

THE PECKING ORDER THEORY AND LIFE CYCLE: EVIDENCE FROM FRENCH FIRMS

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Abstract

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Contrary to the trade-off theory, pecking order theory is based on the information asymmetry that exists between internal stakeholders (owners, managers) and external stakeholders (donors) to the company. We study firms' financing behaviour over life cycle stages in the context of the pecking order theory. This paper is interested in testing the relation between ownership structure, the life cycle and the funding classification in French companies in the period 2005-2014. The hypotheses tested were derived from the pecking order models and analysis was conducted on data panel with econometric software Stata. The results show that the pecking order explains the debt in French companies that are in growth phase, maturity or decline.

Keywords: Capital Structure, Pecking Order, Life Cycle, Growth, Maturity

1. INTRODUCTION

The pecking order theory emerges as the result of the existing information asymmetry in the financial markets. Indeed, managers often have privileged information on the prospects of the business that do not have investors.

Next, to the costs of emissions of new securities transactions, companies have to accept the information costs that increase with asymmetric information.

In this sense, new shares issued in the capital market may be undervalued because of information asymmetry; this is especially true in the case of issuance of new shares. Managers will thus have to not launch profitable projects when they will be financed with risky financial instruments (Myers & Majluf, 1948).

Managers can decide not to fund projects that dilute their capital in the company and limit subsequently their ability to act. So they choose to exclude external funding.

The theory provides a hierarchy order financing. This order begins with financial sources less affected by information costs and offers the same time the least risk. The most preferred financing source is internal funds, the second - short-term debt and riskier long-term debt.

The last option is the issue of new shares; it is the funding source with the higher information costs (Donaldson, 1961; Myers & Majluf, 1984).

In the context of a company's life cycle, we expect that asymmetric information problems are more severe among young growth firms compared to firms that have reached maturity. Consequently, the theory predicts that the younger fast-growing companies which are more likely to face higher adverse selection cost because of the asymmetric information are those which should follow the pecking order more closely. The empirical data show the opposite, i.e. it is older and larger companies follow the pecking order more closely (Frank & Goyal, 2003; Fama & French, 2002). Accounting of the constraints of the debt capacity, Lemmon and Zender (2007) find evidence supporting the pecking order among a broad sample of companies.

The objective of this study is to examine the relationship between ownership structure, pecking order, and life cycle of the firm. The remainder of the paper is organized as follows: next section presents the literature review; the third section analyzes the data and methodology of our study. The empirical tests will be, presented and discussed in the fourth section. Section 5 provides some concluding remarks.

2. THE LITERATURE REVIEW

Contrary to TOT, POT is based on the information asymmetry that exists between internal stakeholders (owners, managers) and external stakeholders (donors) to the company. Myers and Majluf (1984), according to Myers and Majluf (1984), business leaders should not try to maintain a particular level of debt (optimal target ratio). They make the point that the issue of new shares is not in the interest of the shareholders because it generally leads to a fall in the value of the actions.

The choice of financing is mainly determined by the level of information asymmetry, the leaders adopted a financial policy that aims to minimize the costs associated with this asymmetry and prefer internal financing to external financing. Thus, the leader prioritizes preferences in the following sequence: self-financing, non-risky debt, risky debt, the increase in capital (Myers, 1984).

Potential investors in the company ignore the true value of the assets of one of these and are led to the undervaluing. This lack of information is detrimental for a company wishing to issue new shares to finance a new project, and indeed econometric studies show that the production of information indicating an imminent issue of new shares is usually accompanied by a decline of the course. It is this mechanism that led companies to issue new shares only when they have exhausted other possible forms of financing. That leads to the principles advanced by the POT "Companies prefer internal financing; if external funding is required, companies will finance primarily by debt and by issuing new shares" (Myers, 2001).

To test the pecking order theory, Shyam-Sunder and Myers (1999) introduce a new test of regression. Their results, which support the theory of pecking order, suggest that the companies envisage financing the deficits anticipated with the debt. They also announce that the result of the pecking order theory has more statistical power than the test of the theory. Chirinko and Singha (2000) question the interpretation of the test of regression (Shyam-Sunder & Myers, 1999) which shows that equity questions could create a degree of negative polarization in the test of regression by Shyam-Sunder and Myers. Frank and Goyal (2003) report that the clear questions of equity follow the deficit of financing very close while the clear debt does not make it from the point of view of the theory of the hierarchical order.

Moreover, the theory of the pecking order can be alternatively tested while regressing the debt of a company on the independent factors which summarize the essential financial behaviour in this approach (see Jordan et al., 1998; Michaelas & et al., 1999). Shyam-Sunder and Myers (1999) provided a statistical model to evaluate the hierarchy of financing by the means as of regression equations. They indicate pecking order to be an excellent descriptor of firms' financing behaviour. Lemmon and Zender (2010) also provide their results in favour of the theory of pecking order. On the other hand, Frank and Goyal (2003) and Fama and French (2005) find that companies like to finance their deficits mainly with equity issues. Ni and Yu (2008) and Seifert and Gonce (2009) find little support for this theory. Leary and Robert (2010) observe their results compared to the pecking order. The

companies like to issue actions when they are limited (Dong et al., 2012).

Consequently, the theory predicts a hierarchical order in the financing policy of a company. This order is led by the financial sources that are least subject to information costs and at the same time involve less risk. Internally generated funds are the source preferred of financing followed by low-risk short-term debt and then higher risk long-term debt.

The last option is the new capital which is the funding source with the highest information costs (Donaldson, 1961; Myers & Majluf, 1984). The most current motivation for the pecking order is the adverse selection developed by Myers and Majluf (1984) and Myers (1984). The principal idea is that the owner-manager of the company knows the true value of the firm's asset and the growth opportunities. The external investors can only guess these values. If the manager proposes to sell actions, the external investor must wonder why the manager is ready to do it. In many cases, the manager of an undervalued company will be happy to sell actions while the director of a company undervalued will not.

Adverse selection would be less serious if the current shareholders were authorized to take part in the equity issue. In their model, the companies which expect a high proportion of their current shareholder to take in place new issues face low adverse selection and prefer to issue uninsured rights companies with expectations of low current shareholder take-up prefer to issue equity using 'firm-commitment' underwritten offerings. Firms with expectations of intermediate current shareholder take-up prefer to issue equity using standby rights.

This implies what might be termed a pecking order of equity floatation method choices. Halov and Heider (2005) make the point that the standard pecking order is a typical case of the adverse selection. When there is adverse selection about firm value, firms prefer to issue debt over outside equity and standard pecking order models apply. However, when there is asymmetric information about risk, adverse selection arguments for debt apply and firms prefer to issue external equity over debt. Thus, the adverse selection can lead to a preference for foreign debt or external equity according to whether the problems of asymmetric information relate to the value or risk. Donaldson (1961) first proposes the pecking order theory and Myers (1984) and Myers and Majluf (1984) state moreover that the pecking order refers to the preference of the managers. Myers (1984) finds that companies prefer internal to external financing because of the adverse selection. So additional external funds are needed, then the companies and the managers prefer the debt on stockholders' equity because of the fall of the information's costs related to the financing of the debt. Myers and Majluf (1984) document how asymmetric information (between better informed managers and less-informed outside investors) leads firms' preference in the order of internal funds safer external funds and riskier external funds via the Issue - Invest Model. For less-informed outside investors, equity is strictly riskier than debt and investors generally request a higher rate of return on equity than on debt. From the perspective of a firm, however retained earnings are superior to debt

financing and equity financing. Although Bharath et al. (2009) present evidence on the association between information asymmetry and the preference for the financing of the debt; they document also a precision limited of the theory of the pecking order to predict the decisions of financing made by the companies with strong asymmetry information. Firms that can access the public debt market enjoy higher debt capacities and are less likely to under leverage. Lemmon and Zender (2010) also use the market access of the public debt with the proxy for the capacity of the debt and show that the companies which are able to issue public debt indeed to issue more debt to meet their financing needs. Consequently, if the access of the companies to the market of the public debt decreases quickly when the information asymmetry increases, the moderate dependence that the companies of high information asymmetry have on the financing of the debt should not come like a surprise because they are not provided with lower debt capacities in the private debt market. Leary and Roberts (2010) employ innovative empirical approach and conclude that the companies seem more likely to follow the pecking order when the information asymmetry is low. Tucker and Stoja (2011) find that the companies of the new economy issue mainly equities in order to close the variation compared to the target of the leverage.

While the companies of the old economy issue mainly the debt to make the same thing even if the companies of the new economy are generally small high growth companies. Chen and Huang (2013) find that the Taiwanese companies often make decisions of financing in a manner which is incompatible with the prediction of the theory of the pecking order. In the past few decades, a large number of works was devoted scan if pecking order describes with precision the behavior of financing observed. One strand of studies find evidence in support of the pecking order theory and argues that it is a good approximation of reality for certain cases (see Shyam-Sunder & Myers, 1999; Fama & French, 2002). The other strand of studies shows that the pecking order theory fails under certain conditions (see Jung, Kim, & Stulz, 1996; Frank & Goyal, 2003; Bolton & Dewatripont, 2005; Leary & Roberts, 2010). Recently several studies still try to evaluate the basic assumption of the theory of the pecking order namely the information asymmetry as a determinant of the decisions of the structure of the capital.

Gomes and Phillips (2012) show that asymmetric information affects firm issuance decisions differently in the public and private markets. Depending on security issuances in the public market, they find support for the idea that the probability of equity issue declines with asymmetric information while it increases with public debt. This indicates that firms issue debt to avoid asymmetric information problems.

The literature on SME financing shows that this kind of company is facing more problems than large companies when it comes to financing on the capital markets in particular due to the relatively high cost for these firms when they decide to issue new equity and aversion to loss of control of their company in the event of external financing by the owner-manager (Cosh & Hughes, 1994). On the other hand, according to Holmes and Kent (1991) these types of problems faced by SMEs in their financing are

largely attributable to the financial gap between the big small firms.

Castro et al. (2016) have conducted a study by dividing the companies in Europe into three stages of the cycle, namely introduction, growth, and mature. Meanwhile, the study of Rehman et al. (2016) uses a sample of a non financial firm of China divided into three stages of the cycle, namely growth, mature and decline.

In this regard, it should be noted that modern financial theory relating to SME financing often uses the concept of "financial gap" to try to explain the difference between the existing capital structure of SMEs and that of large companies operating in yet the same industry.

Several researchers tried to make a comparison between debt ratios for firms of different sizes; thus Remmers et al. (1974) compared the ratios (debt/equity) for a sample business manufacturing through countries such as France, the Netherlands, Norway and the USA.

Their results show that the size of the firm is not a significant determinant in explaining the debt ratio observed. Moreover, Pettit and Singer (1985) found that the debt ratio seems relatively high for small businesses unlike Walker (1989) who found that SMEs are associated with relatively low debt levels compared to large firms. These contradictory results have led researchers to believe that the difference found between the various empirical works is an obvious consequence of the existence of a "financial gap" between large and small firm.

This "financial gap" seems to have in the literature two major components: 1) a gap in knowledge: in fact, the use of debt-optimal way is the result of unawareness about the different financing options available as well as advantages and disadvantages associated with each source; 2) a gap of the provision of funds: we see that in reality, the funds are not available to small firms and more often if the cost of capital of SMEs exceeds that of a large company, which does is not normal.

This hypothesis concerning the existence of a "financial gap" is facing the pecking order theory of Myers (1984) applicable to the first view only to listed companies that can appeal to the capital market to finance themselves.

On this basis, McMahon and Zoppa (2002) set out the specifications of the new theory of the hierarchy changed funding that considers the financial needs displayed by SMEs (from most preferred to least preferred financing):

- 1) Reinvested profits reflected in the contributions of the owner-manager up.
- 2) Short-term debt financing materialized by trade credits and credits on the current account of the partners.
- 3) Financing long-term debt including loans from the owner-manager, family and relatives (quasi-equity).
- 4) The injection of new capital from existing owners or by relatives; characterized by low distribution rates.
- 5) The use of new external capital including owners and managers new owners, the use of risk capital and the listing at the secondary market.

SMEs wishing to borrow when their financing needs exceed their internal cash flow often face in their credit relationship to adverse selection and information costs. These costs can be zero for the

cash but are high in the case of the issuance of new shares while the cost of debt in an intermediate position. SME managers aim to maximize their own wealth while maintaining their independence to external actors which is why internal funds are the subject of their choice of priority funding; if internal funds are insufficient they prefer to use debt rather than capital increase because the debt reduces the dependence of the company against other providers of capital and so, keep control and power of decision.

Studies on this issue are many; we will only mention a few of the more recent work or focusing specifically on the SME universe.

Sogorb-Mira (2005) concludes that the financing of the hierarchical theory is better able to explain the financial structure of Spanish SMEs. Heyman et al. (2007) confirmed the role of information asymmetries and agency debt costs on the financial structure of unlisted Belgian SMEs. Thus, high-growth companies, the most profitable companies or those having fewer tangible assets have lower debt.

Daskalakis and Psillaki (2008) compare and study the determinants of the financial structures of French and Greek SMEs. They show the relationship between these structures and their statistical analysis leads them to validate a hierarchical representation of the type of financing about the financial behavior of firms studied. More recently, Daskalakis and Psillaki (2009) confirmed their previous results on a set of French SMEs, Italian, Greek and Portuguese.

The pecking order theory is generally interpreting like predicting an opposite relation between the leverage and size of the companies and between leverage and age of the company. The large companies are known better as they have it since long. Moreover, the older companies had the occasion to preserve the benefit. Frank and Goyal (2003) confirm that the greatest support for the pecking order is among larger firms, using a broad sample of American companies with dimensions. Fama and French (2005) find that equity issues are commonplace (instead of the last resort) because there are ways to avoid the transactions costs and the asymmetric information problems assumed in the pecking order (issues to employees, rights issues and direct purchase plans). Bulan and Yan (2010) identify the companies according to two stages, the growth and maturity estimating that the pecking order theory (based on the information asymmetry enters the investors and the managers of the company) better describes the financing behaviour of mature than growing firms.

In a model of the pecking order the simple, if the costs of financial distress are ignored, then the firm will finance real investment by issuing the safest security investment-grade debt. However, a broader assumption of the pecking order accommodates questions of equity. If the costs of financial distress are serious then the company will consider the issue of shares to finance the real investment or to refund the debt. Pecking order theory indicates that during the deficiency, the companies prefer debt issue to equity until the debt limits are exhausted. When the existing limits are over and above the target limits, equity is raised as a last resort.

3. RESEARCH METHODOLOGY

3.1. The sample

This study aims to analyze the relationship between the ownership structure, hierarchical funding and the life cycle of the firm. To achieve this goal, we considered 100 French firms in the CAC All-Tradable on a 10-year period (2005-2014).

3.2. Choice of variables and hypotheses to be tested

The dependent variables

Two measures of long-term debt ratio are proposed: the first is *Book Leverage (BL)* which measures level of debt as the ratio of *Long-Term Debt (LTD)* over the sum of book long-term debt and book equity:

$$BL = LTD / (LTD + \text{book equity}) \quad (1)$$

The second measure uses a *Market Value (ML)* of the debt ratio by substituting book equity by market equity:

$$ML = LTD / (LTD + \text{market equity}) \quad (2)$$

The independent variables

We chose the explanatory variables on the basis of their implications and explanations of the three theories mentioned above. We distinguish three categories of variables: 1) variables directly related to the proposed theory; 2) variable of life cycle; 3) control variables. Consistent with the previous empirical works, we use in our research the following variables.

Funding gap (DEF): according to the pecking order theory (Shyam-Sunder & Myers, 1999), change in debt is the result of a need for external funds rather than as a target debt justified by a partial adjustment mechanism. We measure this variable by the ratio of financial slack *DEF* to total assets.

H1: The coefficient on this variable is significantly equal to one while that which reflects the constant is equal to zero.

$$\text{Deficit}_t = DIV_t + I_t + \Delta FDR_t + R_t - CF_t \quad (3)$$

Where, *DIV* - dividend; *I* - net investment in the firm; *ΔFDR* - change in working capital; *R* - the portion of the long-term debt to repay at the year *t*; *CF* - cash flow from operation.

Variables of ownership structure:

- *The concentration of ownership (BLOC 3)* (according to Stulz, 1988): Harris and Raviv (1988) concentrated ownership incite blockholders opportunism who use debt to increase their power by dominating more resources. We measure the concentration of ownership by *BLOC 3* calculated as the sum of the capital held by the three main shareholders (Demsetz & Lehn 1985).

H2: The *BLOC 3* has a positive impact on long-term debt.

- *Managerial ownership ratio (MSO)*: in contrast managerial ownership encourages directors to use less debt in order to limit the company's bankruptcy risk (Jensen et al., 1992, Mehran, 1992). We measure managerial ownership by the sum of the capital held by the manager.

H3: The managerial ownership has a positive impact on the debt.

• *Institutional Investors (II):* According to Tong and Ning (2004), institutional investors differ from individual investors as they are more effective in monitoring the firm's management performance, and they are better informed because of their ability to access different information resources. In addition, they are taxed differently and they make investments on behalf of other investors. In the same vein, Ozkan (2006) argued that institutional investors are different from individuals as they hold more equity shares and they manage large amounts of investment funds. Hence, institutional investors play a key role in monitoring firms that they invest in. This is because the benefits from such monitoring are likely to be higher than the related costs. Jensen (1986) and Pound (1988) argued that institutional investors can help minimize agency costs, and effectively monitor a firm's performance.

We measure the institutional investors is the part of institutional investors in the capital.

H4: The institutional investors have a positive impact on the debt.

Variables of the life cycle:

• *Age:* is computed as the logarithm of the difference between the year t and the year in which the firm was founded (Zender & Lemmon, 2003; La Rocca et al., 2011). In the trade-off theory, age is considered to reflect a stronger firm's market base. The firm better manages its cash flows requiring less debt (Ramlall, 2009).

H5: Age has a negative impact of age on the leverage.

• *Business cycle (B-cycle):* is classified into three phases: growth, maturity and decline. We divided the sample into three sub-samples: *B-cycle G*, *B-cycle M* and *B-cycle D*.

$$B\text{-cycle } G = 1 \text{ if } \Delta \text{ turnover} > 0 \\ = 0 \text{ otherwise}$$

$$B\text{-cycle } M = 1 \text{ if } \Delta \text{ turnover} = 0 \\ = 0 \text{ otherwise}$$

$$B\text{-cycle } D = 1 \text{ if } \Delta \text{ turnover} < 0 \\ = 0 \text{ otherwise}$$

H6: The life cycle has an impact on the debt decision.

• *RETE and RETA:* *RETE* has retained earnings to total equity ratio and *RETA* is retained earnings to total assets ratio (as proxies of the life cycle)

H7: The life cycle has an impact on the debt decision.

Control variables:

• *Firm size (Size):* several studies confirm the existence of a significant impact of size on the firm's debt ratio. *Size* is computed as the logarithm of total

assets (Frank & Goyal, 2009; La Rocca et al., 2011). Considering the lower bankruptcy costs due to higher diversification in larger firms, the trade-off theory predicts relatively more debt. Though the issue costs decrease with firm size, both for equity and bonds (Zender & Lemmon, 2003). In addition, size is a sign of the firms' strength for lenders, since assets are considered as collateral (Fama & French, 2002).

H8: Size is positively correlated with long-term debt ratio.

• *Profitability (Prof):* the compromise hypothesis believes that profitable firms benefit from leverage and are more likely to use more debt. In this way, this variable has a positive signal to lenders that interpret this growth as a good indicator of future repayments. Following Rajan and Zingales (1995), Booth et al. (2001), we measured this variable by earnings ratio before interest and taxes on total assets. We assume a negative link between profitability and debt (Hovakimian, 2004).

H9: Profitability has a negative impact on debt.

• *Growth opportunities (MB):* In this case, the more the company has strong growth in its assets, the more it faces problems of financing its business which generates a positive impact on its leverage. On the other hand, consistent with agency theory, conflict of interest between shareholders and creditors will be more severe when the values of future growth opportunities are higher (Myers, 1977). In addition, we should expect a negative relationship between future growth and leverage. This hypothesis is confirmed by Titman and Wessels (1988), Barclay et al. (1995), Rajan and Zingales (1995), Barclay and Smith (1999), Graham (2000), Heshmati (2001), Booth et al. (2001), and Hovakimian, Hovakimian and Tehranian (2004). According to Harris and Raviv (1991), we use the Market to Book ratio (MB) as a measure of the firm's growth opportunities.

$$MB: \text{Market to Book} = (\text{market value of equity} / \text{book value of equity}) \quad (4)$$

This variable is negatively correlated with debt ratio (Flannery & Rangan, 2006).

H10: Market-to-Book is negatively correlated with debt ratio.

3.3. Formulation of the econometric model

Using the dynamic panel method allows more accurate estimates of variables (Hsiao, 2003). Considering a sample of 100 French companies observed over a period of 10 years, we can write the econometric form of our models similarly, because our empirical study envisages two variables to explain (*BL* and *ML*). Based on previous empirical studies, we considered the following specification:

$$Debt_{i,t} = a + \beta_1 \text{ variable related to the pecking order theory}_{i,t} + \sum_{j=1}^3 \beta_2^j \text{ ownership structure}_{i,t} + \sum_{v=1}^3 \beta_3^v \text{ life cycle}_{i,t} + \sum_{w=1}^3 \beta_4^w \text{ control variable}_{i,t} + \varepsilon_{i,t} \quad (5)$$

4. RESULTS AND DISCUSSION

4.1. Descriptive statistics

1. *Characteristic of the sample related to variable debt (the overall sample).* The average book value of debt is 32.5% and the average market value of 26.1 %. The maximum value of book leverage is 1.285. This value is greater than 1 because of the negative equity value and the maximum value of market leverage is 0.93.

2. *Characteristic of the sample related to the variable of the pecking order theory.* Descriptive statistics of variables show that the average deficit (*DEF*) company is -0.030 with a minimum value of -1.209 and maximum of 0.789.

3. *Characteristic of the sample related to the variable of ownership structure.* Of the total sample, the average concentration of ownership (*BLOC3*) attributable to the first three shareholders is 44.34 % with a maximum value of 99.6%. The empirical analysis of the distribution of property titles this variable shows that the ownership structure of the firms in our sample is concentrated. In addition, the managerial ownership (*MSO*) is relatively less important (6.58% of the capital is on average in the hands of officers). Also the part of institutional investors is important (*II*). The average of this variable is 33.23%.

4. *Characteristic of the sample related to the variable of life-cycle (the overall sample).* The average age of French companies (*Ln Age*) is 3.6 with a minimum value of 0 and a maximum value of 5.3.

Model 1 and 4: Debt = a + β_1 variable related to the pecking order theory + control variables + ε (6)

Unlike previous empirical studies, in the French context, the coefficient bpo associated with the variable financial deficit (*DEF*) is different from 1 and correlated positively with the book debt ratio. The coefficient associated with the financial deficit indicates a value close to 0 very remote of the value expected according to the theory that is the French

Model 2 and 5: Debt = a + β_1 variable related to the pecking order theory + β_2 ownership structure + β_3 control variables + ε (7)

In this regression, we introduce the variable of ownership structure and we found that there isn't any impact of these variables on the debt.

Concerning the market leverage, only the (*MTB*) is correlated negatively with the debt, this result is consistent with that of Cassar and Holmes (2003)

Model 3 and 6: Debt = a + β_1 variable related to the pecking order theory + β_2 life cycle + β_3 control variables + ε (8)

Concerning the impact of the life cycle on the debt we found that in the French context when the debt is measured by the market value the (*RETA*) and (*Age*) are significant, that explains that when the firm tend to be more mature with profits cumulative extended that make them largely self-financed (see Table 2 in Annexes).

The second method is business cycle a dummy variable. The three dummy variables of the life cycle are not significant so the pecking order theory explains the debt regardless of whether the firm is

Concerning the two proxy of the life cycle (*RETA*) and (*RETE*) we see that the average rate respectively of 19.52% and 50.14% these high value shows that most of the sample firms are in the mature phase. The maximum value of *RETA* is 2.073 and 21.17 for *RETE*. *RETA* minimum value is -0.88 and *RETE* minimum value is -7.033. From descriptive statistics, it was found that 40.3% of French companies in the growth phase (*B-cycle G*), 14.3% reached maturity (*B-cycle M*) and 45.4% in decline (*B-cycle D*).

5. *Characteristic of the sample related to the control variables.* Our database includes three control variables to better determine the influence of exogenous variables in our model. Descriptive statistics for control variables show that the average value of the size of companies (*Size*) is 22.45. The largest size is 26.30. For against the smallest size of 15.81. The measure of the dispersion of this variable observation ($\sigma_{size} = 1.73$) shows the difference in size between the firms in our sample. The companies of our sample seem to profit from very good future growth prospects being given that the ratio average *Market-to-Book (MTB)* is of 2.021 fluctuating between -14.224 and 26.121. As to profitability (*Prof*) is recorded that the average return on assets in place during the study period amounted to 10.2% which is not very efficient (see Table 1 in Annexes).

4.2. Results of the estimated model

The first method is business cycle an explanatory variable.

companies do not adjust their level of debt to their financing need.

The results are consistent with those found by Mira and Garcia (2003) for their sample of Spanish companies ($b = 0.0000$) and contradict with those of Shyam-Sunder and Myers (1999) for their sample of US firms ($b = 0, 75$).

and Sogorb (2005). In the course of the POT (Myers, 1984; Myers & Majluf, 1984) companies with strong growth options and a large financing need will appeal primarily to debt. External funding sources less prone to information asymmetries such as short-term debt will be favored.

growing, maturing or declining (see Table 3 in Annexes).

5. CONCLUDING REMARKS

According to the theory of pecking order, debt reduces information asymmetry between firms, capital seekers and investors, capital providers.

The result thus, all things being equal, the companies with the most favorable growth opportunities are the most indebted.

However, the choices open to the company for funding focus on three main sources namely: cash, equity contributions and finally the use of debt.

Thus, according to Myers and Majluf (1984), the information asymmetry between insiders and those external to the company is the source of a better theory known as the "the pecking order theory" which states between another that firms prefer internal financing (self-financing) external financing and when it becomes necessary then they prefer debt to the issue of new shares.

Most empirical tests of the pecking order theory focus on the strict interpretation of pecking order theory. Shyam-Sunder and Myers (1999) argue that the pecking order theory explains firms' financing behavior better than trade-off theory. Fama and French (2005) provide two pieces of evidence that do not support this conclusion. Firstly, firms frequently issue equity. Secondly, equity is typically not issued under compulsion. They conclude that hierarchical funding alone does not fully explain the capital structure decision of firms. Similarly, Chirinko and Singha (2000) argue that

Shyam-Sunder and Myers' (1999) results suffer from econometric problems related to the power of their tests. Frank and Goyal (2003) use a static model specification run in first differences to nest the financing deficit variable with conventional leverage variables which includes cash flow. Frank and Goyal (2003) find that the financing deficit variable is statistically significant and does not change the sign of conventional variables in the nested regression model.

Our empirical evidence is conducted on French companies in the period 2005-2014. The hypotheses tested were derived from the pecking order models and analysis was conducted on data panel with econometric software Stata and we found that the life cycle has an impact only in the first method.

Like many other empirical studies, there are certainly specific limitations to this research at the same time would be an interesting area for future researchers: first, the scarcity of studies that have talked about the relationship between life cycle and financial policy, secondly, the unavailability of some data.

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Annexes

Table 1. Descriptive statistic (Part 1)

Variables	N	Min	Max	Mean	Std.Dev
BL	1000	-0.194	1.285	0.325	0.212
ML	1000	0	0.930	0.261	0.207
DEF	1000	-1.209	0.789	-0.030	0.131
BLOC3	1000	0.005	0.996	0.443	0.240
MSO	1000	0	0.83	0.0658	0.167
II	1000	0	0.91	0.332	0.290
RETA	1000	-0.887	2.073	0.195	0.220
RETE	1000	-7.033	21.17	0.501	1.174
Age	1000	0	5.303	3.600	1.091
Size	1000	15.816	26.304	22.456	1.736
Prof	1000	-0.128	0.954	0.102	0.062
MTB	1000	-14.224	26.121	2.021	1.884

Note: BL: the book leverage. ML: the market leverage. DEF: the funding gap. BLOC 3: the sum of the capital held by three main shareholders. MSO: managerial ownership by percentage of shares held by executive officers. II: institutional investors. RETA: retained earnings/total assets. RETE: retained earnings/total equity. Age: the logarithm of the difference between the year t and the year in which the firm was founded. Size: in total asset. Prof: the profitability. MTB: market value of equity/book value of equity.

Table 1. Descriptive statistic (Part 2)

Variables	Modality	Frequency	Percentage
B-cycle G	1: Growth phase	403	40.3
	0: otherwise	597	59.7
B-cycle M	1: maturity phase	143	14.3
	0: otherwise	857	85.7
B-cycle D	1: decline phase	454	45.4
	0: otherwise	546	54.6

Note: B-cycle is classified into three phases: growth, maturity and decline. It takes a value of 1 otherwise 0.

Source: author

Table 2. Results of linear regression panel data by the first method (business cycle as explanatory variable)

Variables	BL						ML					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coef	P> z	Coef	P> z	Coef	P> z	Coef	P> z	Coef	P> z	Coef	P> z
Constant	0.0228	(0.186)	0.0408	(0.060)	0.0175	(0.337)	0.0308	(0.404)	0.06078	(0.283)	0.06875	(0.200)
DEF	0.1925	(0.000)	0.1868	(0.000)	0.1915	(0.000)	0.2740	(0.000)	0.2797	(0.000)	0.3026	(0.000)
Size	-0.0008	(0.259)	-0.00171	(0.061)	-0.00010	(0.902)	-0.0008	(0.644)	-0.0022	(0.429)	-0.0020	(0.368)
Prof	0.0321	(0.248)	0.03271	(0.263)	0.00453	(0.893)	0.12375	(0.026)	0.14025	(0.016)	-0.0037	(0.947)
MTB	0.0012	(0.185)	0.00077	(0.445)	0.0018	(0.065)	-0.00376	(0.139)	-0.0043	(0.076)	0.00254	(0.210)
BLOC 3			0.00229	(0.758)					0.0088	(0.543)		
MSO			-0.0140	(0.194)					-0.0416	(0.099)		
II			0.00599	(0.325)					-0.00428	(0.727)		
RETA					0.02212	(0.091)					0.02708	(0.407)
RETE					-0.0053	(0.125)					-0.0077	(0.225)
Age					-0.00351	(0.044)					-0.0040	(0.250)
R squared					87.03							
Wald Chi2	81.09		78.96				34.47		41.28		39.23	
Observations	1000		1000		1000		1000		1000		1000	

Table 3. Results of linear regression panel data with the method (business cycle as prior criteria)

Variables	BL		ML	
	Coef	P> Z	Coef	P> Z
DEF	0.19726	(0.000)	0.27169	(0.000)
Size	-0.00087	(0.302)	-0.00051	(0.787)
MTB	0.00168	(0.098)	-0.00325	(0.197)
Prof	0.02196	(0.463)	0.11422	(0.040)
B-cycle G	-0.03003	(0.615)	-0.08658	(0.177)
B-cycle M	-0.03529	(0.556)	-0.09859	(0.132)
B-cycle D	-0.02360	(0.692)	-0.07685	(0.219)
R squared	91.76		0.1036	
Observations	1000		1000	