# Does Credit Policy Affect Performance of Saudi Construction Companies?

Haitham Nobanee[1] and Nejla Ould Daoud Ellili

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## Abstract

This paper aims to examine the relationship between the length of receivable conversion period as a measure of credit policy and operating profit margin as a measure of operational performance of construction firms listed in the Saudi stock market This relation is examined using dynamic panel data two- steps robust system estimation for the period 2004-2013. The analysis is applied at the levels of the full sample and divisions of the sample by crisis and non-crisis periods, sector, and by size. The results show negative and significant relationship between receivable conversion period as a measure of credit policy and profitability for the full sample. The result of the relationship between receivable conversion period and profitability for small firms is negative and significant. The results also show negative and significant relationship between receivable conversion period and profitability of real estate companies and negative and insignificant relation for building and construction companies.

**Keywords: Credit Policy, Profitability, Small Firms, Financial Crisis, Saudi Stock Market (Tadawul).**

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[1] Corresponding author. Haitham Nobanee is an Associate Professor of Finance at the College of Business Administration, Abu Dhabi University, P.O. Box 59911, Abu Dhabi, United Arab Emirates. Tel: +971 2 5015709; Fax: +971 2 586018; E-mail: nobanee@gmail.com.

Nejla Ould Daoud Ellili is an Associate Professor of Finance at the College of Business Administration, Abu Dhabi University, P.O. Box 59911, Abu Dhabi, United Arab Emirates. *+971 2 5015720; Fax: +971 2* 5860184; E-mail: nejla.ellili@adu.ac.ae




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## 1. Introduction:

The credit policy (or collection policy) is related to the account receivables management. It is one of the most important corporate financial decisions and consists on determining the terms and conditions for selling goods on credit, customer qualification criteria, procedures of making collections, and steps to be taken in case of payment default.

In the management literature, there are many studies exploring the determinants of the accounts receivables and explaining the importance and the usefulness of the credit policy (Ferris, 1981; Emery, 1984; Deloof and Jegers, 1996; Peterson and Rajan, 1997; Wilner, 2000; Pike and Cheng, 2001; Wallis, 2002; Burkart and Elligsen, 2003; Cheng and Pike, 2003; Fisman and Love, 2003; Pike et al., 2005; Niskanen and Niskanen, 2006). However and despite its importance, the credit policy did not gain a lot the interests of the researchers even after the failure of many companies caused by the financial crisis. In fact, after the financial crisis, there are only few researches about the impact of the credit policy on the corporate performance (Kontus, 2013; Martinez-Sola et al., 2013). In these researches, it has been established that the credit policy is positively associated with the corporate performance and so the companies are advised to optimally manage their credit policy to enhance their liquidity and profitability (AlShattarat et al, 2010; Nobanee and Alhajjar, 2014; Nobanee and Haddad, 2014, Nobanee, 2014; Nobanee and Abraham, 2014; Nobanee and Ellili, 2015).

Although our paper has some similarities with the prior studies regarding the impact of the credit policy on the corporate performance, but it examines a specific economic context of the gulf region. This is a very attractive research opportunity because there is evidence of the optimal credit policy and its importance in stabilizing the companies' liquidity and maximizing the shareholders' wealth. In our study, we focus on the construction sector that plays an essential role in the development of Saudi economy and we employ the receivable conversion period as a comprehensive measure of the credit policy.

Against this background, we conduct this research with the aim of examining the credit policy of the Saudi construction companies. The three main research questions in the paper are as following. First, what's the impact of the credit policy on the corporate performance? Second, is the impact of the credit policy on the corporate performance affected by the firm's size? Third, is the impact of the credit policy on the corporate performance significantly differing between the crisis and the non-crisis periods?

Our findings will not only provide the companies with an insight about the impact of the credit policy on the corporate performance but also help the researchers to develop new techniques and methods to improve the credit policy in order to ensure the maximum liquidity for the companies and shareholders' wealth.




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To our knowledge, there is no single research conducted in the gulf region about the credit policy nor about its impact on the corporate performance, therefore, our research provides the first insight regarding this topic.

The robust dynamic panel data regressions are used to analyze the impact of the credit policy on the corporate performance. The results show negative and significant relationship between receivable conversion period as a measure of credit policy and profitability for the full sample. The result of the relationship between receivable conversion period and profitability for small firms is negative and significant; this indicates that small Saudi construction companies manage receivables more efficiently comparing with large firms. The results also show negative and significant relationship between receivable conversion period and profitability of Saudi construction firms during non-crisis periods and crisis periods. This indicates that Saudi construction companies are efficient in managing their working capital during crisis and non-crisis periods. The results also show negative and significant relationship between receivable conversion period and profitability of real estate companies and negative and insignificant relation for building and construction companies.

The remainder of the paper is organized as follows: Section 2 contains the literature review on the credit policy and its relationship with the corporate performance. Section 3 presents the economic and institutional environment of corporate finance in KSA. The data and the empirical methodology are included in the section 4. Section 5 exhibits the empirical results and finally the conclusion in section 6.

## 2. Literature Review:

The credit policy is related to the management of the receivables risk and the collection of debt within the terms of the agreement (Wallis, 2002). It's considered as a particular type of short-term loan tied in both timing and value with exchange of goods (Ferris, 1981). The challenge of the companies is to balance between managing the accounts receivable and increasing their revenues. In fact, the restriction of the credit to marginal customers would affect negatively the revenues while the relaxation of the credit terms would affect positively the revenues but lead to the increase of the bad debts (Wallis, 2002). The credit policy consists of four variables: credit period, discounts given for early payment, credit standards and collection policy and the primary issues are around to whom the credit should be extended, the terms of the credit as well as the collection procedure that should be used and that will have an impact on the firm's revenues (Chambers and Lacey, 2011).

As any other corporate choice, the credit policy has benefits and costs. The use of the credit policy is explained by financial, operational and commercial advantages (Martinez-Sola et al., 2013). In fact, the motivations for credit policy are, among others, the reduction of transaction costs (Ferris, 1981), the stimulation of sales in slack demand periods while relaxing the credit terms (Emery,

1984), the reduction of the information asymmetry between buyers and sellers (Pike et al., 2005) which enhances all the firm's sales. However, the credit policy is costly and the costs include, among others, the increase of the investment in current assets which may affect the profitability and the liquidity of the firm (Martinez-Sola et al., 2013) and the exposure to the credit risk because of the payment default (Cheng and Pike, 2003). Therefore, the determination of the optimal level of the accounts receivable is the result of the trade-off between the benefits and costs. In fact, Emery (1984) assumes that the optimal level of the accounts receivable is determined when the marginal revenue of the credit policy is equal to the marginal cost which produces an optimal credit period.

In the context of the examination of the relationship between the credit policy and the corporate performance, Kontus (2013) explores the accounts receivables and the changes in the credit policy for 120 (60 large and 60 medium) Croatian companies in 2010. His empirical results reveal that the relationship between the credit policy measured by accounts receivables/current assets ratio and the performance measured by the return on assets, is positive and significant assuming that any increase in the accounts receivables leads to the increase of the firm's profitability. To minimize the bad debt losses, Kontus (2013) suggests a detailed review of the customer's credit worthiness prior giving or extending the credits to the customers and the collection efforts should be undertaken at the very first sign of the customer financial instability. Regarding the management of the credit policy, Kontus (2013) recommends the companies to give the credit to more marginal customers and only when the net profitability would occur. The financial manager should compare the earning on the sales to the cost of the receivables resulting from a greater number of bad debts and the opportunity cost of tying up funds in receivables for a longer period of time. In consequence, the optimal management of the accounts receivables results in highest net earnings leading the companies to earn a satisfactory profit as well as return on investment.

In the same spirit of research, Martinez-Sola et al. (2013) examine the relation between the credit policy and the firm value of 54 Spanish companies in the period 2001-2007. In their study, they consider the trade-off between the benefit and the costs of investing in the trade credit and they estimate a non-linear relationship between the accounts receivable and the firm's value. Their empirical results indicate a positive relation between the firm's value and the trade policy at low level of receivables while the relation is negative at high levels. Moreover, any deviation from the desired level of accounts receivables reduces significantly the firm's value.

## 3. Economic and Institutional Environment of Corporate Finance in KSA:

KSA is the largest Petroleum exporter and plays a leading role in the Organization of the Petroleum Exporting Countries OPEC (Brady, 2011) and possesses 18 % of the world's petroleum reserves and the oil and gas sector accounts for about 50% of the GDP and about 85% of export earnings (Naimi et al., 2015). It entered the World Trade Organization (WTO) in 2005 and participates in two overlapping regional trade agreements, the GCC, and the Greater Arab Free Trade Area

(GAFTA) in 1997 along with other five GCC states (Bahrain, Oman, Qatar, Kuwait and the United Arab Emirates).

In terms of investment, KSA has one stock exchange, the Tadawul, and it's regulated by the Capital Market Authority. In the GCC region, KSA emerged as the third-largest country undertaking high-end value construction projects, after the UAE, Qatar (Kilani, 2014). Its construction sector is supported mainly by the oil reserves that are considered as cushion to overcome the economic difficulties.

Like any other country, the construction is a major industry that plays an important role in the economic growth in terms of infrastructure and employment. In KSA, the construction companies have attracted international investors and latest technologies, material and equipment to boost a sustainable growth. This growth is supported by a stable inflation rate and low input prices (Ventures Middle East LLC, 2011). At the level of the environmental sustainability, KSA is engaged in the construction of smart building to reduce the pollution, moderate the water consumption and improve the waste management. From 2003-2013, many services have been privatized such us: municipal water supply, electricity, telecommunications, and parts of education and health care, traffic control (Aluwaisheg, 2013).

The reason of studying the impact of the credit policy on the firm's performance in KSA as an emerging market is the adoption of several economic reforms by KSA such us the privatization and liberalization. The objective of these reforms is to attract the foreign investors in previously closed sectors such as telecommunications, insurance, and power transmission/distribution, stimulate the activity of the stock market, boost the economic growth and advance the international integration.

## 4. Data and Methodology:

### 4.1. Data:

The main purpose of this study is to investigate the length of receivable conversion period as a measure of credit policy and operating profit margin as a measure of operational. Firm-year data were primarily hand-collected from annual reports of all construction companies listed on Saudi stock market (Tadawul). The annual financial reports and audited financial statements of the years 2004-2013 were acquired from the Saudi construction companies' websites. Our final sample includes a 230 firm-year observation.

### 4.2. Hypotheses:

We hypothesize in this study a significant and negative relation between the length of receivable conversion period as a measure of credit policy and operating profit margin as a measure of operational performance of construction firms listed on the Saudi stock market for all our study samples.

### 4.3. Methodology:

The dynamic panel data estimation methods consider the dynamic structure between the dependent and independent variables (Baltagi, 1995). Furthermore, the use of panel data in estimation guarantees control for missing or unobserved variables and relationships (Arellano-Bond, 1991; Matyas and Sevestre, 1996). The dynamic panel allows dynamic effects to be incorporated into the model and allows feedback from current and past shocks (Hsiao, 1986; Gocer et al., 2014). In this study, among different dynamic panel data estimation methods, we have employed the Generalized Method of Moment Dynamic Panel-Data System Estimation with Robust Standard Errors. Applying this model insures more efficient estimates comparing to other estimators. Arellano and Bond argue that the Anderson–Hsiao estimator fails to consider all of the potential orthogonality conditions. A major feature of this model is the assumption that the necessary instruments are 'internal': that is, based on lagged values of the instrumented variable(s) (Baum, 2013). The estimators of this model also allow the inclusion of external instruments as well. The majority of linear dynamic panel estimators use possible lagged values of dependent variable as instrumental variable, this could contain unobserved panel-level effects that could be fixed or random. The dynamic panel data methods is usually reflected the work of Arellano and Bond, but in fact they reflected the work of Holtz-Eakin, Newey and Rosen (1988) (see Baum, 2013). Arellano and Bond (1991) derived a consistent generalized method of moments (GMM) estimator for this model. While Blundell and Bond (1998) developed a new system estimator that expanded the model for additional moment conditions with robust standard errors. We applied this estimation in this study because our dependent and independent variables are in the form of annual data, and it seemed necessary to use a dynamic specification.Furthermore, some of our independent variables could be jointly correlated with our dependent variable. Finally, there is a possibility of unobserved province specific effects correlated with our independent variables, and we find it is necessary to control for such unobserved province specific effects (Nobanee et al., 2011).

This estimation approach in our model leads to the following estimation equation:

$$opm_{it} = \alpha + \beta_1 opm_{it_{-1}} + \beta_2 tdta_{it} + \beta_3 sg_{it} + \beta_{46} rcp_{it} + \varepsilon_{it} \qquad (1)$$

Where ( $opm_{it}$ ) is the first deference of operating profit margin measured as [(sales - cost of sales – Depreciation) ] /sales. The independent variables in the model include the differenced lagged dependent variable; ($opm_{t-1}$) which is the differenced lagged dependent variable of operating profit margin. The independent variables in the model also include ( $rcp_{it}$ ) which is the first difference of receivable collection period which is calculated as [(accounts receivable / sales]* 365. This model also includes a control variable of total debt to total equity ratio ( $ltde_{it}$ ) and ( $sg_{it}$ ) representing sales growth [(this year's sales – previous year's sales)/ previous year's sales].

We have run this model at the levels of the full sample and divisions of the sample by crisis and non-crisis periods, by size and by sector.

## 5. Empirical Results:

In this section, we present the results of the relationship between length of receivable conversion period as a measure of credit policy and operating profit margin as a measure of operational performance of construction firms listed on the Saudi stock market (Tadawul) for the period 2004-2013.

Table 1: Results of dynamic panel-data two- steps robust system estimation

| Sample/ Variables | All | Small | Large | Crisis | Non-Crisis | Building - Construction | Real Estate |
|---|---|---|---|---|---|---|---|
| LD-OPM | -2.429813** | -2.533143** | .1177141** | -2.432469** | -1.135118** | .0647952 | -2.487129** |
| TDTA | 3.765845 | 5.023657 | -.4926069 | 4.000009 | .2585679** | -.3131007 | -34.44094* |
| SG | -2.539533 | -3.184842** | -.0586514 | -2.571000** | .0223536 | 1.378046 | -1.448557* |
| RCP | -.0146566** | -.0151162** | .0000604 | -.0146669** | -.0012582** | -.0001905 | -.0154417** |
| CONS. | .4374591 | -.6663979 | .5214888** | .4443518 | .3358091** | .3185275 | 9.186622** |

Table 1 reports the results of the dynamic panel-data two- steps robust system estimation for the relationship between the receivable collection period and firm's operating profit margin for a sample of 230 firm-year observation for construction firms listed on the Saudi stock market (Tadawul) for the period 2004-2013.. Dependent and independent variables are in the form of first difference. (OPM) is the operating profit margin, (RCP) is the receivable conversion period, (LD) is the lagged dependent variable, (SG) is the sale growth, (LTDA) is long term debt to total assets.

* Significant at 95% confidence level, * *significant at 99% confidence level.

Table 1 reports the results of the GMM dynamic panel-data system estimation with robust standard errors for the full sample and for divisions of sample include different size levels and crisis and non-crisis periods and sectors. The results of the lagged independent variables (LD-opm) in the model show that the firm's profitability in the previous period has a strong positive effect on the firm's profitability in the current period for large firms, where the coefficient of the lagged dependent variables is positive and significant. While the coefficient is negative and significant for all other samples except the real estate firms, this indicates that firm's profitability in the previous period has a strong negative effect on the firm's profitability in the current period. We also observe that the sales growth has a negative and significant effect on the firm's profitability for small firms and crisis period, this could be explained by the pessimistic expectations related to sales growth during the crisis period for small firms. The results also show that long term debt to total assets, which represents the firm's capital structure, is significantly related to firm's profitability for non-crisis period where the coefficient is negative and significant and also for real estate where the coefficient is negative and significant. In addition, the results reveal also a negative and significant coefficient of the receivable conversion period for all study samples

except for large firms and building and construction companies. The results reported in Table 1 confirm that shortening the receivable collection period improve the profitability for small Saudi construction companies and real estate companies and Saudi companies manage efficiently their receivables during crisis and non-crisis periods.

## 6. Conclusion:

This paper aims to study the relationship between the length of receivable conversion period as a measure of credit policy and operating profit margin as a measure of operational performance of construction firms listed in the Saudi stock market (Tadawul). It examines a specific economic context of the gulf region. This is a very attractive research opportunity because there is evidence of the optimal credit policy and its importance in stabilizing the companies' liquidity and maximizing the shareholders' wealth. In our study, we focus on the construction sector that plays an essential role in the development of Saudi economy and we employ the receivable conversion period as a comprehensive measure of the credit policy. The relations between the study variables ware examined using dynamic panel data two- steps robust system estimation for the period 2004-2013. The analysis is applied at the levels of the full sample and divisions of the sample by crisis and non-crisis periods, sector, and size. The results show negative and significant relationship between receivable conversion period as a measure of credit policy and profitability for the full sample. The result of the relationship between receivable conversion period and profitability for small firms is negative and significant; this indicates that small Saudi construction companies manage receivables more efficiently than the large firms. In addition, there is a negative and significant relationship between receivable conversion period and profitability of Saudi construction firms during non-crisis periods and crisis periods. This indicates that Saudi construction companies are efficient in managing their working capital during crisis and non-crisis periods. Moreover, the relationship between receivable conversion period and profitability is negative and significant for real estate companies while it's negative and insignificant for building and construction companies.

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