

## Determinants of Private Credit in OECD Developed, BRIC's and LAC Countries

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### Abstract

*The paper studies the determinants of private credit in three groups of countries between 2004 and 2010. It provides subsidies for public policy formulation, based on the argument of heterogeneity between regions. The panel regression models indicate that for the OECD group (Organisation for Economic Cooperation and Development), private consumption was the most relevant determinant, positively correlated with private credit, and its rise of 1 percentage point resulted in a 4.8 percentage points increase in the Credit / GDP ratio. For BRICs group (Brazil, Russia, India and China) and LAC group (Latin America and Caribbean), the Balance of Current Account was the most relevant element and with greater impact on the Credit / GDP ratio. Every negative change of 1 percentage point resulted in a positive change of 2.07 and 0.61 percentage points in the ratio Credit / GDP for each group, respectively. These results and others are analyzed in the study.*

**Keywords:** Models with Panel Data; Credit; Money Private Credit, Financial Institutions and Services

**JEL Classification:** C33; E51; G2

### 1. Introduction

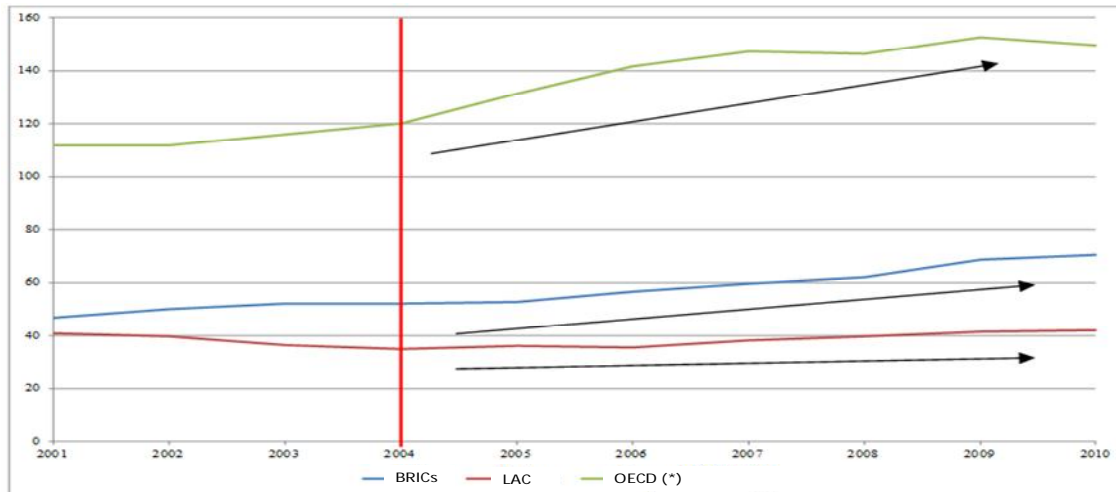
The recent macroeconomic events led the IMF (2011) to mention that the sharp increase in the availability of private credit, occurred in recent years, represents a threat to economic stability.

From 2004 on, the OECD group (higher per capita income and higher private debt holders in relation to GDP countries), BRICs group (Brazil, Russia, India and China) and LAC group (Latin America and Caribbean) reported concomitant growth of their Credit/GDP ratios, according to Figure 1.

It is possible that the determinants of private credit have manifested themselves differently in these three groups of countries, characterized by different degrees of economic growth and wealth.

Thus, a broader understanding of the factors influencing the availability of credit in the countries becomes relevant. However, works (i.e. Haselmann, Pistor and Vig, 2006; Djankov, Mcliesch and Shleifer, 2007; Warnock and Warnock, 2008; Bae and Goyal, 2009; De Haas, Ferreira and Taci, 2010) emphasize the impact of legal and institutional factors on the credit level, including interest and inflation rates as control variable.

There is therefore an opportunity to study the influence of variables related to demand (as investment decisions and consumption), as well as those linked to economic cycles, shocks and economic integration.

**Figure 1: Evolution of the Credit / GDP ratio (%) - OECD, BRICs and LAC groups**

Source: World Bank (2011). (\*) Refers to all 25 OECD countries, with higher average levels of per capita income and private debt to GDP ratio.

Since these factors may have influenced differently the level of credit in the countries in recent years, this paper assesses the determinants of credit by comparing the results among OECD members group with higher per capita income and higher Credit / GDP ratio, BRICs and LAC.

## 2. Background

Two mainstreams can be observed on the subject. One highlights the availability of information to lenders about creditors: Jaffe and Russel (1976); Stiglitz and Weiss (1981); Pagano and Jappelli (1993); Jappelli and Pagano (2002); Sapienza (2002).

Another one believes that the greater the ease in recovering loans and execute guarantees in case of default, the greater the availability of credit at favorable interest rates and maturity. This approach was formalized by Townsend (1979), Aghion and Bolton (1992), and Hart and Moore (1994 and 1998); and it was developed under the assumptions of incompleteness of contracts and importance of institutional protection of creditors' rights. The latter approach evolved with the study of factors that impact such assumptions and it was observed that countries based on a common law usually present lesser enforcement costs, lesser degree of bureaucracy, less corruption and higher protection to creditor's rights, when compared to countries based on the civil and socialist law models (La Porta et al., 1996, 1997, 1998, 1999, 2000 and 2002; Djankov et al, 2003).

Since both mainstreams are not mutually exclusive and are aligned with the protection of creditor rights, they are considered as an integrated approach for the goals of this paper.

In this context, Jappelli and Pagano (2002) suggest that there are countries which specialize in offering greater availability of information to creditors and others that emphasize the legal protection of creditors. Following this reasoning, the less developed countries tend to have poorer legal systems, greater difficulty in sustaining legal protection to providers of resources and are more dependent on mechanisms of information access to creditors ex-ante, compared to more developed countries, holding more efficient legal systems.

Thus countries specialized in different strategies of social control of businesses (Djankov et al, 2003; Mulligan and Shleifer, 2005). Their effectiveness can mitigate the shrinking of the credit market during periods of crisis (Galindo and Micco, 2005), as well as the volatility of the stock market Hale, Razin and Tong (2006 and 2009).

Besides the legal system determining the protection of creditor rights, including different degrees according to region within the same country (Japelli, Pagano and Bianco, 2005), other factors such as religion, international trade integration, language and per capita income were considered by Stulz and Williamson (2003). They identified that religion has reduced its influence the higher the country's insertion in the flow of international trade. Such integration was also analyzed by Cruz (2004), who found a positive relationship between the International Trade / GDP ratio and the level of private debt in the economy.

He found that creditor protection, domestic savings and economic stability are important factors, and recommended future studies addressing foreign savings and trade integration.

The weak protection of creditor rights and the higher costs of enforcement adversely affect the availability of credit (Diamond, 2004), specially for subsidiaries of multinational companies (Desai, Foley and Hines, 2004). There is a link between the availability of credit for those companies and the decline in funding costs when local financial institutions are involved (Esty, 2004), due to their better access to information in order to solve privately disputes for foreign creditors, who trust in the legal system to recover credits not received (Mian, 2006).

Also in this context, Araújo and Funchal (2006 and 2007) believe that the bankruptcy system of a country has implications on the cost of capital and the development of the credit market. Haselmann, Pistor and Vig (2006), studying the factors that affect the volume of bank credit in 12 developing economies between 1995 and 2002, concluded that the use of collateral is more important for strengthening creditor protection because it benefits the entry of foreign institutions as well as the number of participants in the banking market.

Considering that both creditor power and the availability of information are relevant, Djankov et al. (2007) studied the importance of both approaches in influencing the volume of credit in 129 countries during the period between 1978 and 2003. They used a metric for legal rights of creditors proposed by La Porta et al. (1998). Results suggested that creditor protection is associated with increased availability of credit and that it is proportionally more important in richer countries, a result in line with Jappelli and Pagano (2002).

Qian and Strahan (2007) studied other characteristics, in addition to the volume of credit, and observed that there is a bias toward higher levels of concentration and maturity and lower interest rates, due to the greater participation of local banks in the funds, a conclusion that corroborates Esty and Megginson (2003) and Esty (2004).

The collateral offered is also important to creditors. Warnock and Warnock (2008) evaluated 62 countries between 2001 and 2005. They observed an increase in the volume of credit, due to higher creditor protection, measured by the existence of a law for collaterals and financial recovery, available information and a more stable macroeconomic environment, measured by inflation.

Bae and Goyal (2009) conducted a panel study of banking data from 48 countries, between 1994 and 2003 and found that the variables related to the protection of property rights imply larger bank loans, with longer maturities and shorter spreads, while variables related to creditor protection only affect the spread.

De Haas, Ferreira and Taci (2010) analyzed the portfolio of 220 banking institutions in 20 developing countries and found that foreign banks operating in the corporate market emphasize collaterals and concentrate their business with subsidiaries of international firms. In the retail market they are more likely to work with local clients, because of the average ticket and the possibility of diversification. These results corroborate Esty (2004), Mian (2006) and Qian and Strahan (2007).

Affinito and Tagliaferri (2010) investigated the Italian market between 2000 and 2006, and found that banks holding riskier loan portfolios, less capitalized and operating lower profit margins, use higher levels of securitization as well as institutions of higher growth in the loan portfolio, in search of better results. This finding is consistent with Minsky (1992) and the completion of Deos (1998) that financial innovations constitute a pillar of growth in the availability of resources.

Silipo (2011) explains that credit growth is related to increased level of confidence, and driven by higher margins from financial institutions, valuation of assets and real estate, and development of securitization.

Favorable expectations about the future and less perception of risk influence the availability of resources, and Glen, Mondragón-Vélez (2011) studied whether the business cycle has effects on the performance of portfolios of loans of commercial banks, measured by provision for losses between 1996 and 2008. Their results suggested that economic growth is the main driver of favorable performance of those portfolios, while higher provisions for loss are associated with worse quality of the portfolio and reduced capillarity and capitalization of the analyzed banks.

That was also observed by Bouvatier and Lepetit (2008). Fonseca and Gonzalez (2008), based on the behavior of banks from 40 countries between 1995 and 2002, reported a reduction of earnings management due to the higher degree of investor protection, disclosure, and regulation and banking supervision in the economy.

Finally, Tsai, and Chang Hsiao (2011) took up the line of studies on the volume of credit and found that the largest multinational banks prefer to expand their operations in countries that provide better information about borrowers and have credit bureaus.

### 3. Methodology

#### 3.1 Sample and Data Sources

This section presents procedures for data collection in order to select the countries to integrate OECD, BRICs and LAC groups. The study of these three sets of countries enables us to compare results of the group with higher degrees of wealth and private debt, against those with lower levels of per capita income and credit availability.

The countries with higher levels of wealth and credit availability are termed as OECD Group, represented by a cross section of twenty-five units examined between 2004 and 2010. These countries are: Australia, South Korea, France, Italy, Netherlands, Germany, Denmark, Greece, Japan, Portugal, Austria, Spain, Ireland, Luxembourg, UK, Belgium, United States, Iceland, Norway, Sweden, Canada, Finland, Israel, New Zealand and Switzerland. Although the database of the World Bank, included thirty-one countries as OECD members, six countries - Slovakia, Slovenia, Estonia, Hungary, Poland and the Czech Republic – were excluded from the group for having registered Credit / GDP ratios below the average of the other two groups. Thus, it becomes possible to assess the factors that influenced the Credit / GDP ratio in economies with higher levels of per capita income private debt, compared to BRICs and LAC.

The term BRICs is an acronym referring to the countries that form a group whose economic and political importance is growing in international forums. The emerging economies represented by Brazil, Russia, India and China are the members of this group.

The LAC group was evaluated using the World Bank database, that due to lack of information prevented the inclusion of the following countries in the sample: Antigua and Barbuda, Belize, Cuba, Dominica, Grenada, Haiti, Honduras, Nicaragua, Saint Lucia, Saint Vincent and the Grenadines and Suriname. Thus, the LAC group is represented by sixteen countries: Argentina, Costa Rica, Jamaica, Peru, Bolivia, El Salvador, Mexico, St. Kitts and Nevis, Chile, Ecuador, Panama, Uruguay, Colombia, Guyana, Paraguay and Venezuela. Brazil was included only in the BRICs since it is rated as an emerging economy. Data was collected from the World Bank (2011), supplemented by CIA (2011) and Worldwide Inflation Data (2011).

#### 3.2 Model

The model is described by Equation 1. The dependent variable is credit / GDP and the independent variables are: Gross Fixed Capital Formation, Private Consumption, Balance of Current Transactions, International Trade, Market Capitalization, GDP Growth, Crisis, Inflation, Cost of Funding, Creditor Protection and Enforcement. The model was estimated as a panel data regression, combining cross-section and time series data Wooldridge (2001). The time frame ranges from 2004 to 2010, and the cross-section units are the countries that integrate OECD, BRICs and LAC groups.

$$Y_{it} = a + b_1X_{it1} + b_2X_{it2} + \dots + u_{it}$$

#### (Equation 1)

where:

$i = 1, \dots, n$  individuals - The index  $n$  refers to countries;

$t = 1, \dots, t$  time periods - The index  $t$  refers to years between 2004 and 2010;

The dependent variable  $Y$  is the credit / GDP ratio;

The vector of variables  $X$  is the explanatory independent variables regarding determinants of credit availability in the countries.

The model was estimated using both fixed and random effects approaches and the choice of the most appropriate one was based on Chow, Breusch Pagan and Hausman tests.

Natural logarithm was applied to data since it is a monotonic transformation that helps matching scales, contributes to variance stabilization and linearization of possible exponential trends, common features in economic and financial series, besides converting differences into percentage rates, which are generally stationary (Hendry, 1997).

### 3.2.1 Dependent Variable - Y

The dependent variable is measured by the ratio between the amount of credit available to the domestic private sector and the GDP of each country. It “refers to financial resources provided to the private sector, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises” (World Bank, 2011).

### 3.2.2 Independent Variables - X

Independent variables were organized according to the following dimensions: Demand, Economic Integration, Cycles, Shocks and Economic Instability, Interest Rates and Supply.

#### A. Demand

– **Gross Fixed Capital Formation:** it is represented by long-term investments divided by GDP.

Literature shows studies that evaluate whether the investment decisions influence financing (Titman and Wessels, 1988; Rajan and Zingales, 1995; Jorge and Armada, 2001; Fama and French, 2002; Frank and Goyal, 2007; Perobelli and Famá, 2002). The ratio between market value and book value was often used to represent those decisions, as well as the variation in the stock of assets

Studies regarding volume of credit in the countries generally do not emphasize the possible impact of investment decisions on their level. However, there is a positive relationship between the level of investment and economic growth Keynes (1936 and 1971) and between economic growth and financial development, signaling the connection between investment and credit availability in the same direction.

Thus this work includes investment decisions in the model, represented by the ratio Gross Fixed Capital Formation / GDP. The higher its value, it suggests higher and longer term investments in the economy.

Literature (Keynes (1936 and 1971; Luporini and Alves, 2007) also mentions that the level of public investment directed to infrastructure improvements and services can generate positive externalities for private investment, in addition to expanding the demand for inputs and services from the private sector which would favor economic growth that would, in turn, favor the availability of credit. If Gross Fixed Capital Formation has positive relationship with credit availability it is an indication that their higher levels are associated with increased availability of resources.

This setting is analogous to the relations mentioned by Myers and Majluf (1984) and Myers (1984), in that higher degrees of indebtedness are related to growth opportunities. Thus, the volume of credit would be positively associated with private investment decisions, and public expansionary budget policy could stimulate liquidity and availability of creditors' resources for the private sector, generating a positive externality.

Therefore, private and public decisions in this context could mean the increase of the ratio Credit / GDP. Moreover, the positive link between Gross Fixed Capital Formation with it may be associated to degree of development of credit mechanisms.

If the relationship between the volume of credit and Gross Capital is negative, the profile would be similar to that expected by Scott (1976), Miller (1977) and De Angelo and Masulis (1980), suggesting the need to protect lenders property rights, as well as a possible link to the lower development of credit mechanisms in the economy. Moreover, the minus sign would indicate that any expansionary budget policy would generate negative externalities by reducing the availability of resources to the private sector, signaling possible crowding out effect.

– **Private Consumption:** it is represented by private consumption divided by GDP.

Cruz (2004) included domestic savings, linking it favorably to credit availability. This is consistent with aspects mentioned by Rossetti (2003), Dornbusch, Fischer and Startz (2008) and Vasconcellos (2010), in which the savings incentive is positively associated with both growth and credit availability.

Although for the Keynesian line of thought savings and funding do not necessarily confuse, savings are essential to the formation of long-term financing Keynes (1936 and 1971).

Thus, the positive relationship between domestic savings and credit availability is evaluated through the private consumption / GDP ratio, which is justified by the following aspects:

- Consumption decisions of households were not emphasized in the literature and, like Gross Fixed Capital Formation, may reflect decisions of the users of financial resources;
- Besides representing the influence of domestic savings of a country, it is possible that it captures the implications of consumption decisions of households on the liquidity for the private sector;
- The targeting of higher credit availability for consumption is indeed a decision of the creditor.

If the relation between the ratio Private Consumption / GDP and the volume of credit is negative, it would indicate that higher consumption adversely affects domestic savings and liquidity to the private sector. If the relationship is positive, it would indicate a possible association in the same direction between the consumption decisions of households and the availability of credit to the private sector.

### C. Economic Integration

Economic integration was studied by Stulz and Williamson (2003), who concluded that increased international integration mitigates cultural impacts and strengthens the standardization of institutions aligned to the international competitiveness of a country.

Cruz (2004), in turn, identified the positive relationship between the International Trade / GDP ratio and debt levels in the economy as something to be investigated. Both are linked to economic integration, thus, the flow of imports and exports was used as a measure of economic integration and the current account balance was used to represent foreign savings. Both will be evaluated for the different groups of countries.

– **International Trade:** it is the total flow of exports and imports in a year, compared to the country's GDP. If this variable shows a positive relationship with the volume of credit in a country, there is evidence that a higher trading flow helped to boost the liquidity for the private sector. If the relationship is negative, the larger trading flow restricts the availability of credit to the private sector, opening the discussion about the quality of the strategies for insertion of the country in the international trade.

– **Balance of Current Account:** it is the balance of international trade of the country divided by the GDP. If it shows a positive relationship with the volume of credit, there is evidence that the current account surplus was in line with the stimulus of liquidity to the private sector. If the relationship is negative, it suggests that the higher level of private debt was supported by foreign savings or smaller current account balances.

### D. Cycles, Shock and Instability

– **Market Capitalization:** it represents the market value of companies traded on the stock market divided by the GDP.

It is used to assess whether favorable expectations about the future increase the availability of resources from creditors in the economy.

– **Change in GDP:** it is the annual change in GDP.

The pace of economic growth or slowdown is related to cycles of Minsky (1992), or with shocks of Stiglitz and Waltz (2004).

It is used to assess whether the evolution of the economic activities is related to the availability of credit in the economy.

If the coefficient is positive, it would indicate that the volume of credit is incremented the higher the economic growth.

If negative, a lower economic growth is linked to a higher volume of credit, what may be caused by the fact that the volume of credit cannot be reduced immediately (Tsuru, 2000), and because of incentive policies for credit expansion in times of low economic performance, as a strategy to avoid endogenous shocks, Greenwald and Stiglitz (2004).

– **Financial Crisis:** it is a dummy for 2008 and 2009 years when financial crisis occurred.

Although there is discussion whether crises are cyclical (Minsky, 1992) or caused by endogenous characteristics of markets that generate shocks (Greenwald and Stiglitz, 2004), their occurrence impact fundraising by the economic agents (Voutsinas and Werner, 2011).

If the sign of its coefficient is positive, it is possible that incentive policies for credit expansion in times of crisis have been used as a strategy to avoid endogenous shocks mentioned by Stiglitz and Greenwald (2004). If the sign is negative, it indicates that the crisis reduces liquidity for the private sector.

– **Inflation:** it is the official inflation rate of each country.

The monetary instability is addressed in this article through the official annual inflation in the countries. It reflects the general increase in the price level, representing monetary instability, which affects financial decisions of economic agents in a country. If it is negative, it indicates that monetary instability is associated with reduced availability of resources to creditors, consistent with Cruz (2004) and Warnock and Warnock (2008).

### E. Interest Rates

– **Cost of Funding:** measured by the Prime Rate of each economy and represents the proxy of the funding cost of the private sector.

Although there is disagreement between the classical approach and the Keynesian approach regarding current interest rates, both link interest rates to credit availability. If the relationship between cost of funding and debt level is negative, it indicates that borrowing costs are associated with higher resources availability.

### F. Supply

– **Creditor protection:** reflects the degree of creditor protection through the existence of bankruptcy laws.

This variable is used by authors such as Haselmann, Pistor and Vig (2006), Djankov et al. (2007), Warnock and Warnock (2008), Bae and Goyal (2009), De Haas, Ferreira and Taci (2010), La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997 and 1998).

Due to the relevance of the World Bank, its index of credit protection is used in order to measure the degree of creditor protection. The index is on a scale, from zero to ten and the latter is the highest level, according to the existence of bankruptcy laws assessed by the institution, World Bank (2011).

It is expected to be positively related to the credit availability, corroborating Haselmann, Pistor and Vig (2006), Djankov et al. (2007), Warnock and Warnock (2008), Bae and Goyal, 2009, De Haas, Ferreira and Taci (2010), besides being more relevant for the richest countries in the sample, according to Djankov et al. (2007).

– **Enforcement:** it is the number of days between the start of legal proceedings and compliance of a contract, i. e., the payment of the debt by the debtor.

It evaluates the responsiveness of the judiciary, and a negative relationship with the volume of credit is expected Djankov et al. (2007).

## 4. Results

### 4.1 Descriptive Statistics

Table 1 shows the mean values in their original dimensions, and coefficients of variation, calculated between 2004 and 2010 to understand the general characteristics of the sample:

**Table 1: Descriptive Statistics**

Variable	Total Sample		OECD		BRICs		LAC	
	Median	CV (*)	Median	CV (*)	Median	CV (*)	Median	CV (*)
Credit / GDP -%	96.86	0.65	141.03	0.34	60.34	0.56	38.29	0.60
Gross Fixed Capital Formation -%	22.52	0.25	21.46	0.18	29.84	0.37	22.32	0.22
Private Consumption -%	59.50	0.19	55.35	0.15	50.83	0.19	68.14	0.16
Balance of Current Account -%	-0.32	23.22	0.23	32.65	3.16	1.43	-2.03	3.55
International Trade -%	58.97	0.49	63.67	0.51	38.87	0.38	56.74	0.40
Market Capitalization -%	70.98	0.77	90.35	0.63	75.61	0.45	37.83	1.01
Change of GDP -% pa	3.24	1.21	1.75	1.72	7.13	0.60	4.57	0.88
Inflation -% pa	4.26	1.05	2.18	0.82	6.57	0.56	6.95	0.83
Cost of Funding -% pa	10.62	0.84	5.55	0.62	19.30	0.90	14.34	0.45
Creditor Protection - 0 to 10 (**)	6	0.40	7	0.26	4	0.42	4	0.44
Enforcement - days	559	0.48	474	0.48	711	0.63	652	0.33

Prepared by the authors. (\*) CV: Coefficient of variation - in decimal. (\*\*) For Sample Total - average: 5.9 and median: 6 / For OECD group - mean 7.2 and median: 7; For BRICs - mean: 4.6 and median: 3.5 / For LAC - mean: 4.2 and median: 4.

The numbers indicate, on average, that OECD group showed higher levels of debt in the economy, international trade flow, market capitalization and creditor protection, and shorter periods for contract enforcement, lower cost of funding, economic growth, investment and long-term inflation between 2004 and 2010.

These characteristics, by indicating it as the group of higher private debt, international integration, development and institutional and monetary policy stability, lower fundraising rates and volumes of long-term investments in relation to the magnitude of their economies, suggest that such countries comprise the most advanced economies and the most homogeneous group, in general, according to measures of dispersion.

The economies of higher per capita income were the largest. The BRICs, in turn, reported higher average values of gross fixed capital formation, GDP growth and surpluses in the balance of current account, corroborating the understanding that it is a group of emerging countries, whose relative importance is growing in the international arena. However, the high numbers of time for enforcement of contracts and cost of fundraising are noteworthy, because they could have affected the evolution of credit availability in these countries.

The LAC group recorded, on average, higher levels of private consumption and inflation, and smaller amounts of credit relative to GDP, lower surpluses in the balance of current account, market capitalization and creditor protection. These characteristics can be linked to the fact that they are economies of lower per capita income like the BRICs, but smaller.

#### 4.2 Regression for the Whole Sample

Tests indicated that the most appropriate model is fixed effects with 236 observations and 45 cross-sectional units.

**Table 2: Fixed Effects: Regression of the Whole Sample between 2004 and 2010**

Independent Variables -X	Coefficient	P-value	
Inflation	-0.79784	0.04267	**
Crisis	0.034185	0.05485	*
Market Capitalization	0.167652	0.07788	*
R <sup>2</sup>	0,969983		
Adjusted R <sup>2</sup>	0,960811		

Prepared by authors / (\* )  $\alpha = 0.10$ , (\*\*) $\alpha = 0.05$ .

The most relevant variables were inflation, crisis and market capitalization, in descending order. The monetary instability, measured by inflation, is negatively related to the availability of credit, while financial crisis and market capitalization of firms were positively related to the availability of credit.

The result for inflation is consistent with Cruz (2004) and Warnock and Warnock (2008), and for crisis, the positive relation may suggest presence of incentive policies aimed to stimulate credit expansion, as a strategy to avoid the endogenous shocks of Greenwald and Stiglitz (2004).

The positive relationship of market capitalization and credit availability is consistent with Minsky (1992), Deos (1998) and Silipo (2011).

It is noteworthy that among the analyzed dimensions, only cycles, shocks and instability were relevant between 2004 and 2010.

#### 4.3 The OECD Group Regression

Tests indicated that the most appropriate model is fixed effects, with 116 observations and 25 cross-sectional units.

**Table 3: Fixed Effect: Regression of OECD Group between 2004 and 2010**

Independent Variables -X	Coefficient	P-value	
Private Consumption	4.8794	0.0009	***
International Trade	0.643821	0.0019	***
Market Capitalization	0.197323	0.0100	***
R <sup>2</sup>	0,910648		
Adjusted R <sup>2</sup>	0,871556		

Prepared by authors/ (\*\*\*)  $\alpha = 0,01$



The model shows that Private Consumption, International Trade and Market Capitalization were the most relevant variables in descending order. Accordingly, the relevant dimensions for this group were Demand, Economic Integration and Cycles, Shocks and Instability. For this group, in the Demand dimension, the Gross Capital Formation was not relevant, i.e., opportunities for long-term investment did not explain the dynamics of debt. It was found that the positive relation of Private Consumption represents a possible association between favorable consumption decisions of households and the availability of credit to the private sector. Data suggests the relevance of credit policies for the evolution of credit availability in the most indebted economies and highest per capita income. The main implication for the countries with higher per capita income and credit availability for the private sector is the need to develop financial mechanisms to support the increase in the exposure to credit risk, that demand more regulation and monitoring. Such need is reinforced by the fact that private consumption is the factor of greatest impact on the volume of credit in this group of countries.

In the Economic Integration dimension, although the Balance of Current Account has not been significant, the magnitude of the Flow of International Trade had influence on the level of debt, in line with the literature (Stulz and Williamson, 2003; Cross, 2004). The results indicate the relevance of policies aimed at expanding international trade, to stimulate liquidity in the private sector. This may be related to the fact that higher flow of international trade requires financial resources to sustain it, resulting in greater need of resources in the private sector resources to finance working capital or long-term assets when the internationalizing operations.

Among the variables of the cycles, shocks and instability dimension, only Market Capitalization is relevant and positively related to debt, what corroborates the line of reasoning that relates debt to credit cycles (Minsky, 1992; Deos, 1998; Silipo, 2011).

#### 4.4 The BRIC's Group Regression

Tests indicated that the most appropriate model is fixed effects, with 28 observations and 4 cross-section units.

**Table 4: Fixed Effect: Regression of BRIC'S Group between 2004 and 2010**

Independent Variables –X	Coefficient	P-value	
Balance of Current Account	-2.0711	<0.00001	***
Gross Fixed Capital Formation	0.728796	<0.00001	***
International Trade	0.351845	0.00005	***
Market Capitalization	0.0794925	0.00032	***
Change in GDP	-0.634476	0.00099	***
Enforcement	-1.28809	0.00118	***
Cost of Funding	-0.802705	0.00149	***
Creditor Protection	-0.0300179	0.07661	*
R <sup>2</sup>	0,996405		
Adjusted R <sup>2</sup>	0,992533		

Prepared by authors / (\*) $\alpha = 0.10$ , (\*\*) $\alpha = 0.01$ .

The most relevant for variables for this group were Current Account Balance, Gross Fixed Capital Formation, International Trade, Market Capitalization, GDP growth, Enforcement, Funding Cost and Creditor Protection. All dimensions were important in the case of BRICs.

In the Demand dimension, the positive relation of Gross Fixed Capital Formation indicates that opportunities for long-term investment were in agreement with the available resources of creditors, which is consistent with Myers and Majluf (1984) and Myers (1984). Results indicate that long-term private and public investment decisions may have stimulated the growth of credit availability. The volume of credit was associated favorably to private investment decisions, and expansionary public budget policies may have stimulated liquidity for the private sector creditors as a positive externality. Furthermore, it is possible that the positive link between the Gross Fixed Capital Formation and debt is related to the degree of access of borrowers to credit mechanisms.

In the Interest Rates dimension, there is a relation between higher Funding Cost and availability of private credit. In the Supply dimension, there is a negative relation of Enforcement and debt is consistent with Djankov et al. (2007), highlighting that a slow legal system discourages the availability of credit in the economy. Moreover, the negative relation of Creditor Protection indicates the influence of lower degrees of legal protection to creditors. This result is inconsistent with the literature.

One explanation could be the construction of the variable by the World Bank, which assesses the existence of laws for protecting suppliers of capital. Thus, the more categories of laws the country has, the better the analysis of this institution. However, for emerging countries, maybe creditors do not consider the amount of existing laws, but rather its fulfillment, which in turn is expressed by Enforcement. It is possible that creditors judge that the volume of laws represent institutional weakness of this group, in protecting their interests. It may also be related to the fact that the legal systems of emerging countries are based on Roman-Germanic and socialist tradition - except for India, which has common law tradition. Consequently, there is a predominance of legal traditions that offer less protection to suppliers of capital (La Porta et al, 1996, 1997, 1998, 1999, 2000 and 2002; Djankov et al, 2007). The main implications of the results for this group of countries are:

- The organization of laws and their enforcement are important for the liquidity to the private sector. The focus of institutional improving should not rely on the amount of laws, but on the ability of the judiciary to be productive and less bureaucratic in the completion of lawsuits;
- Monetary policies in the fastest growing economies, determining the cost of funding can be used as instruments for managing liquidity availability for the private sector.

In the Cycles, Instability and Shocks dimension, Crisis and Inflation did not explain the behavior of the volume of credit in the BRICs. It is observed that the events of 2008 and 2009, as well as monetary instability, were not relevant in this group of countries.

However Market Capitalization and lower GDP growth rates were positively related to credit availability.

In the case of Market Capitalization, the result corroborates Minsky (1992), Deos (1998) and Silipo (2011), coinciding with what was obtained for the OECD group.

The negative relation of GDP growth, in turn, suggests that policies aiming to credit expansion occurred as a strategy to avoid endogenous shocks of Greenwald and Stiglitz (2004).

In the Economic Integration dimension, negative Balance of Current Account and International Flow of Trade indicate that this dimension was relevant for the BRICs, corroborating Stulz and Williamson (2003) and Cross (2004).

#### 4.5 The Lac Group Regression

Tests indicated that the most appropriate model is fixed effects, with 92 observations and 16 cross-sectional units.

**Table 5: Fixed Effects: Regression of LAC Group between 2004 and 2010**

Independent Variables -X	Coefficient	P-value	
Balance of Current Account	-0.617432	0.00004	***
International Trade	0.240641	0.00482	***
Private Consumption	-0.590229	0.00791	***
Inflation	-0.234486	0.07166	*
Gross Formation of Capital	-0.3741	0.07395	*
Change in GDP	-0.286652	0.09274	*
R <sup>2</sup>	0,979944		
Adjusted R <sup>2</sup>	0,971922		

Prepared by authors / (\*) $\alpha = 0.10$ ; (\*\*\*) $\alpha = 0.01$ .

The Balance of Current Transactions, International Trade, Private Consumption, Inflation, Gross Fixed Capital Formation and GDP growth are relevant, showing that the most relevant dimensions for the LAC group were: Demand, Economic Integration and Cycles, Instability and Shocks.

In the Demand dimension, the negative relation of Gross Fixed Capital Formation may indicate the existence of other forms of fundraising to finance investment opportunities, as sources of capital. This would agree with Scott (1976), Miller (1977) and DeAngelo and Masulis (1980), and could be a result of lower access of LAC countries to credit between 2004 and 2010. Furthermore, the negative relation may indicate that expansionary budget policies generated negative externalities to the investment projects, reducing the availability of resources to the private sector in the economies, the crowding out effect.

The private consumption was negatively related to credit availability, a signal that higher consumption adversely affects domestic savings as well as the availability of financial resources for the private sector, a fact in line with the literature (Rossetti, 2003; Cruz, 2004; Dornbusch and Vasconcellos, 2010).

In the Economic Integration dimension, the negative relation of Balance of Current Account and International Trade Flow confirms Stulz and Williamson (2003) and Cross (2004). It is noteworthy that International Trade was relevant for all groups of countries, so it is important to evaluate the contribution of the volume of exports and imports to the indebtedness in future studies.

In the Cycles, Instability and Shocks dimension, Crisis and Market Capitalization did not explain the behavior of the volume of credit. Thus, the events of 2008 and 2009 as well as the value of the assets were not relevant for this group of countries.

However, inflation had a negative relation with credit availability, consistent with the literature Cross (2004) and Warnock and Warnock (2008). The GDP growth also had a negative relation, what suggests that incentive policies aiming to credit expansion occurred as a strategy to avoid endogenous shocks of Greenwald and Stiglitz (2004).

The results of LAC together with the results of BRICs enable the findings mentioned below. The Gross Fixed Capital Formation showed positive relation with the volume of credit in BRICs, which may be due to higher liquidity provided by private investments, positive externalities of public spending, or by directing credit to long-term investments by companies.

For LAC in turn, it had a negative relation with the volume of credit, signaling indications that investment opportunities did not stimulate liquidity in the economy as well as a lack of positive externality of public spending.

For BRICs and LAC, the Current Account Balance was the factor with the greatest impact on the Credit / GDP ratio, with higher intensity for BRICs. For LAC, the negative relation of Private Consumption may indicate that domestic savings were more sensitive in countries with lower levels of per capita income and economic growth. This may come as a consequence of the fact that they have less potential of internal savings when compared to the other groups of countries studied. Moreover, for LAC, Inflation showed a negative relation with the volume of credit. Thus, implications for groups of countries with lower per capita income are:

- The growth of the ratio Credit / GDP, driven by further development of the credit market, requires identifying whether such an increase is actually linked to investments that result in increased per capita income and creating domestic savings;
- If incentives to the availability of credit, focused on private investments, is carried out through public institutions, it is essential the use of consistent criteria for granting credit and evaluating whether such investments will stimulate per capita income and creation of domestic savings;
- Since there is evidence that public investments are associated with liquidity in the private sector, the positive externality of public spending and therefore its feasibility is relevant;
- The adoption of incentive policies for increasing consumer credit may cause negative results because the growth of household debt in a context of low per capita income, may increase the risk of reduced liquidity and credit to the private sector, depressing productive investments;
- Since household consumption had a negative relation with liquidity to the private sector in economies with lower per capita income and lower economic growth, the following aspects worth attention: (a) possible negative effects of incentive policies directing credit to consumption, (b) emphasis on policies aimed at increasing domestic savings, and (c) the implementation of policies for monetary stability.

### **5. Conclusions and Contributions**

It was noticed that the empirical models usually adopted in studies on the subject emphasize the influence of institutional and legal variables, using macroeconomic variables as control. Thus, the focus is on factors related to the supply side. This study expanded the line of research evaluating the effect of factor related to the demand side, like investment decisions and consumption, elements linked to cycles, shocks and economic instability and elements of economic integration. Relying on the argument of heterogeneity between regions, the article, using panel data regressions, provides basis to the process of public policy making.

Results indicated that International Trade was relevant for all groups of countries. It would be useful a further investigation about the contribution of the volume of exports or imports to the degree of indebtedness in the economies.

For the OECD group, it was verified the importance of evaluating and monitoring financial mechanisms that support the expansion of exposure to consumer credit. The variable Private Consumption was the most relevant, and its increase by 1 percentage point implies an increase of 4.8 percentage points in the ratio Credit / GDP.

For the BRICs, results indicated the need to improve the effectiveness of the judiciary aiming at creditor protection and the need of caution in the use of monetary policy instruments, since they greatly affect credit in the fastest growing economies. It is noteworthy that for BRICs and LAC, the most important variable was the Balance of Current Account. Every negative change of 1 percentage point resulted in a positive change of 2.07 and 0.61 percentage points, respectively, in the Credit / GDP ratio. Thus, in both groups of countries with lower per capita income, the Balance of Current Account is a factor that deserves monitoring. Its implications for public policy are:

- If the promotion of the availability of credit, focused on private investments, is carried out through public institutions, it is essential the use of consistent criteria for granting credit and evaluating whether such investments will stimulate per capita income and creation of domestic savings;
- Since there is evidence that public investments are associated with liquidity for the private sector, the positive externality of public spending and therefore its feasibility, are important;
- The need for monitoring the effects of credit incentive policies directed to consumption, taking into account the demand for creation of internal savings and monetary stability.

Lastly, the adoption of credit incentive policies that ignore determinant of the Credit / GDP ratio may have undesirable consequences.

### **References**

- AFFINITO, M.; TAGLIAFERRI, E. (2010). Why do (or did) banks securitize their loans? Evidence from Italy. *Journal of Financial Stability*, 6, p. 189-202.
- AGHION, P.; BOLTON, P. (1992). An incomplete contracts approach to corporate bankruptcy. *Review of Economic Studies*, 59, p. 473-494.
- AL-YOUSIF, Y. K. (2002) Financial development and economic growth: another look at the evidence from developing countries. *Review of Financial Economics*, 11, p. 131-150.
- ARAÚJO, A.; FUNCHAL, B. (2006) A Nova Lei de Falências Brasileira e Seu Papel no Desenvolvimento do Mercado de Crédito. *Pesquisa e Planejamento Econômico*, v. 36, n. 2, p. 209-254.
- ARAÚJO, A.; FUNCHAL, B. (2007) A nova Lei das Falências brasileira: primeiros impactos. In: XXXV Encontro Nacional de Economia, Niterói/RJ.
- ARESTIS, P.; DEMETRIADES, P. (1997) O. Finance and Growth: Institutional Considerations, Financial Policies and Causality. Keele Department of Economics Discussion Papers, Department of Economics, Keele University.
- BAE, K. H.; GOYAL, V. K. (2009) Creditor rights, enforcement, and bank loans. *The Journal of Finance*, v. LXIV, n 2.
- BEBCZUK, R. (2001). Corporate finance, financial development and growth. Centro de Estudos Monetários Latinoamericanos-Mexico.
- BECSI, Z.; WANG, P. (1997). Financial development and growth. *Economic Review-Federal Reserve Bank of Atlanta*, 4th quarter.
- BENCIVENGA, V. R.; SMITH, B. (1991). Financial intermediation and economic growth. *The Review of Economic Studies*, v. 58, n. 2, p. 194.
- BOUVATIER, V.; LEPETIT, L. (2008). Banks' procyclical behavior: does provisioning matter? *International Financial Markets, Institutions and Money*, 18, p. 513-526.
- CHRISTOPOULOS, D. K, TSIONAS, E. G. (2004) Financial development and economic growth: evidence from panel unit root and cointegration tests. *Journal of Development Economics*, 73, p. 55-74.
- CIA - Central Intelligence Agency <<http://www.cia.gov>>December 2011.

- CRUZ, A. P. (2004) Impactos de fatores condicionantes do volume de crédito. Dissertação (Mestrado em Administração) – Faculdade de Economia, Administração e Contabilidade, Universidade de São Paulo, São Paulo.
- DeANGELO, H.; MASULIS, R.W. (1980). Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics*, v.8, n.1.
- DE HAAS, R.; FERREIRA, D.; TACI, A. (2010). What determines the composition of banks' loan portfolios? Evidence from transition countries. *Journal of Banking & Finance*, 34.
- DEOS, S. S. (1998). Instabilidade financeira numa economia de Mercado de capitais. *Ensaio FEE*, v. 19, n. 2, p 38-61.
- DESAI, M. A.; FOLEY, C. F.; HINES, J. R. (2004). A multinational perspective on capital structure choice and internal capital markets, *Journal of Finance*, 59, p. 2451–2488.
- DIAMOND, D. (2004). Committing to commit: Short-term debt when enforcement is costly, AFA Presidential Address, *Journal of Finance*, LIX, 4, p. 1447–1480.
- DJANKOV, S., GLAESER, E., LA PORTA, R., LOPEZ-DE-SILANES, F., SHLEIFER, A. (2003) The new comparative economics. *Journal of Comparative Economics*, 31, p. 595–619.
- DJANKOV, S.; MCLIESCH, C.; SHLEIFER, A. (2007) Private credit in 129 countries. *Journal of Financial Economics*, 84, p. 299-329.
- DORNBUSCH, R.; FISCHER, S.; STARTZ, R. (2008). *Macroeconomia*. São Paulo: McGraw Hill.
- ESTY, B. (2004). When do foreign banks finance domestic projects? New evidence on the importance of legal and financial systems, Working paper, Harvard Business School.
- ESTY, B. C.; MEGGINSON, W.L. (2003) Creditor rights, enforcement, and debt ownership structure: Evidence from the global syndicate loan market. *Journal of Financial and Quantitative Analysis*, 38, p. 37–59.
- FAMA, E. F.; FRENCH, K. R. (2002) Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies*, v. 15, n. 1.
- IMF. (2011) Global Financial Stability Report. Website [www.imf.org](http://www.imf.org)
- FONSECA, A. N.; GONZÁLEZ, F. (2008) Cross-country determinants of bank income smoothing by managing loan-loss provisions. *Journal of Banking & Finance*, 32, p. 217-228.
- FRANK. M. Z.; GOYAL, V. K. (2007) Capital structure decisions: wich factors are reliably important?
- GALINDO, A.; MICCO, A. (2005) Creditor protection and credit volatility. Inter-American Development Bank.
- GLEN, J.; MONDRAGÓN-VÉLEZ, C. (2011). Business cycle effects on commercial bank loan portfolio performance in developing economies. *Review of Development Finance*, 1, p. 150-165.
- HALE, G.; RAZIN, A.; TONG, H. (2006). Institutional weakness and stock volatility. NBER working paper series.
- HALE, G.; RAZIN, A.; TONG, H. (2009). The impact of credit protection on stock prices in the presence of credit crunches. NBER working paper series.
- HAO, C. (2006). Development of financial intermediation and economic growth: The Chinese experience. *China Economic Review*, 17, p. 347–362.
- HART, O., MOORE, J. (1994). A theory of debt based on the inalienability of human capital. *Quarterly Journal of Economics*, 109, p. 841–879.
- HART, O., MOORE, J. (1998). Default and renegotiation: a dynamic model of debt. *Quarterly Journal of Economics*, 113, p. 1–42.
- HASAN, I.; WACHTEL, P., ZHOU M. (2009). Institutional development, financial deepening and economic growth: Evidence from China. *Journal of Banking & Finance*, 33, p. 157–170.
- HASELMANN, R., PISTOR, K., VIG, V. (2006). How law affects lending. Columbia Law School, New York.
- HASSAN M. K.; SANCHEZ, B.; YU, J. (2011). Financial development and economic growth: New evidence from panel data. *The Quarterly Review of Economics and Finance*, 51, p. 88–104.
- HENDRY, David F. (1997). *Dynamic Econometrics*. New York: Oxford University Press, 1. ed., 869 p.
- JAFFEE, D., RUSSELL, T. (1976). Imperfect information, uncertainty and credit rationing. *Quarterly Journal of Economics*, 90, p. 651–666.
- JAPPELLI, T., PAGANO, M. (2002). Information sharing, lending, and defaults: cross-country evidence. *Journal of Banking and Finance*, 26, p. 2017–2045.
- JAPPELLI, T.; PAGANO, M.; BIANCO, M. (2005). Courts and banks: Effects of judicial enforcement on credit markets. *Journal of Money, Credit and Banking*, 37, p. 223–244.

- JORGE, S.; ARMADA, M. J. R. (2001). Fatores determinantes do endividamento: uma análise em painel. *Revista de Administração Contemporânea*, v. 5, n. 2.
- KEYNES, J. M. (1936). *Teoria geral do emprego, do juro e do dinheiro*. São Paulo: Nova Cultural.
- KEYNES, J.M. (1971). *A Treatise on Money*. London: MacMillan.
- KHAN, A. (1999). Financial development and economic growth. Federal Reserve Bank of Philadelphia, Working Paper n. 99-11.
- KING, R.; LEVINE, R. (1993). Financial Intermediation and Economic Development, In: MAYER, C.; VIVES, X. *Financial Intermediation in the Construction of Europe*, Londres: Center for Economic Policy Research, p. 156-189.
- KING, R.; LEVINE, R. (1993). Finance and Growth: Schumpeter Might Be Right, *Quarterly Journal of Economics*, v. 108, n. 3, p. 717-737.
- KING, R.; LEVINE, R. (1993). Finance, Entrepreneurship and Growth: Theory and Evidence. *Journal of Monetary Economics*, v. 32, n. 3, p. 513-542.
- LA PORTA, R., LOPEZ-DE-SILANES, F., SHLEIFER, A., VISHNY, R. (1996). Law and Finance. NBER, working paper 5661.
- LA PORTA, R., LOPEZ-DE-SILANES, F., SHLEIFER, A., VISHNY, R. (1997). Legal determinants of external finance. *Journal of Finance*, v. 52, p. 1131-1150.
- LA PORTA, R., LOPEZ-DE-SILANES, F., SHLEIFER, A., VISHNY, R. (1998). Law and finance. *Journal of Political Economy*, v. 106, p. 1113-1155.
- LA PORTA, R., LOPEZ-DE-SILANES, F., SHLEIFER, A., VISHNY, R. (1999) The quality of government, *Journal of Law, Economics, and Organization*, 15, p. 222-279.
- LA PORTA, R., LOPEZ-DE-SILANES, F., SHLEIFER, A., VISHNY, R. (2000) Investor protection and corporate governance, *Journal of Financial Economics*, 58, p. 3-27.
- LA PORTA, R., LOPEZ-DE-SILANES, F., SHLEIFER, A., VISHNY, R. (2002) Investor protection and corporate valuation, *Journal of Finance*, 57, p. 1147-1170.
- LEVINE, R. (1997). Financial Development and Economic Growth: Views and Agenda, *Journal of Economic Literature*, v. 35.
- LEVINE, R.; LOAYZA, N.; BECK, T. (1998). *Financial Intermediation and Growth: Causality and Causes*. World Bank.
- LEVINE, R.; LOYAZA, N. BECK, T. (2002). Financial intermediation and growth: causality and causes. *Journal of Monetary Economics*, v. 46, n. 1, p. 31-77.
- LUPORINI, V.; ALVES, J. D. O. (2007). *Evolução da teoria do investimento e análise empírica para o Brasil*" Anais do XXXV Encontro Nacional de Economia, ANPEC - Associação Nacional dos Centros de Pós-graduação em Economia.
- MIAN, A. (2006). Distance constraints: The limits of foreign lending in poor economies, *Journal of Finance*, 61, p. 1465-1505.
- MILLER, M.H.(1977). Debt and taxes. *Journal of Finance*, v. 32, n. 2.
- MINSKY, P. H. (1992). *The Financial Instability Hypothesis*. The Levy Economics Institute of Bard College, Working Paper, n. 74.
- MYERS, S.C. (1984). The capital structure puzzle. *Journal of Finance*, v.39, n.3.
- MYERS, S.C.; MAJLUF, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, v.13.
- MULLIGAN, C., SHLEIFER, A. (2005). The extent of the market and the supply of regulation. *Quarterly Journal of Economics*, 120, p. 1445-1474.
- PAGANO, M. (1993). Financial markets and growth. *European Economic Review*, 37, p. 613-22.
- PAGANO, M., JAPPELLI, T. (1993). Information sharing in credit markets. *Journal of Finance*, 43, p. 1693-1718.
- PEROBELLI, F. F. C.; FAMÁ, R. (2002). Determinantes da estrutura de capital: aplicação a empresas de capital aberto brasileiras. *Revista de Administração da Universidade de São Paulo*, v. 37, n. 3, p. 33-46.
- QIAN, J.; STRAHAN, P. E. (2007). How laws and institutions shape financial contracts: the case of bank loans. *The Journal of Finance*, vol. LXII, n. 6.
- RAJAN, R. G.; ZINGALES, L. (1995). What do we know about capital structure: some evidence from international data. *The Journal of Finance*, v. 50, n. 5.
- ROSSETTI, J. P. (2003). *Introdução à economia*. 20ª Ed, São Paulo: Atlas.

- ROUSSEAU, P. L.; WACHTEL, P. (1998). Financial Intermediation and Economic Performance: Historical Evidence from Five Industrialized Countries. *Journal of Money, Credit and Banking*, v. 30, n. 4, p. 657-78.
- SAPIENZA, P. (2002). The effects of banking mergers on loan contracts. *Journal of Finance*, 57, p. 329–368.
- SCOTT, J. (1976). A Theory of optimal capital structure. *The Bell Journal of Economics*, v.7.
- SILIPO, D. B. (2011). It happened again: a Minskian analysis of the subprime loan crisis. *Journal of Economics and Business*, 63, p.441-455.
- SIRRI, E.; TUFANO, P. (1995). The Economics of Pooling. In: CRANE, DWIGHT et al. *The global financial system: a functional perspective*, Harvard Business School Press.
- STIGLITZ, J.; GREENWALD, B. (2004). *Rumo a um Novo Paradigma em Economia Monetária*. São Paulo: Francis.
- STIGLITZ, J.; WEISS, A. (1981). Credit rationing in markets with imperfect information, *American Economic Review*, v. 71, p. 393–410.
- STULZ, R., WILLIAMSON, R. (2003). Culture, openness, and finance. *Journal of Financial Economics*, 70, p. 313–349.
- TITMAN, S.; WESSELS, R. (1988). The determinants of capital structure choices. *The Journal of Finance*, v. 43, n. 1.
- TOWNSEND, R. (1979). Optimal contracts and competitive markets with costly state verification. *Journal of Economic Theory*, v. 21, p. 265–293.
- TSAI, H.; CHANG, Y.; HSIAO, P. H. (2011). What drives foreign expansion of the top multinational banks? The role of the credit reporting system. *Journal of Banking & Finance*, 35, p. 588-605.
- TSURU, K. (2000). *Finance and Growth*. Economics Department, Working Papers, OECD.
- VASCONCELLOS, M. A. S. (2010). *Economia: micro e macro*. São Paulo: Atlas.
- VOUTSINAS, K.; WERNER, R. A. (2011). Credit supply and corporate capital structure: evidence from Japan. *International Review of Financial Analysis*, 20.
- WARNOCK, V. C.; WARNOCK, F. E. (2008). Markets and housing finance. *Journal of Housing Economics*.
- WOOLDRIDGE, J. M. (2001). *Econometric Analysis of Cross Section and Panel Data*. Boston: MIT Press.
- WORLD BANK. (2011). Website [www.worldbank.org](http://www.worldbank.org)
- WORLDWIDE INFLATION DATA (2011). Website <http://www.inflation.eu/inflation-rates/chile/historic-inflation/cpi-inflation-chile.aspx>