The corporate governance lifecycle in emerging markets – the case of the Republic of Korea

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Abstract

Purpose – *This paper aims to examine the impact of the corporate lifecycle on the corporate governance practices of firms in the Republic of Korea.*

Design/methodology/approach – *The authors use five corporate lifecycle measures and corporate governance scores from Black* et al. *(2012) to estimate governance-prediction models inclusive of corporate lifecycles measures for a sample of 497 Republic of Korea firms over the 1998–2004 period.*

Findings – *The authors find little evidence which points to a corporate governance lifecycle for firms in the Republic of Korea. The findings suggest that factors other than firm lifecycle best explain the corporate governance practices of firms in Korea.*

Originality/value – *Using a battery of lifecycle measures and corporate governance indexes and subindexes, the authors believe this paper represents the most rigorous study yet to study the corporate governance lifecycle in an emerging market economy, namely, the Republic of Korea.*

Keywords *Emerging economies, Corporate governance, Lifecycle, Republic of Korea*

Paper type *Research paper*

1. Introduction

Corporate governance–lifecycle theory considers a relationship between corporate governance and the corporate lifecycle stage and suggests that corporate governance can manifest itself in different roles across the corporate lifecycle. Filatotchev *et al.* (2006) show that the relative importance of the three main functions of corporate governance, namely, monitoring, resource and strategy, varies across the firm lifecycle. The resource and strategic roles of governance are prominent in early- and growth-stage firms, where resources are low and governance is required to "fuel and support growth." Corporate governance–lifecycle theory posits that the board of directors advises (in early-stage firms) and monitors (in mature-stage firms). For example, in high-tech firms, board members benefit the firm with knowledge, reputation, social capital and networking (Bertone *et al.*, 2013). For listed firms in Australia, Habib *et al.* (2018) show that advisory (monitoring) directors are more in demand in the early (mature) lifecycle stages. In growth/mature-stage firms, investment in accountability/transparency widens the firm's access to a larger pool of resources once it transitions from private to public firm, allowing the firm to fund its growth opportunities. Transparency declines in mature-stage firms once growth opportunities have been exhausted. These findings suggest there is a corporate governance "mix" best suited to each lifecycle stage.

Corporate governance standards in emerging markets have progressed substantially in recent decades (Claessens and Yurtoglu, 2013). For example, in the aftermath of the Asian financial crisis, the Republic of Korea mandated internal and external corporate governance

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reforms, which together with governance reforms adopted voluntarily by Korean firms, resulted in major restructuring among Korean firms, for example, large public firms were required to have at least 50% outside independent directors (Kim and Kim, 2008). Between 1998 and 2004, the Korean Corporate Governance Index for large firms rose from 30.78 to 69.64 (out of 100) (Black *et al.*, 2006). However, what is not clear from the literature to date is the nature of the adoption of corporate governance by Republic of Korea firms. The corporate governance lifecycle model says that for governance adoption to be optimal, firms must recognize that the net benefits of individual corporate governance attributes are not uniformly the same across the firm lifecycle. An alternate "one size fits all" approach says that firms can ignore the firm lifecycle and apply the same corporate governance practices regardless of their own stage of development [1]. In this paper, we examine whether the adoption of better governance standards by firms in the Republic of Korea follow the predictions of the corporate governance lifecycle or can be more readily aligned with the "one size fits all" approach.

Robust evidence in support of the corporate governance–lifecycle model has been found in developed countries. Loderer *et al.* (2012) conclude that governance quality in US firms tends to deteriorate as firms age. In Australia, Habib *et al.* (2018) show that advisory (monitoring) directors are more in demand in early (mature) lifecycle stages. In contrast, the evidence to date does not suggest that emerging market firms have embraced the corporate governance–lifecycle model. Esqueda and O'Connor (2020), hereafter, EOC (2020), examined the impact of the corporate lifecycle on corporate governance in Brazil and whether listing-level decisions are a better indicator of corporate governance quality than corporate lifecycle. They find little evidence to support a corporate governance–lifecycle relationship; instead, firms match their corporate governance practices with their exchange listing (i.e. the bonding or self-selection view), independently of lifecycle requirements [2]. O'Connor and Byrne (2013), hereafter, OCB (2013), also study the corporate governance lifecycle in emerging economies. However, their findings are inconclusive because of concerns about the corporate governance data and the lifecycle measures they used. This raises the question of whether the evolution of corporate governance in entities of emerging economies is captured by the lifecycle model. The findings of EOC (2020) also suggest the need for further research as to whether the lack of evidence of a corporate governance–lifecycle relationship overall, masked the reality of a relationship between individual corporate governance attributes and lifecycle stages – in other words, whether, in an equally weighted index, the number of attributes with relationships with lifecycle may be canceled out by attributes not displaying relationships [3].

In this paper, we undertake what we believe to be the most comprehensive analysis of the corporate governance lifecycle in an emerging market economy [4]. Our study differs from EOC (2020) and OCB (2013) in a number of important respects. First, EOC (2020) study the corporate governance lifecycle in Brazil. In this paper, we choose to study the corporate governance lifecycle in the Republic of Korea. Choosing the Republic of Korea allows us to study the corporate governance lifecycle using a larger sample of firms and over a longer time period. EOC (2020) examine a panel of 116 firms over three years resulting in a total sample of 180 firm-year observations. In this study, we use a sample of 497 individual firms or 2,185 firm-year observations in total. Second, we use an extensive set of lifecycle indicators, including firm age, to test for the corporate governance lifecycle. Recent work suggests lifecycle proxies can conflict with one another (Von Eije and Megginson, 2008; Banyi and Kahle, 2014), implying that reliance on a single lifecycle proxy is potentially problematic. Banyi and Kahle (2014) show that firm age and not categorical lifecycle indicators (e.g. retained earnings to total equity [RETE] lifecycle) do a better job of capturing lifecycle dynamics. OCB (2013) do not identify specific lifecycle stages, which makes it difficult to interpret their findings. Third, we test for the corporate governance lifecycle in individual corporate governance attributes so that we can rule out the possibility

that aggregation of individual governance attributes into an overall governance score or subindex masks important lifecycle effects.

Our analysis shows that corporate governance practices improved in Korea during the period under review but there is little evidence to support a lifecycle model of corporate governance. Beyond the introduction stage, firms in Korea change their corporate governance practices little as they mature. Instead, firms in Korea appear to practice a "one size fits all" governance model, which combines elements of good board practices, shareholder rights and to a lesser extent, disclosures. Factors other than lifecycle, like firm size, explain cross-sectional differences in corporate governance practices.

Our paper proceeds as follows. Section 2 describes the lifecycle measures we apply in this study. Section 3 describes the sample. Sections 4–7 set out our findings and estimate governance–lifecycle models. Section 8 concludes.

2. Identifying corporate lifecycles

In this study, we use five lifecycle proxy measures: the RETE measure of DeAngelo *et al.* (2006); the multistage lifecycle approaches of each of Dickinson *et al.* (2011), Faff *et al.* (2016) and AR (1992), and finally, firm age. First, following DeAngelo *et al.* (2006), we use the ratio of RETE, where total equity is the sum of retained and contributed equity. The premise underlying RETE as a lifecycle measure is that RETE increases as firms mature; young firms with little or no retained equity and reliance on contributed (external) equity have low RETE ratios, whereas mature firms with a diminishing investment opportunity set have greater access to internal funds (retained equity) and less need for contributed equity. Although intuitively appealing, the use of RETE as a lifecycle indicator is not without its problems. First, and like other univariate lifecycle measures, RETE cannot truly classify firms into different lifecycle stages. Second, Bhattacharya *et al.* (2020) highlight that RETE fails to capture the nonlinear relationship that exists between lifecycle stages and dividend payout [5].

Bhattacharya *et al.* (2020) show that Dickinson (2011) and not RETE lifecycle does a better job in capturing the *nonlinear lifecycle stage hypothesis*. Dickinson (2011), a multistage lifecycle model, classifies firms into one of five lifecycle stages, namely, introduction/birth, growth, maturity, shake-out and decline based on the combined signs of net cash flows from operating, financing and investing activities. Net cash flows can be positive or negative, resulting in eight possible cash flow combinations. We follow Faff *et al.* (2016) in combining the shake-out and decline stages. While superior to other multistage lifecycle measures, the Dickinson (2011) lifecycle measure is itself subject to some limitations. First, it is the sign and not the magnitude of the net cash flows which is used to assign firm years to a lifecycle stage. Dickinson (2011) treats net cash flows of different magnitude, but of the same sign, equally. Second, cash flows can suffer from issues relating to timing and matching and can also be managed, to the extent that lifecycles determined by the sign of net cash flows may be misclassified.

Faff *et al.* (2016) advocates using multiclass linear discriminant analysis (MLDA) to assign annual firm-years to lifecycle stages and provide several arguments as to why MLDA is a superior lifecycle classification system. We use MLDA to classify firms into one of four lifecycle stages. This approach initially follows Dickinson (2011) to allocate firms to a lifecycle stage but then refines the classification by performing linear discriminant analysis, such as $Group_i = \alpha_0 + \alpha_1 AGE_i + \alpha_2 PROFIT_i + \alpha_3 SGrowth_i + \varepsilon_i$, where age is firm age, PROFIT is EBIT/assets and SGrowth is one-year sales growth. Using these variables, MLDA provides maximum separation between the groups. A benefit that MLDA and Dickinson (2011) have over RETE is that it explicitly classifies firm years to a lifecycle stage. MLDA is our preferred lifecycle indicator and is our main reference point. Faff *et al.* (2016) combine Dickinson (2011), firm age, sales growth, profitability and RETE to assign firm years to

lifecycle stages. Because of the limitations of RETE, we use two MLDA specifications; one with and one without RETE.

We use the multistage lifecycle measure of AR (1992). It is a composite indicator based on four lifecycle descriptors, namely, dividends (ratio of common dividends to income), capital expenditures (capital expenditures to firm value), one-year sales growth and firm age. It is assumed that all four variables are monotonically related to firm maturity: increasing for dividends and firm age and decreasing for sales growth and capital expenditures. Based on this indicator, firm years are classified into one of four lifecycle stages, namely, birth stage, growth stage, mature stage and decline stage, using portfolio sorts. Because firms are assigned to a lifecycle stage annually, firms can and do gravitate across lifecycle stages over the sample period.

The last remaining lifecycle measure we use is firm age. Many papers have suggested that firm age is an imperfect lifecycle proxy. Rather than increase monotonically with maturity, the "firm age–maturity" relationship is inverted u-shaped; by definition, new firms are young in age but are also more likely to fail, meaning that young firms can occupy the introduction and decline lifecycle stages. Von Eije and Megginson (2008) suggest that firm age measures calendar age. whereas RETE captures "financial age." In support of firm age as a lifecycle measure, Banyi and Kahle (2014) show that RETE is not a meaningful lifecycle measure for all firms.

3. Variable and sample description

We source corporate governance scores for Korea from Black *et al.* (2012) [6]. Their corporate governance index is an equally weighted average of five corporate governance subelements, namely, board structure, board procedure, disclosure, shareholder rights and ownership, which collectively cover 26 individual corporate governance provisions in the years 1998–2004. Corporate governance scores range from 0 to a high of 100. In all governance–lifecycle regressions, we control for a range of firm-level influences on corporate governance practices. With the exception of the chaebol indicator, which we source from Black *et al.* (2012), we source the data from Worldscope. We describe the independent variables in Appendix. We exclude firms in the financial and utility sectors and firms with negative total equity, missing retained equity and missing control variables. Our final sample comprises 497 individual firms with 2,185 firm-year observations in total.

4. Corporate governance quality in Korea over the sample period

Table 1 and Figure 1 plot corporate governance quality in Korea over the sample period. Figure 1 plots mean and median corporate governance, board structure, board procedure, shareholder rights and disclosure. We report also the within-firm trend in corporate governance (the blue line) to alleviate concerns that the trends we observe over time arise in part because of changes in sample composition. Overall, firms in Korea are more likely to adopt board procedures and shareholder rights provisions. In contrast, few firms choose to enhance board structure and disclosure. As per Figure 1, reforms in Korea post-Asian crisis led to improvements in corporate governance standards; governance was always higher in 2004 than in 1998. The within-firm trends suggest the changes in corporate governance are substantial and economically significant; between 1998–2004, overall corporate governance improved by 18.8%, board structure by 8.9%, board procedure by 18.8%, disclosure standards by 28.4% and shareholder rights by 39.3%.

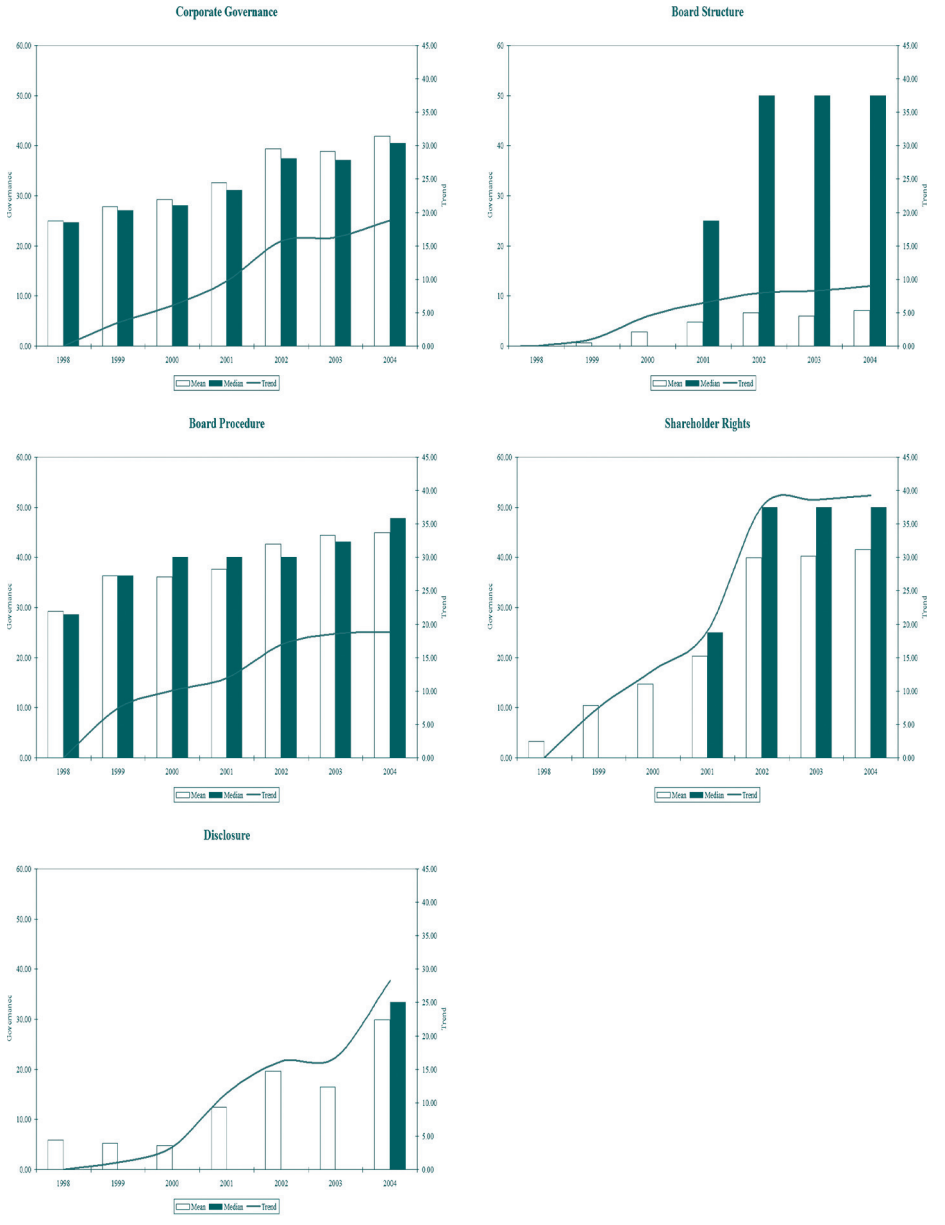
Table 1 plots the level of adoption by firms of each of the 26 individual corporate governance provisions over time. Not all of the individual corporate governance attributes have been universally adopted. For example, the incidence of having at least four board meetings in a year increased from 36.36% in 1998 to 95.48% in 2004. In contrast, "board

Table 1 Corporate governance in the Republic of Korea

Corporate governance attribute	*Obs*	*(%)*	*Adoption*	*Removals*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*Δ(04–98)*
Board structure subindex												
≥ 50% outside directors	2,183	11.04	59	8	0.00	0.47	4.80	13.64	15.58	15.56	17.51	17.51***
>50% outside directors	2,183	3.11	24	1	0.00	0.00	0.53	1.77	2.92	5.28	8.19	8.19***
Board has outside chair or lead director	2,185	0.09	1	0	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.56
Audit committee	2,185	15.88	72	0	0.00	0.00	12.53	17.42	23.38	21.11	23.45	23.45***
Audit committee has majority of outside directors	321	72.27	9	2	80.00	77.27	74.47	79.69	67.80	65.52	71.21	(8.79)
Compensation committee	2,185	0.96	5	0	0.00	0.00	0.53	0.76	1.62	0.83	2.26	2.26**
Outside director nominating committee	2,185	19.18	95	0	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00
Board procedure subindex												
≥ 4 board meetings in a year	1,989	86.48	129	58	36.36	86.08	78.49	75.76	96.43	93.33	95.48	59.12***
Firm evaluates non-executive directors	2,125	7.53	32	24	2.33	3.47	4.27	2.28	7.62	5.54	6.50	4.17**
Outside directors-only annual board meeting	2,159	9.73	93	62	0.00	0.00	2.40	3.54	16.56	17.75	13.28	13.28***
Bylaw/policy to govern board	2,172	79.33	128	65	70.56	72.33	67.20	84.58	80.84	84.17	85.03	14.47***
Directors' votes recorded in board minutes	2,054	50.10	141	126	41.81	40.98	40.80	46.46	43.18	45.61	45.42	3.61
Firm has a foreign outside director	2,185	10.39	26	16	12.15	14.69	8.80	9.60	10.06	9.44	10.73	(1.42)
Shareholders approve outside directors' pay	1,833	27.61	15	12	1.33	2.30	10.50	9.46	9.22	8.73	11.16	9.82***
Outsider directors attend minimum % of meetings	2,068	53.92	114	94	43.05	44.69	45.17	48.34	52.27	48.06	51.13	8.08*
Bylaw to govern audit committee	2,131	76.91	187	130	68.18	67.16	65.49	83.68	71.99	82.46	75.14	6.96*
Audit committee includes accounting or finance expert	328	83.84	13	0	0.00	57.89	72.73	80.60	87.10	88.89	94.44	94.44***
Audit committee approves internal audit head	1,806	57.53	65	55	1.45	17.00	44.04	49.05	30.67	36.58	35.03	33.58***
≥ 4 audit committee meetings in a year	328	55.18	20	10	0.00	50.00	40.48	45.00	57.58	67.19	69.70	69.70***
Disclosure subindex												
Firm has regular meetings with analysts	2,185	20.87	115	0	3.87	4.27	3.47	22.22	34.09	27.50	38.14	34.27***
English language financial statements exist	2,176	17.78	133	0	7.73	6.64	6.49	14.80	17.86	15.83	44.07	36.33***
Board members' background disclosed	2,082	10.57	15	0	5.92	4.59	4.08	4.75	6.64	5.88	7.34	1.43
Shareholder rights subindex												
Firm allows voting by postal ballot	2,171	6.86	31	32	2.31	5.85	7.20	9.60	5.52	7.78	6.50	4.19**
Cumulative voting for election of directors	2,176	2.90	25	14	0.00	0.97	2.40	4.55	0.97	1.94	6.78	6.78***
Director candidates disclosed to shareholders in advance of shareholder meeting	2,156	55.10	300	32	1.86	11.76	10.96	24.81	100.00	100.00	100.00	98.14***
RPTs require board approval	2,102	43.15	141	22	8.43	23.70	38.13	48.10	54.03	52.45	53.50	45.06***

Notes: We report the evolution of corporate governance over time for overall governance, board structure, board procedure, disclosure, and shareholder rights and the elements of each governance subindex. Corporate governance scores are provided by Black *et al.* (2012); ***, ** and * denote statistical significance at the 1, 5 and 10% level, respectively

Figure 1 Corporate governance in Korea



Notes: This figure depicts the evolution of corporate governance in Korea over the period 1998–2004

has an outside chair or lead director," "compensation committee" and "cumulative voting for the election of directors" have been largely shunned by Korean firms.

5. Observing corporate governance and corporate lifecycles patterns

Having established that firms improved their corporate governance between 1998 and 2004, next we turn to the corporate governance lifecycle. Table 2 characterizes firms in each lifecycle stage. Except for AR (1992), the number of firm-year observations is the

largest for mature-stage firms. With the MLDA lifecycle, as firms progress from the introduction stage to the mature stage, RETE, firm age and years-listed increase. Consistent with the lifecycle model of dividends, as firms mature, they become more profitable and rely less on external financing, allowing them to make larger dividend payouts (DeAngelo *et al.*, 2006). As firms mature, they use more internal equity and less debt financing, which is consistent with the recent findings of Kieschnick and Moussawi (2018). Firm growth and capital expenditures are the largest in the growth stage. Overall MLDA appears to assign firms to lifecycle stages in a manner consistent with the lifecycle view of the firm.

Focusing on Dickinson (2011) and RETE, we observe similar patterns across the lifecycle. Using Dickinson (2011), both RETE and firm age increase as firms mature. Growth, profitability, CAPEX and dividend payout behave in a manner consistent with MLDA lifecycle. Once again, debt declines as firms mature. There is less agreement between each of MLDA, Dickinson (2011) and RETE with AR (1992). In the latter, RETE is maximized among early- and not mature-stage firms. Firm growth is the largest among introduction-stage firms and dividend payouts are the largest in growth-stage firms.

Figure 2 compares lifecycle measures to each other in more detail. We compare Dickinson (2011), AR (1992), RETE and firm-age with MLDA acting as the reference lifecycle measure. RETE and RETA are the largest for MLDA lifecycle mature-stage firms, whereas firm age is the largest in shake-out/decline stage firms. MLDA is more like Dickinson (2011) than AR (1992); more than half of MLDA mature-stage firm-year observations are also mature-stage observations according to Dickinson (2011). Fewer than a quarter of MLDA mature-stage observations are mature-stage firms according to AR (1992).

The middle rows of Figure 2 list the number of lifecycle stages by firm. With MLDA lifecycle, 233 firms occupy two lifecycle stages, 82 firms have three lifecycle stages and 9 firms occupy all four lifecycle stages over the sample period. With RETE, firms remain in the same lifecycle stage throughout. The bottom rows of Figure 2 depict each of the four multistage lifecycle measures for four select firms, namely, Samsung Electronics, Hyundai Motors, LG International and Korea Air Lines. For each firm, MLDA tracks Dickinson (2011) more closely compared to AR (1992) [7].

6. Estimating corporate governance prediction models for firms in Korea

In this section, we extend the analysis of Black *et al.* (2006) and estimate corporate governance-prediction models for firms in Korea with each lifecycle measure included as a predictor variable as follows:

$$\begin{aligned} Corporate\ \ governance_{it} = {} & \beta_0 + \beta_1 Growth - stage_{it} + \beta_2 Mature - stage_{it} \\ & + \beta_3 Shake - out/decline - stage_{it} + Firm\ \ controls_{it} \\ & + Time_t + \varepsilon_{it} \end{aligned} \quad (1)$$

The dependent variable is overall corporate governance, board structure, board procedure, disclosure, shareholder rights and ownership, as indicated in Figure 3, or each of the 26 individual corporate governance attributes in turn, as indicated in Table 3. In each regression where one of Dickinson (2011), RETE and AR (1992) are examined, the full set of firm-level control variables outlined in Section 3 and time fixed effects are included. In MLDA regressions, profitability, growth and firm age are excluded because each is used to assign firms to MLDA lifecycle stages. Each regression is estimated using pooled ordinary least squares with standard errors clustered by firm (Petersen, 2009). In the MLDA, Dickinson (2011) and AR (1992) regressions, the introduction-stage is the omitted/reference lifecycle stage. In RETE lifecycle, the young-stage is the omitted/reference lifecycle stage.

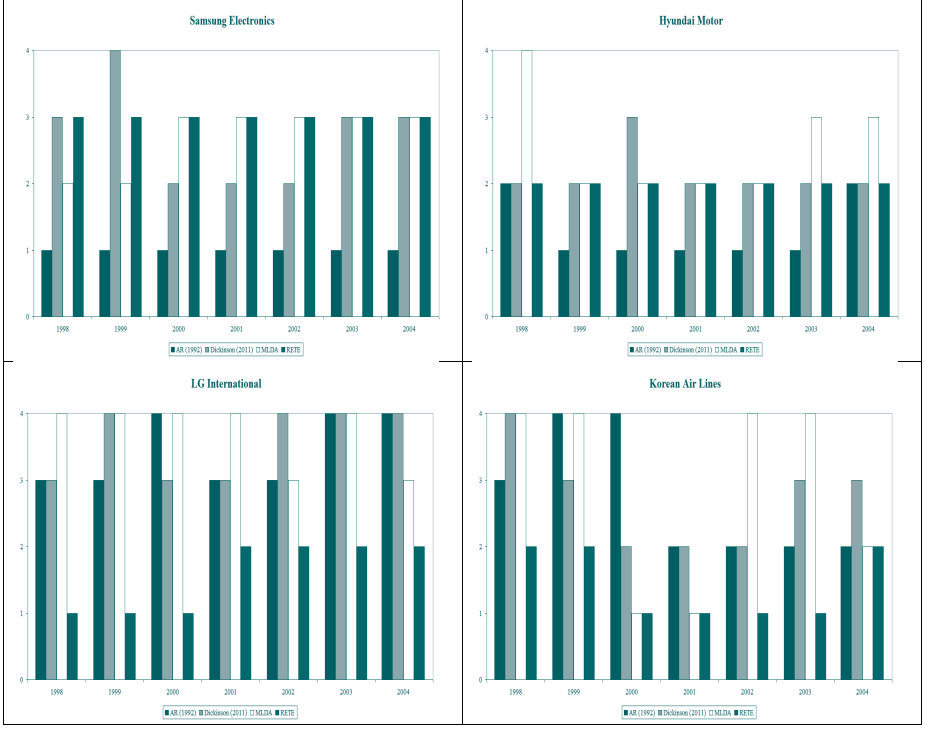
Table 2 Characterizing firms by lifecycle stage

	MLDA lifecycle					*Dickinson (2011) lifecycle*				
	Intro	*Growth*	*Mature*	*SO/decline*	*Range across stages*	*Intro*	*Growth*	*Mature*	*SO/decline*	*Range across stages*
Observations	475	433	762	515	205	483	861	636		
RETE	0.00	0.29	0.53	0.14	0.53	0.17	0.30	0.33	0.20	0.16
RETA	0.00	0.14	0.34	0.05	0.34	0.06	0.15	0.19	0.07	0.13
Firm age	27 years	28 years	36 years	43 years	16 years	32 years	33 years	33 years	35 years	3 years
Years listed	13 years	13 years	16 years	25 years	12 years	13 years	16 years	15 years	16 years	3 years
Growth	0.07	0.20	0.07	(0.04)	0.24	0.05	0.08	0.07	0.03	0.05
Profitability	(0.02)	0.04	0.06	0.01	0.08	0.01	0.03	0.04	0.02	0.03
Size decile	5	5	5	7	2	4	6	6	5	2
Dividend payout	0.000	0.008	0.011	0.002	0.011	0.002	0.006	0.009	0.003	0.007
CAPEX	0.03	0.04	0.03	0.03	0.01	0.03	0.05	0.04	0.02	0.03
EFD	0.31	(0.39)	(0.75)	(0.30)	1.06	2.63	0.01	(1.50)	0.17	4.13
Book debt	0.43	0.29	0.16	0.38	0.27	0.39	0.32	0.23	0.33	0.16
Cash	0.07	0.09	0.12	0.08	0.05	0.08	0.11	0.09	0.08	0.03
			AR (1992) lifecycle						RETE lifecycle	
	Intro	Growth	Mature	Decline	Range across stages		Young	Mature	Old	Range across stages
Observations	661	590	443	491			548	1,093	544	
RETE	0.32	0.32	0.28	0.14	0.18		0.00	0.27	0.64	0.64
RETA	0.16	0.16	0.14	0.05	0.11		0.00	0.14	0.38	0.38
Firm age	27 years	35 years	35 years	41 years	14 years		34 years	35 years	32 years	3 years
Years listed	13 years	16 years	16 years	23 years	10 years		16 years	16 years	14 years	2 years
Growth	0.12	0.07	0.05	(0.01)	0.13		0.02	0.07	0.07	0.05
Profitability	0.04	0.04	0.03	0.01	0.03		0.00	0.03	0.07	0.07
Size decile	5	6	5	5	1		5	6	5	1
Dividend payout	0.006	0.007	0.006	0.000	0.007		0.000	0.008	0.010	0.010
CAPEX	0.05	0.04	0.03	0.02	0.03		0.02	0.04	0.03	0.02
EFD	(0.20)	(0.33)	(0.65)	(0.86)	0.66		(0.07)	(0.43)	(0.62)	0.55
Book debt	0.29	0.28	0.28	0.34	0.06		0.42	0.31	0.17	0.25
Cash	0.09	0.09	0.10	0.08	0.02		0.07	0.08	0.14	0.07

Note: We compare the median firm classified by MLDA, RETE, Dickinson (2011) and AR (1992)

Figure 2 Comparing lifecycle measures

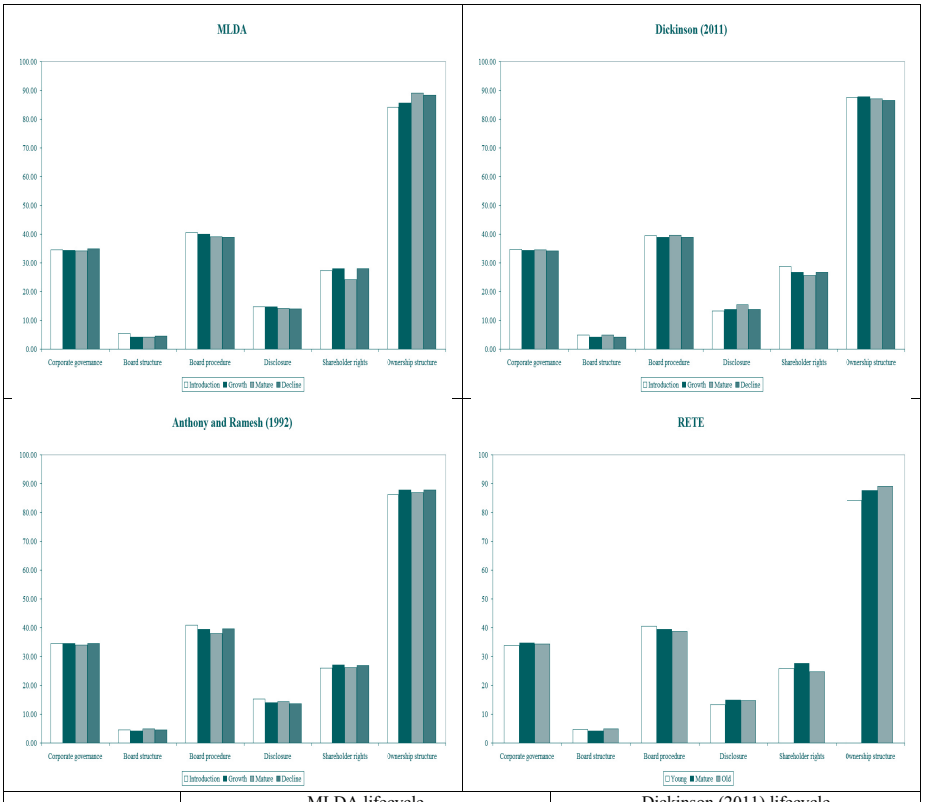
MLDA lifecycle stages				
	Introduction	Growth	Mature	SO/decline
Observations	475	433	762	515
RETE	0.00	0.29	0.53	0.14
RETA	0.00	0.14	0.34	0.05
Firm age	27 years	28 years	36 years	43 years
Dickinson (2011)	16.84%	28.18%	51.84%	35.92%
AR (1992)	38.32%	27.25%	22.44%	40.39%
Number of lifecycle stages by firm				
	1 stage	2 stages	3 stages	4 stages
MLDA lifecycle	173	233	82	9
Dickinson (2011)	86	211	165	35
AR (1992)	121	230	127	19
RETE lifecycle	497	0	0	na
Lifecycle measures for selected companies				



Notes: This figure compares the four lifecycle measures. The top panel uses MLDA lifecycle as the reference lifecycle measure. The middle panel reports the number of lifecycle stages by firm. The bottom panel plots each lifecycle indicator over time for selected companies. MLDA, Dickinson (2011) and AR (1992) take on the following values: 1 (introduction), 2 (growth), 3 (mature) and 4 (decline) and RETE lifecycle takes the following values: 1 (young), 2 (mature) and 3 (old)

The results are presented in Figure 3. Rather than outline estimated coefficients for each lifecycle measure and each control variable, we present the predicted level of corporate governance for the average firm in each lifecycle stage. These predicted values say there is little evidence to support a lifecycle model of corporate governance in Korea. For example, using the MLDA lifecycle, there are no statistically significant differences in each of overall corporate governance, board procedure, disclosure and ownership structure across lifecycle stages. Using Dickinson (2011) and except for shareholder rights, overall

Figure 3 Estimates of the corporate governance lifecycle in Korea



	MLDA lifecycle				Dickinson (2011) lifecycle			
	Intro	Growth	Mature	Decline	Intro	Growth	Mature	Decline
Corporate governance	34.47	34.41	34.16	34.82	34.79	34.28	34.57	34.24
Board structure	5.41	4.24**	4.12**	4.55	4.88	4.21	4.85	4.20
Board procedure	40.62	39.94	39.11	39.00	39.54	38.92	39.71	38.89
Disclosure	14.80	14.76	14.20	14.08	13.23	13.80	15.42	13.88
Shareholder rights	27.19	27.91	24.27**	27.94	28.81	26.75	25.62**	26.73
Ownership structure	84.23	85.55	89.02	88.44	87.55	87.80	87.18	86.50
	AR (1992) lifecycle				RETE lifecycle			
	Intro	Growth	Mature	Decline	Young	Mature	Old	
Corporate governance	34.55	34.51	34.06	34.50	33.73	34.78**	34.43	
Board structure	4.57	4.21	4.91	4.48	4.68	4.24	4.94	
Board procedure	40.82	39.40	37.93***	39.58	40.56	39.48	38.77	
Disclosure	15.21	14.05	14.45	13.72	13.22	14.87	14.69	
Shareholder rights	25.92	27.03	26.12	26.95	25.88	27.66	24.76	
Ownership structure	86.21	87.88	86.91***	87.76***	84.13	87.72***	89.07***	

Notes: This figure presents predicted corporate governance by lifecycle stage resulting from a series of corporate governance prediction regressions. Lifecycle is measured using MLDA, Dickinson (2011), AR (1992) and RETE, as indicated. In each regression, the introduction lifecycle stage is the reference stage. *** and ** denote statistical significance at the 1, and 5% level, respectively

governance and all other governance attributes do not change over the lifecycle [8]. Where we do observe statistically significant differences in corporate governance adoption across the firm lifecycle, the differences are economically small. For example, MLDA and Dickinson (2011) agree that shareholder rights are lowest for mature-stage firms. Using MLDA, the difference in shareholder rights between introduction- and mature-stage firms is just 2.92 percentage points. Using RETE, overall corporate governance is 1.05% or 3.05% higher for mature-stage firms when compared to the governance practices of young-stage firms.

Table 3 Estimating the corporate governance lifecycle for individual corporate governance attributes

	MLDA lifecycle stages							*RETE lifecycle stages*				
	Intro	*Growth (a)*	*Mature (b)*	*Decline (c)*	*(b) vs (a)*	*(c) vs (a)*	*(c) vs (b)*	*Young*	*Mature (a)*	*Old (b)*	*(b) vs (a)*	*Sig. in MLDA and RETE*
Board structure subindex												
≥ 50% outside directors	0.13	0.11	0.08**	0.13			**	0.13	0.10	0.10		
>50% outside directors	0.03	0.03	0.03	0.03				0.03	0.03	0.03		
Board has outside chair or lead director	0.00	0.00	0.00	0.00				0.00	0.00	0.00		
Audit committee	0.19	0.14**	0.15	0.15*				0.15	0.16	0.17		
Audit committee has majority of outside directors	0.82	0.64**	0.60**	0.81		**	**	0.85	0.69**	0.63**	*	Yes
Compensation committee	0.02	0.01	0.00	0.01				0.00	0.01	0.01		
Outside director nominating committee	0.22	0.17*	0.18	0.19				0.18	0.17	0.25*	***	Yes
Board structure subindex												
≥ 4 board meetings in a year	0.90	0.84*	0.85	0.87				0.90	0.85***	0.85*		Yes
Firm evaluates nonexecutive directors	0.05	0.03	0.03	0.06				0.05	0.04	0.03		
Outside directors-only annual board meeting	0.07	0.10	0.07	0.10				0.09	0.09	0.06	*	
Bylaw/policy to govern board	0.81	0.76	0.75*	0.75*				0.78	0.79	0.70**	***	Yes
Directors' votes recorded in board minutes	0.46	0.42	0.40	0.47			*	0.45	0.46	0.38	**	Yes
Firm has foreign outside director	0.08	0.12	0.14*	0.06		**	***	0.11	0.09	0.13		
Shareholders approve outside directors' pay	0.07	0.11	0.08	0.08				0.07	0.08	0.11		
Outsider directors attend minimum % of meetings	0.50	0.51	0.48	0.45				0.49	0.45	0.53	*	
Bylaw to govern audit committee	0.74	0.68*	0.69	0.74		*		0.74	0.71	0.69		
Audit committee includes accounting or finance expert	0.91	0.88	0.76*	0.82	*			0.95	0.78**	0.84		Yes
Audit committee approves internal audit head	0.34	0.34	0.33	0.33				0.31	0.35	0.32		
≥ 4 audit committee meetings in a year	0.56	0.61	0.57	0.50				0.62	0.56	0.42*		
Disclosure index												
Firm has regular meetings with analysts	0.24	0.19	0.18*	0.23			*	0.19	0.23	0.19		Yes
English language financial statements exist	0.16	0.18	0.17	0.16				0.17	0.16	0.17		
Board members' background disclosed	0.04	0.05	0.07	0.04				0.03	0.06*	0.07**		
Shareholder rights index												
Firm allows voting by postal ballot	0.05	0.08	0.06	0.08				0.05	0.08	0.07		
Cumulative voting for election of directors	0.04	0.04	0.01	0.03	*			0.00	0.04***	0.04**		Yes
Director candidates disclosed to shareholders in advance	0.55	0.56	0.52	0.55	**			0.56	0.54	0.52**		Yes
RPTs require board approval	0.47	0.45	0.37***	0.47	**		***	0.44	0.46	0.36*	***	Yes

Notes: This table presents predicted corporate governance adoption over the firm lifecycle from a series of pooled linear probability model regressions. In each regression, the dependent variable equals 1 if the firm adopts the individual corporate governance attribute and 0 otherwise, as indicated. Lifecycle is measured using MLDA lifecycle and RETE lifecycle, as indicated. *T*-stats, which are adjusted for firm-level clustering, are not reported. All regressions include a constant and time fixed effects, neither of which are reported. ***, ** and *denote statistical significance at the 1, 5 and 10% levels, respectively

In Table 3, we estimate corporate governance lifecycles for each of the 27 individual corporate governance attributes using MLDA and RETE. Estimating separate governance–lifecycle models for each of the individual attributes may reveal governance lifecycles not evident when the individual attributes are grouped together. Of the 27 governance attributes, MLDA and RETE together identify changes in the same ten attributes over the lifecycle, and both point to a fall in the adoption of each corporate governance attribute as firms mature. Except for "audit committee has majority of outside directors" and "audit committee includes accounting or finance expert," both of which have few firm-year observations, most other individual governance attributes change little across the lifecycle. Also, economic significance is typically observed where governance adoption is low and small changes in the number of firms that adopt each provision result in large percentage changes in adoption across the lifecycle. For example, MLDA mature stage firms are most likely to employ a foreign outside director, yet the number of firms that employ a foreign outside director across the lifecycle is small. In a total sample of 497 firms, 14% or 69.6 mature-stage firms use foreign directors compared to 8% or 40 introduction-stage firms, resulting in a 75% increase overall. Each MLDA lifecycle stage firm is most likely to use a bylaw to govern the board of directors, and while adoption is lowest for growth-stage firms, the difference between introduction- and growth-stage firms is 30 firms (367 versus 337 firms).

7. Estimating corporate governance lifecycles using firm age

In Table 4, we estimate corporate governance–lifecycle regressions with the log of firm age as the lifecycle measure. Figure 4 presents predicted corporate governance for firms sorted by firm age with firm age ranging from 0 to 100 years of age. We observe little change in overall governance, shareholder rights and board structure as firms age. For example, the range in overall governance across firm age is just 3.37. The percentage fall in the level of broad structure is large, but only because the level of board structure practices is small overall. Ownership becomes more concentrated as firms age, yet at all ages, ownership in Korean firms is highly concentrated; the minimum level of ownership concentration across the age distribution is 84.08%. The number of firms voluntarily adopting board procedure practices fall from 207.7 for the youngest firms to 177 for the oldest firms. There is a pronounced change in disclosure practices as firms age, which we do not observe using any of the multistage lifecycle measures. The adoption of disclosure practices is low overall but falls from 20.69 for the youngest firms to just 3.21 for the oldest firms, corresponding to a decrease of 84.48% overall. The negative disclosure–age relationship we uncover for firms in Korea is inconsistent with the prediction in Filatotchev *et al.* (2006) which says firms become more transparent and provide fuller disclosures as they mature. However, the negative disclosure–firm age relationship is consistent with the practice by firms of building reputation (Gomes, 2000). According to the reputation-building theory, firms with abundant growth opportunities yet financially constrained, in large part because they operate in a country with weak institutions, attempt to establish a history of trust with outside investors. Firms can build trust with investors in a variety of ways. These include bonding to improved corporate governance standards, paying large dividends and making voluntary disclosures. Our results suggest that disclosure standards are weak in Korea overall during the sample period, yet young, presumably growth firms, make above-average disclosures, possibly to build reputation capital with prospective investors. As firms age and the need for external financing diminish, disclosures diminish.

8. Concluding remarks

Corporate governance–lifecycle theory considers a relationship between the evolution of corporate governance and the corporate lifecycle stage and suggests that corporate governance can manifest itself in different roles across the corporate lifecycle. The

Table 4 Corporate governance–lifecycle regressions using firm age

Dependent variable is	*Lifecycle measure is log (age)*
Corporate governance	(1.390)**
Board structure	(1.710)***
Board procedure	(1.665)*
Shareholder rights	(0.896)
Disclosure	(5.543)***
Ownership structure	2.343**
Board structure subindex	
≥ 50% outside directors	(0.082)***
>50% outside directors	(0.031)
Board has outside chair or lead director	(0.003)
Audit committee	(0.030)
Audit committee has majority of outside directors	(0.131)**
Compensation committee	(0.020)**
Outside director nominating committee	(0.030)
Board procedure subindex	
≥ 4 board meetings in a year	0.005
Firm evaluates nonexecutive directors	(0.012)
Outside directors-only annual board meeting	0.026*
Bylaw/policy to govern board	0.038
Directors' votes recorded in board minutes	(0.032)
Firm has foreign outside director	(0.023)
Shareholders approve outside directors' pay	(0.020)
Outsider directors attend minimum % of meetings	(0.083)**
Bylaw to govern audit committee	(0.023)
Audit committee includes accounting or finance expert	(0.045)
Audit committee approves internal audit head	0.011
≥ 4 audit committee meetings in a year	(0.058)
Disclosure subindex	
Firm has regular meetings with analysts	(0.070)**
English language financial statements exist	(0.061)**
Board members' background disclosed	(0.036)*
Shareholder rights subindex	
Firm allows voting by postal ballot	0.031
Cumulative voting for election of directors	(0.036)
Director candidates disclosed to shareholders in advance of shareholder meeting	0.000
RPTs require board approval	(0.026)

Notes: This table presents estimated coefficients from a series of pooled ordinary least squares regressions. In each regression, the dependent variable is overall corporate governance or one of its subcomponents. Lifecycle is measured using firm age. ***, ** and *denote statistical significance at the 1, 5 and 10% levels, respectively

evidence to date points to a robust corporate governance lifecycle in developed market countries, but research in this area on emerging economies is less conclusive. This paper builds on the work of EOC (2020) and examines the impact of the corporate lifecycle on corporate governance in the Republic of Korea using a sample of 497 individual firms and an extensive set of lifecycle indicators. We find little evidence to support a lifecycle model of corporate governance. Our analysis suggests that while emerging market firms voluntarily adopt many governance practices of developed market firms, how they adapt governance differs from developed market firms' practices and they do not appear to choose the corporate governance practices best suited to each life cycle stage. In what we believe to be the most rigorous test to date of the corporate governance–lifecycle model in an emerging market our findings suggest that in emerging markets there is a perceived level of

Figure 4 Predicted corporate governance and firm age in Korea

Notes: This figure depicts predicted corporate governance by firm age. Board characteristics is board structure (white bars) and board procedure (black bars)

corporate governance necessary for firms who are establishing a reputation (early- and growth-stage firms), but the corporate governance focus plateaus once this perceived required level is achieved.

Notes

1. The adoption of "across the board" rules has proven to be beneficial in some countries (Atanasov *et al.*, 2010).

2. Lee and Choi (2018) reveal a corporate social responsibility lifecycle model for Republic of Korea firms.
3. Black *et al.* (2006) provide a comprehensive analysis of firm-level influences on the corporate governance practices of firms in the Republic of Korea. They do not examine the influence of lifecycle.
4. Claessens and Yurtoglu (2013) define the Republic of Korea as an emerging economy.
5. We use the multistage lifecycle version of RETE as proposed by Banyi and Kahle (2014). They classify firms into "young," "mature" and "old" lifecycle stages by separating the RETE distribution into quartiles; firms with RETE in the bottom and top quartiles are deemed "young" and "old," respectively, and firms are "mature" when RETE occupies the interquartile range.
6. We thank Bernard Black for kindly providing his data to us.
7. One concern is our multistage lifecycle measures are not robust measures of the firm lifecycle. To address this concern, we estimate lifecycle models for each of dividend payout, debt and growth opportunity. We identify distinct lifecycle models for each. Dividend payouts are the largest for mature-stage firms. Debt use falls as firms mature, presumable as firms generate more internal funds and growth opportunities fall. Changes in dividends, debt and growth opportunities across the lifecycle are economically large.
8. Note that we also test for differences in corporate governance across lifecycle stages and find that the differences are rarely statistically significant.

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Appendix

Table A1 Independent variable descriptions and summary statistics

Variable	*Description*	*Mean*	*Median*	*SD*
Sales growth	One-year growth in sales	0.08	0.06	0.25
Profitability	Earnings before interest and taxation to book assets	0.02	0.03	0.10
Growth opportunities	Market to the book of assets	0.64	0.43	0.67
Years listed	Year's stock exchange listed	17.55	15.00	9.28
Size	Log of book assets in local currency	19.42	19.16	1.40
Size dummy	Equals one if the firm is a large firm	0.10	0.00	0.30
Leverage	Log of the ratio of debt to equity	0.79	0.81	1.21
PPE/Sales	Property plant and equipment to sales	0.53	0.42	0.45
Cross list	Equals one if the firm is cross-listed in the United States	0.04	0.00	0.20
Business Group	Equals one if the firm belongs to a business group	0.33	0.00	0.47
Advertising	Advertising to sales	0.01	0.00	0.020
External finance dependence	CAPEX less cash flow from operations to CAPEX	(2.17)	(0.39)	13.48
Exports	Exports to sales	0.31	0.20	0.31
CAPEX	Capital expenditures to sales	0.05	0.03	0.07
Firm risk	The standard deviation of weekly share prices	0.10	0.10	0.03
Market share	Firm's share of industry sales	0.07	0.01	0.16
R&D spend	Research and development spend to sales	0.01	0.00	0.015
Insider ownership	Ownership of shares by the largest control group	0.33	0.33	0.17
Cash	Cash to sales	0.14	0.09	0.14

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