variable which can be dealt with by regulation there will be a three stage ordered response – no law 0, soft law 1 and hard law 2. This will not only capture a wider picture of the implementation of corporate governance policies in different jurisdictions, but will also be useful in intra-code comparison and finding out which portions of corporate governance tend to be implemented differently via soft law etc.

To address the issue of interpretation, inter-rater reliability and the replicability of the data set and the index, the author set variables which can more or less be objectively defined and are consistent across jurisdictions. This paper relied on feedback loops where the experts being surveyed can raise queries about the variables and the author provided them with additional information based on the feedback and if required amend the variables to reflect the change for all the countries surveyed. The author provided the expert correspondents with a questionnaire, a detailed definition of the variables and a model answer for India and Chile for illustration. Increasing the number of expert surveys per country would have increased the reliability of data but given the practical considerations regarding limitations in funding, the author approached one expert per jurisdiction. The variables used are provided in Appendix A and a sample questionnaire used to collect data is provided in Appendix B.

The final limitation of the existing studies is that all of these studies used Classical test theory (CTT) to calculate their indices. The basic postulate of CTT is usually expressed as $X = T + E$, which translates to (X) being the sum of true score/component (T) plus a random error (E). In its simplest form, researchers assume that (E) is inconsequential, and that all observed variables have equal weight on (X).[55] In this paper for the first time in corporate governance literature Bayesian statistics is used to calculate the evolution of corporate governance and measure the shareholder primacy traits of different country in a panel dataset. Therefore, this would allow researchers to not only investigate if corporate governance is indeed converging but also the most efficient tools to do so

3.2 Methodological innovations of this paper

The questionnaire on quantifying the shareholder primacy traits of the corporate governance of developing countries gives us around fifty polytomous response categories. Traditional approaches followed by most quantitative scholars, as discussed earlier, use Classical test theory where the responses are usually averaged or summed up or given random factor load. Moreover, as the variables are coded on moving scales Classical test theory may mislead researchers. Item Response Theory (IRT) on the other hand describes in probabilistic terms the relationship between the responses to the survey variables and the latent variable being measured by the scale or index. IRT thus does away with the arbitrary imposition of equal values to each variable and builds a more inclusive and robust quantitative index using a local and class dependence distribution.

In order to correct for this, the questionnaire used for this research, checks if a country follows financial reporting based on International Financial Reporting Standards (IFRS) and International Standards on Auditing (ISA) and if such reporting is compulsory or optional, then the response is

[55] Navajyoti Samanta, 'Utilising item response theory in computing corporate governance indices' (2015) 2 (4) Edinburgh Student Law Review (ESLR) 103, 107

marked as two or one or zero, while if external auditors are changed after 1-5 years and some cooling off period is envisaged and depending on the level of enforcement it is also marked as two or one or zero. If Classical test theory was followed it would have been necessary to add the responses to both the variables and to prepare the index, but this would mean that compulsorily following the IFRS and the ISA standard and the change of external auditors are given same or equal significance in the index. From experience it is known that each variable has different importance to the overall index and it would be difficult to quantify the importance of each variable by itself. Hence, any such parameter bias arising out of Classical test theory would only enlarge with the increase in the number of variables and lead to an erroneous conclusion.

Under the IRT measurement philosophy, we can only measure the expression of the property sought to be measured. Thus, we can only estimate the corporate governance of a country based on the presence or absence and levels of implementation of certain observable corporate governance parameters. Let us assume that the corporate governance of a country (t) is θ_t. In attempting to estimate the unknown value of θ_t, in this scale we assume that the higher the shareholder primacy leaning of a country, the higher the value of $\theta_{t,}$ and hence deduce that also the higher its influences are over other observable parameters to make them more pro-shareholder. For example, if there are two observable parameters; whether shareholders have a right to decide on executive compensation and if stakeholders other than shareholders find remedies within company law. If a country has more shareholder primacy corporate governance leanings then it should have regulations which would give shareholders veto power over executive remuneration and should keep stakeholders out of company law. On the other hand, if a country has weak shareholder primacy corporate governance then intuitively we expect to find that this particular country would not have regulations which favour giving shareholders the power to decide how much managers should be paid and in the case of a country with very poor shareholder primacy corporate governance the company law may specify that stakeholders like employees may be represented within the board and find remedies within the company laws. So far it seems that IRT is just an inverse form of Classical test theory, however IRT does add varying difficulty and discriminatory powers to each parameter.

To import these elements to corporate governance, we can describe the difficulty parameter as how difficult it is for a country in comparison to other regulations/parameters to have a particular regulation, say shareholder control on executive pay; while a discrimination parameter can be explained as how important it is for a country to have that particular regulation. Therefore, unlike in CTT where all factors contribute equally to the index, in Bayesian methods each factor will make a different contribution to the index. The contribution will depend on issues like how other countries are implementing that particular factor, at what time did the country decide to implement the factor, what were the other factors that the country had decided to implement before this factor. All these will be taken into consideration making the model more intuitive and mirroring the actual practice, thereby providing us with an index which is authentic and reliable.

So, assuming that for a country i) there is an unknown corporate governance trait measure of θ_i and fifty observable parameters, one of which is shareholder control over executive remuneration (denoted by a variable S/hexecp). A two parameter IRT model for this single observed variable can be mathematically represented as:[56]

$$P(S/hexecp = 1|\theta_i,\alpha_{S/hexecp},\beta_{S/hexecp}) = \frac{1}{1 + e^{-\alpha_{S/hexecp}(\theta_i - \beta_{S/hexecp})}} \quad (1)$$

Where $\alpha_{S/hexecp}$ is the discrimination parameter and $\beta_{S/hexecp}$ is the difficulty parameter. So, in other words, in a corporate governance context the probability for item S/hexecp (which is the observed variable regarding whether the country has rules relating to shareholder control over executive remuneration) to have either the value of 1 or 0 would depend on the unknown discrimination parameter $\alpha_{S/hexecp}$ and the unknown difficulty parameter $\beta_{S/hexecp}$ of the observed variable. It can also be tentatively explained as [Probability of whether this country i would have a regulation that shareholders can control executive remuneration = 1/(1 + exp^(– how *important* is it to have a regulation that shareholders can control executive remuneration for a good corporate governance * (corporate governance index of country i – *difficulty* in legislating a regulation that shareholders can control executive remuneration))]

However, merely the presence of a law or policy does not mean that it is going to be implemented, in other words a binomial system may not work adequately in the real world. So, it is necessary to increase the ability for the variable to take more than two responses, so instead of S/hexecp Є {0, 1} we have S/hexecp Є {0, 1, 2} where 0 would mean that a regulation is absent, 1 can mean that the regulation is present but not generally implemented or is optional and 2 would mean that the regulation is compulsory and strictly implemented. This required certain changes to equation (1).

[56] Bryce B Reeve and Peter Fayers, 'Applying item response theory modelling for evaluating questionnaire item and scale properties' in P Fayers and R Hays (eds.), *Assessing Quality of Life in Clinical Trials: Methods of Practice* (2nd edn, OUP 2005)

This was done by Fumiko Samejima who provided a way to estimate the latent trait based on more than two ordered categorical responses, this resulting polytomous item response model was called the Graded Response Model.[57]

Therefore, the probability of item j (which as per our example is S/hexecp) to take each of the three values {0, 1, 2} for country i (therefore sharing a common trait of θ_i) can be mathematically represented as:[58]

$$\begin{aligned} &P\,(S/hexecp = 0|\,\theta_i) = 1 - P^*\,(S/hexecp = 1|\,\theta_i) \\ &P\,(S/hexecp = 1|\,\theta_i) = P^*\,(S/hexecp = 1|\,\theta_i) - P^*\,(S/hexecp = 2|\,\theta_i) \\ &P\,(S/hexecp = 2|\,\theta_i) = P^*\,(S/hexecp = 2|\,\theta_i) \end{aligned} \qquad (2)$$

This basically represents that the probability of a positive response in a category is calculated as the probability of responding positively at a category boundary less the probability of responding positively to the next category boundary. Therefore, to sum up, in general the Graded Response Model Category Boundary Response Function would be:

$$P_{jk}^* = \frac{e^{\alpha_j(\theta - \beta_{jk})}}{1 + e^{\alpha_j(\theta - \beta_{jk})}} \qquad (3)$$

Here θ is constant for country i, α_j is the item discrimination parameter and β_{jk} is the boundary location parameter.[59] We repeat this process for each item for all the countries. So finally, for i number of countries, for each country there are the observed response patterns of corporate governance indicators Y_i, the overall pattern is denoted by Y, j denotes the individual corporate governance items, α_j denotes the discrimination for item j, β_j denotes the difficulty for item j, then the ability or trait θ_i can be estimated as:[60]

$$\ell(Y\,|\,\theta_i, \alpha_{ij},\beta_{ij}) = \prod_{j=1}^{j}\prod_{i=1}^{i} P(Y_{ij} = 1|\theta_i, \alpha_{ij},\beta_{ij}) \qquad (4)$$

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[57] Fumiko Samejima, 'Estimation of latent ability using a response pattern of graded scores.' (1969) 34 (4) Psychometrika Monograph Supplement 100.

[58] Adapted from 'Whats' beyond Concerto: An introduction to the R package catR' - Overview of polytomous IRT models available at < http://www.psychometrics.cam.ac.uk/uploads/documents/catr/catr-workshop-session-4>; See also Cees A. W. Glas, 'Bayesian Estimation Methods for Multidimensional Models for Discrete and Continuous Responses' (2006) available at <http://www.lsac.org/docs/default-source/research-%28lsac-resources%29/rr-06-05.pdf> last accessed on 1 May 2018.

[59] See Remo Ostini and Michael Nering, *Polytomous Item Response Theory Models* (SAGE 2006) 65

[60] F Baker and S Kim, *Item Response Theory* (2nd edn, Marcel Dekker 2004)

This can be represented as a fully Bayesian process or through marginal maximum likelihood given a marginal prior distribution P(θ_i) for each value of the latent variable, the posterior distribution of θ_i as:[61]

$$P(\theta_i \mid \alpha_{ij},\beta_{ij},Y_i) \propto P(\theta_i)\prod_{i=1}^{I}\prod_{j=1}^{J} f(\theta_i \mid \alpha_j,\beta_j)^{Y_{ij}}(1 - f(\theta_i \mid \alpha_j,\beta_j))^{1-Y_{ij}} \qquad (5)$$

This falls squarely within the Bayesian function of prior times the likelihood is proportional to the posterior. However, as a time series analysis is also considered, it is necessary to include a time component as well, the Martin and Quinn dynamic ideal point estimation[62] can be used to estimate the dynamic corporate governance of each country over each year. So, a joint derivation of proportionality function (5) of item and trait parameters gives:

$$P(\theta_{it} \mid \alpha_{ij},\beta_{ij},Y_i) \propto P(\theta_{it})\prod_{t=1}^{T}\prod_{i=1}^{I}\prod_{j=1}^{J} f(\theta_{it} \mid \alpha_j,\beta_j)^{Y_{itj}}(1 - f(\theta_{it} \mid \alpha_j,\beta_j))^{1-Y_{itj}} \qquad (6)$$

In this research we use MCMC in JAGS to estimate the dynamic corporate governance index for the twenty-one countries using equation (6). So, we have a I X J X T matrix where I stands for number of countries, K stands for number of corporate governance variables and T stands for the time period. So, we have a data matrix of 21 X 52 X 20 totalling approximately 21,840 elements.

3.3 Data collection methods

A questionnaire was created to investigate the presence, absence and the levels of enforceability (compulsory or optional) of over fifty corporate governance parameters. This questionnaire sought to identify changes in these variables in the last twenty years from 1994 to 2014. It would have become extremely tiresome for expert respondents to check and conduct archival research for changes every year in the past twenty years, so the questionnaire was constructed along the lines of Pagano-Volpin bunch up model.[63] The respondents were then asked to state the legal source of

[61] Wim van der Linden and Ronald K. Hambleton, 'Item Response Theory: Brief History, Common Models, and Extensions.' in Wim van der Linden and Ronald K. Hambleton, *Handbook of Modern Item Response Theory* (Springer 1997) 1-28; This can also be done using Maximum Likelihood Estimator as discussed in R. Darrell Bock and Murray Aitkin, 'Marginal Maximum Likelihood Estimation of Item Parameters: Application of an EM Algorithm.' (1981) 46 (4)Psychometrika 443-459.

[62] Andrew D. Martin and Kevin M. Quinn, 'Dynamic Ideal Point Estimation via Markov Chain Monte Carlo for the U.S. Supreme Court, 1953–1999' (2002) 10 (2) Political Analysis 134-153.

[63] See Marco Pagano and Paolo Volpin, 'The Political Economy of Corporate Governance' (2005) The American Economic Review 1005; Using this model the respondents are first asked to check the regulations of the nearest time point (which for this research was 2014) and are then asked to check whether the regulation was similar five years ago. If the regulation was similar then the respondent could move back another five years and check again. This process could be repeated according to need and the retrospective depth of the research. In the case of a regulation change, the respondent was required to determine which year it had taken place, state the year and explain the change briefly. Thus, for the purpose of this research, instead of filling out twenty columns the respondents were first asked

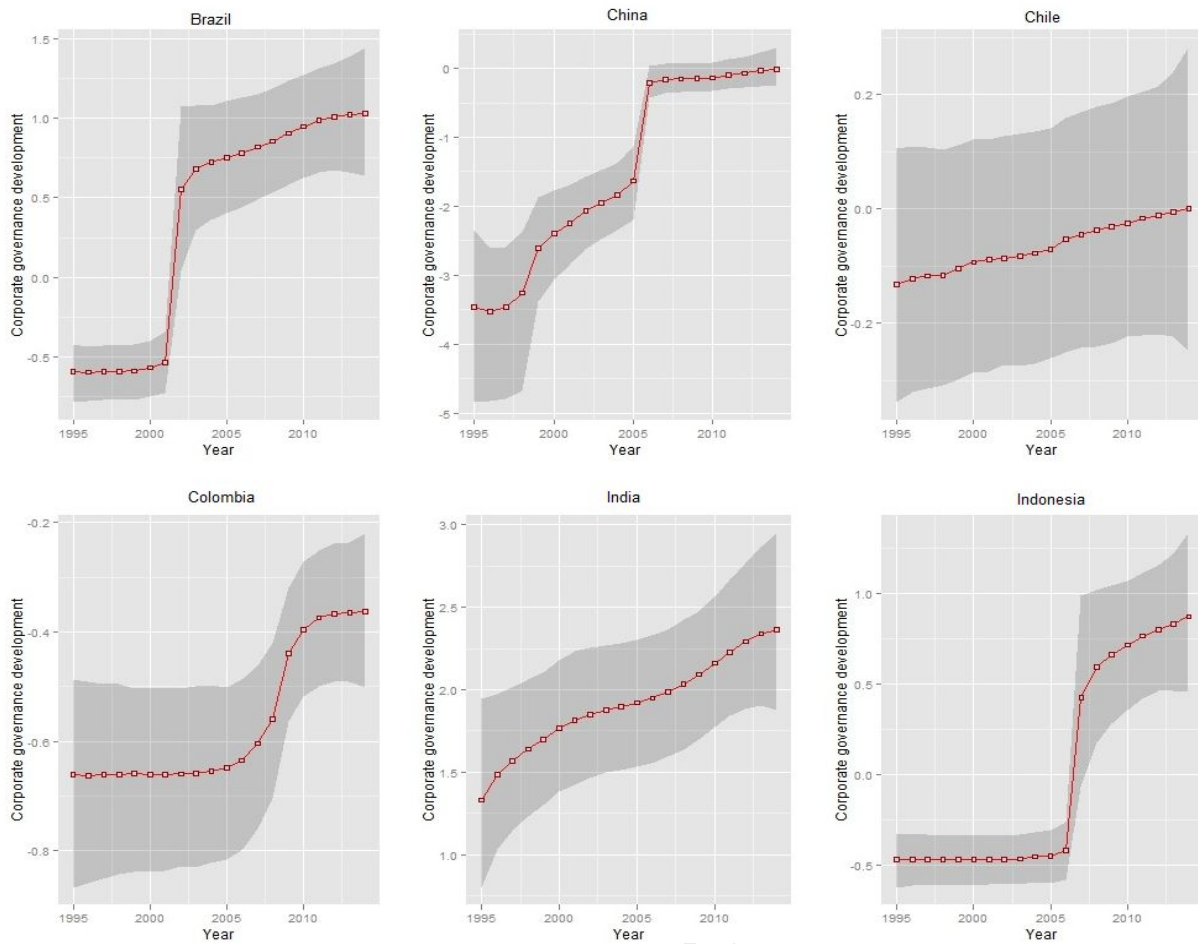
their response, then they were asked if the regulation was the same in 2009 in comparison to 2014 and if not when it had changed between 2009 and 2014 and how was it different. This was repeated for three time periods: 2009-2004, 2004-1999 and 1999-1994. Thus, to obtain data for a twenty year period, the respondents had to fill up only four columns. The respondents were also asked to add a small comment about the level of enforceability of each regulation/parameter in their jurisdiction.

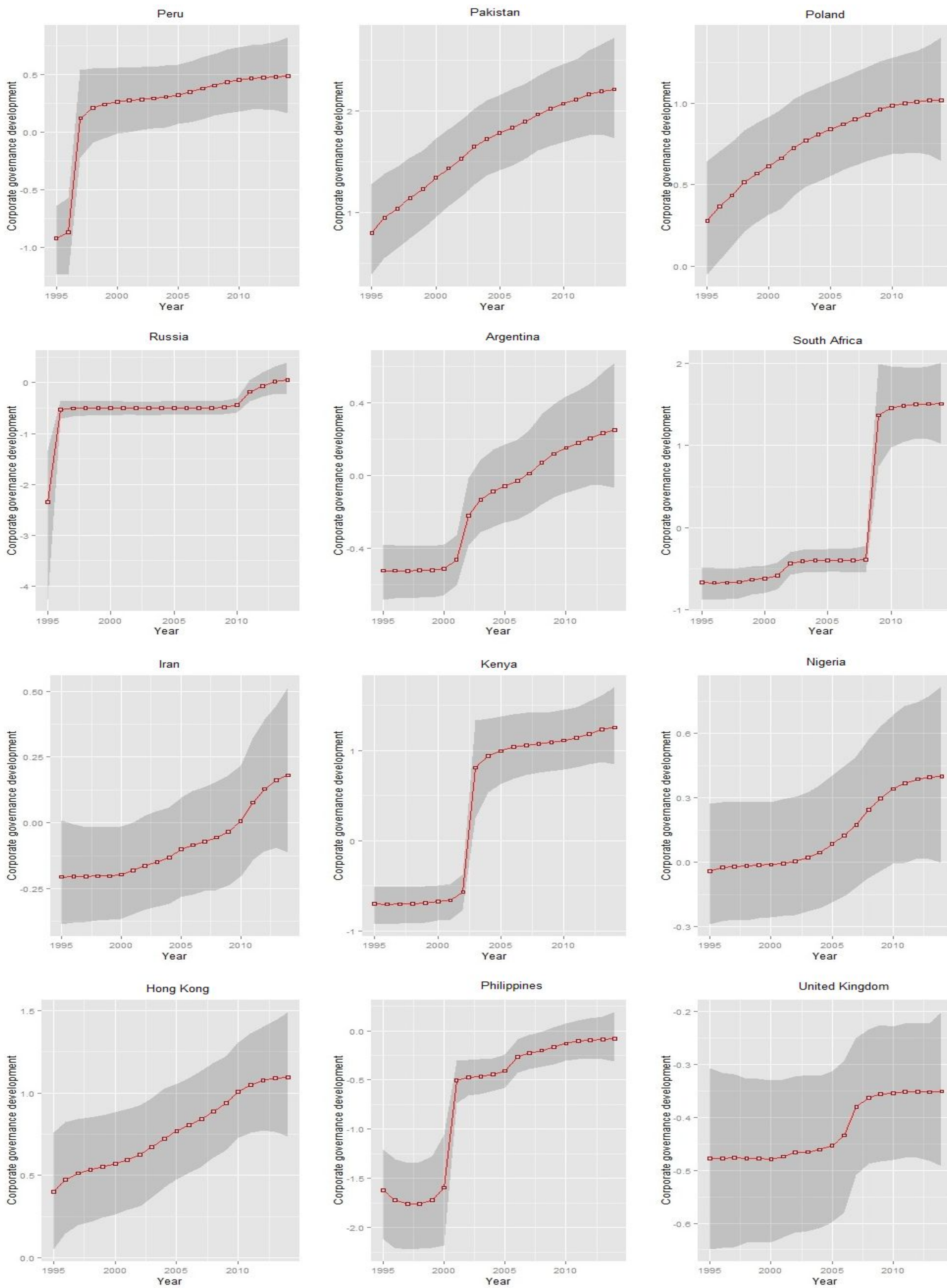
In keeping with the data collection philosophy of recruiting jurisdictional experts, to avoid inter-jurisdictional bias, the questionnaire was sent to stock exchanges, financial regulators, academics, practitioners and corporate governance organisations across over fifty developing countries. Data was finally obtained from twenty-one countries – Argentina, Brazil, Chile, China, Colombia, El Salvador, Germany, Hong Kong, India, Indonesia, Iran, Kenya, Nigeria, Pakistan, Peru, Philippines, Poland, Russia, South Africa, United Kingdom and Vietnam. A list of expert respondents, including brief biographical details, is at Appendix C. The codified data is available in Appendix D.

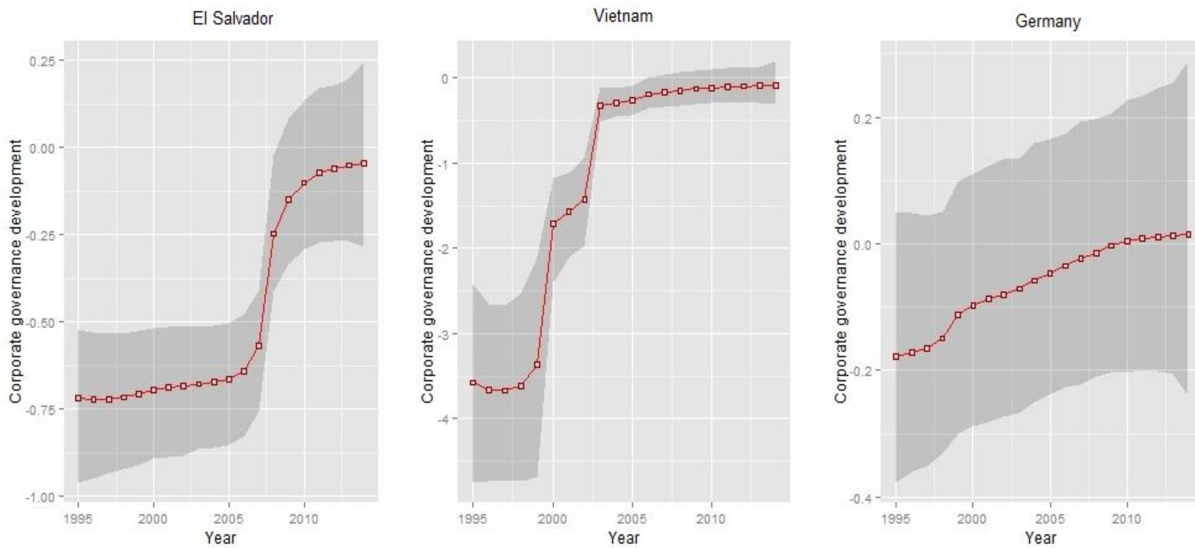
4. Analysis

As explained in the methodology section above, this research codes for 52 variables for 21 countries for the years 1995 to 2014. A dynamic graded response model with Kalman filter is used to compute the index. Below the evolution of corporate governance index for the 21 countries is presented in graphical format:

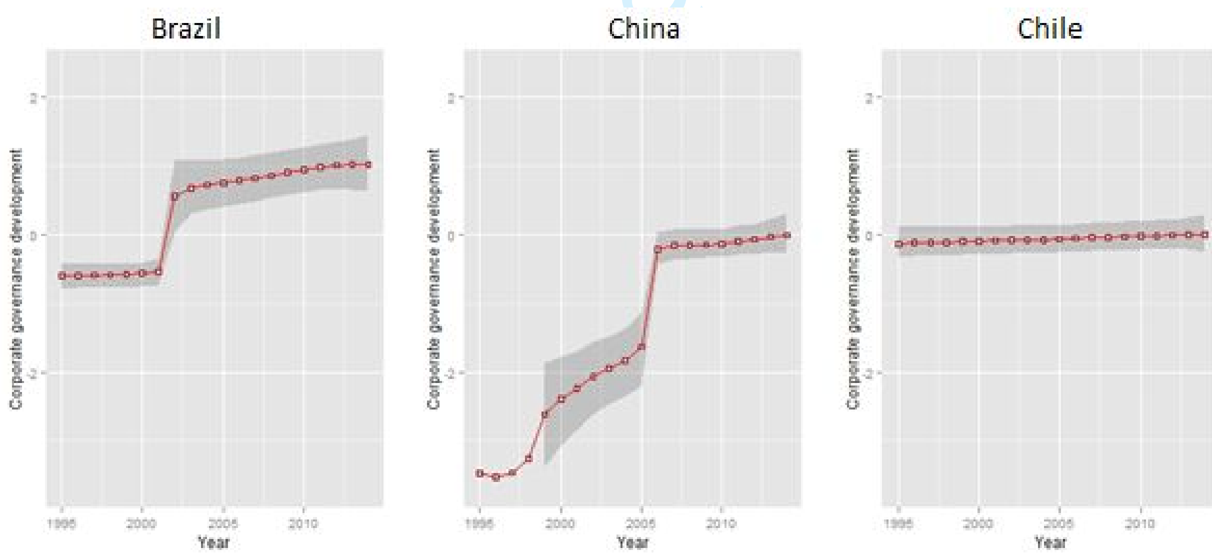
to check, for each variable, whether it was present in their jurisdiction in 2014 and if it was present then whether it was compulsory or optional.

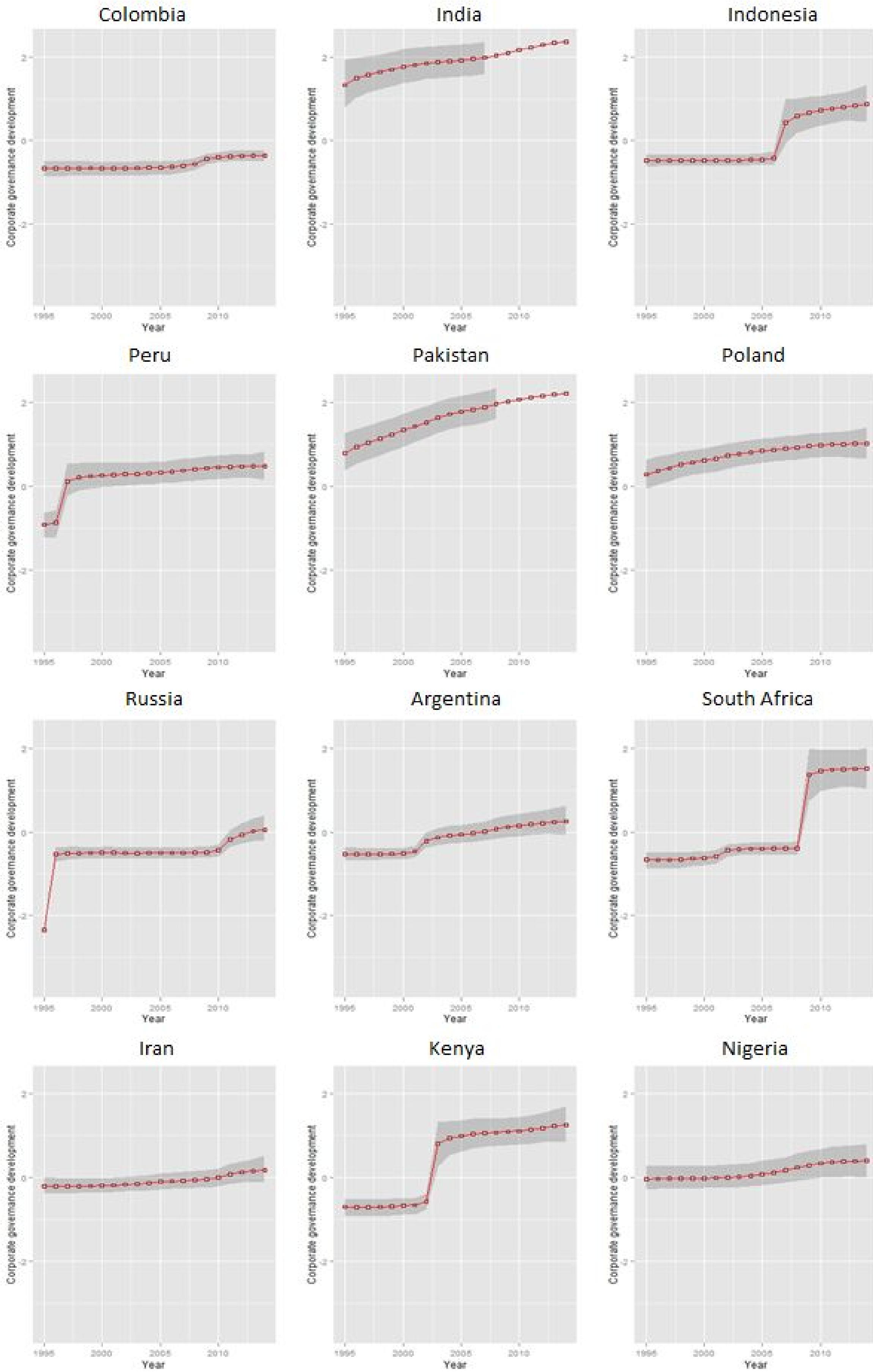

Brazil
China
Chile
Colombia
India
Indonesia
Corporate governance development
Year

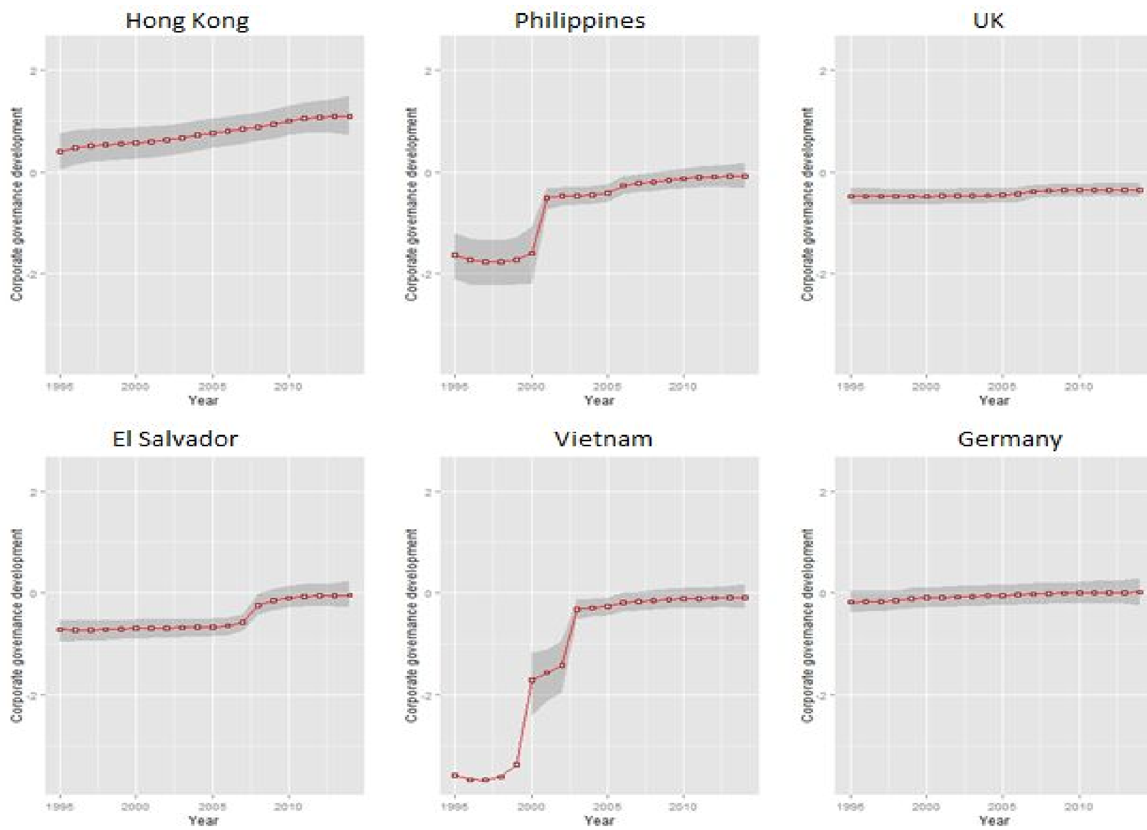

Peru
Pakistan
Poland
Russia
Argentina
South Africa
Iran
Kenya
Nigeria
Hong Kong
Philippines
United Kingdom
Corporate governance development
Year



The preceding graphs show that for all the countries in this study, the corporate governance index becomes more pro-shareholder over time. However, the rate of such increase is different for each country. Please note that the scale is not uniform in the graphs above, this allows for a greater focus on the individual trends for each country. However, to compare the trends of corporate governance across all the countries, we need to plot the corporate governance development on a uniform scale. This is done in the graphs below:




Colombia
India
Indonesia
Peru
Pakistan
Poland
Russia
Argentina
South Africa
Iran
Kenya
Nigeria
Corporate governance development
Year



Change in shareholder primacy corporate governance (1995 – 2014) standardised scores is tabulated below:

Country	Change	Country	Change
China (CH)	3.46	Vietnam (VTN)	3.49
Russia (RUS)	2.4	South Africa (RSA)	2.18
Kenya (KEN)	1.96	Brazil (BR)	1.62
Pakistan (PK)	1.42	Philippines (PHL)	1.54
Indonesia (INS)	1.34	Peru (PER)	1.4
Hong Kong (HKG)	0.7	India (IN)	1.03
Argentina (AR)	0.77	El Salvador (ELS)	0.67
Poland (PL)	0.74	Colombia (COL)	0.3
Nigeria (NGA)	0.44	Iran (IRN)	0.39
Chile (CHL)	0.13	Germany (DEU)	0.19
United Kingdom (UK)	0.13		

The graphs and table show that for countries like Germany, UK, Chile, Iran, Nigeria and Colombia there have been very small shifts towards shareholder primacy corporate governance (0 – 0.5). For countries like El Salvador, Hong Kong, Poland, Argentina and India there have been larger shifts (0.5 – 1). For Brazil, Pakistan, Indonesia, Peru and Philippines there have been major shifts (1 – 1.75). While for Vietnam, China, Russia, South Africa and Kenya there have been significant shifts (1.5 and above) towards adopting shareholder primacy corporate governance principles over the last twenty years.

If we calculate the change under Classical test theory, we get the following table:

Country	Change	Country	Change
Vietnam (VTN)	3.583	Russia (RUS)	3.268
China (CH)	2.891	Kenya (KEN)	2.326
South Africa (RSA)	1.886	Argentina (AR)	1.886
Brazil (BR)	1.571	Philippines (PHL)	1.509
Colombia (COL)	1.509	Peru (PER)	1.446
Indonesia (INS)	1.446	Iran (IRN)	1.383
United Kingdom (UK)	0.943	El Salvador (ELS)	0.88
Nigeria (NGA)	0.754	India (IN)	0.754
Chile (CHL)	0.754	Hong Kong (HKG)	0.691
Pakistan (PK)	0.629	Germany (DEU)	0.566
Poland (PL)	0.503		

If we contrast CTT results and Bayesian results for highest change we have the following table:

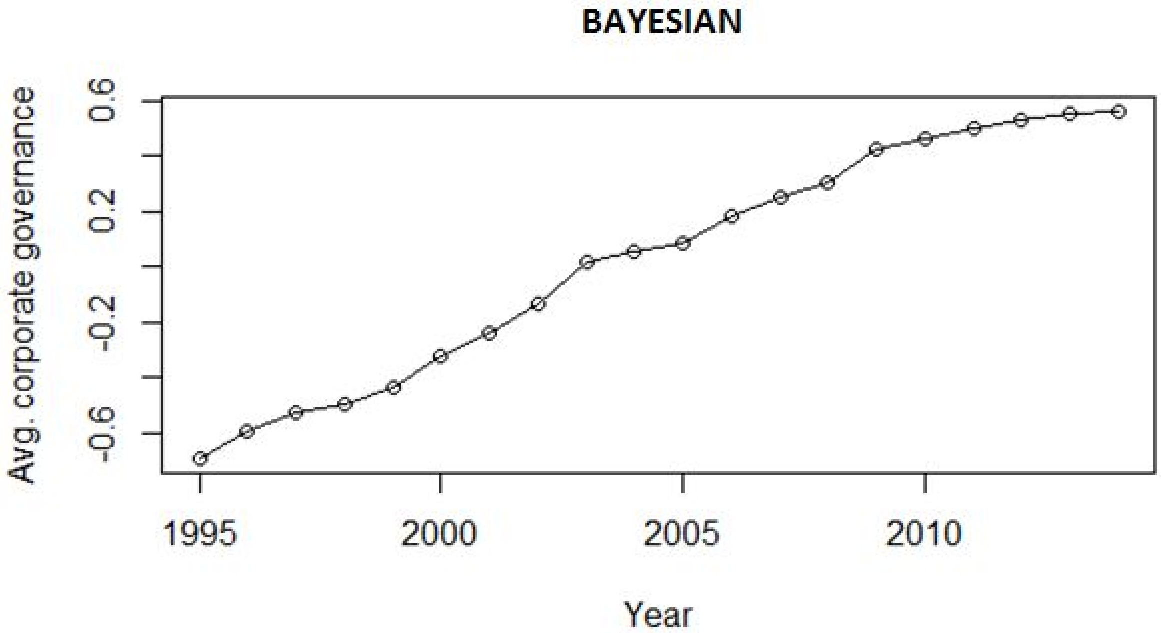
Country	Bayesian rank	CTT Rank	Change in rank
China (CH)	1.	3	-2
Vietnam (VTN)	2.	1	+1
Russia (RUS)	3.	2	+1
South Africa (RSA)	4.	5	-1
Kenya (KEN)	5.	4	+1
Brazil (BR)	6.	7	-1
Pakistan (PK)	7.	19	-12

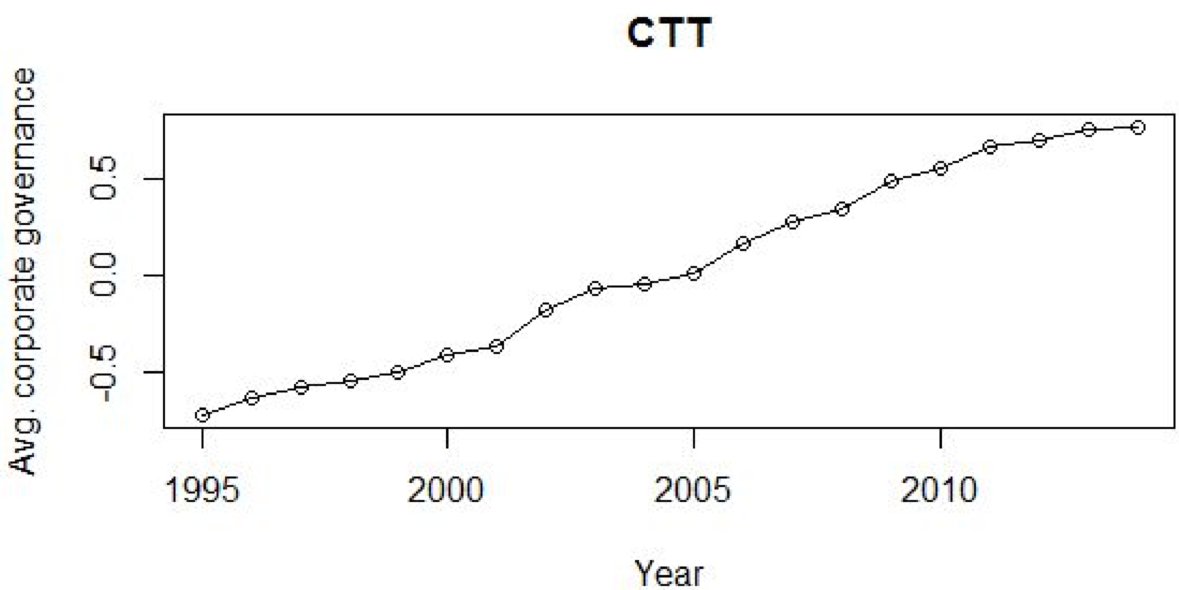
Philippines (PHL)	8.	8	0
Indonesia (INS)	9.	11	-2
Peru (PER)	10.	10	0
Hong Kong (HKG)	11.	18	-7
India (IN)	12.	16	+4
Argentina (AR)	13.	6	+7
El Salvador (ELS)	14.	14	0
Poland (PL)	15.	21	-6
Colombia (COL)	16.	9	+7
Nigeria (NGA)	17.	15	+2
Iran (IRN)	18.	12	+6
Chile (CHL)	19.	17	+2
Germany (DEU)	20.	20	0
United Kingdom (UK)	21.	13	+8

We find that the change towards pro shareholder primacy corporate governance is generally overestimated.[64]

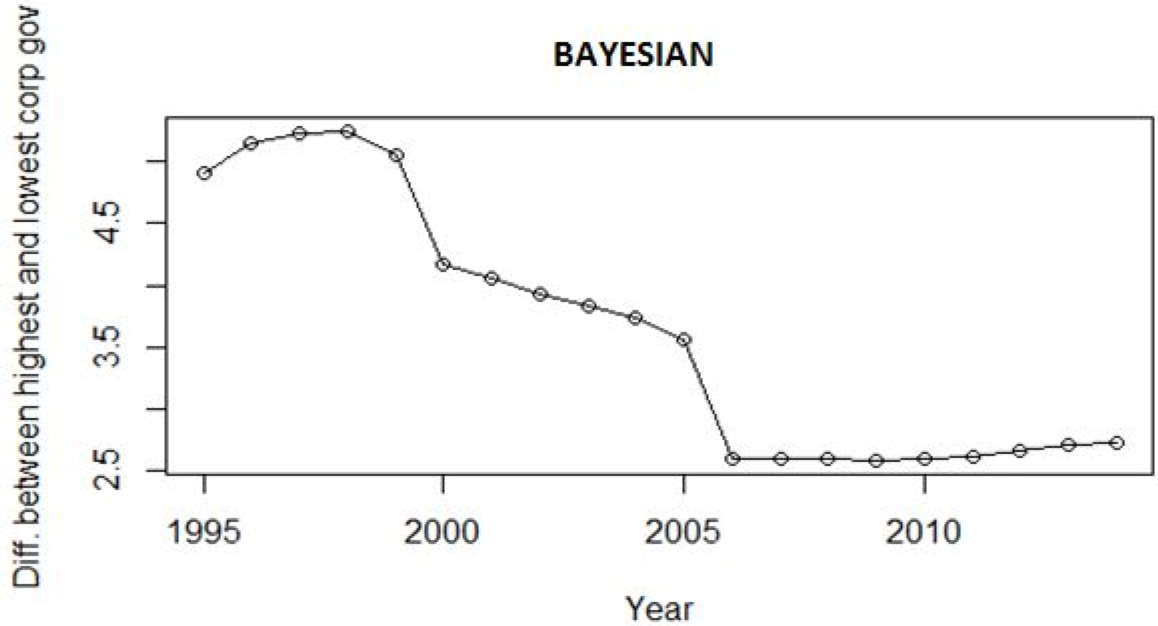
Convergence will be measured in two ways, first three quasi-experimental methods – average, difference between the highest and lowest corporate governance index per year and the total difference from the highest corporate governance per year. Secondly the findings are confirmed by computing the coefficient of determination. And this will be done using the index data generated by Bayesian and Classical methods.

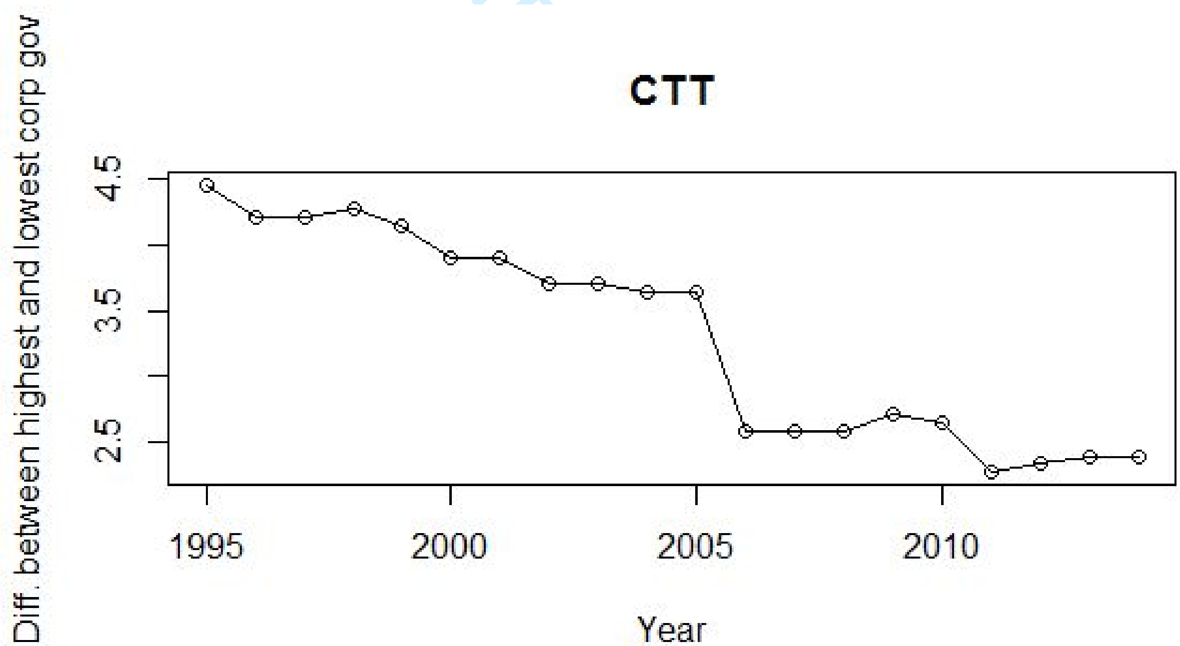
[64] See LLSV (2008), Djankov (2005)



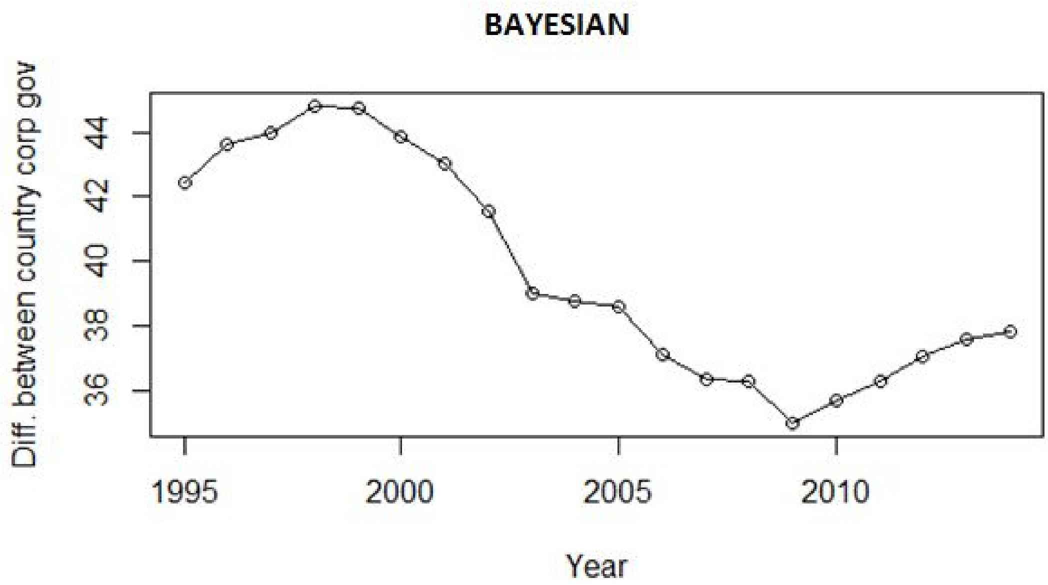


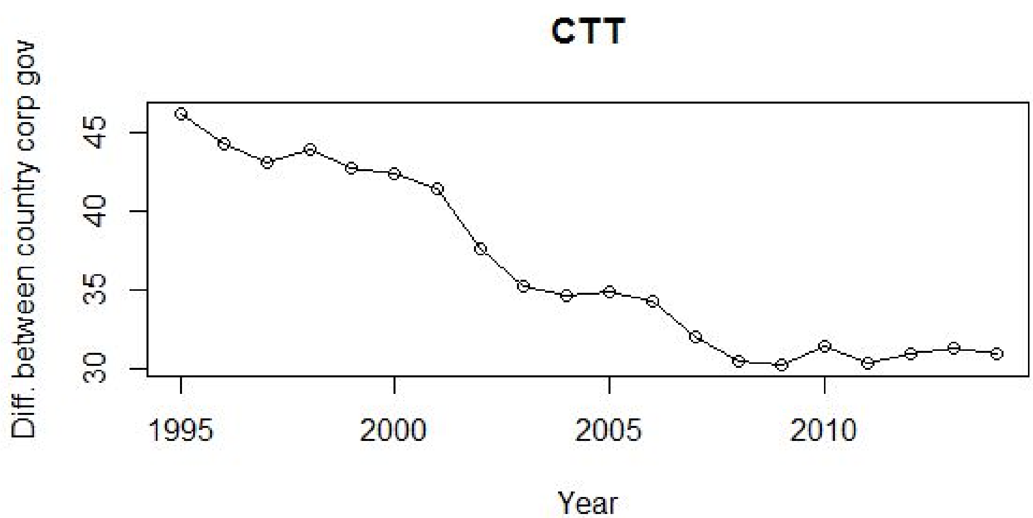
The average corporate governance index is computed by averaging the individual corporate governance indices across all countries for each year. Both the graphs show that the average corporate governance is becoming more pro-shareholder over the studied time period.





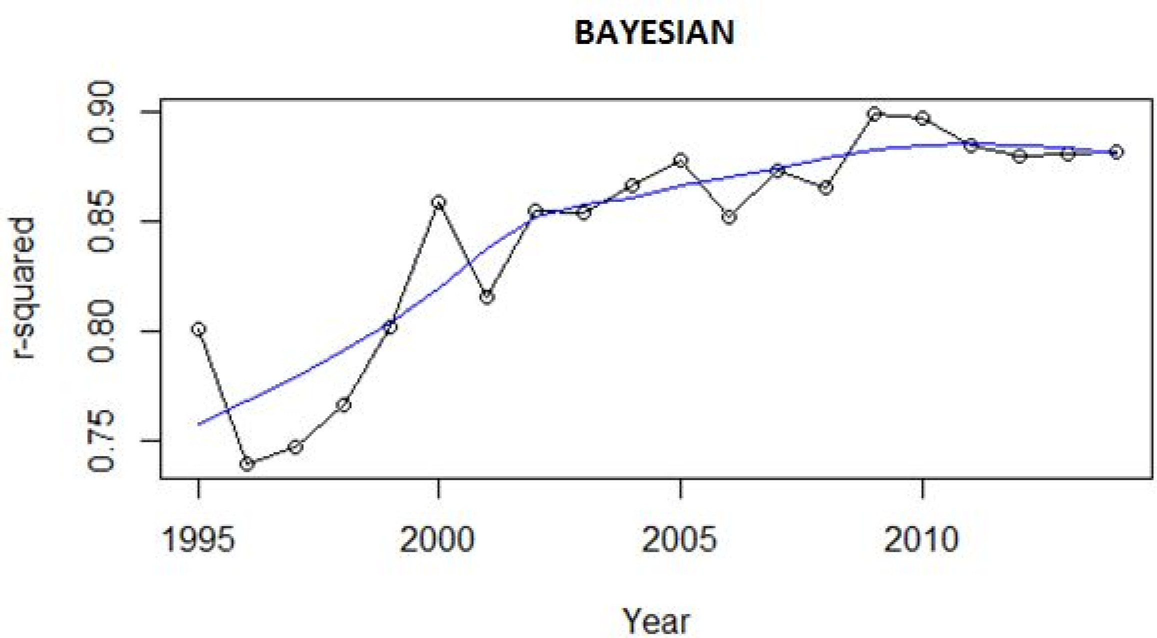
The graphs showing the difference between the highest corporate governance scores and the lowest corporate governance scores per year also show a marked fall, signalling a convergence. Both CTT and Bayesian indices give similar results and trends.

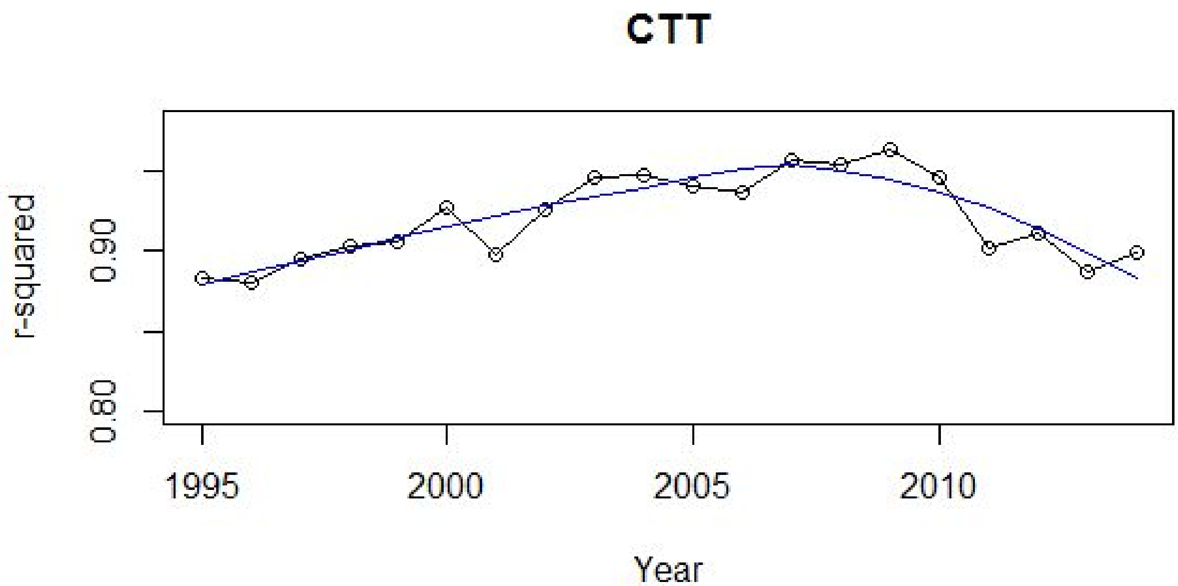




However, we find marked differences in CTT and Bayesian results when we calculate the difference between each country and the highest corporate governance country and add up all such differences. The Bayesian graph clearly shows that until around 2009 there was a steady convergence but after 2010 there is a slight divergence. This research does not look into the qualitative reasons for such a divergence, nevertheless this divergence can be attributed to a move away from a pro-shareholder approach in the aftermath of the Global Financial Crisis. However, the CTT data does not clearly highlight the divergence.

So overall the three quasi-experimental models show that there is a convergence. This is proved experimentally by the coefficient of determination (r^2) calculated for each year for all the countries. The graph below shows the movement of r^2. As the original corporate governance data for each year across every country can also form a univariate ordinary least square regression, the coefficient of determination will also be equal to the computed coefficient of determination. Hence the graph also shows how well the corporate governance of each country fits to a line of best fit. This makes it possible to identify the extent to which a uniform corporate governance regime is emerging. A local regression line is fitted in order to produce a nonlinear trend line (in blue). The Bayesian index shows that between 1995 and 2005 the rate of convergence was quite high, this slowed down between 2006 and 2008 and then fell from 2009 onwards.





The CTT index also shows that there is divergence post 2008, however the divergence is blown out of proportion, as per the r square data it would seem that the divergence is so wide that it has reached similar proportion of 1995. We know from qualitative research that this is not the case. This over-divergence produced by CTT in this plot can be explained as over emphasis on higher corporate governance development (by CTT standards) and relative stability of most countries in terms of newer corporate governance adoption in the aftermath of Financial Crisis of 2008.

This is easily cured by attaching differing difficulty and discriminating values to the variables as done under Bayesian methods. This along with Kalman filter ensures that minor variations are not blown out of proportion and skew the entire projection.

Thus, there is clear evidence that corporate governance is converging towards a shareholder primacy approach, although the rate has slowed since 2009. It might be suggested that this is either because most of the countries examined have reached peak shareholder primacy regulation before 2009, or because of a global fatigue towards pro shareholder rhetoric in the aftermath of the Global Financial Crisis. It is also clear from the comparison of Bayesian and CTT coefficient of determination that Bayesian statistics offer a more intuitive, clear and reliable estimate of convergence. CTT estimates that the laws of countries have diverged since 2008, however we know from experience that this is not the case. CTT got this result because of few outliers in the data, but Bayesian model looks at the data as a whole and therefore did not commit this error. The

Bayesian method of Graded Response Model allows the estimate of corporate governance for a country for a particular year be influenced by the corporate governance estimates of previous years for that particular country as well as the corporate governance estimates of other countries. Therefore, changes in law in a particular year for a country does not automatically translate into a huge change for the corporate governance estimate, as the model will take into account changes in other countries as well as changes in the previous years in that country. This sounds more intuitive for social science researchers who know instinctively that to rank countries on a comparative metrics would need to take into account how other countries react to changes.

The experimental result is complemented by the heatmap of the corporate governance index below which also shows the steady growth of pro-shareholder corporate governance around the world. The spread of red indicates the increase in shareholder value corporate governance over time:

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
IN	1.330136	1.486207	1.56884	1.639707	1.69752	1.768226	1.812971	1.847888	1.875512	1.898234	1.920578	1.94904	1.984664	2.033107	2.092169	2.161205	2.229408	2.292735	2.33963	2.363945
PK	0.796866	0.942698	1.036736	1.138015	1.230754	1.342877	1.435318	1.530158	1.646286	1.724092	1.783824	1.838586	1.894158	1.966927	2.025676	2.071995	2.115056	2.165717	2.196205	2.213458
HKG	0.398473	0.475162	0.512159	0.534404	0.552039	0.570608	0.591929	0.624138	0.669816	0.721992	0.767076	0.804713	0.843267	0.888177	0.938824	1.006133	1.049678	1.075283	1.0885	1.096197
PL	0.277848	0.365606	0.4343	0.514606	0.568772	0.612233	0.661765	0.726014	0.770529	0.806594	0.841527	0.870393	0.899586	0.929847	0.960879	0.983368	0.998376	1.008145	1.015667	1.017987
NGA	-0.04303	-0.02557	-0.02035	-0.0179	-0.01518	-0.01197	-0.00613	0.002867	0.02212	0.044403	0.084222	0.123607	0.173082	0.243194	0.29601	0.341328	0.368681	0.386685	0.395595	0.400221
CHL	-0.13296	-0.12314	-0.11759	-0.11605	-0.10492	-0.09378	-0.0895	-0.08647	-0.08295	-0.07792	-0.07039	-0.05335	-0.04463	-0.03804	-0.03134	-0.02504	-0.01689	-0.01177	-0.00537	-0.00021
DEU	-0.1781	-0.17113	-0.16478	-0.14938	-0.11264	-0.09699	-0.0877	-0.08088	-0.07107	-0.05827	-0.04649	-0.03492	-0.02332	-0.01441	-0.00311	0.004124	0.007939	0.010871	0.012116	0.015086
IRN	-0.20537	-0.20392	-0.20391	-0.20244	-0.20214	-0.19699	-0.18191	-0.16343	-0.14974	-0.13262	-0.10086	-0.08442	-0.07103	-0.05554	-0.03289	0.006241	0.076846	0.128802	0.162825	0.1809
INS	-0.47218	-0.46889	-0.46994	-0.46952	-0.4702	-0.47044	-0.47024	-0.46862	-0.46771	-0.45403	-0.45072	-0.42118	0.426315	0.593424	0.663652	0.714529	0.764215	0.799007	0.830406	0.871711
UK	-0.47779	-0.47819	-0.47613	-0.47796	-0.47779	-0.47863	-0.47424	-0.46673	-0.46562	-0.46117	-0.45319	-0.43407	-0.38015	-0.36282	-0.35623	-0.35422	-0.352	-0.35191	-0.35239	-0.35119
AR	-0.52363	-0.52336	-0.52407	-0.52238	-0.52076	-0.51195	-0.46229	-0.22037	-0.13218	-0.08712	-0.05738	-0.0287	0.010239	0.071605	0.118444	0.151296	0.177703	0.203733	0.233142	0.249641
BR	-0.59385	-0.59625	-0.59319	-0.5907	-0.58872	-0.56839	-0.53595	0.554186	0.677959	0.721276	0.751418	0.78184	0.818134	0.854392	0.904369	0.946693	0.984985	1.00791	1.019515	1.026007
COL	-0.66155	-0.66223	-0.66125	-0.66077	-0.65899	-0.66028	-0.66058	-0.65976	-0.65862	-0.65437	-0.64891	-0.63506	-0.60389	-0.55934	-0.4399	-0.39664	-0.3742	-0.36659	-0.36534	-0.36334
RSA	-0.67038	-0.67358	-0.67246	-0.66466	-0.63647	-0.61963	-0.58501	-0.44008	-0.40941	-0.40377	-0.40191	-0.40159	-0.39992	-0.38887	1.369682	1.458294	1.487562	1.500516	1.507536	1.508435
KEN	-0.70161	-0.70463	-0.70424	-0.70253	-0.69052	-0.67674	-0.66123	-0.5698	0.810337	0.941738	0.99481	1.038463	1.061019	1.074737	1.092649	1.112126	1.140844	1.185744	1.231502	1.255568
ELS	-0.7179	-0.72177	-0.72138	-0.71626	-0.70549	-0.69385	-0.6885	-0.68488	-0.67824	-0.67286	-0.66453	-0.64139	-0.56782	-0.24713	-0.14764	-0.1008	-0.07213	-0.05924	-0.05058	-0.04394
PER	-0.91859	-0.86684	0.120659	0.208463	0.239815	0.260017	0.274746	0.281824	0.291852	0.304545	0.322832	0.345432	0.377439	0.403737	0.433957	0.454511	0.466053	0.473217	0.479792	0.485211
PHL	-1.62285	-1.72303	-1.76092	-1.75891	-1.72152	-1.5954	-0.50586	-0.47465	-0.46569	-0.44534	-0.40868	-0.26746	-0.22503	-0.20029	-0.16371	-0.13039	-0.10493	-0.09486	-0.08628	-0.08127
RUS	-2.34909	-0.5262	-0.50518	-0.5034	-0.49832	-0.49722	-0.49729	-0.50159	-0.50297	-0.49988	-0.49994	-0.49891	-0.49822	-0.4937	-0.48442	-0.43708	-0.18071	-0.06253	0.020902	0.055032
CH	-3.46887	-3.52941	-3.46565	-3.25915	-2.61563	-2.39682	-2.24612	-2.07404	-1.9547	-1.8356	-1.63378	-0.21003	-0.16199	-0.15394	-0.14834	-0.13824	-0.102	-0.07135	-0.03265	-0.01193
VTN	-3.57533	-3.66811	-3.66903	-3.61064	-3.36272	-1.71102	-1.56853	-1.42208	-0.31989	-0.29175	-0.2683	-0.19341	-0.16791	-0.14685	-0.12736	-0.11649	-0.10876	-0.09939	-0.094	-0.08774

A CTT index also produces a similar heatmap.

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
IN	1.48185	1.48185	1.48185	1.54471	1.54471	1.60756	1.60756	1.60756	1.60756	1.60756	1.67041	1.79612	1.79612	1.79612	1.92183	2.04754	2.11039	2.17325	2.2361	2.2361
PK	1.16758	1.16758	1.16758	1.29329	1.29329	1.419	1.419	1.419	1.60756	1.60756	1.60756	1.60756	1.60756	1.73327	1.73327	1.73327	1.73327	1.79612	1.79612	1.79612
PL	0.28762	0.28762	0.28762	0.47618	0.47618	0.47618	0.47618	0.60189	0.60189	0.60189	0.66474	0.66474	0.66474	0.7276	0.79045	0.79045	0.79045	0.79045	0.79045	0.79045
BR	0.09906	0.09906	0.09906	0.22476	0.22476	0.47618	0.47618	1.23043	1.23043	1.23043	1.23043	1.23043	1.29329	1.29329	1.54471	1.67041	1.73327	1.67041	1.67041	1.67041
NGA	0.09906	0.09906	0.09906	0.09906	0.09906	0.09906	0.09906	0.09906	0.16191	0.16191	0.28762	0.28762	0.28762	0.66474	0.7276	0.7276	0.7276	0.7276	0.7276	0.85331
HKG	0.09906	0.09906	0.09906	0.09906	0.09906	0.09906	0.09906	0.09906	0.22476	0.35047	0.41333	0.41333	0.41333	0.47618	0.47618	0.79045	0.79045	0.79045	0.79045	0.79045
CHL	-0.46663	-0.46663	-0.46663	-0.46663	-0.34092	-0.08951	-0.08951	-0.08951	-0.08951	-0.08951	-0.08951	0.0362	0.0362	0.0362	0.09906	0.16191	0.22476	0.22476	0.28762	0.28762
INS	-0.52949	-0.40378	-0.40378	-0.40378	-0.40378	-0.40378	-0.34092	-0.34092	-0.34092	-0.21522	-0.21522	-0.21522	0.7276	0.7276	0.7276	0.7276	0.79045	0.79045	0.79045	0.91616
UK	-0.52949	-0.40378	-0.40378	-0.40378	-0.40378	-0.40378	-0.40378	-0.15236	-0.15236	-0.15236	-0.15236	-0.15236	0.35047	0.41333	0.41333	0.41333	0.41333	0.41333	0.41333	0.41333
PER	-0.71805	-0.71805	0.28762	0.28762	0.28762	0.41333	0.41333	0.41333	0.41333	0.41333	0.47618	0.47618	0.60189	0.60189	0.7276	0.7276	0.7276	0.7276	0.7276	0.7276
DEU	-0.71805	-0.71805	-0.71805	-0.71805	-0.59234	-0.59234	-0.59234	-0.59234	-0.52949	-0.46663	-0.34092	-0.34092	-0.34092	-0.27807	-0.15236	-0.15236	-0.15236	-0.15236	-0.15236	-0.15236
COL	-0.7809	-0.7809	-0.7809	-0.7809	-0.7809	-0.7809	-0.7809	-0.7809	-0.7809	-0.7809	-0.7809	-0.71805	-0.34092	-0.34092	-0.02665	0.35047	0.7276	0.7276	0.7276	0.7276
RSA	-0.84376	-0.84376	-0.84376	-0.84376	-0.59234	-0.59234	-0.59234	-0.27807	-0.21522	-0.21522	-0.21522	-0.21522	-0.21522	-0.21522	1.04187	1.04187	1.04187	1.04187	1.04187	1.04187
IRN	-0.90661	-0.90661	-0.90661	-0.90661	-0.90661	-0.90661	-0.71805	-0.59234	-0.59234	-0.59234	-0.34092	-0.34092	-0.34092	-0.34092	-0.34092	-0.34092	0.09906	0.22476	0.35047	0.47618
KEN	-0.96947	-0.96947	-0.96947	-0.96947	-0.84376	-0.7809	-0.7809	-0.08951	0.91616	0.97902	0.97902	1.10472	1.10472	1.10472	1.10472	1.10472	1.10472	1.29329	1.35614	1.35614
ELS	-1.03232	-1.03232	-1.03232	-1.03232	-0.90661	-0.7809	-0.7809	-0.7809	-0.71805	-0.71805	-0.71805	-0.71805	-0.71805	-0.21522	-0.21522	-0.21522	-0.08951	-0.15236	-0.15236	-0.15236
AR	-1.09518	-1.09518	-1.09518	-1.09518	-1.09518	-1.09518	-1.03232	0.35047	0.35047	0.35047	0.35047	0.35047	0.35047	0.60189	0.66474	0.66474	0.66474	0.66474	0.79045	0.79045
PHL	-1.53516	-1.53516	-1.53516	-1.53516	-1.53516	-1.53516	-0.90661	-0.90661	-0.84376	-0.71805	-0.71805	-0.59234	-0.59234	-0.59234	-0.27807	-0.15236	-0.02665	-0.02665	-0.02665	-0.02665
CH	-2.47797	-2.47797	-2.47797	-2.47797	-2.28941	-2.28941	-2.28941	-2.10084	-2.10084	-2.03799	-1.97514	-0.71805	-0.52949	-0.52949	-0.52949	-0.52949	-0.02665	0.09906	0.41333	0.41333
VTN	-2.72939	-2.72939	-2.72939	-2.72939	-2.60368	-1.91228	-1.91228	-1.91228	-1.15803	-1.15803	-1.09518	0.35047	0.35047	0.41333	0.53904	0.60189	0.60189	0.85331	0.85331	0.85331
RUS	-2.9808	-1.22088	-1.09518	-1.09518	-1.03232	-1.03232	-1.03232	-0.96947	-0.96947	-0.96947	-0.7809	-0.7809	-0.7809	-0.7809	-0.7809	-0.59234	0.0362	0.0362	0.28762	0.28762

Although the rank of countries differ the overall trend is clear – year on year countries are converging towards a more pro shareholder primacy corporate governance structure.

5. Conclusion

This research finds that corporate governance norms across all the developing countries studied under this research have been converging on a shareholder primacy model of corporate governance. It is evident that convergence accelerated after 2000 and reached its peak in 2007/08. By that time most of the countries examined had attained their maximum level of shareholder primacy corporate governance regulation. It is surprising to find that most of the countries analysed in this research have surpassed the United Kingdom, one of the birthplaces of shareholder primacy corporate governance, in terms of legislating pro-shareholder regulations and developing compulsory legal codes. The international financial organisations can regard implementation of more or less uniformly pro-shareholder policies in developing countries as a great success. Never before in the history of comparative law have developing countries 'voluntarily' accepted such far reaching changes to their legislation without being signatories to an overarching treaty. This stands as the greatest triumph of neo-liberal political economic principles in influencing the field of law. The prediction of Hansman and Kraakman that '[T]he ideology of shareholder primacy is likely to press all major jurisdictions toward similar rules of corporate law and practice […] although some differences may persist as a result of institutional or historical contingencies, the bulk of legal development worldwide will be toward a standard legal model of the corporation'[65] has come true. Corporate governance regulations across the world have never looked so similar.

However, since the Global Financial Crisis of 2008, convergence seems to have slowed down, if not stopped completely. While some countries have moved forward with new rafts of pro-shareholder policies, in most developing countries there seems to be either fatigue or disenchantment with shareholder primacy corporate governance rules, perhaps because of the crisis. Countries which had been eagerly adopting shareholder primacy regulations during the last decade or so may now be reflecting and asking whether the promise of higher financial market growth through the magic of pro-shareholder policies have borne any fruit.

The paper also shows that Bayesian methods increase the explanatory power of the corporate governance index developed in this paper in comparison to indices developed by other scholars. Even if there is some missing data or issues with inter-rater reliability, it is possible to estimate robust and reliable results using this method. This is because Bayesian techniques allow the model to 'learn' from surrounding data. In contrast under the Classical test theory, which computes the

[65] Hansman and Kraakman (n 50) abstract

scores in isolation of all other factors, while the trend of convergence remains similar to Bayesian methods, the country level variations are either over estimated or underestimated. Therefore, the paper also proves that for computing legal indices Bayesian methods are superior to Classical test theory.

Appendix A

Corporate governance variables

Shareholder rights index

- *Secure methods of ownership registration* - 2 if a central depository is available and shares are mandatorily held in an electronic dematerialised format in the central depositories, 1 if there is a central depository but it is optional to have shares in dematerialised format, 0 if there is no central depository.

  The first step for a shareholder to claim these rights would be to prove himself a shareholder, with increasing cross-border holdings, registration often becomes the first hurdle. Thus a pro-shareholder corporate governance regime would insist on an easy process with dematerialised shares which allow for electronic transfer especially through a central clearing house to reduce frauds, transaction time etc.
- *Transfer of shares* – 2 if shares of listed/public companies which can be traded in the open market are fully transferable, 1 if there are restrictions at the discretion of companies and

if a non-binding regulations call for full transferability of shares, 0 otherwise; 2 if foreign nationals are allowed to own and transfer shares and are treated on a par with the citizens of the host country, 1 if foreign nationals are allowed to own and transfer shares but with certain restrictions not placed on the citizens of the host country 0 if foreign nationals are not allowed to own or transfer shares.

The founding pillar of pro-shareholder corporate governance allows the shareholders a free choice to exit a company. Hence there is a need for an equity market, the shares need to be fully transferable and there should not be an onerous burden on the shareholder to transfer the shares. Some jurisdictions may have some restrictions on transfer such as a lock in period for promoters, restriction on preference shares, partially paid up equity shares etc. In the majority of such cases these non-transferable shares are not allowed to be traded on the open market (though sometimes trade is allowed in private markets). Therefore, to allow uniformity, only those shares which can be traded on the open market (like common equity shares) need to be fully transferable. Some jurisdictions place extra burden on foreign nationals and thus increase the cost of access to capital, a pro-shareholder policy would allow foreign funds entry to the financial market as it would give shareholders more choice and would lead to a more vibrant equity market.

- *Regular and timely information* – 2 if half yearly and annual reports are mandatorily sent to shareholders and a central registry, 1 if annual reports are sent to the central registry only and not to shareholders, 0 if no reports are sent or otherwise; 2 if it is statutorily mandated that an annual report includes at least five of the following: a. balance sheet, b. profit and loss statement, c. cash flow statement, d. statement of changes in ownership equity, e. notes on the financial statements and f. an audit report, 1 if it is recommended under a non-binding code 0 if otherwise; 2 if financial reporting mandatorily is based on International Financial Reporting Standards (IFRS) and International Standards on Auditing (ISA) 1 if it is recommended under a non-binding code 0 if otherwise.

Timely and regular information is key in order to make an informed choice. Shareholders always suffer from an information gap, thus pro-shareholder corporate governance policies would always insist on higher burdens on companies to share the maximum possible financial reports on more than an annual basis. IFRS and ISA or comparable standards ensure that companies' financial records comply with the globally accepted standards. This would allow easy comparisons across companies and help in shareholder choice.

- *Participate in shareholders meetings* – 2 if the law explicitly mandates that any class of shareholders are allowed to attend the meeting and take part in discussion, 1 if it is a common practice backed by a non-binding code 0 otherwise; 2 if a law mandates that a proxy form to vote on the items on the agenda accompanies notice of the meeting or if shareholders may vote by mail on the items on the agenda, 1 if it is recommended by a non-binding code or is a general practice, 0 if under law/non-binding regulation/practice absent shareholders vote (or shareholders who have not returned the proxy form/postal ballot) is given to mangers by default; 2 if cross-border proxy voting is allowed without any restriction, 1 if it is allowed with some restriction or a non-binding governance code recommends cross-border proxy voting without restriction, 0 otherwise.

Although some classes of shareholders like those holding preference shares are barred from voting, a policy which allows them to participate in the meeting (without voting) is more shareholder-friendly than regulations which completely bar the participation of nonvoting shareholders from general meetings. Further, in many highly dispersed companies it is not possible for the shareholder to attend the meetings and personally cast votes and proxies are generally used. A system which recognises shareholders as owners of the company would try to make it easier for more shareholder participation rather than using regulatory loopholes. A further mark of a liberalised regime would be to allow foreign nationals to use proxies to cast their votes as it otherwise might be financially onerous on the foreign shareholder.

- *Dividend* – 2 if shareholders can approve the amount of dividend to be paid with a simple majority, 1 if it is recommended under a non-binding regulation or code, 0 otherwise; Shareholder primacy corporate governance ensures shareholder wealth maximisation, timely and appropriate dividends is one way. In many common law jurisdictions the board of directors decides the amount of dividend to be paid. Thus, shareholder approval by simple majority on the amount of dividend paid would ensure that shareholders have an indirect say on the amount of dividend rather than a situation where the board can itself decide and approve the dividend amount.
- *Supermajority for extraordinary transaction* – 2 each if it is mandated by rule or statute that 75% or more shareholders need to agree for the following authorizing a) capital increases; b) waiving pre-emptive rights; c) buying back shares; d) amending articles of association; e) delisting; f) acquisitions, disposals, mergers and takeovers; g) changes to company business or objectives; h) making loans and investments beyond limits prescribed under prospectus; i) authorizing the board to: (i) sell or lease major assets; (ii) borrow money in excess of paid-up capital and free reserves, and (iii) appoint sole selling agents and apply to the court for the winding up of the company, 1 each if it is under a non-binding regulation with a comply or explain architecture or if it is a common practice, 0 otherwise.

Shareholders should retain control over the board in the case of an extraordinary transaction which may affect the long term and short term viability and profitability of the company. Buy back of shares, issuance of new shares and corporate restructuring generally lead to changes in the total paid up share capital and directly impacts on share prices. Capital restructuring can also lead to the consolidation of incumbent management in a widely held company. This provision can be misused by majority shareholders who can issue new shares to themselves, waiving the pre-emptive rights of first refusal of the minority, this leads to further dilution of minority held shares. Moreover, with an increased number of shares the price of shares would generally fall thereby expropriating the share value of the minority. Similarly, significant changes to the asset base of the company would also impact on the prices of shares. Rights issues can also be used as a takeover defence. Some jurisdictions allow for some of these powers to be exercised directly by the board, some require a simple majority while others demand a supermajority. If a supermajority is required for these transactions, shareholders are able to get full ex-ante information about aspects limiting their rights that would normally be factored into the price of the security. This limitation on absolute board power would also enable minority shareholders to protect themselves from self-dealing corporate insider expropriation by dilution, to an extent.

Anti-Managerial rights index

- *Performance related pay* - 2 if under law a minimum fixed portion of executive remuneration is performance linked, 1 if it is a common practice or recommended under a non-binding corporate governance code, 0 otherwise; 2 if executive remuneration requires shareholder approval, 1 if shareholder approval is only advisory, 0 otherwise; 2 if there are statutory rules relating to stock option plans and stock linked pension funds exist, 1 if there is a non-binding code or regulation, 0 otherwise.

One of the cornerstones of agency-based shareholder value maximisation of corporate governance is to align the interests of the managers and the employees to the interest of the shareholders i.e. to increase the price of shares on equity markets. This can be achieved if emphasis is placed on encouraging executives to take a major portion of their remuneration in stock options. Like the OECD principles of corporate governance which states that performance related pay should be allowed to develop, most jurisdictions do not put in a fixed line as to how much executive compensation should be linked to the performance of share prices. However, a jurisdiction which wants to implement a performance-linked pay for executives will fix a minimum amount of compensation which must be linked to share performance. Similarly for employees there can be stock-linked pension funds or employees stock ownership plans (ESOPs). In many jurisdictions these exist as general practice, however as it becomes more prevalent legislators tend to regulate it by bringing rules. Thus the presence of guiding rules relating to ESOPs etc. acts as a proxy for the fact that performance related pay for employees has been generally accepted. Executive compensation is usually fixed by the remuneration committee, however, if shareholders need to approve the quantum of compensation, it adds another layer of shareholder control over the directors.

- *Proportionality of ownership of share and control* – 2 if ordinary equity shares that do not carry a preference of any kind, neither for dividends nor for liquidation carry one vote per share,[66] 1 when a non-binding code discourages the existence of methods of disproportional control like multiple-voting and nonvoting ordinary shares, pyramid schemes or does not allow firms to set a maximum number of votes per shareholder irrespective of the number of shares owned, 0 otherwise

Each shareholder should be given proportional equity control to the amount invested. However over the years, due to financial requirements, various forms of shares have evolved – preference shares which have higher or fixed cash flow rights but sacrifice voting rights, golden shares which may contribute little to equity but have disproportionate voting rights etc.[67] which are separate from ordinary equity shares. The survey will limit itself to one vote per one ordinary share to ensure proportionality of control across the ordinary equity class. Thus, for example, a jurisdiction which does not have any regulation on disproportionate voting rights like golden shares, pyramid schemes etc. would be scored 0.

- *Markets for corporate control* - 2 if pre-offer takeover defences are statutorily banned, 1 if there is a non-binding code which specifically discourages directors from using pre-offer defences, 0 if there is no regulation; 2 if post-offer takeover defences are statutorily banned, 1 if there is a non-binding code which discourages directors from using post-offer defences, 0 if there is no regulation; 2 if at least 25% or more shares are to be with the public for listed companies, 1 if there is a non-binding code for the same, 0 otherwise; 2 if a declaration to the market by a shareholder holding 5% of share capital is necessary whenever their shareholding changes by more than 1-5% of the total subscribed share

[66] Even with a strict imposition of one share one vote rule, which should in theory nullify golden shares, there would be other ways like stock pyramids, cross-ownership structures and dual class equity structures which gives disproportional control delinked from cash flow rights by careful manipulation of common equity shares.

[67] See generally Milton Harris and Artur Raviv, 'Corporate governance: Voting rights and majority rules' (1988) 20 Journal of Financial Economics 203-235

capital within a given period of time, 1 if the disclosure is recommended by a non-binding code, 0 otherwise;

To ensure that the market for corporate control can function effectively, any pro-shareholder corporate governance would try to restrict the powers of the incumbent managers to scupper takeover attempts. Takeover defences can be divided into two categories based on the time when they can be effected. Defences like the poison pill, automatic rights issue, golden parachute for executives, staggered board etc. are arranged before a bid is made for the control of the company. On the other hand, defences like targeted repurchase bids (coupled with white knight etc.), asset restructuring (crown jewel defence, scorched earth policy etc.), capital restructuring (issue of new shares to existing shareholders), greenmailing are usually set in motion once the takeover bid has already been made. 'Poison pills provide their holders with special rights in the case of a triggering event such as a hostile takeover bid. If a deal is approved by the board of directors, the poison pill can be revoked, but if the deal is not approved and the bidder proceeds, the pill is triggered. Similarly, golden parachutes are severance agreements that provide cash and non-cash compensation to senior executives upon an event such as termination, demotion, or resignation following a change in control.'[68] Rights issue (either contingent on takeover bid or post bid effected by incumbent management) allows for the issue of new shares to existing shareholders, this would lead to an increase in the number of shares and make it expensive for the raider to get majority control. As detailed in several pieces of research, takeover defences affect share prices and earnings.[69] Thus, an ideal shareholder primacy

[68] See Gompers et al. (n 38) Appendix A

[69] See Richard S. Ruback, 'An Overview of Takeover Defenses' in Alan J. Auerbach, (ed.) *Mergers and Acquisitions* (University of Chicago Press 1987) table 3.1 and 3.2; Pornsit Jiraporn, 'An empirical analysis of corporate takeover defences and earnings management: evidence from the US' (2005) 15 (5) Applied Financial Economics 293-303.

corporate governance system would discourage takeover defences. It is also necessary to differentiate between pre-bid and post-bid defences as many jurisdictions allow some form of defence such as counter offers etc. which usually raises the share prices and thus offers a better exit to shareholders. Therefore, if a jurisdiction bans the incumbent management from executing pre-offer defences such as staggered board, poison pill, golden parachute, supermajority (over 80%) to approve merger, dual class recapitalisation then the jurisdiction would be coded 2, if some of them are banned and others are specifically discouraged by a non-binding code then the country is coded 1, if there is no code or rule then it is coded 0. Similarly, for post-bid defences the survey will look for laws and rules banning or discouraging asset restructuring, liability restructuring, capital restructuring and targeted repurchase (not open competitive bidding).

In developing countries the share markets are generally illiquid and there is a high prevalence of block-holder directors. This situation can be remedied by having a minimum amount of shares with the public which may lead to more dispersed holding.[70] In India, which as per S&P is a leading emerging market, only recently was it made mandatory that for listing at least 25% of the shares should be with public. Therefore, to ensure that markets in developing countries move towards a more open market it is imperative that shares become more dispersed, the first step towards this would be a minimum of 25% free float. The disclosure rule for shareholders with 5% shareholding would nullify any attempts to effect a creeping acquisition and allow for proper share valuation due to an expected increase in demand.

[70] Though Cheffins et al. 'Ownership Dispersion and the London Stock Exchange's 'Two-Thirds Rule': An Empirical Test' (2012). University of Cambridge Faculty of Law Research Paper No. 17/2012. Available at <http://ssrn.com/abstract=2094538> concludes that two-thirds rule of London stock exchange was not the catalyst for dispersion of ownership and control that might have been expected.

- *Impediments to cross border voting* – 2 if American Depositary Receipt (ADR) and Global depository receipt (GDR) with voting rights at par equity is allowed, 1 if ADR and GDR have voting rights with some restriction, 0 otherwise.

  An investment bank can buy shares of companies listed at a share market in a developing country and later issue a negotiable security linked to these issues at a stock exchange in a developed country. These negotiable securities are referred to as depository receipts and their value varies according to the price of the underlying share in the original host country. If depository receipts for foreign companies are issued in the US market they are referred as ADR and if these depository receipts are issued in the non US market[71] it is commonly referred to as GDR. ADR and GDR allows foreign capital to flow into the host country and at the same time ensures that the companies adhere to the deposit agreements. Deposit agreements follow a strict set of disclosures, thus jurisdictions which allow ADR and GDR automatically ensures that companies which choose to issue ADR or GDR has to comply with strict standards. Whether the ADR/GDR purchaser would be able to vote depends on the depository agreements, however from a pro-shareholder view any equity investment should be able to exert proportionate control. Thus, shareholder primacy corporate governance would allow default voting rights for depository receipts to be on a par with domestic equity shares.

- 2 if by law external auditors need to be changed after 1-5 years and some cooling off period, 1 if it is recommended under a non-binding code, 0 otherwise.

  A regular change in the external auditor would ensure that management always remains at arms-length from the auditors. A quick glance at major corporate fraud like the Enron

[71] For example in European stock exchanges like Frankfurt Stock Exchange, London Stock Exchange etc.

scandal, Satyam scandal[72] would suggest that in many cases it was the willing oversight of the auditors which led to the delayed discovery of fraud. Thus a pro-shareholder corporate governance policy would favour a change of auditors at regular intervals so that the integrity of the financial information/disclosure is maintained.

- 2 each if it is mandatory for presence of audit committee, remuneration committee, nomination committee with a majority of independent directors, 1 if it recommended by a code, 0 otherwise.

  NEDs are supposed to act as an internal control mechanism looking at a long term view. Through these committees they are supposed to keep watch on executive directors and managers, appoint auditors, fix remuneration of the executives and maintain continuity with nominating executives for the top positions. The majority rule has to be enforced by statutory binding regulation. Independent directors are those directors who do not have any financial interest in the company and whose remuneration is not linked with performance.

- 2 if the country has legal protection for whistle-blowers, 1 if it is recommended in a non-binding corporate governance code etc., 0 otherwise.

<u>Minority shareholders rights index</u>

- *Ability to influence an electing member of board* – 2 if cumulative voting is allowed, 1 if it is recommended but discretionary, 0 otherwise.

  Shareholders should be allowed to have effective control over the board by electing its members. Most jurisdictions offer shareholders the opportunity to elect members but in a shareholder primacy system cumulative voting would be allowed as minority shareholders would then be able to pool their votes for certain board candidates.

[72] Criminal prosecution of auditors is still on-going

- *Prohibit abusive self-dealing* - A score of 0 if the board of directors, the supervisory board or shareholders must vote and the self-dealing majority shareholder is permitted to vote, 1 if it is recommended under a non-binding code that the board of directors or the supervisory board must vote and the self-dealing majority shareholder is not permitted to vote, 2 if it is mandatory that the self-dealing majority shareholder is not permitted to vote; 2 if shareholders must vote and the self-dealing majority shareholder is not permitted to vote, 1 if it is recommended, 0 otherwise. A score of 0 is assigned if no disclosure is required 1 if disclosure on the terms of the transaction is recommended, 2 if it is required; 2 if an external auditor is required to review the transaction before it takes place, 1 if it is recommended, 0 otherwise.

  A majority shareholder who is also a member of the board is at a distinct advantage over minority shareholders in terms of insider information and control. This may also lead to the diversion of company's assets for personal gain and eventual expropriation. Therefore a shareholder wealth maximisation of corporate governance would call for strict regulations to limit any self-dealing, putting in place checks and balances like NEDs, external auditors and even approval in shareholder meetings.

- *Ability to take judicial recourse* - 2 if direct or derivative suits are available for 100 shareholders or shareholders holding a minimum of 5-10% of the share capital, 1 if more than 10% or more than 100 shareholders are required for a suit, 0 in other cases.

  Business judgment rule prevents courts from interfering in the internal decision making process of a company, unless a sizeable number of shareholders approach the court. A pro-shareholder corporate governance policy would try to keep this threshold low so that even minority shareholders can approach the court to seek redressal in cases of oppression and mismanagement. Yet at the same time it should not be so low that the company has to always defend frivolous law suits.

<u>Anti-Stakeholder rights index</u>

- 0 if under a regulation stakeholder representation is found/encouraged in board, 1 if it is discouraged by a non-binding code or if there is no mention, 2 if it is prohibited by a binding regulation; 0 if under a regulation stakeholders or their representatives can be present/are encouraged to be present in shareholders meeting, 1 if it is discouraged by a non-binding code 2 if it is prohibited by a binding regulation and only shareholders can be present; 2 in the case of a unitary managing board where a majority of its members are directly elected by shareholders or are selected with the concurrence of the elected members of the board, 1 where under a non-binding code it is encouraged, 0 otherwise; 0 if stakeholders find remedy inside company law, 1 where there is a non-binding code under which stakeholders other than shareholders are offered remedy outside of company law, 2 if the company code or the listing agreements do not have any provision for stakeholder remedies except for shareholders; 0 if the country has a code of ethics for directors which explicitly states that stakeholder rights come before any other shareholder rights, 1 if it is recommended that directors give due consideration to the rights of different stakeholders but does not state if one group has a higher claim than another, 2 if there is a mandatory code which mentions that shareholders have precedence over other stakeholders.

Shareholder primacy corporate governance demands that stakeholders like creditors, employees, suppliers and customers are not represented at any stage of the decision making process. They should find remedies outside the corporate law and corporate governance mechanism. Therefore a jurisdiction which mandates dual board structure with stakeholder representation would score lower in the overall assessment.

Country	Name of expert	Description
Argentina	Santiago Chaher and Soledad Aroz	Santiago is the Managing Director at Cefeidas Group, Buenos Aires & Partner at Díaz, Elias & Chaher (DECH Law), Soledad is an analyst at Cefeidas Group.
Brazil	Bruno C.H. Bastit	Senior SRI & Sustainability Analyst for Emerging Markets team, Hermes EOS, London.
Chile	Matías Zegers Ruiz-Tagle	Matías is a board member of the UC Centre for Corporate Governance and Professor of Commercial Law at the Faculty of Law of the Catholic University of Chile. He is also partner of the law firm Bahamondez, Alvarez & Zegers Ltda.
China	Dr. Zhong Zhang; Xiao Xun	Lecturer, School of East Asian Studies, University of Sheffield; Xiao is a PhD candidate at Rotterdam Institute of Law and Economics.
Colombia	Daniel Davila	Managing Director, DHD Consultants SAS, Bogota
El Salvador	Douglas Hernandez	Lawyer, Supreme Court (CSJ) of El Salvador.
Germany	Dr. Andreas Ruhmkorf	Lecturer, School of Law, University of Sheffield
Hong Kong	In Wai Lee	JD final year student, School of Law, City University of Hong Kong
India	Rohan Mukherjee	Director, Grayscale Legal (LPO)
Indonesia	Yuni Arti	Lecturer at Faculty of Law, Airlangga University
Iran	Seyed Rouhollah Hosseini	Director of Listed Companies Affairs, Tehran

Appendix C

		Stock Exchange
Kenya	Loice Shuma	Analyst, Africa Corporate Governance Advisory Services Ltd.
Nigeria	Dr. Simisola Iyaniwura	Lecturer at Manchester Trinity College
Pakistan	Asif Paryani	Joint Director, Securities & Exchange Commission of Pakistan
Peru	Dr. Edison Ochoa	Lecturer at Universidad San Ignacio de Loyola
Philippines	Nelvi Myn Palomata	CG Scorecards Specialist at Institute of Corporate Directors
Poland	Tomasz Regucki	PhD candidate, Allerhand Institute
Russia	Peter Vishnevskiy	Lecturer, Faculty of Law, Department of Public and Private International Law, National Research University Higher School of Economics, Moscow
South Africa	Mabulenyana Marweshe	Analyst, Financial Services Board, Pretoria
UK	Luke Blindell	PhD candidate, School of Law, University of Sheffield
Vietnam	Anh Linh Nguyen	Lawyer