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Article · April 2018

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Corporate Life Cycle Theory and Accounting Performance: Borsa Istanbul Case

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ABSTRACT

This study examines the association between accounting performance measures and stock returns with the corporate life cycle theory. Corporate life cycle stages which are derived from the product life cycle are the results from changes in the strategic activities of the firms. We use Anthony and Ramesh (1992) value relevance model to test whether the stock market responses to three accounting measures (sales growth, capital expenditures, and earnings) are the functions of life cycle concept. We choose 153 nonfinancial firms that operate on Borsa Istanbul for the years between 2006 and 2014 for the analyses. According to the results, three accounting performance measures that are unexpected sales growth, unexpected capital expenditures, and unexpected earnings are most (least) highly valued in growth (decline) stage. In addition, while technology and communication industries at the growth stage, metal industry, cement and glass products industry are at the decline stage.

Keywords: Corporate Life Cycle, Accounting Performance, Stock Returns, Value Relevance.

Jel Classification: *M40, M41, M49.*

Kurumsal Yaşam Eğrisi ve Muhasebe Performansı: Borsa İstanbul Örneği

ÖZET

Bu çalışma, muhasebe performansı ölçümleri ile hisse senedi getirileri arasındaki ilişkiyi kurumsal yaşam döngüsü teorisi ile birlikte incelemektedir. Ürün yaşam eğrisinden türetilen kurumsal yaşam eğrisi evreleri, firmaların stratejik faaliyetlerinde meydana gelen değişimlerin sonucudur. Üç muhasebe ölçümüne (satış büyüme hızı, sermaye harcamaları ve kazançlar) hisse senedi piyasasalarının tepkisinin yaşam eğrisi kavramının bir fonksiyonu olup olmadığını test etmek amacıyla Anthony and Ramesh (1992) değer ilişkisi modeli kullanılmıştır. Analizler için 2006 ve 2014 yılları arasında Borsa İstanbul'da faaliyet gösteren 153 finansal olmayan işletme seçilmiştir. Çalışmanın sonuçlarına göre, üç muhasebe performans ölçümü olan beklenmeyen satış büyüme hızı, sermaye harcamaları ve kazançlar büyüme (düşüş) evresinde en yüksek (düşük) değer ilişkisine sahiptir. Buna ek olarak, teknoloji ve ulaştırma sektörleri büyüme evresinde yer alırken, metal sanayi, çimento ve cam ürünleri sektörleri düşüş evresinde yer almaktadır.

Anahtar Kelimeler: *Kurumsal Yaşam Eğrisi, Muhasebe Performansı, Hisse Senedi Getirileri, Değer İlişkisi.*

JEL Sınıflandırması: *M40, M41, M49.*

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1. INTRODUCTION

The corporate life cycle concept which is frequently used in academic research gives insights about a wide range of financial characteristics of companies since the 1970s. This theory is based on a taxonomy that derived from and the extension of the product life cycle which is a well-documented and commonly used precept in marketing and microeconomics (Black 2003: 47). The most cited definition of corporate life cycle is in (Dickinson 2011: 1971) and in other studies as follows: "Corporate life cycle stages are distinct and identifiable phases that result from changes in key internal (e.g., strategy choice, financial resources, and managerial ability) and/or external factors (e.g., competitive environment, macroeconomic factors) many of which arise from strategic activities undertaken by the firm."

Accounting performance measures have been most widely examined indicators to assess the financial health of the companies. Although firms have similar conditions in terms of financial results or production capabilities, market values may differ substantially. Value relevance defined as the statistical association between accounting information and market values or returns with life cycle theory may contribute to explain the differences in market values. Accounting variables in some way are considered to be value relevant if it has a predictable relationship with the market values of firms (Chen et al., 2010: 38). Different life cycle stages may affect the usefulness and value relevance of financial information regarding the economic characteristics in the classification procedure (Black 1998: 42).

The corporate life cycle theory is a non-deterministic approach that stages do not necessarily follow a certain way as in the product life cycle, rather, firms may shift from the early stages to the late ones or move back (Miller and Friesen 1984). In other words, unique problems specific to the firms differ in the stages and this leads to a nonlinear direction (Elsayed and Patton 2009: 399). Firms may expose to internal or external threats and opportunities in different life cycle stages (Andersen and Zeithaml 1984: 7). Proper determination of stages aids to managers and all stakeholders to choose the appropriate strategies peculiar to the stage (Galbraith, 1982) and to benchmark their performance against other firms (Hanks et al., 1993).

The corporate life cycle is not easily characterized to a certain number of stages which has been heavily debated in the literature since the classification procedures and variables vary substantially. However, three main stages (growth, maturity, and decline) and two interval stages (start-up and shake-out) are mainly preferred in most of the studies. This study also employs three main stages as in Anthony and Ramesh (1992), Black (1998) or Aharony et al., (2006). At the growth stage, relatively younger firms usually have new products and technology. Firms need to maximize growth in the early stages in order to create permanent cost or demand advantages over rivals and to survive as in the product life cycle (Wernerfelt 1985: 928). Firms at the maturity stage exhibit lower or moderate growth rates in sales and capital expenditures and financing needs are supplied through internal sources (Berger and Udell 1998: 620). Decline stage can be characterized as a period when sales and earnings fall and production capacity cannot be fully utilized (Black 1998: 43).

This paper revisits and updates Anthony and Ramesh (1992) in Turkey context to contribute to the literature for several reasons. One of the main motivations of this paper is to examine life cycle effects in the earnings-returns relation that is not mentioned in Anthony

and Ramesh (1992). Many authors such as Kothari and Zimmerman (1995), Easton (1999) and Kousenidis (2005) investigate the returns and accounting earnings to justify the value relevance of accounting data. Thus, investigating the earnings with returns in a corporate life cycle framework expands the model which has not focused on in earlier studies. The second motivation is related to the classification procedures that have employed in the study. While previous studies emphasize only one method to assign the firms to the certain stages, this study allows comparing two different classification application with the value relevance model to analyze the stock responses to some accounting measures in the different life cycle stages. Many researchers have tested the value relevance of accounting data in developed markets. However, this study uses an emerging country (Turkey) data to research the validity of life cycle theory with the concept of value relevance in emerging markets.

Since the IFRS adoption has become mandatory for companies that are listed in Borsa Istanbul, the paper uses a sample that covers a 9-year period from 2006 to 2014. The study employs the Anthony and Ramesh (1992) model with 153 nonfinancial firms and 1353 firm-years observations to test the association between returns and three accounting measures. Life cycle effect is measured with the two common classification methods through grouping firm-year observations according to the variables used in Anthony and Ramesh (1992) and Yonpae and Chen (2006).

According to the OLS regression results, the response coefficients of three accounting measures (unexpected sales growth, unexpected capital investment, and unexpected earnings) display a monotonic decline from the growth to the decline stages in multivariate classification procedures. Empirical findings suggest that the stock market response to the performance of accounting measures is a function of corporate life cycle theory as in Anthony and Ramesh (1992).

In subsequent sections of this paper as follows. Section 2 develops the hypotheses through reviewing the most relevant literature related to corporate life cycle and value relevance of accounting measures. Life cycle classification methods, value relevance model with dependent and independent variables and sample selection procedure are provided in section 3. In addition, research findings and industrial analysis are also discussed in Section 3. The final section covers the limitations, conclusion, and suggestions for future research.

2. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

Although corporate life cycle mechanism is criticized in many ways with regards to the alternative classification methods (Jaafar and Halim 2011: 112) or the number of stages in the models (Mintzberg, 1984), it is a vital mediator analysis to explain various organizational and financial issues. For example, while Mintzberg (1984), Adizes (1990), Hanks (1993) and Kallunki and Silvola (2009) examines the life cycle concept in the management context, Spence (1977) and Wernerfelt (1985) study this theory in economics. In addition, value relevance (Black 1998), (Anthony and Ramesh 1992) and (Chen et al., 2010), accruals (Liu 2006), earnings quality (Schipper and Vincent 2003), corporate governance (Chang et al., 2011), dividend policy (DeAngelo et al., 2006) and (Coulton and Ruddock 2011), firm risk (Xu 2007) and (Koh et al., 2015), capital structure (Hasan et al., 2015) and (Drobetz et al., 2015), equity issues (Jain and Kini 1999) and (Seifert and Gonenc 2012) are the milestone studies in accounting and finance literature.

Some studies are also normative that suggest how the taxonomy methods should be structured. For example, Anthony and Ramesh (1992) provide multivariate and univariate classification procedure with several variables, Yonpae and Chen (2006) and Aharony et al., (2006) change and standardize the variables to minimize the deficiencies of Anthony and Ramesh (1992). DeAngelo et al., (2006) use two criteria related to retained earnings while Dickinson (2011) offers a parsimonious theory that is based on cash flow patterns. She assigns the firm-year observations into stages through using signs of three cash flow components (CFO, CFI, CFF) which is derived from microeconomics.

Studies reveal that growth in sales and capital expenditures are the sign of strategic moves of firms. Some of these are strategies to increase market share, expand capital capacity, or regulate costs. Spence (1977) indicates that increases in capital expenditures specifically in the early stages may lead to deter entry to markets by potential entrants. Anthony and Ramesh (1992) also reveal that acquiring market share and expanding the capacity is highly valuable as mentioned in BCG approach and product life cycle (Kotler 2009). On the other hand, Chambers et al., (2010) mention the potential drawbacks of capital expenditures as "lumpiness" in valuing shares especially, if expenditures for fixed assets are more concentrated in some years than others to expand the investments. Thus, first two hypothesis relate to stock responses to unexpected growth in sales and capital expenditures are as follows (Anthony and Ramesh 1992).

H1: Unexpected positive sales growth is most (least) highly valued at growth (decline) stage.

H2: Unexpected positive capital expenditure is most (least) highly valued at growth (decline) stage.

Ball and Brown (1968) and Beaver (1968) document the strong association between earnings and abnormal security returns, in other words, accounting numbers provide information when assessing the firm value. While earnings-return relation is well documented, this association with life cycle concept is not mentioned enough in the previous studies. Although there is no hypothesis developed in Anthony and Ramesh (1992) for the unexpected earnings, they still use the earnings variable to mitigate omitted variable concerns. Kousedinis (2005) examines the earnings through using Easton and Harris (1991) model to estimate regressions of stock returns on scaled earnings levels and earnings changes. The study exhibits that while decline firms provide negligible information content for stock returns, growth and mature firms suggest better results. On the other hand, Black (1998) applies Myers (1977) and Ohlson (1995) models and offers that earnings are more value relevant than cash flow measures only at mature stage since growth and decline firms highly rely on cash flow statement. In addition, Chen et al. (2010) also suggest that earnings are more value relevant in mature stages through using operating income as the dependent variable. Since earnings are vital and a good sign of survival of a company, it will be more valued especially for the firms that are at the first stages of life cycle. Therefore, our final hypothesis relates to earnings return relation is as follows:

H3: Unexpected positive earning is most (least) highly valued at growth (decline) stage.

Easton (1999) provides that return models provide more reliable results regarding the timeliness of the reporting of value changes than price models since latter suffer from potentially serious scale problems. We use buy and hold abnormal return as the dependent variable. In addition to these main hypotheses, it is also tested whether the coefficients of the variables used in the model differ significantly in the different life cycle stages.

H4: The coefficient of changes in sales variable has a statistically significant difference at different life cycle stages.

H5: The coefficient of changes in capital expenditure has a statistically significant difference at different life cycle stages.

H6: The coefficient of changes in net income variable has a statistically significant difference at different life cycle stages.

3. RESEARCH DESIGN

3.1. Sample Selection

We examine the publicly traded firms operating on BIST index between the years 2006 to 2014. Financial data are obtained from Thomson Reuters Eikon Data Stream and Public Disclosure Platform. The sample is restricted to firms for which variables and life cycle descriptors data are available. Financial companies are expelled from the sample due to their specific regulations. We exercise % 0.5 limits for the up and down of the observations to detect the outliers for the values of dependent variables. After elimination of outliers and firms having missing data, this resulted in a sample of 1353 firm-year observations for the analysis with 153 non-financial firms. The sample selection procedure is provided in Table 1.

Table 1. Sample Procedure

Non-financial firms available	192
Firms data not available	-35
Outlier firms	-4
Firms in the analysis	153
Firm-year observations	1.353

3.2. Life Cycle Methods

Even though there are numerous studies that offer alternative life cycle classification procedures, Anthony and Ramesh (1992) is one of the first studies that investigate the life cycle concept systematically. While some variables are inevitable to determine the life cycle stages such as sales growth, capital expenditure, dividend ratio and firm age, other studies drop or add new variables to the existing methods or modify and standardize the most common techniques. For instance, while Yonpae and Chen (2006) modifiy the Anthony and Ramesh (1992) study regarding dividend variable and the scoring system, Aharony et al., (2006) standardize the variables. The cost of goods sold (Liu 2006), market value/book value (Jaafar and Halim 2015) are other variables used in the literature. DeAngelo et al., (2006) determine the life cycle stages with the term of earned/contributed capital mix through using

retained earnings, Dickinson (2011) uses cash profiles of firms to build a parsimonious methodology. Since we revisit and update the Anthony and Ramesh (1992) study in an emerging market, we choose the original method and Yonpae and Chen (2006) to compare the results. Anthony and Ramesh (1992) and Yonpae and Chen (2006) methodologies are as follows:

3.2.1. Life Cycle Variables

1) $DP_t = (DIV_t / IBED_t) \times 100$

2) $SG_t = (Sales_t – Sales_{t-1})/ (Sales_{t-1}) \times 100$

3) $CEV_t = (CE_t / Value_t) \times 100$

4) AGE = Current Year – Establishment Year

DIV_t = Annual Dividend Payment

$IBED_t$ = Income Before Extraordinary Items and Discontinued Operations in Year t

$SALES_t$ = Net Sales in Year t

CE_t = Capital Expenditures in Year t

$VALUE_t$ = Market Value of Equity Plus Book Value of Long-Term Debt at the End of Year t

Table 2. Anthony and Ramesh (1992) Composite score

Life Cycle Stages	Dividend	Sales Growth	Firm Age
Growth	1	1	1
Mature	2	2	2
Decline	3	3	3

Firm years are assigned to the three life cycle stages with three variables to yield an approximately close number of observations in each stage. Therefore, it allows comparing the stages with proper firm-year observations. Since there are three variables and three stages, composite score ranges from three to nine.

Table 3. Yonpae and Chen (2006) Composite Scoring

Quintiles	Dividend Ratio	Sales Growth	Capital Expenditure	Firm Age
%80 - %100	3	5	5	1
%60 - %80	3	4	4	2
%40 - %60	3	3	3	3
%20 - %40	4 (2)*	2	2	4
%0 - %20	5 (1)*	1	1	5

The firm-year observations with a total score of 16-20 points, growth stage

The firm-year observations with a total score of 9-15 points, mature stage

The firm-year observations with a total score of 4-8 points, decline stage

Table 4. Classification of Firms and Observations

	Anthony and Ramesh (1992)		Yonpae and Chen (2006)	
	Number of Firms	**Number of Obs.**	**Number of Firms**	**Number of Obs.**
Growth	26	311	24	340
Mature	86	663	108	720
Decline	41	379	21	293

3.3. Model Specification

We use three independent variables as in the Anthony and Ramesh (1992) study to measure the financial performance. These are;

Unexpected sales growth $[\Delta SAL = (SAL_t - SAL_{t-1})$ (1)

Unexpected capital expenditures $[\Delta CE = (CE_t - CE_{t-1}) / MVE_{t-1}]$ (2)

Unexpected earnings $[\Delta IBED = (IBED_t - IBED_{t-1}) / MVE_{t-1}]$ (3)

$IBED_t$ = Income before extraordinary items and discontinued operations in year t

CE_t = Capital expenditure in year t

SAL_t = Net Sales in year t

MVE_{t-1} = Market value of equity at the end of time t-1

We use buy and hold abnormal return (BHOLD) as a dependent variable through computing abnormal returns from the fourth month of the relevant fiscal year to the third month following the end of the fiscal year similar to Anthony and Ramesh (1992). Since this period covers the annual report release dates in Turkey, we choose the same dates to calculate the abnormal returns. The model and abbreviations of hypotheses are as follows.

$$BHOLD = \sum_i Di\,[\alpha_{0i} + \alpha_{1i\,\Delta IBED} + \alpha_{2i\,\Delta CEV} + \alpha_{3i\,\Delta SAL}] + \varepsilon$$

Anthony and Ramesh (1992) state univariate (only one classification variable) and multivariate (three classification variables) procedures to classify the life cycle stages. Since we compare two methods and many studies suggest that multivariate ranking is superior to the univariate procedure, we only use multivariate classification. D_i is a dummy variable that takes 0 or 1 to assign the firm-years to the proper stage according to the summation of scores in both classification methods. D_1 dummy assignment refers to firms in the growth stage, D_2

refers to the maturity stage and D_3 refers to the decline stage. In order to validate the hypothesis, we expect a monotonic decline in the in the coefficients of the three independent variables from growth to decline stage. In addition, we expect a statistically significant difference between the stages while testing the coefficients with Wald Test.

H_1: $\alpha_{j1} - \alpha_{j2} \geq 0$, $j = 2,3$

H_2: $\alpha_{j1} - \alpha_{j3} \geq 0$, $j = 2,3$

H_3: $\alpha_{j2} - \alpha_{j3} \geq 0$, $j = 2,3$

3.4. Research Findings

Table 5 and Table 6 presents the descriptive statistics and the correlations of the variables in the model.

Table 5. Descriptive Statistics

	BHOLD	**CE**	**IBED**	**SAL**
MEAN	0,0702	0,0078	0,0248	0,1571
MEDIAN	-0,1121	0,0031	0,0097	0,0947
MAX.	3,5986	0,8763	1,9756	3,5986
MIN.	-0,8814	-0,9093	-0,9730	-3,8499
STAND. DEV.	0,6186	0,1096	0,2093	0,5902
OBSERVATION	1353	1353	1353	1353

Table 6. Correlation Table

	BHOLD	**CE**	**IBED**	**SAL**
BHOLD	1	-	-	-
CE	-0.062 (0.022**)	1	-	
IBED	0.241 (0.000***)	-0.031 (0.255)	1	-
SAL	0.036 .(0.189)	0.081 (0.003***)	0.134 (0.000***)	1

*, **, *** refers %10, %5, %1 respectively

Correlation matrix offers that there is no multicollinearity between the variables used in the model. The results of the market-based model that is established to test the response of stocks to accounting performance measures during life cycle stages are presented in the following tables. Letter notations are used to indicate that the variables are in different life stages by assigning dummy variables in the tables. While the letter G at the beginning of the

variable indicates the growth stage value, the letter M and S refer to the maturity and decline stages respectively. For example, GSAL describes the unexpected sales growth in growth stage and SIBED refers to unexpected earnings in decline stage for the following tables.

Table 7. Anthony and Ramesh (1992) Classification Results

Dependent Variable		**Buy and Hold Abnormal Return**		
Variables	**Coefficient**	**Std. Error**	**T. Stat.**	**Prob.**
GSAL	**0,221**	**0,061**	**3,679**	**0,000*** **
MSAL	0,022	0,038	0,585	0,559
SSAL	**-0,247**	**0,073**	**-3,401**	**0,000*** **
GCE	0,224	0,282	0,794	0,427
MCE	**-0,517**	**0,208**	**-2,49**	**0,013** **
SCE	**-0,545**	**0,315**	**-1,729**	**0,084** **
GIBED	**1,085**	**0,175**	**6,187**	**0,000*** **
MIBED	**0,566**	**0,097**	**5,836**	**0,000*** **
SIBED	**0,768**	**0,201**	**3,822**	**0,000*** **
GROWTH	-0,129	0,044	-2,905	0,004***
MATURE	0,059	0,024	2,496	0,013**
STAGNANT	0,087	0,031	2,826	0,005***

R-squared	0,093	**Akaike info criterion**	1,797
Adjusted R-squared	0,086	**Schwarz criterion**	1,843
		Hannan-Quinn criterion	1,814

Table 8. Wald Test Results (Anthony and Ramesh, 1992)

GSAL-MSAL	Value	0,199	**GIBED-MIBED**	Value	0,519
	F Stat.	0,005***		F Stat.	0,001***
GSAL-SSAL	Value	0,468	GIBED-SIBED	Value	0,318
	F Stat.	0,000***		F Stat.	0,234
MSAL-SSAL	Value	0,269	MIBED-SIBED	Value	-0,202
	F Stat.	0,001***		F Stat.	0,365
GCE-MCE	Value	0,741	SAL	Value	8,483
	F Stat.	0,035**		F İstatistiği	0,000***
GCE-SCE	Value	0,769	CE	Value	3,274
	F Stat.	0,069*		F İstatistiği	0,002***
MCE-SCE	Value	0,027	IBED	Value	2,898
	F Stat.	0,942		F İstatistiği	0,000***

According to the Anthony and Ramesh (1992) classification results in Table 7, findings are consistent with the hypotheses. The unexpected sales growth (SAL) variable shows a statistically significant decrease (0,221 to -0,247) from the growth stage to the decline stage. Unexpected capital expenditure which is CE also indicates the monotonic decline (0,224 to -0,545) from the growth stage to the decline stage. This proves that first two hypotheses that are unexpected positive sales growth and capital expenditure are most (least) highly valued in growth (decline) stage are accepted. The third hypothesis which relates to unexpected earnings is also accepted since the highest value is at the growth stage and the value decreases to the decline stage (1,085 to 0,768). As it mentioned earlier, it is also tested whether the coefficients of the variables used in the model differ significantly in the different life cycle stages with the Wald test in Table 8. The findings prove that coefficients are significantly different especially in unexpected sales growth (SAL) and unexpected capital expenditure (CE). Unexpected earnings (IBED) are significant partially, specifically for the growth and mature stages. These results are consistent with the hypothesis developed earlier and existing literature.

Table 9. Yonpae and Chen (2006) Classification Results

Dependent Variable			**Buy and Hold Abnormal Return**	
Variables	**Coefficient**	**Std. Error**	**T. Stat.**	**Prob.**
GSAL	**0,142**	**0,053**	**2,702**	**0,008*** **
MSAL	0,081	0,054	1,50	0,134
SSAL	-0,059	0,05	-1,185	0,236
GCE	**0,426**	**0,216**	**1,97**	**0,049** **
MCE	**-0,421**	**0,251**	**-1,68**	**0,093* **
SCE	**-1,818**	**0,378**	**-4,808**	**0,000*** **
GIBED	**1,111**	**0,151**	**7,383**	**0,000*** **
MIBED	**0,498**	**0,131**	**3,818**	**0,000*** **
SIBED	**0,475**	**0,127**	**3,734**	**0,000*** **
GROWTH	-0,092	0,036	-2,575	0,01**
MATURE	0,008	0,031	0,258	0,796
STAGNANT	0,102	0,028	3,70	0,000***
R-squared	0,1084	**Akaike info criterion**	1,7797	
Adjusted R-squared	0,1011	**Schwarz criterion**	1,8259	
		Hannan-Quinn criterion	1,7970	

Table 10. Wald Test Results (Yonpae Ve Chen, 2006)

GSAL-MSAL	Value	0,061	**GIBED-MIBED**	Value	0,613
	F Stat.	0,416		F Stat.	0,002***
GSAL-SSAL	Value	0,2011	**GIBED-SIBED**	Value	0,636
	F Stat.	0,006***		F Stat.	0,001***
MSAL-SSAL	Value	0,14	**MIBED-SIBED**	Value	0,023
	F Stat.	0,057*		F Stat.	0,90
GCE-MCE	Value	0,847	**SAL**	Value	3,651
	F Stat.	0,011**		F Stat.	0,012**
GCE-SCE	Value	2,244	**CE**	Value	9,939
	F Stat.	0,000***		F Stat.	0,000***
MCE-SCE	Value	1,397	**IBED**	Value	27,676
	F Stat.	0,002***		F Stat.	0,000***

The results of the model with Yonpae and Chen (2006) are provided in Table 9 and Table 10. There is also a monotonic decline in all coefficients. For example, unexpected sales growth (SAL) decreases from 0,142 to -0,059 and unexpected capital expenditures (CE) decreases from 0,426 to -1,818. In addition, unexpected earnings variable (IBED) coefficient is 1,111 is at the growth stage and it is 0,475 is at the decline stage. While some coefficients are not significant, the changes (monotonic decreases) between the stages are generally significant and it leads us to accept the hypotheses.

3.4.1. Industry Results

We analyze whether the industries show differences to corporate life cycle stages as examined in previous studies. In early studies, firms that are operating in construction, metals service, mining, cement industry, plastics or metal mining are the candidates of decline stage since they distribute more dividends and their sales growth is limited. On the other hand, firms that are operating in the area of computer programming (software), electronic components, transportation, hotels or energy are generally at the first stages of the corporate life cycle. Industrial results are provided in Table 11.

In order to determine the stage of a firm in two methods, we count all firm-year observations for a firm to find the majority of a stage. For example, a firm that has nine-year observations with five years at maturity stage, one year at growth stage and three years at decline stage will be assigned to maturity stage. According to the results, Anthony and Ramesh (1992) offer better results since the growth firms in this method generally operate in technology, wholesale trade, communication, and electricity industries. On the other hand, textiles, metal industry and cement and glass products are the decline stage industries which is consistent with the previous studies. The difference between the industries for both methods may arise from the capital expenditure classification variable. Since firms in old industries such as cement and glass products or metal industry spend a huge amount to tangible assets, capital expenditures play a major and dangerous role while classifying to firms into proper stages.

Table 11. Industry Results

Industries	Sub-Industries	Number of Firms	Firm-Year Obs.	Anthony and Ramesh (1992)	Yonpae and Chen (2006)
Technology	Informatics/Defense	7	62	**Growth**	**Decline**
Electricity, Gas, and Water	Electricity, Gas, and Steam	3	25	**Growth**	Maturity
Construction	Construction	2	17	Maturity	Maturity
Mining	Coal Mining	1	9	**Growth**	Maturity
Transportation and Communication	Transportation	2	18	Maturity	Maturity
	Communication	1	9	**Growth**	Maturity
Wholesale and Retail Trade, Hotels and Restaurants	Hotels and Restaurants	5	43	Maturity	**Growth**
	Wholesale Trade	3	27	**Growth**	**Decline**
	Retail Trade	4	36	Maturity	Maturity
Manufacture	Textiles	15	129	**Decline**	Maturity
	Food, Beverage, and Tobacco	18	161	Maturity	Maturity
	Paper Products and Paper Raw Mat.	11	99	Maturity	**Decline**
	Chemicals and Plastics	20	178	Maturity	Maturity
	Metal Industry	13	113	**Decline**	Maturity
	Machine	20	178	Maturity	Maturity
	Furniture	2	17	Maturity	Maturity
	Cement and Glass Products	24	214	**Decline**	**Growth**
	Other	2	18	Maturity	Maturity
7	**19**	**153**	**1353**		

4. CONCLUDING REMARK

Corporate life cycle theory is one of the vital analysis to examine the economic conditions that is unique to the company and the industry since the 1970s. Therefore, we elaborate the corporate life cycle concept with the most reviewed literature and we revisit and update a market-based model that measures the association between stock returns and accounting performance. We examine the 153 non-financial firms for the periods of 2006 to 2014 with 1.353 firm-year observations. We develop three main hypotheses related to the association between unexpected sales growth, unexpected capital expenditures and unexpected earnings and stock returns. According to the findings, these three accounting performances are the functions of corporate life cycle theory. In addition, unexpected sales growth, unexpected capital expenditures, and unexpected earnings are most (least) highly valued at the growth (decline) stage that is consistent with the previous studies. However, we apply an additional analysis and it poorly supports the findings specifically when univariate classification procedure followed. Therefore, we eliminate the univariate life cycle classification since it does not produce a proper assignment to the stages.

There are some limitations to this study. First of all, we have only examined the non-financial Turkish firms for a specified period. Future studies may concentrate on especially other emerging countries and may compare the results in terms of stock returns – performance relation. We use the most used classification procedures but next studies may also prefer the other methods such as DeAngelo (2006) or Dickinson (2011) to get better results. Since value relevance of accounting information is crucial, other studies may also develop a new value relevance model with different variables to display the relationship between accounting performance and stock returns or prices.

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