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“RETAILERS AS BANKS?”

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RETAILERS AS BANKS ?

Este estudio se orienta a buscar las variables que explican la existencia de firmas de *retail* ofreciendo productos financieros en el mundo. Durante la última década, se ha prestado particular atención a la relación entre ambos negocios, en particular en Chile, Estados Unidos, y el Reino Unido. Este estudio contribuye a comprender por qué dos segmentos tan distintos como ventas minoristas y servicios financieros son ofrecidos por la misma firma, y qué podría hacer esta estrategia rentable. La hipótesis general es que el ambiente legal, regulatorio y económico explican la ventaja comparativa que los *retailers* tienen para ofrecer productos financieros, las cuales los llevarían a diversificar a esta línea de negocios en particular.

Utilizando una base de sobre 1.200 firmas, abarcando 37 países para el período 2000-2003, este estudio trabajó la relación entre la existencia e importancia del negocio financiero dentro de cada *retailer* utilizando variables comunes en la literatura, así como otras propias de este estudio, tanto a nivel de firma como a nivel de país. La evidencia sugiere que la regulación financiera es un buen predictor de la existencia de este fenómeno. Adicionalmente, éste es más prevalente en países con mayor desarrollo del sector bancario, y su presencia se asocia a una menor rentabilidad en este sector. Lo anterior sugiere que los *retailers* actúan como sustitutos de la banca en vez de un complemento. Finalmente, *retailers* que añaden intermediación financiera a sus líneas de negocio presentan mayores oportunidades de crecimiento, y *retailers* más grandes le dan más importancia a esta diversificación.

Sin embargo, las características particulares del negocio del *retail* que le generan una ventaja comparativa siguen siendo una interrogante. Probablemente la calidad de información de comportamiento que los *retailers* son capaces de recolectar y explotar les permiten un mejor conocimiento de sus clientes, así como una mejor gestión de riesgo, más allá de la cobertura de los burós de información comercial y la eficiencia del sistema legal. En este sentido, la oportunidad y actitud de los clientes de adquirir servicios financieros al momento de la decisión de compra puede ser clave.

De los resultados empíricos, así como de la evidencia particular de Chile, se puede desprender que en ausencia de una adecuada regulación, el negocio financiero de la industria del *retail* puede llegar a representar una fracción importante de la industria financiera total, por lo que es recomendable el desarrollo de un marco regulatorio que permita la convivencia de la banca tradicional con instituciones no financieras sin poner en riesgo la estabilidad del sistema, asegurando que la competencia en el mercado del crédito sea beneficiosa desde el punto de vista social, previniendo arbitraje regulatorio y niveles de endeudamiento excesivo.

RETAILERS AS BANKS ?

The aim of this study is to find the variables that explain the existence of retail firms offering financial services in the world. During the last decade, special attention has been paid to the relationship between both businesses, particularly in Chile, the United States and the United Kingdom. The present work contributes to understanding why two segments, as different as retail sales and financial services are brought together within the same firm, and why this is a profitable strategy. The general hypothesis is that the legal, regulatory and economic environment explain the comparative advantage retailers possess when offering financial services, which would lead them to diversify to this particular line of business.

Using a database of over 1,200 retail firms across 37 countries, for the period between 2000 and 2003, this study analyzes the existence and relative importance of the financial intermediation business within each retail firm, using the usual variables found in the literature, as well as some specific to this study, both at a firm and country level. The evidence suggests that banking regulation seems to be a good predictor of the existence of such phenomenon. In addition, retailers are more likely to offer financial services in countries with a relatively developed banking sector, and the existence of the financial segment within the retailer is associated to lower returns in the banking industry. The latter suggests that retailers are acting as a substitute for the banking industry instead of a complement. Finally, retail firms that decide to add financial services to their lines of business have larger growth opportunity, and larger retailers make more use of this diversification.

Nevertheless, the particular characteristics of the retail business that generate a comparative advantage remains unanswered. The quality of behavioral information retailers are able to collect and exploit probably allow for a better knowledge of their costumers, as well as better risk assessment, beyond credit bureau coverage and efficiency of the legal system. In that sense, the opportunity and attitude of costumers when acquiring financial services at the moment of the purchase decision can play a key role.

From the empirical results, as well as the particular evidence for Chile, it can be concluded that in the absence of adequate regulation, the financial business of the retail industry can grow to account for a large part of the total financial industry. For this reason, it would be advisable to design a regulatory framework that allows both traditional banking and retailer lending to coexist, while preventing risks to financial stability, ensuring that competition in the credit market provides a socially optimal equilibrium, preventing regulatory arbitrage and excessive debt levels.

Key words: Non-bank Financial Institutions, Corporate Finance, Financial Regulation, Panel Data Models.

JEL: C23, C24, G18, G30.

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I. Introduction

During the last decade, special attention has been paid to the increasing relationship between retail sales and financial intermediation. In the US, Walmart was prohibited from acquiring a California Industrial Loan Company¹ in 2002, and the Federal Reserve Bank of San Francisco (2000) and the Federal Deposits and Insurance Corporation (2004) have published reports analyzing the relationship between banking and commerce. On the other hand, in the UK retailers are allowed to offer loans or insurance to costumers more freely. The Insurance Advisory Board (2002) estimates that 40% of credit card debt and 44% of savings accounts are offered by non-bank institutions (mainly retailers and utility groups). This report also states that retailers “*are a good way to serve the transaction needs of younger and lower-income respondents*”². In Chile, the financial segment of retailers is so large, that in 2007³ the local banking regulatory authority (SBIF) reported that credit card debt issued by retailers was 1.8 times the number issued by of regular banks. One interesting characteristic of this market is that poor households rely almost entirely on retail credit card debt (around 90%), but its use decreases as income increases⁴.

The former suggests that this phenomenon is not unique to a country or region, and that its importance varies across them. The question then arises: why are two businesses as different as

¹ An ILC is a state chartered institution with banking powers subject to special restrictions on lending and deposits. They are regulated by the state chartering authorities and the FDIC.

² Insurance Advisory Board, 2002, Selling Insurance Through Retailers, Insurance Advisory Board, p. 7.

³ 2007 is the earliest year for which the Chilean Banking Authority publishes information regarding retail credit card activity.

⁴ Estrategia, 26/10/2006, see Appendix A.

retail sales and financial intermediation brought together in the same firm? And why is this diversification⁵ frequently associated to retailers?

Diversification has been a widely studied topic in the last 20 years. On two highly cited papers, Lang & Stulz (1994) and Berger & Ofek (1995), using different methodologies, show that firms that diversify trade at a statistically significant discount when compared with an equivalent portfolio of stand-alone firms (even after controlling for industry specific characteristic). Since then, numerous researchers have tried to understand why firms keep diversifying their lines of business even though the evidence suggests that this strategy destroys value.

The Internal Capital Market⁶ (ICM) literature suggests that diversification could be value enhancing if External Capital Markets (ECM) are not well developed. In this case, as argued by Stein (1997), credit constrained firms could shift resources from less profitable divisions to those that have the better projects (“winner-picking”). On the other hand, the “Dark Side of Capital Markets” (as documented by Scharfstein & Stein, 2000) is that rent-seeking behavior inside the firm (particularly by division managers) might distort this efficient allocation of internal resources, whereby strong divisions end up subsidizing inefficient ones.

Rajan, Servaes & Zingales (2000) address this tension with a two-segment firm, which has to allocate resources between its two divisions. Their model predicts that if divisions are similar enough and the firm is credit constrained, headquarters will allocate internal resources efficiently. But as divisions become more diverse, distorted incentives might make it optimal for headquarters to allocate resources similarly between the two divisions, even though one has better prospects than the others. They find that the data support this hypothesis.

⁵ Diversification is defined as the addition of new segments of seemingly unrelated business in one firm.

⁶ Internal Capital Markets is the name given to the allocation method used by firms to assign funds to its different segments or divisions.

Since then, the focus of the diversification literature has been to address the endogeneity of the diversification decision, and its role in the diversification discount. Hyland & Ditz (2002) finds that firms that diversify are typically poor performers within their industries and that diversification is mainly conducted via acquisition, suggesting that firms diversify in search of growth opportunities. Campa & Kedia (2002) find that when controlling for the endogeneity of the decision, the diversification discount drops and even disappears. Similarly, Graham, Lemmon & Wolf (2002) document that the loss in firm value is due to the fact that firms acquire already discounted business units. More recently, Santalo & Becerra (2008) show that the effect of diversification on firm performance is related to the industry.

As can be noted, significant research has been conducted to understand why firms diversify and if it is value destroying or not. Evidence for the U.S. seems to suggest that firms choose to diversify when they are performing poorly, and that diversification *per se* does not destroy value.

So far, all of the research has focused on understanding why firms make the decision to diversify. The pros seem to be superior governance structure, better access to financing and efficient ICM when ECM are not well developed. On the other hand, the reasons cited for the underperformance of diversified corporations are inappropriate allocation of decision rights, inefficient allocation of capital and poor internal governance. Nevertheless, as noted by Rajan, Servaes & Zingales (2000), "*An important caveat is that we have not explored the reasons why segments that are very diverse are brought together in the same firm, and why they do not break apart when inefficiencies are observed*"⁷.

This study contributes to understand why two segments, as different as retail sales and financial services, are combined in a single firm in so many countries? And what makes this a profitable strategy for the firms? The general hypothesis is that the legal, economical and financial environment can explain the comparative advantage retailers have in offering financial services,

⁷ Rajan, R., Servaes, H. & Zingales, L., 2000, The Cost of Diversity: The Diversification Discount and Inefficient Investment, The Journal Of Finance, Vol. 55, No.1, pp. 76.

which leads them to diversify into this particular line of business. But what are those advantages?

One explanation is that retailers are offering financial services to a segment that would otherwise not be catered by the traditional banking sector given the regulation (e.g., strict regulation might make it unprofitable for banks to offer credit to sub-prime subjects, given the higher capital costs associated). In that sense, retailers might derive a comparative advantage by making use of this regulatory arbitrage possibility.

Perhaps the story is one of trade credit, in which retailers, that by definition possess high levels of collateral (e.g., stores, inventories) can raise –relatively inexpensive– capital through developed capital markets, and then use this capital to offer financial services. If this were the case, higher leverage on the part of retailers would be expected, and this phenomenon to be more prevalent in countries where credit is more readily available, i.e., countries with higher levels of financial development.

That said, it would be unwise to discard the standard reasons cited by the literature: are retailers performing poorly? Or, is the business so competitive that it has exhausted all growth opportunities, and therefore forced retailers to diversify to the financial services segment, in which they might have a comparative advantage?

Another hypothesis has to do with the relationship retailers are able to establish with their customers, which might be exploited in order to make it profitable to add a financial services segment to the firm. One characteristic is convenience and the attitude of consumers when going to, for example, a department store *vis a vis* the attitude towards going to the bank. Following the same reasoning, there are other variables that can help explain the special relationship retailers establish with their customers. One such variable is the amount of behavioral information that retailers might have –and can continue to update– through the use of store credit cards and frequent customer discounts, which might give them an advantage over the banking industry in terms of risk assessment, at least of a certain subset of clients. Countries with poor credit information/records should then present higher levels of financial intermediation on the part of retailers –given the informational advantage previously discussed. The contrary would be true if information became easier and/or cheaper to acquire, for example *via* technological changes.

Finally, the level of informal enforcement a retailer can produce (if any) could also improve his comparative advantage when offering financial services. This enforcement might come about in countries with very concentrated retail industries, especially when the retailers are fully integrated (with supermarket chains, department stores, home improvement and construction products stores, etc.). If an important source of financing for an individual is credit issued by the retailers, and he has limited options where to buy, then the threat that the retailer could refuse to sell more to the individual by halting credit could act as an incentive for good credit behavior. This would be especially true if the individual has limited options to find financing. If retailers indeed had this informal enforcement characteristic, then countries with lengthy and/or costly enforcement would be more likely to present a retail industry with a financial segment. Due to the availability of information, the latter hypotheses (namely the informational and enforcement ones) will only be tested informally as a way to motivate future research.

This dissertation is organized as follows: Section II reviews the literature related to the diversification phenomenon. Section III discusses the hypotheses, describes the dataset and the methodology used. Section IV presents the empirical findings both at a country and firm level. Section V concludes.

II. Related Literature

Internal Capital Markets

The literature regarding Internal Capital Markets (ICM), that is, the allocation method used by firms to assign funds to its different segments or divisions, presents both positive and negative arguments for its existence. While ICM can help firms to allocate capital more efficiently when the financial sector is poorly developed, it acknowledges that it might be costly for firms to have to rely on ICM for capital allocation, especially if divisions are different. ICM might deviate resources to no-value-added projects that External Capital Markets would not fund.

Stein (1997) models a setting in which credit constraints are binding, at both division and firm level, and headquarters have control rights over the divisions and derive private benefits from their good performance. With these assumptions, he shows that headquarters add value by assigning limited funds to the most profitable projects in credit-constrained firms (“winner-picking”). The optimal size of the ICM depends on the tradeoff between relaxing credit constraints (headquarters can raise more capital than single divisions) and reducing the effective monitoring of the projects. The latter is especially relevant if divisions are too dissimilar, because in that scenario headquarters may not be able to effectively rank the projects in order to engage in winner picking.

Later on, in an attempt to determine how diversification might destroy value, Scharfstein & Stein (2000) question the premise that ICM are inefficient because of “agency-prone CEOs”, because even if CEOs derive private benefits, their interests should be roughly in line with those of the firm. Their approach differs in that they focus on cross-subsidization between divisions in a conglomerate. By modeling the interactions between the CEO and the division managers, they show that managers of weak divisions have stronger incentives to engage in rent-seeking behavior and that, given the incentive structure of the CEO, it might be optimal for her to compensate them *via* deviating investment to their divisions. Moreover, they show that these “socialist-type” inefficiencies are more likely to occur when divisions are very different in terms of their strengths.

Lending support to the hypothesis that ICM are value creating, Khanna & Tice (2001) show that diversified firms are more productive and respond faster to permanent shocks when compared to their stand-alone equivalents. They do this by analyzing the response of US discount stores to the entrance of Walmart to local markets during the period 1975-1996. Using industry publications instead of the COMPUSTAT database, they also find that the level of investment in the discount business is sensitive to its productivity, efficiently transferring funds away from poor performing divisions to those with more profitable projects.

Trade Credit

Broadly speaking, the literature provides evidence that trade credit acts as a substitute for normal credit in financially constrained firms.

Demirguc-Kunt & Maksimovic (2001) use firm-level data on accounts payables for 39 countries to test whether the use of trade credit (relative to banks credit) increases or decreases with the degree of development of the banking sector and the legal system. They find that trade credit is more prevalent in countries with larger banking sectors and more efficient legal systems, suggesting that trade credit is a complement of traditional financial intermediation, rather than a substitute.

Concerned with the effect of trade credit in economic development, Fisman & Love (2003) – using industry level data for 44 countries between 1980 and 1989– show that trade credit is beneficial for firms in economies with poorly developed financial markets, since it provides an alternative for firms that cannot rely on the financial market for credit. Their results indicate that industries that rely more heavily on this kind of financing exhibit higher growth rates in countries with poor access to credit.

Later on, Burkart & Ellingsen (2004) present a model in which a credit-constrained entrepreneur has the possibility to fund part of its investments using trade credit. They find that, given the monitoring advantages of extending credit in the form of input rather than cash (which can be diverted more easily), available trade credit boosts investment. They also show that trade credit acts a substitute of bank credit if the firm is not financially constrained, and a complement if the firm cannot raise enough capital for optimal investment.

Firm Diversification

The diversification literature (initially restricted to U.S. firms) tried to explain the wave of firm re-specialization that came about in the late 1970s and 1980s, after a decade or two when big conglomerates were dominating the scene. To this end, the literature has tested whether there might be a diversification discount that would explain the decision of integrated firms to separate their divisions into separate businesses. In the 1990s, the results showed that diversification was indeed costly, and attempts were made to find feasible explanations for this phenomenon:

Lang & Stulz (1994), using segment-level data for U.S. firms throughout the 1980s, compute each firm's Tobin's q as a measure of firm performance, and compare a diversified firm with a similar portfolio of single segment businesses. They show that for U.S. firms there is a diversification discount. Moreover, their results suggest that even after controlling for industry effect, the discount is always positive. They conclude that, since firms that diversify are typically in underperforming industries, diversification might be put in place as growth opportunities.

Similarly, Berger & Ofek (1995), using segment-level data for listed U.S. companies between 1986 and 1991, compute the value of the diversified firms adding the value of each segment, as if all segments were each a stand-alone firm. They then compare it to the actual value of the firm, and show that diversification is associated with a value loss that averages 13% to 15%. Nevertheless, they do find that the loss in value is considerably lower for related diversifications. As to the explanation for this decrease in value, they identify overinvestment in segments from industries with limited investment opportunities and cross-subsidization as sources of value loss.

Rajan, Servaes & Zingales (2000) model the distortions in the allocation of resources between divisions of a diversified firm. Their model predicts that in imperfect capital market, and as long as divisions are similar enough, resources will be transferred from poor performing divisions to those with better opportunities. But as divisions become more diverse, the headquarters will transfer resources from divisions with good opportunities to divisions with poor opportunities in order to prevent greater investment distortions. They test these predictions using U.S. data and find evidence consistent with them, suggesting that diversification is indeed costly.

To address the question of “Why do firms diversify?” Hyland & Ditz (2002) use the Compustat database to examine the diversification phenomenon at the moment in time when it occurs, in order to identify variables that would influence the diversification decision. They find, first, that the typical firm diversifies through acquisition, and that this has a mean 1.3% positive effect on announcement. Nevertheless, using the whole database, they reject the hypothesis that diversifying firms may be in low growth industries, but they do find that diversified firms are poor performers in their industries, lending support to the idea that diversification is used when growth opportunities are limited. They conclude that the best explanatory variable for firm diversification is R&D: the more R&D, the less likely to diversify.

More recent literature –after controlling for the endogeneity of the decision to diversify– fail to find a robust effect of diversification on performance:

Similar to the approach of Hyland & Ditz (2002), Campa & Kedia (2002) argue that the diversification discount documented so far had neglected the endogeneity of the diversification decision. They claim that firms choose to diversify when the benefits associated offset the costs, and that firm characteristics, which determine whether it is convenient to diversify or not, are causing firms to be discounted. Based on the methodology of Berger & Ofek (1995), they reproduce their results and find a positive and consistent diversification discount in their sample. Then, after they control for the endogeneity of the decision, this discount drops and sometimes even disappears.

Analogously, Graham, Lemmon & Wolf (2002) claim that division characteristics prior to diversification might be driving the discount. They make the point that the methodology used to compute the diversification discount (that is, comparing a diversified firm with an equivalent portfolio of specialized firms) might be misleading due to the fact that it does not account for the fact that divisions might be ex-ante different. In order to do this, they analyze diversification via M&A and/or increase in the number of divisions, and find that the loss in firm value compared to the similar portfolio occurs mainly because firms acquire already discounted business units, and not because diversification *per se* is value reducing. Moreover, they find that firms that increase their number of segments via internal growth or reporting changes do not experience a decrease in value at the time of segment addition.

More recently, Santalo & Becerra (2008) find that, for U.S. firms, the effect of diversification on firm performance depends on the industry. In particular, in industries where non-diversified firms have low combined market share, diversification increases performance, whereas it decreases as the presence of specialized firms within an industry increases.

On a cross-country analysis:

When compared to the U.S., studies on the effect of diversification in firm value for other nations are relatively scarce, particularly for developing countries (which, of course, have much precarious databases). There are, however, a few studies available that address this issue:

Khanna & Palepu (2000), using data from business groups in India, compare the performance of companies affiliated to a group to unaffiliated ones. This approach to diversification is different, given that in India business groups are a collection of different (independent) firms, rather than a firm that has many lines of business (as is the case in the U.S.). Using Tobin's q as a measure of performance, they find that firms affiliated with diversified groups outperform unaffiliated ones. Moreover, using multivariate regression analysis, they find that as group diversification increases, the performance of the group affiliates decline relative to that of unaffiliated firms until a threshold, beyond which an increase in group diversification is associated to an increase in performance for affiliated firms compared to their unaffiliated counterparts. As for the reasons behind this increase in performance, they find that group-affiliated firms have a much better access to international sources of capital.

Consistent with the former, Fauver, Houston & Naranjo (2003), on the largest scale analysis available on the value of diversification, use a database for thousands of firms in 35 countries to find that the value of corporate diversification is negatively related to the level of capital market development. They document that in high-income countries diversification is associated with a significant discount. On the contrary, for lower-income countries the diversification discount is either inexistent or becomes a diversification premium. Additionally, they find that the diversification discount is greater for countries with legal systems of English origin.

Lins & Servaes (2002), using data for seven Asian emerging economies, find that diversification is associated to a 7% value discount when compared to single segment firms. As for the

determinants of this value discount, they find that diversified firms are less profitable, but that lower profitability explains only a part of the diversification discount. They also find that firms that are part of an industrial group trade at an even higher discount. Moreover, for the countries where ownership data is available, the low valuation of diversified firms is driven by firms where management group ownership concentration is between 10% and 30%.

III. Methodology and Database

The general hypothesis this study addresses is that there are legal, economical and financial environment characteristics of each country that generate the comparative advantage retailers have in offering financial services, and would then explain why they choose to diversify into that particular business, and the relative importance of this line of business represents of the firm. To do that, a series of variables are tested, some that are standard in the firm literature, and others that are not.

Standard variables used in the literature include legal origin (La Porta et al, 1997), financial development (Rajan & Zingales, 1998), firm leverage (Love et al, 2007), firm profitability and growth opportunities (Fauver, Houston and Naranjo, 2003). Variables that are specific to this study are banking sector profitability, regulatory capital requirements for the banking industry and average debtor quality. Each variable is explained in more detail later in this section, and a summary list of all variables can be found in Appendix D.

1) Database

The main data source is the Worldscope 2004 database. This database contains detailed segment-level financial data for listed firms in over 53 countries since 1990. It includes over 29,000 active companies, which accounts for roughly 95% of global market capitalization. For the purpose of this study, firms are classified as retailers or banks according to their declared primary four digit SIC (Standard Industry Classification) code. Consequently, all firms reporting primary SIC in the range 5200-5999 are classified as retailers, and those reporting it between 6000 and 6799 are classified as banks. Retail firms that report financial services for at least one segment are classified as “Retailers as Banks”.

Each country-year pair in the sample was checked individually to confirm that it reported sales for the different segments of diversified firms. The test consisted in testing whether at least one

firm reported segment level data in each country⁸. Those that did not were dropped. This was conducted in order to avoid failing to classify firms as Retailers as Banks because of insufficient data. In all, 24 firm years were excluded from the sample.

The data was then merged with country variables obtained from the World Bank World Development Indicators (WDI) and Global Financial Development (GFD) databases, the IMF Global Financial Stability Reports (GFSR) and La Porta *et al* (1997), Djankov *et al* (2003, 2008) and Laeven & Valencia (2013). Since the IMF GFSR only has data from 1997 on and the Worldscope database for 2004 does not report information on all firms (because a large part of it is not available before year-end 2004), the sample period ranges from 1997 to 2003. Nevertheless, banking sector data is available for less than 20 countries in the sample from 1997 to 1999 (compared with 38 countries in the 2000-2003 period). Consequently, in order to avoid the bias introduced by the lack of data, all analyses were conducted on the 2000-2003 subsample. Finally, one country was dropped because it reported an average ROE of the banking industry of 68%, well above the sample average and what is observed in other countries. This value can be considered as “abnormal profitability”, and would thus bias the results

At this point, the 2000-2003 dataset contains 4,820 firm years in 37 countries with primary SIC corresponding to retail. Of those, 592 declare at least one segment that offers financial services.

2) Country-level variables

For the sake of simplicity, the rest of the analysis will assume that the financial segment in the retail industry consists of issuing credit, and that the credit aimed at the consumer level. This is not such a strong simplification, as this is what is reported to happen in some countries (such as Chile, the U.S. and the U.K.). Both assumptions are used to simplify the discussion, but the analysis and conclusions can be extended to other financial services. To facilitate the notation,

⁸ It is possible that some countries do not require all firms to report segment level data, so it might happen that a country was erroneously dropped from the sample. Nevertheless, very few countries were dropped, so the impact on the sample should not be significant.

the term “retailer lending” will be used to describe the issuing of consumer credit by the retail sales industry.

a) Financial Development

To proxy for financial development, I use the ratio of Private Credit to GDP ratio and the Market Capitalization of Listed Companies to GDP ratio variables found on the World Bank’s World Development Indicators database. These variables are reported for all countries in the sample. Private Credit captures how dependent are firms on external financing in each country. The higher the ratio, the more developed the financial system as a whole, since it is able to provide credit to a greater fraction of the economy (in developed countries total debt is even greater than GDP). If retailers have the ability to raise high amounts of capital, it is possible that they could borrow more heavily in order to fund their financial segment. Similarly, Market Capitalization indicates how developed the stock market is relative to the size of the economy. Since the capital market is a substitute for banking credit for firms of a certain size and above, large retailers could be raising funds using such markets –which are usually cheaper than standard banking credit– and then lend this presumably cheap capital as a form of trade credit. Both variables are highly correlated, and will thus be tested separately.

b) Banking Profitability

To measure how profitable the banking industry is for a given country-year, the average ROE reported by the IMF in its quarterly Global Financial Stability Report (GFSR) is used. Financial theory suggests that firms choose their projects based on the combination of expected return and risk. It is possible then to have banks dismiss extending consumer credit (or at least limiting it) if the return associated to this project does not compensate the risk. Therefore, countries exhibiting higher levels of average banking profitability might in turn show a higher degree of retail lending. The reason is that, if the project is not profitable enough, banks might not be interested in the extra cost of lending to more risky sectors of the consumer credit market. Moreover, if financial development is low and firms have to rely heavily on banks to fund their operations, the banks would be more concerned with attracting the business segment and might neglect the consumer credits. This would be especially true if the banking industry is very concentrated and

faces little competition –if that were the case, the incentives to enter riskier lines of business would be hindered. In this scenario, if the average ROE of the banking sector is high, the number of credits offered in equilibrium is probably sub-optimal, and the retail industry would have powerful incentives to enter the market. The latter is also tested using more direct measures of concentration.

On the contrary, if retailers are indeed competing with the banks, the profitability of the banking sector should be reduced, independent of the degree of concentration it exhibits.

c) Regulatory Environment

As extensive literature has documented (most notably La Porta et. al. 1997 and 1998), that the regulatory environment in which firms operate plays a key role in the decisions they make. Naturally, in countries where the regulation prohibits non-financial firms from offering credit, this phenomenon will not be seen. Nevertheless, I do not have this information. However, even if I had such information, the scope for loopholes and indirect mechanisms by which these credits can be offered is rather extensive, as are the types of retailers and financial services available (department stores, car (re)sellers, supermarkets; consumer credit, insurance, credit cards).

There exist, however, other regulatory variables that might explain –at least to some extent– the phenomenon under study. One such variable is the Regulatory Capital, that is, the amount of capital that banks have to hold as a fraction of their total assets as required by its financial regulator⁹. As regulatory capital increases, the cost of issuing credits increases accordingly, since the banks incur in an opportunity cost for their immobilized capital. Retailers, on the other hand, are not affected by banking regulations and might therefore perceive a higher “effective” return for such investments. Therefore, countries with higher capital requirements for banks could be

⁹ This measure is the minimum capital requirement in each country, but does not consider the different measures of risk weighted assets or capital quality, so it is not directly comparable among countries. For that reason, the ratio of capital to total assets will be tested as well.

more prone to retailer lending. This sort of regulatory requirement is not the only one banks are subject to: amount of liquidity, sources of financing, risk models, provisions are just an example of other aspects of the banking business that banking authorities supervise. In that sense, the retailers might have an even larger return on their regulatory arbitrage, and as such the Regulatory Capital could be underestimating the relative advantage retailers possess. The latter variables are more country specific, and as such difficult to compare across economies, so they will not be tested.

Another important legal variable is Legal Origin. As is documented by La Porta et. al. (1997), these variables is highly correlated with the level of financial development of countries. Countries of English legal origin present less costly levels of enforcement and lower transaction costs (contracting costs). This, which suggests a reason for countries to have more developed credit markets, might also explain why some countries (such as the U.S.) do not rely on retail lending. The less costly the enforcement, the higher the expected return on each loan, which would provide incentives for the banks to extend more credits. Retailers in these countries would then lose part of their comparative advantage and face higher competition by the normal banks, and thus choose lower levels of financial intermediation.

d) Credit Risk

The extent to which credit is issued is intimately related to its associated risk. As economic theory predicts, agents will make investment decisions based on its expected return and its risk or volatility. Therefore, *ceteris paribus* banks should be more willing to extend credit if the probability of repayment is high. To measure the quality of the debtors in an economy, the ratio of nonperforming to performing loans published yearly in the IMF's GFSR is used. This ratio simply summarizes how likely to be repaid is the average loan. The higher the ratio, the more the nonperforming loans represent of total outstanding credits. If retailers had better enforcement mechanisms (through the informal channels discussed previously), countries with lower credit performance should have more retailers offering credit.

3) Country- and Firm-level variables

a) Firm Diversification

For the past decade, the literature regarding corporate diversification has focused on the variables that better explain the decision to diversify. Several explanations have been proposed: as noted before, firms that diversify might do so because of superior governance structure, better access to financing and the use of ICM when external financing is sub-optimal. Since this study is concerned only with the reasons why retailers choose to diversify by adding financial services to its lines of business, I will test for the reason of this particular diversification. That is if retailers tend to conform highly competitive industries, and as such, are relatively less profitable or face lower growth opportunities. To accomplish that, I follow the methodology of Fauver, Houston & Naranjo (2003), and compute profits and growth opportunities as follows:

$$Profits = \frac{Operating\ Income}{Revenue}$$

$$Growth\ Opportunities = \frac{Capital\ Expenditure}{Revenue}$$

As simple as they are, both measures do present problems: *Profits* do not account for taxation system differences between countries, and may thus be misleading. For example, in the case taxes are too high, since firms that are very profitable before taxes, may not be effectively so in the bottom line. With the former in mind, both variables are reasonable approximations of what this study is aiming to test, and will be used.

b) Trade Credit

It is possible that retail firms choose to add financial services to their lines of business because they enjoy a comparative advantage, at least in serving a particular group of the population. One obvious advantage might be the lower regulation mentioned before. But another less evident one could be the retailer's possibility to raise relatively inexpensive capital through cheaper sources than the banking system, such as the capital market. The spread between the cost faced by the

retailer and what is charged to the costumers later on could be high enough to compensate for the risk of such a venture, thus making it appealing for the retailers to add financial services. Firms that choose higher debt ratios as their optimal capital structure (compared to the standalone retailer) might be using this extra capital to fund its financial segment. If that is the case, a higher level of debt should predict a relatively higher financial segment. In any case, larger retailers might be able to raise even cheaper capital, which would also influence the optimal capital structure. To account for this, the firm's total assets are also used as a control.

All these variables are computed on a firm level, but are also aggregated to a country level for the cross-country regressions.

4) Summary Statistics

Table 1 provides summary statistics for each of the countries in the sample: it presents the mean values of some variables for the 2000-2003 period. As can be seen, the sample is biased towards high-income countries¹⁰ (as defined by the World Bank Atlas Method) with those countries accounting for 23 of the 37 countries in the sample. Only two low-income countries are present: India and Indonesia. Regarding the legal system, 12 out of the 37 countries are of English origin.

The number of banks and retailers in each country presents a large heterogeneity. The United States has the largest number of firms in both sectors (with 1,424 banks and 399 retailers), followed by the United Kingdom and Japan, which report over a hundred firms in each category. Some countries report over 10 firms in each column, but the majority of the countries report few retail firms and under 50 banks. It is important to remember that the data represents only publicly listed companies in each country, and could therefore not be representative of the whole economy. This limitation of the data might bias the results towards what is observed in countries with higher levels of financial development.

When looking at the number of retailers that report a financial segment, it is relatively low, and several countries report non such firms.

¹⁰ To classify countries according to income, I use the current definition of the World Bank, and use the US dollar deflator to deflate it to the years used in the sample.

Table 1: Country means for the 2000-2003 sample

Country	Income Level	Retailers	Retailers w/ Finance	Banks	English Legal Origin
Australia	High	25	2	53	Yes
Austria	High	3	1	10	No
Belgium	High	5	0	6	No
Canada	High	37	4	65	Yes
Hong Kong	High	42	11	129	Yes
Finland	High	4	2	10	No
France	High	38	1	37	No
Germany	High	18	2	64	No
Greece	High	2	0	2	No
Ireland	High	3	0	9	Yes
Israel	High	3	2	8	Yes
Italy	High	6	0	47	No
Japan	High	335	69	226	No
Korea, Republic	High	12	0	16	No
Netherlands	High	7	2	17	No
Norway	High	4	0	18	No
Portugal	High	3	1	6	No
Singapore	High	28	7	35	Yes
Spain	High	5	1	27	No
Sweden	High	5	0	25	No
Switzerland	High	6	0	22	No
United Kingdom	High	123	17	140	Yes
United States of America	High	399	10	1,424	Yes
Argentina	Upper-Mid	1	0	4	No
Brazil	Upper-Mid	1	0	23	No
Chile	Upper-Mid	2	1	1	No
Hungary	Upper-Mid	3	1	2	No
Malaysia	Upper-Mid	31	10	99	Yes
Mexico	Upper-Mid	9	2	5	No
Poland	Upper-Mid	2	0	12	No
Turkey	Upper-Mid	1	0	12	No
Peru	Lower-Mid	2	0	3	No
Philippines	Lower-Mid	4	2	23	No
South Africa	Lower-Mid	26	5	41	Yes
Thailand	Lower-Mid	8	0	28	Yes
India	Low	3	0	21	Yes
Indonesia	Low	18	2	43	No

Source: World Bank, Worldscope 2004, La Porta et al. (1997)

Table 2 groups all country observations available for the 2000-2003 period according to the existence of at least one retailer that reports a financial segment. Then, the mean and standard

deviations for each relevant group are computed in order to identify differences that might explain the presence or absence of the phenomenon under study.

Table 2: Descriptive statistics for relevant variables according to existence (country means)

	Existence of Retailers as Banks						Statistical Difference (p-values)
	NO			YES			
	Mean	S.D.	N	Mean	S.D.	N	
Private Credit to GDP	0.59	0.37	11	0.99	0.48	26	0.018
Market Capitalization to GDP	0.46	0.24	11	0.94	0.72	26	0.042
Bank ROE	0.06	0.14	11	0.11	0.06	26	0.107
Regulatory Capital to Assets	0.13	0.03	11	0.13	0.02	26	0.824
Nonperforming to Performing Loans	0.10	0.08	11	0.06	0.07	26	0.099
Retail Profits	0.03	0.05	11	0.03	0.04	26	0.927
Retail Growth	0.04	0.02	11	0.06	0.05	26	0.177
Debt to Assets	0.21	0.11	11	0.29	0.11	26	0.054
Common Law	0.27	0.47	11	0.35	0.49	26	0.673

Source: Worldscope (2004), World Bank WEI, IMF GFSR.

The most obvious difference is the level of financial development, measured both as the ratio of Private Credit to GDP and Market Capitalization to GDP. While, on average, countries where retailers have no financial services segment, the private credit outstanding is 56% of GDP in the countries where the diversification does exist, the average ratio is 199% of GDP. Analogously, countries with no retailer lending present a ratio of Market Capitalization of 46% of GDP, while countries where countries have diversified almost double this ratio, with 94%. As was proposed before, retailers probably make use of a more developed capital market (either *via* cheaper financing or trade credit) to access the financial services segment.

Another statistically significant difference is found in the ratio of debt to asset: while countries not offering retail lending have debt accounting for 20% of total assets, countries that do offer retail lending have a higher average level of debt (28% of total assets). The latter lends support to the hypothesis of retailers offering financial services as a form of trade credit (firms with financial intermediation have on average 8% more debt).

Finally, countries where retailers offer financial services exhibit better credit behavior (measured as the ratio of nonperforming to performing loans), with a ratio of 6% of nonperforming to performing loans, compared to a ratio of 10% in countries where retailers have not diversified

into this business segment. This contradicts the idea that retailers offer credit to potentially worse debtors, and points in the direction that retailers are substituting banks instead of complementing them.

The data presented in Appendix B describes the averages measures of financial intermediation in the retail industry for each country during the years 2000 through 2003. What can be seen is that, in terms of sales, the financial business represents a small fraction of the total business, with an average participation¹¹ of 6.9%, and a range that goes from virtually 0% in Germany in 2000 to a maximum of 40% in Indonesia in 2002. On the other hand, when it is measured as the fraction of the sum of the assets of both segments, the importance is large (with an average of 35.6% of total assets, a minimum participation of 1.8% in Indonesia in 2000 and a maximum of 93% for the same country in 2002). The problem with the assets approach is that the same asset can be declared in both segments (e.g. both segments can declare the building where they jointly operate as their own), which creates a problem of overlapping assets. On the other hand, the problem with the sales approach is that what constitutes sales in the financial segment is not well defined. For this reason, both indicators of participation will be used and it will be shown the results are consistent

Focusing on the relative importance of retail lending measured as sales, it can be observed that, besides the fact that it represents a small share of the total business (as mentioned before), the yearly variation is very different among countries. As shown in Appendix B, some countries, such as Australia and Hong Kong, started the period with relatively high levels of financial sales (over 20%), but it declined sharply in 2002. On the other hand, Indonesia started with a relative importance of financial services of 6%, and then increased it to around 40% the following years. The rest of the countries, present more stable trajectories.

¹¹ This average does not consider the country-years where no financial intermediation is reported. It is, then, the average importance of the financial segments in the subset of retailers that do offer financial services.

Appendix C presents the average amount of debt held by retailers and by the subset of retailers that offer financial services, measured as the ratio of debt to assets and leverage (i.e., the ratio of debt to equity). With the exception of Finland, all countries present a consistent evolution, with an average debt of 28% of total assets –which remains stable during the period–, from nearly 0% in Philippines in 2000 to 69% in Korea in 2000.

One caveat of the dataset is that it does not include the relative importance of the retail lending business in the economy, but the relative importance of the business for the retail industry. Some positive correlation between the two would be expected, but it could happen that a country that relies heavily on retail lending (e.g., in 2007 retail credit card transactions represented 64% of total credit card transactions in Chile¹²) but that the importance of the segment in the total retail business is relatively low (although not directly comparable, in Chile in 2003 the relative importance of retail lending –measured using sales– was 11%). That said, the purpose of this study is to determine the variables that influence this particular kind of diversification on the part of retailers, and as such the dependence of each country on retail lending –though of great interest– falls beyond its scope.

¹² 2007 is the earliest year for which the Chilean Banking Authority publishes information regarding retail credit card activity.

IV. Regression Results

Country Level Regressions

Relative importance of financial division

The incidence of the variables previously discussed on the size of the financial segment in the retail industry is estimated using the following specification:

$$F_{it} = \beta' X_{it} + \theta_t + \varepsilon_{i,t}$$

where F_{it} is country i 's total asset weighted average relative size of the financial segment within the retail firm f , X_{it} represents the set of variables that will be tested in the model, θ_t is the year fixed effect and $\varepsilon_{i,t}$ the error term. All variables are measured as a percent, except Common law (which is a dummy taking the value 1 if the country is of English legal origin) and GDP *per capita*, which is measured in constant US\$ dollars (from year 2005)¹³. The period t corresponds to the years 2000, 2001, 2002 and 2003. The source and nature of the data were discussed previously.

Furthermore, the relative size of the financial segment within a retail firm (which then was aggregated into a country weighted average) was constructed using two different variables reported by each segment, namely sales and net assets. This is carried out because of the ambiguity of the term “sales” when it comes to the financial sector: are consumer credits registered as sales? Do interest payments and amortizations fall into the “sales” category? On the other hand, data on net assets does seem to be a better proxy of the size of the segment, because each issued credit should be registered as an increase in the segment's assets. Nevertheless, since segments are not fully independent from each other, there might exist an overlapping between

¹³ All models were also tested using natural logarithms for the variables that are expressed in US\$ dollars. The results are consistent, but the goodness of fit decreases.

the segments: that is, the sum of the assets of all segments does not always match the total assets reported by the firm as a unit. This data, however, is the best data available to measure the relative size of the financial segment of a retail business, and consequently the relative size of the financial segment of the retail industry. This variable is thus constructed as the ratio of the sales (or assets) declared by the financial segment of the retailer to the sum of the sales (or assets) of all financial and retail segments of the firm for year t :

$$F_{it} = \sum_f \frac{totalassets_{fit}}{\sum_{f \in i} totalassets_{fit}} \cdot \frac{financialsales_{fit}}{retailsales_{fit} + financialsales_{fit}}$$

For this first estimation, the yearly data for each country was pooled and estimated with a fixed effect regression. For robustness, the errors were clustered at a country level, in order to correct for serial correlation in the data.

The results for the country level fixed effect regression are presented in Table 3¹⁴. The table shows a positive and statistically significant relationship between the level of financial development (as measured by private credit to GDP) and the size of the financial segment of retailers, using both sales and assets. The level of economic development (as measured by GDP per capita) shows some negative relationship with the dependent variables –with fairly low statistical significance–, but the coefficients are so small that they are not economically relevant.

Using Market Capitalization to GDP as a proxy for financial development (as shown in Appendix E) the results are consistent with those discussed previously: financial development is positively correlated to the degree of retailer lending. When using the assets ratio, the results are not significant, but the ratio of debt to assets becomes positive and statistically significant. The

¹⁴ The difference in the size of the coefficients is explained by the magnitude of the sales and assets ratios: while the ratio of relative importance of financial intermediation in the retail industry using assets averages 34%, the sales ratio is much smaller, with an average of 6,7% in the sample. Nevertheless, the results are consistent, as are the dynamics and interactions between variables.

fact that the effect of financial development is not as robust when measured as market capitalization suggests that it is not financial development in itself the variable explaining the relative importance of retailer lending, but the fact that retailers are probably making use of debt markets to fund their financial divisions.

Table 3: Relative Importance of Financial Segment in Retail Industry
Country Level Fixed Effect Regression, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.00102 (0.00445)	-0.0160 (0.0149)	-0.0218 (0.0133)	-0.0170 (0.0207)	-0.115 (0.0899)	-0.108 (0.0791)
Private to GDP (%)	0.0228*** (0.00705)	0.0246*** (0.00775)	0.0199*** (0.00683)	0.117*** (0.0423)	0.134*** (0.0421)	0.111*** (0.0346)
Bank ROE (%)		-0.00882 (0.0162)	-0.00876 (0.0162)		-0.0569 (0.0946)	-0.0414 (0.0956)
Bank Regulatory Capital to Assets (%)		0.150 (0.130)	0.166 (0.127)		0.552 (0.755)	0.591 (0.680)
Bank Nonperf. Loans to Total Loans (%)		-0.0193 (0.0620)	-0.0332 (0.0588)		0.251 (0.379)	0.162 (0.321)
Commonlaw (1 if yes)		-0.000306 (0.00631)	0.00106 (0.00710)		-0.00829 (0.0327)	0.00664 (0.0357)
Retail Profits (%)			-0.0252 (0.0482)			-0.143 (0.219)
Retail Growth (%)			0.0114 (0.127)			-0.660 (0.606)
Retail Debt to Asset Ratio (%)			0.0289 (0.0196)			0.194* (0.0962)
GDP per capita (constant 2000 US\$)	-0.000000574** (0.000000241)	-0.000000566** (0.000000232)	-0.000000547** (0.000000231)	-0.00000206 (0.00000147)	-0.00000142 (0.00000104)	-0.00000155 (0.00000110)
Banking crisis (1 if yes)	-0.00154 (0.00410)	-0.00442 (0.00711)	-0.00399 (0.00781)	0.00200 (0.0253)	-0.0572 (0.0519)	-0.0584 (0.0517)
Observations	133	129	129	132	128	128
R-squared	0.229	0.249	0.281	0.230	0.261	0.346
Adjusted R-squared	0.192	0.186	0.200	0.193	0.198	0.272
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Country clustered standard errors in parenthesis
Significant at 1% (***), 5% (**) and 10% (*) levels.

Since the debt structure becomes significant when financial development is measured as market capitalization, it could mean that firms are indeed benefiting from more developed debt markets in order to add a financial intermediation division to their business.

As stated before, these results lend support to the hypothesis that retailers are being able to raise capital in order to fund their lending divisions. Moreover, the fact that the ratio of debt to assets is positively correlated as well further supports this idea. It seems that retailers that decide to add financial intermediation divisions choose a higher debt ratio, and that this change in the capital structure is facilitated by more developed financial markets.

The rest of the variables show no statistically significant relationship with the independent variable, suggesting that the only variable affecting the size of the financial business of retailers is the ability to raise capital.

Now, since most of the variables used in this study are very stable throughout time (Private to GDP, Market Capitalization to GDP, Bank ROE, Bank Regulatory Capital to Assets, Legal Origin), a variation of the preceding regression is conducted, in which each variable is averaged for the period (years 2000 through 2003) and a new regression is estimated, correcting for heteroskedasticity in the error:

$$\bar{F}_i = \beta' \bar{X}_i + \varepsilon_i$$

One must be more cautious in this case, due to the reduced number of observations (37) that are used in this regression, and the implications that may have on the estimators and the significance levels. Nevertheless, the results (Table 4) are consistent with those presented before: again, the coefficient for financial development (measured as private credit to GDP) is significant for all specifications, and the magnitudes of the coefficients are fairly similar as well. Again, economic development shows some significance (for a negative relationship), but with extremely small coefficients, rendering it irrelevant. Consistent with the former specification, when measuring financial development as market capitalization (Appendix F), the significance disappears –in this case for both the sales and the assets approach. But, as before, the ratio of debt to assets becomes significant, suggesting again a positive correlation between the ability to raise capital and the importance of the retailer lending division.

Table 4: Relative Importance of Financial Segment in Retail Industry
 Period Averages Regression, 2000-2003

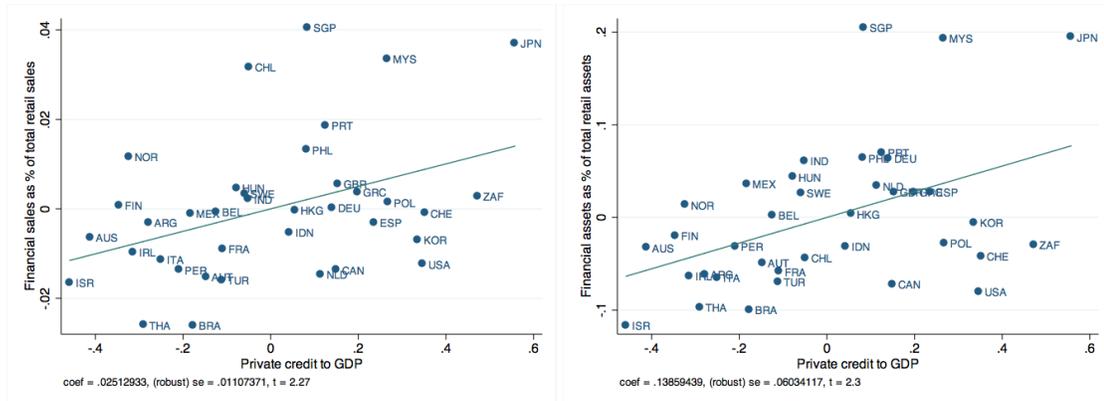
	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.00487 (0.00549)	-0.0230 (0.0251)	-0.0280 (0.0236)	-0.0100 (0.0207)	-0.190 (0.149)	-0.221* (0.126)
Private to GDP (%)	0.0238*** (0.00744)	0.0285*** (0.0102)	0.0251** (0.0111)	0.116** (0.0451)	0.155** (0.0611)	0.139** (0.0603)
Bank ROE (%)		-0.0118 (0.0317)	-0.0133 (0.0331)		-0.190 (0.145)	-0.216 (0.159)
Bank Regulatory Capital to Assets (%)		0.205 (0.179)	0.246 (0.191)		0.987 (1.016)	1.381 (0.948)
Bank Nonperf. Loans to Total Loans (%)		-0.00131 (0.0916)	-0.0114 (0.0845)		0.525 (0.521)	0.442 (0.414)
Commonlaw (1 if yes)		-0.00251 (0.00709)	0.00141 (0.00908)		-0.00383 (0.0340)	0.0300 (0.0428)
Retail Profits (%)			-0.0409 (0.0881)			-0.422 (0.420)
Retail Growth (%)			-0.0774 (0.0702)			-0.722* (0.372)
Retail Debt to Asset Ratio (%)			0.0313 (0.0275)			0.206 (0.145)
GDP per capita (constant 2000 US\$)	-0.000000637*** (0.000000261)	-0.000000633** (0.000000295)	-0.000000643** (0.000000296)	-0.00000202 (0.00000154)	-0.00000123 (0.00000107)	-0.00000147 (0.00000117)
Banking crisis (1 if yes)	-0.00470 (0.00751)	-0.0114 (0.0162)	-0.0130 (0.0165)	-0.00587 (0.0351)	-0.116 (0.0907)	-0.134 (0.0843)
Observations	37	37	37	37	37	37
R-squared	0.286	0.345	0.404	0.229	0.336	0.493
Adjusted R-squared	0.221	0.187	0.175	0.158	0.176	0.298

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

In order to better visualize the marginal contribution of the average financial development in the average relative size of the financial business in the retail industry of each country, Figure 1 presents the partial regression coefficients between average financial development and financial business importance for both measures of the latter (sales and assets). In both cases, the slopes do not appear to be driven by a few outliers, but to represent a consistent pattern in the data. The second plot, in particular, is a better example of this.

Figure 1: Partial regression plots for Private Credit to GDP



Tobit

The fact that the importance of the financial segment variable \bar{F}_{it} has a lower bound of zero, but takes continuously distributed positive values, and as such one focal point of positive probability¹⁵ (at the value zero) means that the usual OLS regression is not well suited for the analysis¹⁶. This kind of variable is called corner solution response, with the corner being the value zero in this particular case¹⁷

¹⁵ Though the variable has theoretically an upper bound in 1 as well, in practice what is measured is the importance of the financial segment in the retail industry, and as such the firm must report a positive value for sales and assets for the retail segment, thus making it impossible to reach the upper bound. As such $\bar{F}_{it} \in [0,1)$.

¹⁶ The shortcoming of the standard OLS methodology is that the assumption of a mean linear in the variables x is not realistic, that is, $\mathbb{E}(y|x)$ cannot truly be linear in x given the focal point at zero.

¹⁷ It often receives the name of censored responses since it resembles a truncated distribution, and though the models used for both are the same, it is important to note that this is a case of corner solution response and not truncated data.

To get around this problem, I will make use of the Tobit model, a maximum likelihood methodology that assumes a distribution of the form $y = \max(0, \beta x + \mu)$, under the assumption that $\mu|x \sim \text{Normal}(0, \sigma^2)$ ¹⁸. Again, Tobit models are usually associated to censored response models, but this need not be the case. In short, there are two types of Tobit models:

- Type I Tobit, which is a maximum likelihood model that assumes a distribution of the form $y = \max(0, \beta x + \mu)$, under the assumption that $\mu|x \sim \text{Normal}(0, \sigma^2)$. In that sense, it is estimated in one stage.
- Type II Tobit is an alternate approach, which separates the data in two: positive values are estimated using standard OLS techniques (i.e. $y = \beta x + \mu$ for $y > 0$, and then a probit or logit model is fitted for the variable $y^* = \begin{cases} 0 & \text{if } y = 0 \\ 1 & \text{if } y > 0 \end{cases}$. The idea behind this approach is to separate the so called “participation decision ($y=0$ versus $y>0$) and the amount decision (the magnitude of y when it is positive).

In the case of the country level variables, only the Type I Tobit model will be tested due to limited data availability. In the firm level analysis, both approaches will be used.

As already mentioned, a Type I Tobit model was fitted using the same specification as the one in Table 4. The results are shown in Table 5.

The results are consistent with the OLS approach: the most significant variable when explaining the importance of the financial segment in the retail business is the level of financial development measured as private credit to GDP. Market capitalization again has no predictive power (Appendix G). As before, the ratio of debt to assets is significant, with a positive correlation with the market capitalization measure of financial development, but now it even becomes significant (if only at a 10% confidence level) for the private credit to GDP approach.

¹⁸ For a more detailed discussion, refer to Wooldridge (2010), pp. 667-669.

Table 5: Relative Importance of Financial Segment in Retail Industry:
Period Averages Tobit, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.00325 (0.00751)	-0.0445 (0.0308)	-0.0540* (0.0275)	-0.137** (0.0575)	-0.475* (0.237)	-0.533*** (0.188)
Private to GDP (%)	0.0351*** (0.00940)	0.0433*** (0.0123)	0.0348*** (0.0116)	0.250*** (0.0816)	0.305*** (0.0978)	0.247*** (0.0839)
Bank ROE (%)		0.0196 (0.0440)	0.00632 (0.0401)		-0.222 (0.280)	-0.328 (0.244)
Bank Regulatory Capital to Assets (%)		0.305 (0.221)	0.379 (0.223)		2.012 (1.494)	2.592** (1.231)
Bank Nonperf. Loans to Total Loans (%)		-0.0385 (0.104)	-0.0746 (0.102)		0.720 (0.699)	0.523 (0.567)
Commonlaw (1 if yes)		-0.00807 (0.00825)	-0.00198 (0.00994)		-0.0128 (0.0596)	0.0366 (0.0615)
Retail Profits (%)			-0.0922 (0.109)			-0.615 (0.626)
Retail Growth (%)			-0.0553 (0.0673)			-0.843** (0.345)
Retail Debt to Asset Ratio (%)			0.0589* (0.0316)			0.438** (0.202)
GDP per capita (constant 2000 US\$)	-0.000000913*** (0.000000327)	-0.00000101*** (0.000000342)	-0.00000102*** (0.000000301)	-0.00000514* (0.00000286)	-0.00000378 (0.00000232)	-0.00000363* (0.00000192)
Banking crisis (1 if yes)	-0.0103 (0.0111)	-0.0128 (0.0200)	-0.0131 (0.0190)	-0.0102 (0.0658)	-0.163 (0.127)	-0.173* (0.0955)
Observations	37	37	37	37	37	37
Pseudo R-squared	-0.141	-0.186	-0.229	1.059	1.475	2.113
Log-likelihood	58.66	60.99	63.17	0.354	2.861	6.704

Heteroskedasticity robust standard errors in parenthesis
Significant at 1% (***), 5% (**) and 10% (*) levels.

Decomposing financial development

The previous results suggest that financial development is positively correlated to retailer lending because firms are making use of more developed debt markets in order to fund their financial divisions. To test this, private credit to GDP is dropped from the model, and two new variables are tested: bank credit as a fraction of GDP and private debt securities as a fraction of

GDP. If the previous hypothesis is true, positive correlation with the size of the private debt market would be expected. The results are presented in Table 6¹⁹:

Table 6: Relative Importance of Financial Segment in Retail Industry
Period Averages Tobit, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.00978 (0.00801)	-0.0591* (0.0303)	-0.0647*** (0.0224)	-0.113** (0.0518)	-0.450** (0.199)	-0.480*** (0.124)
Bank credit to GDP (%)	0.0376*** (0.0114)	0.0393*** (0.0127)	0.0454*** (0.0146)	0.251*** (0.0755)	0.268*** (0.0824)	0.319*** (0.0825)
Private debt securities to GDP (%)	0.0243 (0.0189)	0.0316* (0.0184)	0.0214 (0.0185)	0.285** (0.131)	0.339** (0.126)	0.230** (0.108)
Bank ROE (%)		-0.0587 (0.0514)	-0.0588 (0.0402)		-0.496 (0.318)	-0.477** (0.220)
Bank Regulatory Capital to Assets (%)		0.430* (0.228)	0.487*** (0.172)		2.678* (1.434)	2.994*** (0.841)
Bank Nonperf. Loans to Total Loans (%)		-0.0581 (0.104)	-0.0567 (0.0970)		0.00548 (0.599)	0.107 (0.513)
Commonlaw (1 if yes)		0.00298 (0.00677)	0.00580 (0.00891)		0.0312 (0.0443)	0.0487 (0.0512)
Retail Profits (%)			0.00756 (0.131)			0.155 (0.701)
Retail Growth (%)			-0.164** (0.0783)			-1.427*** (0.396)
Retail Debt to Asset Ratio (%)			0.0152 (0.0387)			0.124 (0.251)
GDP per capita (constant 2000 US\$)	-0.00000897*** (0.000000411)	-0.00000910** (0.000000422)	-0.00000922** (0.000000400)	-0.00000733** (0.00000287)	-0.00000679** (0.00000276)	-0.00000632** (0.00000234)
Banking crisis (1 if yes)	-0.00193 (0.0122)	-0.00469 (0.0202)	-0.00563 (0.0170)	-0.00458 (0.0691)	-0.0713 (0.114)	-0.0848 (0.0763)
Observations	33	33	33	33	33	33
Pseudo R-squared	-0.149	-0.226	-0.281	2.017	3.005	4.442
Log-likelihood	52.79	56.35	58.86	3.733	7.357	12.63

Heteroskedasticity robust standard errors in parenthesis
Significant at 1% (***), 5% (**) and 10% (*) levels.

¹⁹ The same specification is fitted using the pooled OLS fixed effect and averages OLS methodology (Appendix H and Appendix I). The results are consistent.

The results in the former regression are somewhat surprising: the ratio of private debt securities to GDP is not significant in all specification. On the other hand, bank credit to GDP shows a robust correlation with retailer lending in all specifications. With this into consideration, a similar model was fitted, with the same variables and the addition of interactions (Private to GDP x Debt to Assets, Bank Credit to GDP x Debt to Assets, Private Debt x Debt to Assets) in order to test if retailers are really benefiting from more developed capital markets in order to fund their financial divisions. The results (not reported) are consistent with the ones found in Table 6: Bank Credit to GDP remains significant while Private Debt loses all significance. Moreover, the interaction coefficients are insignificant for both Bank Credit and Private Debt, and only weakly significant for Private Credit to GDP²⁰. These results, though not absolutely conclusive, do not lend support to the hypothesis that retailers are benefiting from more developed financial markets in order to fund their financial division (in particular through the issuance debt securities). Instead, they might be reflecting the fact that retailers are more prevalent where bank credit is more used (consistent with Demirguc-Kunt & Maksimovic, 2001). That, together with the fact that the coefficient for growth opportunities for these retailers is negative, raises the conclusion that retailers with little growth opportunities are benefitting from entering the financial business.

Another interesting result is that banking regulation becomes significant, with large coefficients. This suggests that retailers are probably able to benefit from regulatory arbitrage in offering financial services, given that they do not need to comply with as much regulation (and capital costs) as banks.

²⁰ Additionally, a 2SLS was fitted, estimating the effect of financial development in capital structure, after controlling for the variables proposed by Rajan *et al* (1995). The results are consistent with those found previously: financial development does not alter the capital structure of retailers.

Participation decision

The preceding analysis has focused on establishing which economic and regulatory variables might have an effect on the degree of importance the financial business represents in the retail industry for a number of countries. And this is a fine question, but not the only one that should be attempted to answer in order to better understand the phenomenon of “Retailers as Banks?”. One unanswered question remains: “What explains the absolute absence of financial intermediation by the retail industry in some countries?”.

To assess this question, a different approach is undertaken and a probit model is fitted:

$$Existence_i = \beta' \bar{X}_i + \varepsilon_i$$

Existence_i is a dummy variable that takes the value 1 if the country reported having had at least one retailer offering financial services throughout the 2000-2003 period, and \bar{X}_i is the same set of averaged variables used before. As with the previous regression, one must be careful when analyzing parametric analysis conducted with so few observations.

The reason to avoid pooling the sample is twofold: for one, as was mentioned before, most of the variables used in this study are fairly stable, changing little from year to year. On the other hand, once an industry is created –in this case, the retail financial segment– it is not reasonable to believe that, should the economic scenario change from one year to the other, the industry would disappear altogether. Both these characteristics of the data imply that pooling the observations would be simply repeating observations. The drawback is obvious: the estimation is much less robust because of the reduced number of observations.

The results of the probit regression are presented in Table 7²¹. The largest effects are the retail business growth opportunities and the banking regulation, in particular the regulatory capital to assets ratio. The former contradicts the usual result found in the literature, namely that firms that choose to diversify when their industry offers reduced opportunities for growth. Nevertheless,

²¹ For robustness, an analogous logit model was fitted (not reported). The results are consistent.

there exists an obvious endogeneity problem: it is not possible to establish whether the growth opportunities of the retailers are cause or the origin of the diversification. That is, maybe the growth opportunity reflected in the data is precisely the opportunity to add a financial intermediation line to their business²².

Table 7: Determinants of Existence of Financial Intermediation in the Retail Industry
Country Level Probit, 2000-2003

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.189 (0.540)	-0.375 (0.581)	-0.569 (0.610)	-10.97** (4.447)	-7.137** (2.833)	-12.24** (4.953)
Private to GDP (%)	1.544** (0.623)		1.178* (0.661)	3.672*** (1.299)		2.887** (1.440)
Bank ROE (%)				5.224* (2.857)	-1.139 (3.942)	3.107 (3.289)
Bank Regulatory Capital to Assets (%)				56.16** (22.68)	35.49*** (13.59)	60.41** (25.23)
Bank Nonperf. Loans to Total Loans (%)				-8.649 (5.989)	-10.37 (6.766)	-10.37* (6.235)
Commonlaw (1 if yes)				-2.722** (1.226)	-0.961 (0.655)	-2.599** (1.300)
Retail Profits (%)				-6.758 (8.933)	-13.34 (9.559)	-12.66 (9.508)
Retail Growth (%)				85.21*** (30.49)	74.01*** (24.12)	99.74*** (36.49)
Retail Debt to Asset Ratio (%)		4.300** (1.966)	2.648 (2.068)		7.817*** (2.419)	4.919* (2.525)
GDP per capita (constant 2000 US\$)	-0.0000187 (0.0000191)	0.000000187 (0.0000165)	-0.0000165 (0.0000190)	-0.0000343 (0.0000253)	-0.00000491 (0.0000256)	-0.0000291 (0.0000259)
Banking crisis (1 if yes)	-0.590 (0.733)	-0.741 (0.685)	-0.686 (0.745)	-2.604* (1.480)	-1.921 (1.204)	-3.128* (1.624)
Observations	37	37	37	37	37	37
Pseudo R-squared	0.167	0.135	0.194	0.462	0.402	0.513
Log-likelihood	-18.77	-19.48	-18.14	-12.11	-13.46	-10.98

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

²² As in the preceding regressions, an alternate regression was performed, using Market Capitalization as a proxy for financial development (not reported). The results are consistent.

The ratio of regulatory capital to assets has a more straightforward interpretation: the higher the regulation imposed on the banking industry, the higher the probability that retailers offer financial services. The impact is higher when financial development is included in the regression (see columns (4)-(6)). A country that requires banks to keep capital reserves of at least 15% of its assets has a 0.32 higher probability of presenting retail lending than a country with a 10% capital requirement (see Appendix J)²³. Thus, and since there is very little regulation for the “financial retail industry”, these results could again imply that, facing lower cost of capital when compared to banks (due to weak or inexistent regulation), this gives the retailers a comparative advantage to offer credit. The fact that the effect is higher when controlling for financial development suggests that retailers might be using this comparative advantage and the ability to raise capital to fund their financial segment. Moreover, the negative correlation of English legal origin with the probability of existence of retailer lending could mean that in these countries regulation can be more opportune –as opposed to civil law countries– and as such can have better control over the industry without the lengthy process of having to get specific laws approved (as happened with Walmart in the U.S. in 2002).

As before, financial development was replaced with Bank Credit and Private Debt Securities (Appendix K). The results are consistent, and both measures of financial development become insignificant.

²³ The marginal effect is computed setting the values for the other variables as they are presented in the data for each level of the studied variable, instead of fixing their values to the mean for all variables. This was done in order to get more realistic results.

Firm Level Regressions

To make full use of the database, a similar analysis was conducted on the individual firms, in order to identify factors that determine their interest in bringing together retail and banking under the same roof. As before, the importance of the banking segment within the retailer f in country i at time t was measured as the ratio of bank sales (or assets) to total sales (or assets):

$$F_{fit} = \frac{\text{financialsales}_{fit}}{\text{retailsales}_{fit} + \text{financialsales}_{fit}}$$

The incidence of the variables previously discussed on the size of the financial segment in the retail industry is estimated using a similar specification:

$$F_{fit} = \beta_1' X_{it} + \beta_2' Z_{fit} + \delta' \Phi_i + \theta_t + \varepsilon_{i,t}$$

where X_{it} represents the country level variables variables that will be tested in the model, Z_{fit} the firm level variables, Φ_i the country level fixed effect, θ_t is the year fixed effect and $\varepsilon_{i,t}$ the error term²⁴.

To control for the difference in average profitability of retail industries within countries, instead of using retail profits and retail growth opportunities directly, an alternate measure was constructed, using the deviation of these variables over the country mean:

$$\text{Excess Profitability} = \text{Profit}_{fit} - \overline{\text{Profit}_{it}}$$

²⁴ A similar specification was fitted adding country fixed effects (not reported). When doing so, all the correlations related to country specific variables disappear, and only the retailer capital structure remains. This should be no surprise, considering the fact that the institutions and idiosyncrasy in each country are what determines banking regulation, profitability, financial development and so forth.

where $Profit_{fit}$ is the profitability of firm f in country i at time t , and $\overline{Profit_{it}}$ is the average profitability of the retail industry in country i at time t , as used in the country level regressions. A similar indicator was constructed for growth opportunities.²⁵

Similarly, each firm's total assets was used to control for the size of the firm, which would affect the capital structure, as well as the availability of funding opportunities, and ultimately have an indirect effect on the diversification decision. The results for the firm level Tobit regression²⁶ are presented in Table 8²⁷.

Even after controlling for the size of the firm, the ratio of debt to assets is significant and positively correlated to the importance of the financial segment within the firm. One interesting result is that financial development now loses the significance it had at a country level, and the capital structure becomes significant and robust in all specifications. This suggests that retailers are indeed making use of more debt in order to fund their retailer lending divisions, which might be favored by more developed financial markets at a country level. As before, economic development is negatively correlated, but with a rather small effect.

One unexpected result is the fact that countries with a more profitable banking industry present lower levels of retailer lending. This again contradicts the prior that retailers serve an unattended segment of the population or seize the opportunity to enter a profitable business, but compete

²⁵ The idea behind these measures was to make the variables more comparable across countries, reducing the chance of differences reflecting idiosyncratic or institutional differences that affect the absolute profitability or growth opportunities of this particular industry.

²⁶ The year fixed effect variable was dropped from the Tobit estimation, due to the fact that there does not exist a sufficient statistic allowing the fixed effects to be conditioned out of the likelihood. As such, all variables were averaged at a firm level.

²⁷ Not all firms report sales and/or assets separated by segments. As such, the number of observations using the each of the ratios may differ in some countries.

directly with the banking industry. These results are consistent throughout all specifications, and suggest a substitution between banks and retailers rather than complementarity.

Table 8: Relative Importance of Financial Segment in Retail Industry (full sample)
Firm Level Tobit, Period Averages (2000-2003)

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.0663 (0.0863)	-0.0602 (0.0687)	-0.0674 (0.0859)	-0.602 (0.466)	-0.545 (0.354)	-0.569 (0.454)
Private to GDP (%)	0.0128 (0.0377)		0.00543 (0.0377)	0.0864 (0.217)		0.0176 (0.216)
Bank ROE (%)	-0.472** (0.233)	-0.517** (0.225)	-0.503** (0.232)	-3.905*** (1.427)	-4.215*** (1.290)	-4.161*** (1.401)
Bank Regulatory Capital to Assets (%)	0.538 (0.553)	0.501 (0.497)	0.531 (0.547)	2.193 (3.001)	1.847 (2.488)	1.960 (2.903)
Bank Nonperf. Loans to Total Loans (%)	-0.155 (0.277)	-0.199 (0.280)	-0.203 (0.275)	1.539 (1.481)	1.298 (1.454)	1.269 (1.462)
Commonlaw (1 if yes)	-0.00636 (0.0364)	0.00284 (0.0230)	-0.000937 (0.0365)	0.240 (0.235)	0.305** (0.129)	0.292 (0.233)
Retail Profits (% , excess over country mean)	-0.122 (0.0771)	-0.0971 (0.0830)	-0.0960 (0.0825)	0.177 (0.255)	0.482 (0.312)	0.484 (0.312)
Retail Growth (% , excess over country mean)	0.0365 (0.0874)	0.00853 (0.0857)	0.0122 (0.0887)	-0.470 (0.419)	-0.728* (0.397)	-0.714* (0.416)
Retail Debt to Asset Ratio (%)		0.0596*** (0.0193)	0.0594*** (0.0194)		0.399*** (0.0892)	0.398*** (0.0888)
Total Assets (US\$ bn)	0.000102*** (0.0000246)	0.0000971*** (0.0000236)	0.0000970*** (0.0000236)	0.000577*** (0.0000957)	0.000544*** (0.0000876)	0.000544*** (0.0000876)
GDP per capita (constant 2000 US\$)	-0.00000479*** (0.00000101)	-0.00000478*** (0.000000894)	-0.00000486*** (0.00000100)	-0.0000160*** (0.00000525)	-0.0000159*** (0.00000420)	-0.0000162*** (0.00000524)
Banking crisis (1 if yes)	-0.0274 (0.0526)	-0.0255 (0.0472)	-0.0275 (0.0524)	-0.472* (0.278)	-0.465* (0.251)	-0.470* (0.271)
Observations	1667	1667	1667	1617	1617	1617
Pseudo R-squared	0.196	0.210	0.210	0.113	0.130	0.130
Log-likelihood	-253.2	-248.9	-248.9	-450.4	-441.8	-441.8

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

When using market capitalization instead of private credit (Appendix L), the results are consistent: capital structure remains significant, and the profitability of the banking industry is negatively correlated to the importance of retailer lending, as is economic development. Nonetheless, financial development becomes significant, and does not drop when controlling for the capital structure.

Participation decision

Finally, a Type II Tobit model was fitted, that is, the analysis was divided into the participation decision and the amount decision. For the former, a period averages firm level Probit regression was fitted, as presented in Table 9:

Table 9: Determinants of Existence of Financial Segment in Retail Industry
Firm Level Probit, Period Average (2000-2003)

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.708*** (0.158)	-0.659*** (0.125)	-0.799*** (0.161)	-0.0328 (0.535)	-0.0436 (0.433)	-0.0378 (0.536)
Private to GDP (%)	0.219 (0.146)		0.212 (0.147)	0.0498 (0.258)		-0.00452 (0.261)
Bank ROE (%)				-3.989** (1.628)	-4.294*** (1.440)	-4.306*** (1.637)
Bank Regulatory Capital to Assets (%)				0.544 (3.419)	0.537 (3.123)	0.513 (3.412)
Bank Nonperf. Loans to Total Loans (%)				-0.0898 (2.009)	-0.441 (2.002)	-0.437 (2.023)
Commonlaw (1 if yes)				-0.00554 (0.261)	0.0305 (0.161)	0.0337 (0.264)
Retail Profits (% , excess over country mean)				-0.362 (0.317)	-0.142 (0.360)	-0.143 (0.356)
Retail Growth (% , excess over country mean)				-0.162 (0.525)	-0.351 (0.518)	-0.354 (0.539)
Retail Debt to Asset Ratio (%)		0.398*** (0.121)	0.394*** (0.120)		0.467*** (0.127)	0.467*** (0.127)
Total Assets (US\$ bn)	0.000709*** (0.000256)	0.000644** (0.000253)	0.000683*** (0.000250)	0.000859*** (0.000259)	0.000846*** (0.000253)	0.000846*** (0.000253)
GDP per capita (constant 2000 US\$)	-0.0000259*** (0.00000472)	-0.0000215*** (0.00000350)	-0.0000264*** (0.00000474)	-0.0000273*** (0.00000701)	-0.0000281*** (0.00000570)	-0.0000280*** (0.00000706)
Banking crisis (1 if yes)	0.309*** (0.104)	0.395*** (0.0852)	0.297*** (0.104)	-0.392 (0.314)	-0.412 (0.299)	-0.410 (0.315)
Observations	1670	1670	1670	1667	1667	1667
Pseudo R-squared	0.070	0.074	0.076	0.084	0.093	0.093
Log-likelihood	-644.6	-641.3	-640.1	-630.6	-624.7	-624.7

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

The results of the firm level Probit regression are consistent with those of the Tobit I model: even after controlling for the size of the retailer (measured as total assets), the capital structure is

statistically significant at explaining the decision to enter this line of business. This again presents an endogeneity problem, but it can be easily concluded that retailers offering financial services favor more leveraged capital structures. Again, banking profitability is negatively correlated to the decision to enter this line of business, pointing in the direction that retailers are substituting banks instead of complementing them. Testing Bank Credit and Private Debt Securities instead of Domestic Credit to GDP offers results consistent with those found at country level (Table 10):

More interestingly, when controlling for bank credit, the banking sector ROE becomes insignificant, but is significant when the former is removed from the model. Again, this suggests that the decision to enter add a financial division on the part of retailers has to do with the opportunity to compete with banks for a piece of an already developed banking sector.

Table 10: Determinants of Existence of Financial Segment in Retail Industry
Firm Level Probit, Period Average (2000-2003)

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-1.129*** (0.196)	-0.659*** (0.125)	-1.241*** (0.199)	-0.979* (0.511)	-0.0436 (0.433)	-1.008** (0.514)
Bank credit to GDP (%)	0.590*** (0.159)		0.580*** (0.160)	0.643*** (0.242)		0.604** (0.246)
Private debt securities to GDP (%)	-0.0666 (0.241)		-0.167 (0.243)	0.104 (0.327)		-0.0124 (0.332)
Bank ROE (%)				-1.103 (1.773)	-4.294*** (1.440)	-1.413 (1.788)
Bank Regulatory Capital to Assets (%)				2.820 (3.281)	0.537 (3.123)	2.650 (3.290)
Bank Nonperf. Loans to Total Loans (%)				-2.630 (2.680)	-0.441 (2.002)	-2.706 (2.736)
Commonlaw (1 if yes)				-0.144 (0.196)	0.0305 (0.161)	-0.114 (0.197)
Retail Profits (% excess over country mean)				-0.322 (0.321)	-0.142 (0.360)	-0.0892 (0.362)
Retail Growth (% excess over country mean)				0.417 (0.478)	-0.351 (0.518)	0.225 (0.487)
Retail Debt to Asset Ratio (%)		0.398*** (0.121)	0.475*** (0.128)		0.467*** (0.127)	0.503*** (0.135)
Total Assets (US\$ bn)	0.000783*** (0.000250)	0.000644** (0.000253)	0.000756*** (0.000242)	0.000840*** (0.000253)	0.000846*** (0.000253)	0.000827*** (0.000247)
GDP per capita (constant 2000 US\$)	-0.0000193*** (0.00000547)	-0.0000215*** (0.00000350)	-0.0000182*** (0.00000548)	-0.0000298*** (0.00000987)	-0.0000281*** (0.00000570)	-0.0000291*** (0.00000998)
Banking crisis (1 if yes)	0.169* (0.0991)	0.395*** (0.0852)	0.146 (0.0999)	0.0109 (0.334)	-0.412 (0.299)	-0.0493 (0.337)
Observations	1660	1670	1660	1657	1667	1657
Pseudo R-squared	0.088	0.074	0.097	0.096	0.093	0.105
Log-likelihood	-622.3	-641.3	-616.1	-613.4	-624.7	-606.9

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

Relative importance of financial division

A final OLS regression was estimated on all firms that do report a financial intermediation segment, in order to have a better understanding of what affects the relative size of retailer lending (amount decision).

As can be seen from Table 11 (and Appendix N), firms with higher ratios of financial intermediation exhibit higher levels of relative growth opportunities when compared to their industry²⁸, consistent with Hyland& Ditz (2002). Controlling for the capital structure of the retailer –used as a proxy of trade credit capabilities– does not alter the results significantly, and the variable itself is only weakly significant.

The most significant variable is banking regulation, namely the ratio of regulatory capital to assets. As at country level, the higher the ratio –and as such, the higher the cost of issuing credit on the part of banks–, the larger the financial segment represents of the retail firm. This lends further support to the idea that retailers are seizing are able to draw a comparative advantage out of this regulatory arbitrage. That said, when using market capitalization instead of private credit (Appendix N), the significance diminishes, so the results –though consistent– are not so robust. The results are similar when decomposing financial development into Bank Credit and Private Debt securities (Appendix O).

²⁸ The relative performance is only significant when using the sales ratio.

Table 11: Relative Importance of Financial Segment in Retail Industry
Firm Level Fixed Effect Regression, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.115* (0.0670)	-0.123* (0.0664)	0.429 (0.315)	-0.780*** (0.294)	-0.787*** (0.291)	1.440 (1.214)
Private to GDP (%)	0.0237 (0.0187)	0.0199 (0.0181)	-0.00506 (0.0258)	0.301*** (0.0851)	0.275*** (0.0850)	-0.0787 (0.0782)
Bank ROE (%)	0.0363 (0.0699)	0.0210 (0.0688)	-0.0123 (0.0999)	-0.0495 (0.210)	-0.0968 (0.210)	0.698** (0.276)
Bank Regulatory Capital to Assets (%)	1.259*** (0.380)	1.269*** (0.373)	-0.755 (0.632)	6.956*** (1.697)	6.874*** (1.662)	0.0640 (2.307)
Bank Nonperf. Loans to Total Loans (%)	0.0915 (0.232)	0.0381 (0.228)	-1.211** (0.612)	-0.266 (0.668)	-0.482 (0.652)	-1.087 (2.349)
Commonlaw (1 if yes)	-0.00848 (0.0158)	-0.00407 (0.0157)		-0.0339 (0.0450)	-0.0140 (0.0470)	
Retail Profits (%. excess over country mean)	-0.135** (0.0683)	-0.128* (0.0675)	-0.127* (0.0710)	0.121 (0.205)	0.195 (0.214)	0.169 (0.138)
Retail Growth (%. excess over country mean)	0.216*** (0.0560)	0.197*** (0.0591)	0.303*** (0.0628)	0.226 (0.211)	0.131 (0.227)	0.894*** (0.309)
Retail Debt to Asset Ratio (%)		0.0518** (0.0260)	0.0453 (0.0279)		0.193** (0.0978)	0.125 (0.0968)
Total Assets (US\$ bn)	0.0000314** (0.0000155)	0.0000253 (0.0000157)	0.0000221 (0.0000152)	0.000103** (0.0000429)	0.0000851** (0.0000416)	0.0000799** (0.0000400)
GDP per capita (constant 2000 US\$)	-0.00000105 (0.000000939)	-0.00000115 (0.000000936)	-0.00000742 (0.00000907)	-0.00000650** (0.00000303)	-0.00000679** (0.00000298)	-0.0000319 (0.0000362)
Banking crisis (1 if yes)	0.0000137 (0.0151)	0.00247 (0.0150)	0.0195 (0.0184)	-0.0938* (0.0513)	-0.0773 (0.0507)	0.0201 (0.0495)
Observations	577	577	577	400	400	400
R-squared	0.170	0.182	0.279	0.176	0.192	0.396
Adjusted R-squared	0.151	0.162	0.228	0.148	0.163	0.349
Country Fixed Effect	No	No	Yes	No	No	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Firm level clustered standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

Table 12: Regression Results Summary Table*

	Country Results				Firm Level		
	OLS Full Panel	OLS Averages	Tobit Averages	Probit Averages	Tobit Averages	Probit Averages	OLS Panel
Private to GDP(%)	+	+	+	+			
Bank ROE (%)					-	-	
Bank Regulatory Capital to Assets (%)				+			+
Bank Nonperf. Loans to Total Loans (%)							
Commonlaw (1 if yes)				-			
Retail Profits (% , excess over country mean)							
Retail Growth (% , excess over country mean)				+			+
Retail Debt to Asset Ratio (%)				+	+	+	
Total Assets (US\$ bn)	x	x	x	x	+	+	
GDP per capita (constant 2005 US\$)	-	-	-	-	-	-	

(*) The table presents the sign of the coefficients with a significance greater than 5%.

Informational Variables Regressions

As was mentioned in the introduction, the ability of retailers to acquire behavioral information about their costumers might help explain the decision to diversify into the financial intermediation business. If retailers are able to gather detailed information, which allows for better credit risk assessment, it stands to reason that they will enjoy a comparative advantage in offering credit. This would be especially true if available credit information is scarce or at least limited, both in terms of quality and extension.

To test whether this hypothesis is correct, a similar country-level analysis is performed, incorporating two “informational variables”, namely Credit Depth of Information²⁹ and Private Credit Bureau Coverage (% of population). One caveat of the data is that country level informational variables are available from 2004 on, and the database used in this analysis covers the 2000-2003 period. Since these variables are fairly stable throughout time, and the cross section dynamics are likely to be stable in time as well, the regressions are computed using the 2000-2003 averages for all variables but the informational ones, for which I will use the 2004 values. As such, any conclusion drawn from this analysis should be taken only as a preliminary explanation.

When looking at the size the financial segment in the retail industry (Table 13) the conclusions are the same as those obtained in the first section: the only variables that explains the relative importance of retailer lending within the retail industry are the level of financial development measured as private credit to GDP and the capital structure of the retailer. Informational variables do not seem to be explaining the relative size the financial division represents of the retailer.

²⁹ The world bank defines this index as follows “*Credit depth of information index measures rules affecting the scope, accessibility, and quality of credit information available through public or private credit registries. The index ranges from 0 to 6, with higher values indicating the availability of more credit information, from either a public registry or a private bureau, to facilitate lending decisions.*” Source: <http://data.worldbank.org/indicator/IC.CRD.INFO.XQ>

Table 13: Relative Importance of Financial Segment in Retail Industry (averages)

Period Averages Tobit, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.00576 (0.0162)	-0.0396 (0.0310)	-0.0381 (0.0234)	-0.196 (0.120)	-0.617*** (0.219)	-0.572*** (0.188)
Private to GDP (%)	0.0366*** (0.00934)	0.0397*** (0.0120)	0.0326** (0.0130)	0.238*** (0.0835)	0.273*** (0.0975)	0.235** (0.0883)
Bank ROE (%)		-0.000627 (0.0598)	-0.0262 (0.0513)		-0.0805 (0.440)	-0.298 (0.376)
Bank Regulatory Capital to Assets (%)		0.271 (0.219)	0.341 (0.201)		2.053 (1.484)	2.586** (1.147)
Bank Nonperf. Loans to Total Loans (%)		-0.0414 (0.106)	-0.0910 (0.108)		0.789 (0.650)	0.534 (0.566)
Depth of Info (1-6)	0.00120 (0.00356)	0.000946 (0.00407)	-0.00117 (0.00334)	0.0152 (0.0296)	0.0271 (0.0329)	0.00938 (0.0291)
Private Credit Bureau Coverage (%)	-0.000179** (0.0000833)	-0.000163 (0.000147)	-0.000178 (0.000131)	-0.000219 (0.000797)	-0.000300 (0.00109)	-0.000254 (0.000848)
Commonlaw (1 if yes)		-0.000212 (0.0123)	0.00565 (0.0138)		0.00871 (0.0829)	0.0483 (0.0727)
Retail Profits (%)			-0.0780 (0.109)			-0.629 (0.614)
Retail Growth (%)			-0.0645 (0.0628)			-0.825** (0.365)
Retail Debt to Asset Ratio (%)			0.0665** (0.0312)			0.422* (0.211)
GDP per capita (constant 2000 US\$)	-0.000000781*** (0.000000270)	-0.000000811** (0.000000378)	-0.000000840** (0.000000334)	-0.00000494* (0.00000268)	-0.00000306 (0.00000254)	-0.00000320 (0.00000225)
Banking crisis (1 if yes)	-0.0100 (0.0113)	-0.0118 (0.0204)	-0.0135 (0.0202)	-0.000250 (0.0666)	-0.130 (0.130)	-0.162 (0.109)
Observations	37	37	37	37	37	37
Pseudo R-squared	-0.167	-0.200	-0.253	1.092	1.550	2.127
Log-likelihood	59.98	61.67	64.41	0.556	3.312	6.787

Heteroskedasticity robust standard errors in parenthesis

Significant at 1% (***), 5% (**) and 10% (*) levels.

Similarly, when studying the determinants of existence of the retailer lending division (participation decision) using a Probit model (Table 14), the informational variables do not show any significant effect:

Table 14: Determinants of Existence of Financial Intermediation in the Retail Industry
Country Level Probit, 2000-2003

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.875 (0.827)	-0.955 (0.761)	-1.036 (0.757)	-19.19*** (6.969)	-10.82*** (4.038)	-18.48** (7.193)
Private to GDP (%)	1.410** (0.659)		1.117* (0.669)	3.766*** (1.378)		3.534** (1.446)
Bank ROE (%)				8.071* (4.178)	2.427 (4.438)	7.060 (4.612)
Bank Regulatory Capital to Assets (%)				77.19*** (29.03)	38.79*** (14.90)	75.17*** (29.00)
Bank Nonper. Loans to Total Loans (%)				-5.245 (6.359)	-5.805 (6.554)	-5.736 (6.725)
Depth of Info (1-6)	0.210 (0.177)	0.188 (0.175)	0.150 (0.177)	0.657** (0.284)	0.569** (0.265)	0.566 (0.349)
Private Credit Bureau Coverage (%)	-0.0101 (0.00853)	-0.0115 (0.00841)	-0.0113 (0.00859)	0.00797 (0.0106)	-0.00306 (0.0102)	0.00873 (0.0118)
Commonlaw (1 if yes)				-3.285** (1.427)	-0.863 (0.765)	-3.203** (1.425)
Retail Profits (%)				-8.079 (9.693)	-7.945 (10.64)	-9.557 (11.29)
Retail Growth (%)				132.0*** (43.38)	82.38*** (23.78)	129.4*** (44.07)
Retail Debt to Asset Ratio (%)		4.163* (2.199)	2.755 (2.192)		4.749* (2.491)	1.579 (2.772)
GDP per capita (constant 2000 US\$)	-0.00000680 (0.0000179)	0.0000118 (0.0000177)	-0.00000361 (0.0000169)	-0.0000349 (0.0000360)	0.00000509 (0.0000327)	-0.0000354 (0.0000372)
Banking crisis (1 if yes)	-0.479 (0.739)	-0.673 (0.705)	-0.603 (0.752)	-3.549** (1.650)	-1.680 (1.133)	-3.592** (1.684)
Observations	37	37	37	37	37	37
Pseudo R-squared	0.216	0.188	0.240	0.578	0.462	0.581
Log-likelihood	-17.66	-18.28	-17.11	-9.498	-12.12	-9.436

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

Enforcement Variables Regressions

One possible hypothesis for the decision of retailers to incorporate a financial division to its lines of business is that it may possess a comparative advantage in producing some sort of informal enforcement. This characteristic might make it less costly for the retailer to issue credit to an individual, both because of the smaller costs associated to the enforcement and the higher expected recovery rate on the loan in the case of insolvency.

To test the former, I draw on previous research by Djankov *et al* (2003, 2008), where he analyzes the efficiency of different legal systems in case of insolvency, both for natural persons and firms. The main variable to be tested is the time it takes to enforce a check once the plaintiff files the complaint. If the process is too lengthy, retailers might benefit from their potential informal enforcement advantage. Additionally, I test the time required to enforce a contract and the debt recovery date for a representative firm. Though these variables represent the process for firms and not natural persons, they should provide with a reasonable proxy³⁰.

As was the case with the informational variables, the results for the enforcement regressions do not show any statistically significant correlation with retailer lending, neither for the relative importance of the financial division nor for the entrance decision. Financial development is still the strongest explanatory variable (though not as robust as in previous specifications).

³⁰ Additional variables where tested, with no statistically significant results: check trial duration, check collection procedure, time to payment after firm insolvency, time to resolve insolvency and strength of legal rights.

Table 15: Relative Importance of Financial Segment in Retail Industry (averages)

Period Averages Tobit, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.00913 (0.0195)	-0.0129 (0.0204)	-0.0105 (0.0212)	-0.109 (0.178)	-0.106 (0.178)	-0.0313 (0.150)
Private to GDP (%)	0.0322*** (0.0108)	0.0345*** (0.0116)	0.0269** (0.0128)	0.202** (0.0870)	0.198** (0.0820)	0.0695 (0.0782)
Bank ROE (%)		0.0460 (0.0381)	0.0503 (0.0369)		-0.0351 (0.259)	-0.0358 (0.252)
Check enforcement duration (days)	-0.00000664 (0.0000506)	0.00000263 (0.0000526)	-0.0000352 (0.0000647)	-0.0000756 (0.000445)	-0.0000754 (0.000446)	-0.000573 (0.000417)
Average time to payment (days)	0.000628 (0.00364)	0.000514 (0.00349)	-0.000871 (0.00363)	-0.0120 (0.0296)	-0.0117 (0.0300)	-0.0296 (0.0287)
Average recovery on loan (% loan)	0.000121 (0.000264)	0.000129 (0.000277)	0.000118 (0.000273)	0.00171 (0.00263)	0.00168 (0.00262)	0.00166 (0.00214)
Commonlaw (1 if yes)		-0.00422 (0.00976)	-0.00265 (0.0114)		0.00743 (0.0637)	0.0493 (0.0684)
Retail Profits (%)			0.0197 (0.123)			-0.581 (0.867)
Retail Growth (%)			-0.0600 (0.0683)			-0.622 (0.392)
Retail Debt to Asset Ratio (%)			0.0463 (0.0373)			0.580** (0.252)
GDP per capita (constant 2000 US\$)	-0.00000951** (0.00000397)	-0.00000104** (0.00000381)	-0.00000104** (0.00000397)	-0.00000759* (0.00000379)	-0.00000745** (0.00000340)	-0.00000691** (0.00000323)
sigma	0.0191*** (0.00375)	0.0191*** (0.00380)	0.0181*** (0.00347)	0.131*** (0.0266)	0.131*** (0.0265)	0.107*** (0.0218)
Observations	36	36	36	36	36	36
Pseudo R-squared	-0.131	-0.141	-0.164	1.302	1.304	1.906
Log-likelihood	59.17	59.70	60.91	1.652	1.660	4.951

Heteroskedasticity robust standard errors in parenthesis

Significant at 1% (***), 5% (**) and 10% (*) levels.

Table 16: Determinants of Existence of Financial Intermediation in the Retail Industry

Country Level Probit, 2000-2003

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-2.907* (1.620)	-1.373 (1.584)	-2.870* (1.633)	-3.950** (1.679)	-2.348 (1.607)	-3.987** (1.698)
Private to GDP (%)	1.967** (0.787)		1.895** (0.903)	2.088** (0.916)		2.140* (1.240)
Bank ROE (%)				5.005* (2.680)	3.394* (1.899)	5.058* (2.906)
Check enforcement duration (days)	0.00961* (0.00513)	0.00366 (0.00427)	0.00935 (0.00571)	0.00821* (0.00455)	0.00192 (0.00401)	0.00838 (0.00526)
Average time to payment (days)	0.345 (0.258)	0.0914 (0.258)	0.328 (0.272)	0.144 (0.281)	-0.129 (0.268)	0.155 (0.309)
Average recovery on loan (% loan)	0.0119 (0.0177)	0.0144 (0.0183)	0.0116 (0.0177)	0.00258 (0.0221)	-0.000909 (0.0214)	0.00270 (0.0218)
Commonlaw (1 if yes)				-1.127 (0.934)	-0.536 (0.681)	-1.132 (0.957)
Retail Profits (%)				11.89 (8.542)	8.058 (10.42)	12.10 (9.697)
Retail Growth (%)				37.29** (18.60)	47.74*** (18.18)	37.10* (19.41)
Retail Debt to Asset Ratio (%)		3.188* (1.931)	0.382 (2.331)		2.886 (1.845)	-0.200 (2.741)
GDP per capita (constant 2000 US\$)	-0.0000107 (0.0000266)	-0.0000609 (0.0000237)	-0.0000107 (0.0000267)	-0.0000168 (0.0000354)	-0.0000237 (0.0000288)	-0.0000168 (0.0000353)
Constant	-2.907* (1.620)	-1.373 (1.584)	-2.870* (1.633)	-3.950** (1.679)	-2.348 (1.607)	-3.987** (1.698)
Observations	36	36	36	36	36	36
Pseudo R-squared	0.204	0.098	0.204	0.368	0.305	0.368
Log-likelihood	-16.93	-19.19	-16.92	-13.44	-14.79	-13.44

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

Conclusions

Using a database of over 1,200 retail firms across 37 countries, for the period between 2000 and 2003, this study analyzes the economical, legal and financial variables that determine the importance of the financial intermediation business within the retail business, both at a country and a firm level. I find evidence that banking regulation seems be a good predictor of the existence of such a business: the higher the regulation imposed on the banking industry, the higher the probability that retailers offer financial services. Moreover, the impact is higher when financial development is included in the regression. In addition, retailers are more likely to offer financial services in countries with a relatively developed banking, and this probability is even higher for larger retailers. When analyzing the importance of the financial services segment, the evidence shows that countries where firms report larger financial segments have relatively less profitable banking sectors, even after controlling for banking sector concentration. All the latter suggests that –contrary to what is observed in countries such as Chile and the U.K.– retailers are acting as a substitute for the banking industry instead of a complement (similar to the results for trade credit documented by Demirguc-Kunt & Maksimovic, 2001). This is a surprising result, considering that more qualitative studies suggest that retailers are catering to segments that would otherwise not have access to credit. The hypothesis that retailers offering financial services is a consequence of a (riskier) part of the market that banks can or will not fund is not supported by these results.

Additionally, financial development is not significant in explaining the capital structure of retailers that offer financial services. As is expected, these retailers hold relatively more debt in order to fund its lending division, but neither financial development (measured both as private credit to GDP and market capitalization to GDP) nor private debt market development explain their capital structure. Thus, the hypothesis that retailers are making use of more developed markets in order to access cheaper funding that is afterwards lent to consumers as a form of trade credit is not supported. The former does not imply that retailers are not making use of the debt market, but that its development does not change the optimal capital structure or their decision to add a financial division.

Finally, the evidence suggests that firms that decide to add financial services to their lines of business have larger growth opportunities. The latter contradicts the classic result that –on average– firms that choose to diversify do so in search of growth opportunities. Though recognizing the obvious endogeneity problem, one could venture and postulate that retailers are choosing to diversify in order to seize their comparative advantage, namely the fact that there is usually less regulation imposed on them.

Overall, the results suggest that retailers are competing with regular banks for a share in the credit business, and that an increase in banking regulation gives them a comparative advantage. Without proper regulation, the retailer lending industry can grow to account a large portion of the total industry, so it would be advisable for the authorities to gain a better understanding of this business, and create a framework in which retailers can compete in an efficient way with banks without becoming a risk for financial stability.

In Chile, the retail business currently accounts for 30% of total active credit cards and 65% of total credit card transactions in pesos³¹. Given the large importance this industry has attained, authorities are concerned with increasing informational requirements. In fact, the president of the Central Bank recently stated that the bill which consolidates debt information from all issuers that is currently being discussed in congress is priority, since it is key for financial supervision and regulation”. The fact that CENCOSUD, one of the largest actors in the industry, closed an agreement to sell 51% of its retailer lending business to a bank (Scotiabank) in anticipation of greater regulation lends further support to the hypothesis that at least part of the comparative advantage retailers have when competing with banks comes from easier regulation on their side.

In that sense, future research should focus on the relationship between financial development and the decision of non financial institutions to enter the business, and the threat this could pose to financial stability and long term implications on household debt levels, given the relatively scarce regulation and informational requirements aimed at this sort of firms. Regulation should move towards consolidated supervision, in the form of a Financial Stability Council, which

³¹ An important decrease since 2007, but still a large share of the total business.

through being able to gain a better understanding of the potential costs (if any) of this phenomenon³², enforcing regulations to reduce systemic risks and eliminate regulatory arbitrage.

The role of credit behavior information and enforcement efficiency in an economy should be better understood given the incentives its absence can provide for non financial institutions to enter this line of business. Preliminary results shown in this study suggest that neither the depth of credit bureau's information nor the efficiency of the debt enforcement mechanisms (both for natural persons and firms) are relevant in explaining the diversification of retailers into finance, but retailers possess credit and purchase behavior records that might be exploited. In fact, retailers are able to construct large databases with consumer behaviors (beyond credit behavior), which would help them have better admittance and behavioral scoring models.

With all the former in mind, the question of what comparative advantages do retailers possess in this business remains unanswered. Given the relevance of this sector in some economies, research should focus on other potential comparative advantages, as are the share of in-store purchases with retail credit, the level of financial literacy of the average consumer and, most importantly, behavioral hypotheses, such as the attitude of consumers towards retailers *vis a vis* banks, and the role opportunity has in acquiring credit from a retailer: maybe the person is more prone to ask for financing *in situ*, once the purchase decision is already made, and retailers might be more relevant in countries with lower levels of financial literacy, especially if they focus on lower income customers. In that sense, through better knowledge of customers, retailer lending might be acting as a modern substitute for informal credit for people who have limited access to traditional credit.

³² For example, regulators should be able to assess the relative importance of retailer lending as a percentage of GDP, in order to measure its relative importance in the economy.

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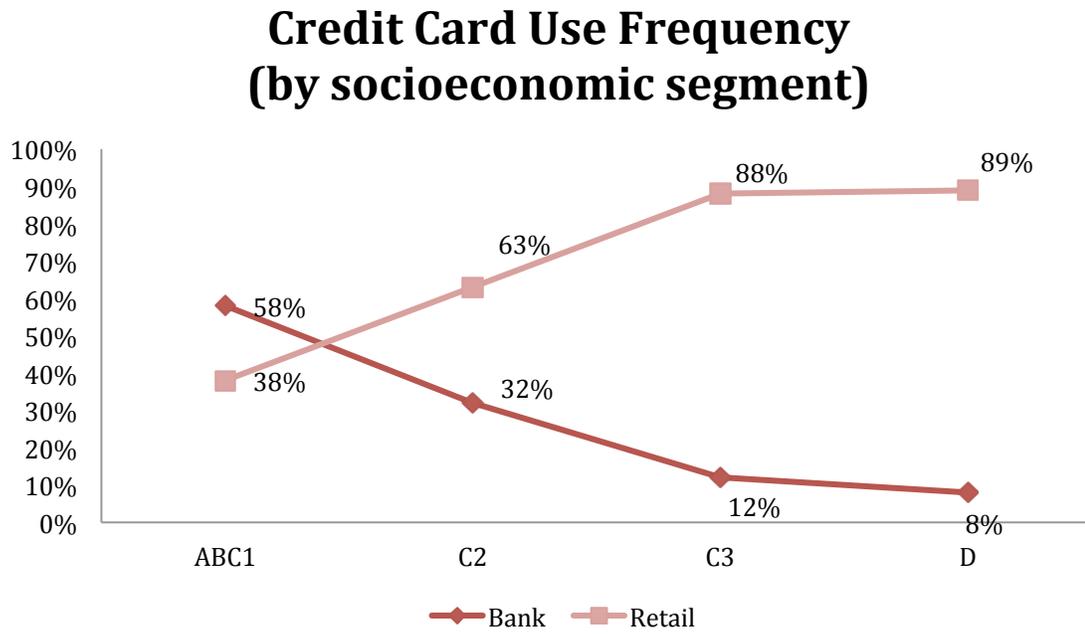
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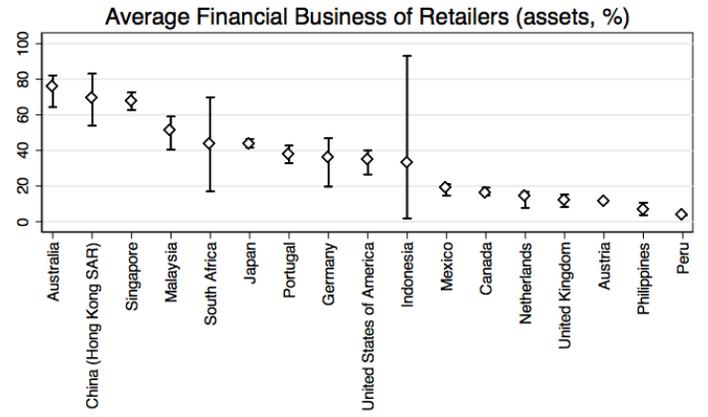
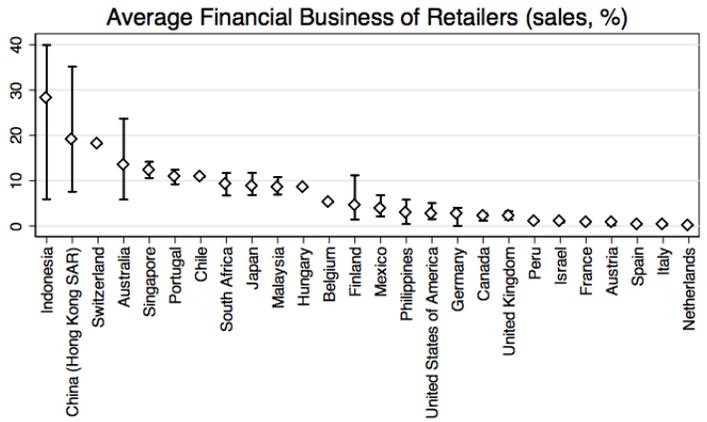
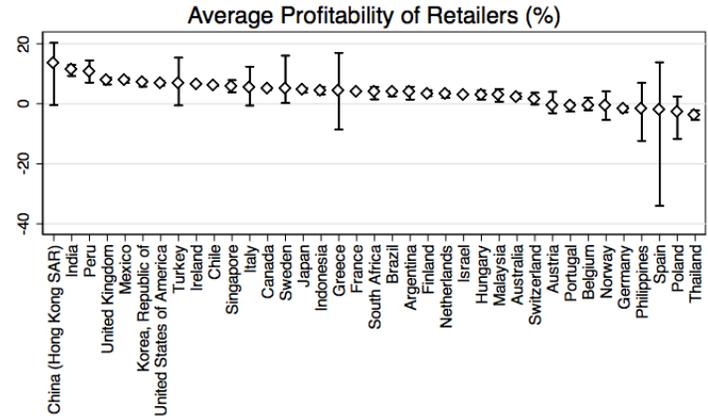
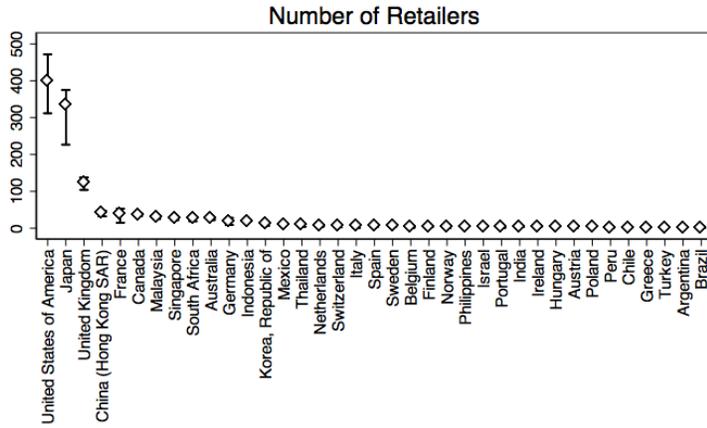
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Appendices

Appendix A: Credit card use frequency (by socioeconomic segment)

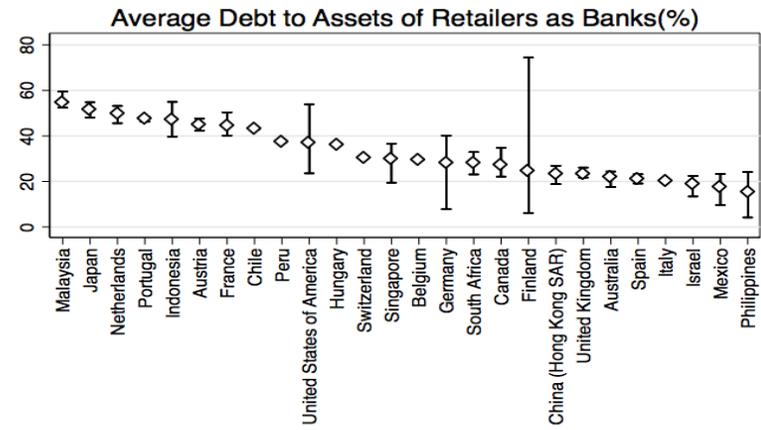
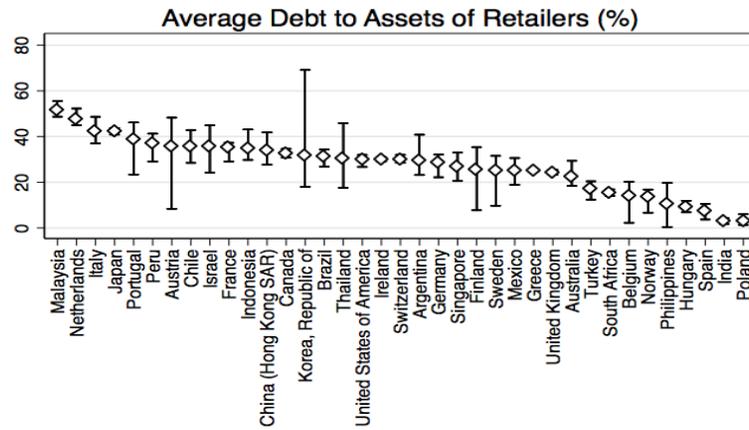
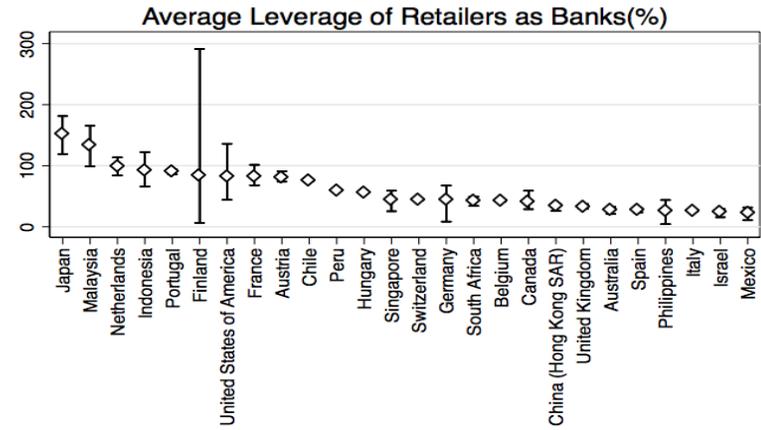
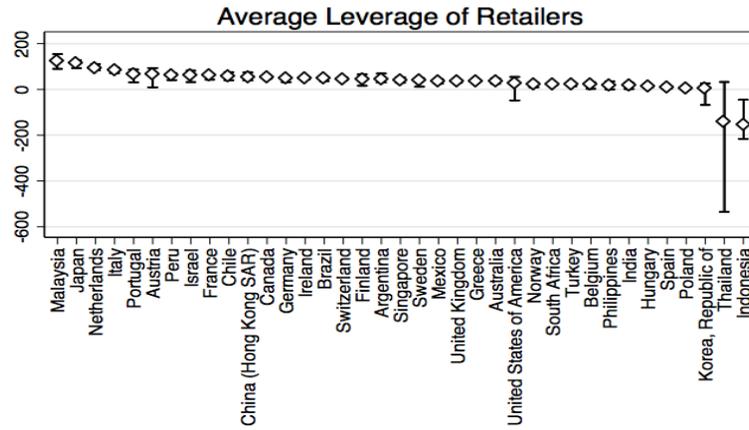


Appendix B: Retailers descriptive statistics (2000-2003)³³



³³ The plots represent the lower, upper and average values for all variables at country level.

Appendix C: Average debt held by retailers (2000-2003)³⁴



³⁴ The plots represent the lower, upper and average values for all variables at country level.

Appendix D: Description of independent variables

Variable	Description
A. Financial development	
Private to GDP (%)	Total private credit of deposit taking institutions as a % of GDP.
Market Capitalization to GDP (%)	Market capitalization of listed companies as % of GDP.
Bank private credit to GDP (%)	The financial resources provided to the private sector by domestic money banks as a share of GDP. Domestic money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits.
Private debt securities to GDP (%)	Total amount of domestic private debt securities (amount outstanding) issued in domestic markets as a share of GDP. It covers data on long-term bonds and notes, commercial paper and other short-term notes.
Stocks traded, turnover ratio (%)	Turnover ratio is the total value of shares traded during the period divided by the average market capitalization for the period. Average market capitalization is calculated as the average of the end-of-period values for the current period and the previous period.
Stocks traded, total value (% of GDP)	Total value of shares traded during the period. This indicator complements the market capitalization ratio by showing whether market size is matched by trading.
B. Banking sector	
Bank ROE (%)	Average banking sector profitability measured by ROE.
Lending interest rate (%)	Lending interest rate is the rate charged by banks on loans to prime customers.
Deposit interest rate (%)	Deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits.
C. Banking regulation	
Bank Regulatory Capital to Assets (%)	Regulatory capital to asset ratio for banks as required by the local financial authority.
Bank capital to total assets (%)	Ratio of bank capital and reserves to total assets. Capital and reserves include funds contributed by owners, retained earnings, general and special reserves, provisions, and valuation adjustments. Capital includes tier 1 capital (paid-up shares and common stock), which is a common feature in all countries' banking systems, and total regulatory capital, which includes several specified types of subordinated debt instruments that need not be repaid if the funds are required to maintain minimum capital levels (these comprise tier 2 and tier 3 capital). Total assets include all nonfinancial and financial assets.

Bank Nonperf. Loans to Total Loans (%)	The value of nonperforming loans divided by the total value of the loan portfolio (including nonperforming loans before the deduction of specific loan-loss provisions).
Commonlaw (1 if yes)	1 if the countries legal system is of English origin; 0 otherwise.

D. Retail sector

Retail Profits (%)	Ratio of operating income to revenue (Fauver, Houston & Naranjo, 2003).
Retail Growth (%)	Ratio of capital expenditure to revenue (Fauver, Houston & Naranjo, 2003).
Retail Debt to Asset Ratio (%)	Gross debt to asset ratio of the retail industry (country level asset weighted average).
Total Assets (US\$ bn)	Total assets of the retail industry (country level asset weighted average).

E. Controls

GDP per capita (constant 2005 US\$)	GDP per capita (constant 2005 US\$).
Region	Economies are divided according to hemisphere: north and south.
Income Level	Economies are divided into four income groupings: low, lower-middle, upper-middle, and high. Income is measured using gross national income (GNI) per capita, in U.S. dollars, converted from local currency using the World Bank Atlas method.
Continent	Economies are divided according to continent.
Crisis	Dummy that takes the value 1 if a particular country-year experienced a systemic banking crisis (Laeven & Valencia, 2013).

F. Credit information

Public credit registry coverage (% of adults)	Public credit registry coverage reports the number of individuals and firms listed in a public credit registry with current information on repayment history, unpaid debts, or credit outstanding. The number is expressed as a percentage of the adult population.
Private credit bureau coverage (% of adults)	Private credit bureau coverage reports the number of individuals or firms listed by a private credit bureau with current information on repayment history, unpaid debts, or credit outstanding. The number is expressed as a percentage of the adult population.
Depth of Info (1-6)	Measures rules affecting the scope, accessibility, and quality of credit information available through public or private credit registries. The index ranges from 0 to 6, with higher values indicating the availability of more credit information, from either a public registry or a private bureau, to facilitate lending decisions.

G. Enforcement

Check trial duration (days)	Estimated duration, in calendar days, between the moment of service of process and the moment the judgment is issued (Djankov et al, 2003).
Check enforcement duration (days)	Estimated duration, in calendar days, between the moment of issuance of judgment and the moment the creditor obtains payment (Djankov et al, 2003).
Check collection procedure, total duration (days)	The total estimated duration in calendar days of the check collection procedure, from the time the plaintiff files the complaint until the time of payment (Djankov et al, 2003).
Time to payment after firm insolvency (days)	Estimated duration, in years, of the time from the moment a firm's default to the point at which the secured creditor receives payment (Djankov et al, 2008).
Debt recovery rate after firm insolvency (%)	The recovery rate calculates how many cents on the dollar claimants (creditors, tax authorities, and employees) recover from an insolvent firm (Djankov et al, 2008).
Time to resolve insolvency (years)	Time to resolve insolvency is the number of years from the filing for insolvency in court until the resolution of distressed assets.
Time required to enforce a contract (days)	Time required to enforce a contract is the number of calendar days from the filing of the lawsuit in court until the final determination and, in appropriate cases, payment.
Strength of legal rights index (0-10)	Strength of legal rights index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 10, with higher scores indicating that these laws are better designed to expand access to credit.

H. Bank concentration

Bank concentration (%)	Assets of three largest commercial banks as a share of total commercial banking assets. Total assets include total earning assets, cash and due from banks, foreclosed real estate, fixed assets, goodwill, other intangibles, current tax assets, deferred tax assets, discontinued operations and other assets.
Lerner index	A measure of market power in the banking market. It compares output pricing and marginal costs (that is, markup). An increase in the Lerner index indicates a deterioration of the competitive conduct of financial intermediaries.
Boone indicator	A measure of degree of competition based on profit-efficiency in the banking market. It is calculated as the elasticity of profits to marginal costs. An increase in the Boone indicator implies a deterioration of the competitive conduct of financial intermediaries.
5-bank asset concentration	Assets of five largest banks as a share of total commercial banking assets. Total assets include total earning assets, cash and due from banks, foreclosed real estate, fixed assets, goodwill, other intangibles, current tax assets, deferred tax, discontinued operations and other assets.
Net interest margin (%)	Accounting value of bank's net interest revenue as a share of its average interest-bearing (total earning) assets.

Lending-deposit spread (%)	Difference between lending rate and deposit rate. Lending rate is the rate charged by banks on loans to the private sector and deposit interest rate is the rate offered by commercial banks on three-month deposits.
Non-interest income to total income (%)	Bank's income that has been generated by non-interest related activities as a percentage of total income (net-interest income plus non-interest income). Non-interest related income includes net gains on trading and derivatives, net gains on other securities, net fees and commissions and other operating income.

Appendix E: Relative Importance of Financial Segment in Retail Industry
Country Level Fixed Effect Regression, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.00395 (0.00467)	0.00381 (0.0160)	-0.0119 (0.0101)	0.0171 (0.0274)	-0.00653 (0.0878)	-0.0650 (0.0669)
Market Capitalization to GDP (%)	0.0124** (0.00489)	0.0106** (0.00437)	0.0103** (0.00421)	0.0373 (0.0335)	0.0241 (0.0286)	0.0236 (0.0233)
Bank ROE (%)		-0.00357 (0.0199)	-0.00573 (0.0178)		-0.0354 (0.115)	-0.0265 (0.108)
Bank Regulatory Capital to Assets (%)		0.0355 (0.139)	0.0874 (0.122)		0.0733 (0.798)	0.305 (0.677)
Bank Nonperf. Loans to Total Loans (%)		-0.0443 (0.0648)	-0.0610 (0.0583)		0.100 (0.402)	0.00294 (0.334)
Commonlaw (1 if yes)		0.00426 (0.00638)	0.00353 (0.00704)		0.0333 (0.0365)	0.0348 (0.0374)
Retail Profits (%)			-0.0553 (0.0492)			-0.226 (0.235)
Retail Growth (%)			0.0436 (0.128)			-0.448 (0.636)
Retail Debt to Asset Ratio (%)			0.0443* (0.0222)			0.299** (0.121)
GDP per capita (constant 2000 US\$)	-0.000000353* (0.000000202)	-0.000000407** (0.000000200)	-0.000000469* (0.000000232)	-0.000000651 (0.00000129)	-0.000000103 (0.000000949)	-0.000000639 (0.00000102)
Banking crisis (1 if yes)	0.000340 (0.00888)	0.00522 (0.00942)	0.00402 (0.00912)	0.00342 (0.0463)	-0.0124 (0.0684)	-0.0224 (0.0663)
Observations	133	129	129	132	128	128
R-squared	0.148	0.155	0.254	0.051	0.067	0.241
Adjusted R-squared	0.107	0.084	0.170	0.005	-0.013	0.155
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Country clustered standard errors in parenthesis
Significant at 1% (***), 5% (**) and 10% (*) levels.

Appendix F: Relative Importance of Financial Segment in Retail Industry (averages)

Period Averages Regression, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.0106 (0.00696)	0.0117 (0.0270)	-0.00400 (0.0224)	0.0275 (0.0322)	-0.0131 (0.138)	-0.112 (0.120)
Market Capitalization to GDP (%)	0.0104* (0.00588)	0.00884 (0.00538)	0.0108* (0.00569)	0.0344 (0.0356)	0.0186 (0.0311)	0.0336 (0.0328)
Bank ROE (%)		-0.00382 (0.0359)	-0.0177 (0.0330)		-0.147 (0.196)	-0.246 (0.193)
Bank Regulatory Capital to Assets (%)		0.0434 (0.199)	0.143 (0.190)		0.279 (1.070)	0.943 (0.987)
Bank Nonperf. Loans to Total Loans (%)		-0.0765 (0.103)	-0.0844 (0.0894)		0.117 (0.561)	0.0538 (0.453)
Commonlaw (1 if yes)		0.00363 (0.00807)	0.00691 (0.00865)		0.0461 (0.0427)	0.0689 (0.0444)
Retail Profits (%)			-0.117 (0.0876)			-0.826* (0.464)
Retail Growth (%)			-0.0871 (0.0820)			-0.605 (0.444)
Retail Debt to Asset Ratio (%)			0.0574* (0.0284)			0.372** (0.156)
GDP per capita (constant 2000 US\$)	-0.000000348 (0.000000245)	-0.000000452* (0.000000257)	-0.000000585* (0.000000300)	-0.000000424 (0.00000136)	0.000000192 (0.000000874)	-0.000000752 (0.00000108)
Banking crisis (1 if yes)	-0.00166 (0.0110)	0.00593 (0.0200)	-0.00132 (0.0214)	0.00423 (0.0485)	-0.0314 (0.104)	-0.0795 (0.111)
Observations	37	37	37	37	37	37
R-squared	0.144	0.180	0.352	0.046	0.092	0.383
Adjusted R-squared	0.066	-0.018	0.103	-0.041	-0.127	0.146

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

Appendix G: Relative Importance of Financial Segment in Retail Industry (averages)

Period Averages Tobit Regression, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.00402 (0.00958)	0.00900 (0.0320)	-0.0212 (0.0246)	-0.0771 (0.0674)	-0.163 (0.217)	-0.403** (0.165)
Market Capitalization to GDP (%)	0.0146* (0.00725)	0.0137* (0.00687)	0.0160*** (0.00522)	0.0730 (0.0544)	0.0307 (0.0481)	0.0488 (0.0478)
Bank ROE (%)		0.0210 (0.0524)	-0.0121 (0.0419)		-0.138 (0.397)	-0.387 (0.315)
Bank Regulatory Capital to Assets (%)		0.0381 (0.244)	0.232 (0.214)		0.678 (1.608)	2.038 (1.256)
Bank Nonperf. Loans to Total Loans (%)		-0.141 (0.130)	-0.182 (0.112)		-0.0578 (0.920)	-0.249 (0.730)
Commonlaw (1 if yes)		0.00161 (0.00893)	0.00537 (0.00860)		0.100 (0.0773)	0.116* (0.0606)
Retail Profits (%)			-0.209* (0.109)			-1.339* (0.775)
Retail Growth (%)			-0.0764 (0.0761)			-0.601 (0.509)
Retail Debt to Asset Ratio (%)			0.101*** (0.0333)			0.809*** (0.240)
GDP per capita (constant 2000 US\$)	-0.000000412 (0.000000333)	-0.000000650** (0.000000314)	-0.000000924*** (0.000000331)	-0.000000837 (0.00000240)	-6.45e-08 (0.00000217)	-0.00000155 (0.00000197)
Banking crisis (1 if yes)	-0.00438 (0.0156)	0.0144 (0.0263)	0.00585 (0.0252)	0.0279 (0.0909)	0.0174 (0.175)	-0.0526 (0.148)
Observations	37	37	37	37	37	37
Pseudo R-squared	-0.059	-0.082	-0.200	0.190	0.356	1.429
Log-likelihood	54.43	55.60	61.66	-4.878	-3.882	2.583

Heteroskedasticity robust standard errors in parenthesis

Significant at 1% (***), 5% (**) and 10% (*) levels.

Appendix H: Relative Importance of Financial Segment in Retail Industry
Country Level Fixed Effect Regression, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.00286 (0.00416)	-0.0262 (0.0177)	-0.0269* (0.0137)	-0.0315* (0.0185)	-0.178 (0.116)	-0.151* (0.0881)
Bank credit to GDP (%)	0.0277*** (0.00858)	0.0280*** (0.00865)	0.0260*** (0.00848)	0.153*** (0.0505)	0.165*** (0.0522)	0.170*** (0.0475)
Private debt securities to GDP (%)	0.00531 (0.0121)	0.00769 (0.0114)	0.00353 (0.00870)	0.0823 (0.0693)	0.105 (0.0688)	0.0609 (0.0435)
Bank ROE (%)		-0.0255 (0.0268)	-0.0229 (0.0273)		-0.120 (0.139)	-0.0873 (0.136)
Bank Regulatory Capital to Assets (%)		0.176 (0.149)	0.175 (0.148)		0.875 (0.930)	0.870 (0.776)
Bank Nonperf. Loans to Total Loans (%)		0.00183 (0.0621)	-0.00143 (0.0616)		0.255 (0.382)	0.244 (0.343)
Commonlaw (1 if yes)		0.00531 (0.00561)	0.00628 (0.00635)		0.00857 (0.0283)	0.0208 (0.0302)
Retail Profits (%)			-0.0118 (0.0581)			-0.0635 (0.261)
Retail Growth (%)			-0.0343 (0.170)			-1.101 (0.801)
Retail Debt to Asset Ratio (%)			0.0164 (0.0169)			0.127 (0.0769)
GDP per capita (constant 2000 US\$)	-0.000000571* (0.000000294)	-0.000000467* (0.000000241)	-0.000000440* (0.000000233)	-0.00000291 (0.00000177)	-0.00000202 (0.00000123)	-0.00000200* (0.00000117)
Banking crisis (1 if yes)	-0.00100 (0.00447)	-0.00851 (0.00832)	-0.00907 (0.00905)	-0.00531 (0.0258)	-0.0760 (0.0563)	-0.0866 (0.0530)
Observations	120	116	116	120	116	116
R-squared	0.294	0.348	0.360	0.318	0.377	0.454
Adjusted R-squared	0.250	0.279	0.272	0.275	0.312	0.378
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Country clustered standard errors in parenthesis
Significant at 1% (***) , 5% (**) and 10% (*) levels.

Appendix I: Relative Importance of Financial Segment in Retail Industry

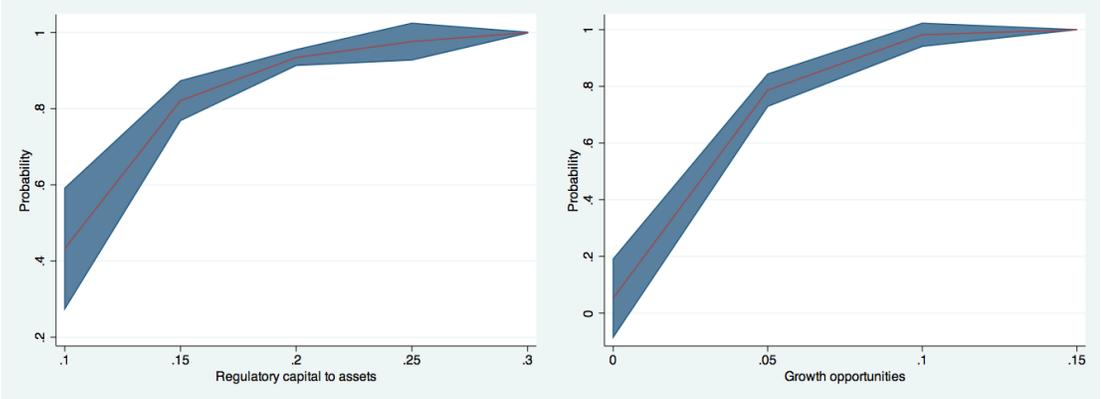
Period Averages Regression, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.0000924 (0.00498)	-0.0348 (0.0293)	-0.0411 (0.0241)	-0.0188 (0.0224)	-0.224 (0.178)	-0.269** (0.116)
Bank credit to GDP (%)	0.0277*** (0.00966)	0.0285** (0.0120)	0.0392** (0.0154)	0.150** (0.0590)	0.168** (0.0741)	0.238** (0.0844)
Private debt securities to GDP (%)	0.00696 (0.0133)	0.0103 (0.0137)	0.00535 (0.0134)	0.0934 (0.0799)	0.121 (0.0856)	0.0745 (0.0670)
Bank ROE (%)		-0.0622 (0.0503)	-0.0574 (0.0392)		-0.345 (0.270)	-0.329 (0.193)
Bank Regulatory Capital to Assets (%)		0.275 (0.230)	0.339* (0.184)		1.359 (1.368)	1.853** (0.850)
Bank Nonperf. Loans to Total Loans (%)		0.00559 (0.103)	0.00992 (0.0947)		0.353 (0.570)	0.366 (0.487)
Commonlaw (1 if yes)		0.00623 (0.00623)	0.00769 (0.00809)		0.0209 (0.0313)	0.0372 (0.0406)
Retail Profits (%)			0.0326 (0.115)			0.124 (0.534)
Retail Growth (%)			-0.177* (0.0902)			-1.303*** (0.447)
Retail Debt to Asset Ratio (%)			-0.00266 (0.0349)			0.0209 (0.176)
GDP per capita (constant 2000 US\$)	-0.00000583* (0.00000312)	-0.00000453 (0.00000289)	-0.00000530* (0.00000305)	-0.00000304 (0.00000190)	-0.00000200 (0.00000139)	-0.00000249 (0.00000153)
Banking crisis (1 if yes)	-0.000978 (0.00954)	-0.00967 (0.0182)	-0.00963 (0.0173)	-0.00993 (0.0461)	-0.0964 (0.0938)	-0.101 (0.0810)
Observations	33	33	33	33	33	33
R-squared	0.314	0.435	0.541	0.323	0.444	0.649
Adjusted R-squared	0.216	0.246	0.300	0.226	0.258	0.466

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

Appendix J: Marginal change in probability, Probit Model



Appendix K: Determinants of Existence of Financial Intermediation in the Retail Industry

Country Level Probit, 2000-2003

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.453 (0.509)	-0.603 (0.553)	-0.789 (0.601)	-9.427*** (2.699)	-5.859** (2.777)	-10.70*** (2.938)
Bank credit to GDP (%)	1.236 (0.754)		0.995 (0.834)	1.677 (1.258)		-0.218 (1.644)
Private debt securities to GDP (%)	1.733 (1.798)		1.305 (1.882)	3.695 (3.117)		4.407 (3.446)
Bank ROE (%)				-3.105 (4.685)	2.740 (3.152)	-5.307 (4.297)
Bank Regulatory Capital to Assets (%)				57.68*** (17.52)	28.26** (13.23)	61.89*** (15.75)
Bank Nonperf. Loans to Total Loans (%)				-9.755* (5.455)	-14.55** (6.474)	-13.66** (5.831)
Commonlaw (1 if yes)				-0.723 (0.658)	-0.946 (0.619)	-0.258 (0.732)
Retail Profits (%)				3.694 (9.631)	-6.728 (10.38)	-3.207 (11.56)
Retail Growth (%)				44.34*** (16.85)	58.56*** (22.64)	65.04** (26.45)
Retail Debt to Asset Ratio (%)		3.950** (1.800)	2.082 (2.260)		6.559*** (2.448)	5.098 (3.962)
GDP per capita (constant 2000 US\$)	-0.0000155 (0.0000229)	0.00000811 (0.0000153)	-0.0000110 (0.0000246)	-0.0000142 (0.0000240)	-0.00000977 (0.0000253)	-0.000000270 (0.0000287)
Observations	33	37	33	33	37	33
Pseudo R-squared	0.145	0.106	0.162	0.411	0.367	0.446
Log-likelihood	-17.30	-20.13	-16.97	-11.92	-14.24	-11.21

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

Appendix L: Relative Importance of Financial Segment in Retail Industry (full sample)

Firm Level Tobit, Period Averages (2000-2003)

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.0275 (0.0714)	-0.0602 (0.0687)	-0.0383 (0.0710)	-0.440 (0.367)	-0.545 (0.354)	-0.503 (0.357)
Market Capitalization to GDP(%)	0.0562*** (0.0169)		0.0573*** (0.0170)	0.133* (0.0806)		0.141* (0.0811)
Bank ROE (%)	-0.334 (0.232)	-0.517** (0.225)	-0.343 (0.230)	-3.681*** (1.371)	-4.215*** (1.290)	-3.708*** (1.331)
Bank Regulatory Capital to Assets (%)	-0.104 (0.565)	0.501 (0.497)	-0.0803 (0.557)	0.449 (2.821)	1.847 (2.488)	0.609 (2.722)
Bank Nonperf. Loans to Total Loans (%)	-0.151 (0.276)	-0.199 (0.280)	-0.206 (0.274)	1.597 (1.469)	1.298 (1.454)	1.218 (1.437)
Commonlaw (1 if yes)	-0.0416* (0.0251)	0.00284 (0.0230)	-0.0421* (0.0249)	0.175 (0.152)	0.305** (0.129)	0.168 (0.147)
Retail Profits (% , excess over country mean)	-0.0957 (0.0781)	-0.0971 (0.0830)	-0.0665 (0.0840)	0.220 (0.251)	0.482 (0.312)	0.540* (0.303)
Retail Growth (% , excess over country mean)	0.175** (0.0822)	0.00853 (0.0857)	0.158* (0.0820)	-0.106 (0.385)	-0.728* (0.397)	-0.265 (0.383)
Retail Debt to Asset Ratio (%)		0.0596*** (0.0193)	0.0612*** (0.0201)		0.399*** (0.0892)	0.399*** (0.0903)
Total Assets (US\$ bn)	0.000102*** (0.0000234)	0.0000971*** (0.0000236)	0.0000968*** (0.0000224)	0.000575*** (0.0000936)	0.000544*** (0.0000876)	0.000540*** (0.0000853)
GDP per capita (constant 2000 US\$)	-0.00000470*** (0.000000872)	-0.00000478*** (0.000000894)	-0.00000489*** (0.000000873)	-0.0000147*** (0.00000418)	-0.0000159*** (0.00000420)	-0.0000159*** (0.00000415)
Banking crisis (1 if yes)	0.00775 (0.0493)	-0.0255 (0.0472)	0.00540 (0.0492)	-0.378 (0.266)	-0.465* (0.251)	-0.393 (0.262)
Observations	1667	1667	1667	1617	1617	1617
Pseudo R-squared	0.217	0.210	0.232	0.115	0.130	0.132
Log-likelihood	-246.5	-248.9	-241.9	-449.3	-441.8	-440.4

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

Appendix M: Determinants of Existence of Financial Segment in Retail Industry

Firm Level Probit, Period Averages (2000-2003)

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.841*** (0.173)	-0.670*** (0.125)	-0.952*** (0.177)	0.152 (0.450)	-0.0681 (0.433)	0.0819 (0.449)
Market Capitalization to GDP (%)	0.185** (0.0765)		0.193** (0.0777)	0.348*** (0.105)		0.359*** (0.106)
Bank ROE (%)				-3.125** (1.493)	-4.231*** (1.426)	-3.279** (1.496)
Bank Regulatory Capital to Assets (%)				-3.289 (3.532)	0.571 (3.124)	-3.152 (3.507)
Bank Nonperf. Loans to Total Loans (%)				0.0877 (1.981)	-0.243 (2.001)	-0.323 (1.993)
Commonlaw (1 if yes)				-0.258 (0.174)	-0.00181 (0.160)	-0.263 (0.174)
Retail Profits (% excess over country mean)				-0.197 (0.317)	-0.133 (0.358)	0.0538 (0.358)
Retail Growth (% excess over country mean)				0.741 (0.488)	-0.297 (0.518)	0.603 (0.495)
Retail Debt to Asset Ratio (%)		0.404*** (0.122)	0.412*** (0.124)		0.472*** (0.127)	0.487*** (0.133)
Total Assets (US\$ bn)	0.000690*** (0.000259)	0.000647** (0.000252)	0.000664*** (0.000251)	0.000879*** (0.000260)	0.000841*** (0.000252)	0.000867*** (0.000254)
GDP per capita (constant 2000 US\$)	-0.0000200*** (0.00000353)	-0.0000211*** (0.00000352)	-0.0000206*** (0.00000356)	-0.0000263*** (0.00000565)	-0.0000269*** (0.00000576)	-0.0000281*** (0.00000567)
Banking crisis (1 if yes)	0.549*** (0.106)	0.390*** (0.0851)	0.540*** (0.106)	-0.225 (0.315)	-0.441 (0.297)	-0.259 (0.317)
Observations	1671	1671	1671	1668	1668	1668
Pseudo R-squared	0.071	0.073	0.078	0.090	0.091	0.099
Log-likelihood	-645.6	-644.0	-640.5	-628.3	-627.9	-622.0

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

Appendix N: Relative Importance of Financial Segment in Retail Industry

Firm Level Fixed Effect Regression, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.0687 (0.0707)	-0.0833 (0.0705)	0.439 (0.314)	-0.200 (0.217)	-0.271 (0.209)	1.647 (1.105)
Market Capitalization to GDP(%)	0.0262** (0.0130)	0.0255** (0.0128)	0.00603 (0.0183)	0.209*** (0.0473)	0.205*** (0.0494)	-0.0143 (0.0633)
Bank ROE (%)	0.0259 (0.0762)	0.0163 (0.0755)	-0.00385 (0.0965)	-0.0930 (0.312)	-0.122 (0.325)	0.632** (0.271)
Bank Regulatory Capital to Assets (%)	0.817* (0.452)	0.859* (0.442)	-0.783 (0.622)	2.902* (1.574)	3.102** (1.513)	0.113 (2.380)
Bank Nonperf. Loans to Total Loans (%)	0.160 (0.223)	0.100 (0.218)	-1.187** (0.592)	0.373 (0.680)	0.0758 (0.655)	-0.883 (2.293)
Commonlaw (1 if yes)	-0.0192 (0.0172)	-0.0157 (0.0168)		-0.138* (0.0790)	-0.118 (0.0838)	
Retail Profits (%. excess over country mean)	-0.126* (0.0689)	-0.117* (0.0685)	-0.127* (0.0714)	0.0782 (0.172)	0.176 (0.182)	0.172 (0.140)
Retail Growth (%. excess over country mean)	0.259*** (0.0549)	0.240*** (0.0581)	0.302*** (0.0634)	0.695*** (0.258)	0.586** (0.284)	0.880*** (0.306)
Retail Debt to Asset Ratio (%)		0.0526** (0.0257)	0.0454 (0.0278)		0.231** (0.0988)	0.125 (0.0968)
Total Assets (US\$ bn)	0.0000316** (0.0000154)	0.0000253 (0.0000155)	0.0000221 (0.0000152)	0.000107** (0.0000413)	0.0000845** (0.0000402)	0.0000801** (0.0000400)
GDP per capita (constant 2000 US\$)	-0.000000675 (0.000000821)	-0.000000843 (0.000000818)	-0.000000810 (0.000000877)	-0.00000168 (0.00000262)	-0.00000246 (0.00000259)	-0.0000400 (0.0000314)
Banking crisis (1 if yes)	0.0168 (0.0136)	0.0176 (0.0136)	0.0198 (0.0181)	0.0459 (0.0454)	0.0532 (0.0451)	0.0110 (0.0498)
Observations	577	577	577	400	400	400
R-squared	0.179	0.192	0.279	0.178	0.202	0.396
Adjusted R-squared	0.160	0.171	0.228	0.150	0.173	0.348
Country Fixed Effect	No	No	Yes	No	No	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Firm level clustered standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

Appendix O: Relative Importance of Financial Segment in Retail Industry

Firm Level Fixed Effect Regression, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.0824 (0.0670)	-0.0943 (0.0668)	0.413 (0.386)	-0.576*** (0.199)	-0.602*** (0.196)	2.686** (1.347)
Bank credit to GDP (%)	0.00480 (0.0177)	0.00380 (0.0174)	0.0219 (0.0237)	0.218*** (0.0494)	0.210*** (0.0502)	0.0691 (0.0656)
Private debt securities to GDP (%)	0.0279 (0.0314)	0.0185 (0.0313)	0.0317 (0.176)	0.507*** (0.111)	0.461*** (0.110)	-0.869 (0.550)
Bank ROE (%)	-0.0158 (0.0730)	-0.0243 (0.0715)	-0.0180 (0.103)	-0.503** (0.243)	-0.508** (0.245)	0.758*** (0.285)
Bank Regulatory Capital to Assets (%)	1.169*** (0.387)	1.189*** (0.378)	-0.758 (0.642)	6.090*** (1.304)	6.085*** (1.267)	-0.258 (2.269)
Bank Nonperf. Loans to Total Loans (%)	0.0954 (0.261)	0.0531 (0.255)	-1.065* (0.578)	-1.011* (0.561)	-1.121** (0.544)	-0.538 (2.143)
Commonlaw (1 if yes)	-0.00143 (0.0172)	0.00156 (0.0168)		0.0407 (0.0452)	0.0496 (0.0464)	
Retail Profits (% , excess over country mean)	-0.141** (0.0647)	-0.134** (0.0646)	-0.125* (0.0704)	0.0733 (0.188)	0.138 (0.197)	0.171 (0.138)
Retail Growth (% , excess over country mean)	0.205*** (0.0579)	0.188*** (0.0609)	0.300*** (0.0622)	0.200 (0.211)	0.131 (0.223)	0.875*** (0.300)
Retail Debt to Asset Ratio (%)		0.0512* (0.0269)	0.0466* (0.0278)		0.156 (0.0968)	0.123 (0.0969)
Total Assets (US\$ bn)	0.0000326** (0.0000158)	0.0000266* (0.0000159)	0.0000221 (0.0000151)	0.000107** (0.0000428)	0.0000925** (0.0000418)	0.0000802** (0.0000400)
GDP per capita (constant 2000 US\$)	-0.00000105 (0.00000111)	-0.00000107 (0.00000109)	-0.00000806 (0.0000108)	-0.0000103*** (0.00000265)	-0.0000102*** (0.00000260)	-0.0000651* (0.0000382)
Observations	568	568	568	400	400	400
R-squared	0.166	0.178	0.276	0.216	0.226	0.397
Adjusted R-squared	0.147	0.157	0.229	0.190	0.198	0.350
Country Fixed Effect	No	No	Yes	No	No	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Firm level clustered standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.

Appendix P: Relative Importance of Financial Segment in Retail Industry

Firm Level Tobit, 2000-2003

	Sales			Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.151*** (0.0114)	0.151*** (0.0112)	0.150*** (0.0114)	0.633*** (0.0375)	0.640*** (0.0376)	0.623*** (0.0370)
Bank credit to GDP (%)	0.101*** (0.0312)		0.0962*** (0.0312)	0.583*** (0.156)		0.553*** (0.155)
Private debt securities to GDP (%)	0.00796 (0.0428)		-0.00618 (0.0430)	0.236 (0.214)		0.140 (0.214)
Bank ROE (%)	-0.158 (0.126)	-0.429*** (0.124)	-0.166 (0.125)	-0.802 (0.629)	-2.590*** (0.700)	-0.835 (0.609)
Bank Regulatory Capital to Assets (%)	0.800 (0.516)	0.488 (0.495)	0.784 (0.511)	3.477 (2.522)	1.623 (2.446)	3.314 (2.455)
Bank Nonperf. Loans to Total Loans (%)	-0.378 (0.263)	-0.310 (0.206)	-0.422 (0.264)	-2.032 (1.307)	-0.759 (0.967)	-2.286* (1.307)
Commonlaw (1 if yes)	-0.0259 (0.0245)	0.00349 (0.0233)	-0.0223 (0.0243)	0.0448 (0.129)	0.314** (0.136)	0.0690 (0.126)
Retail Profits (% , excess over country mean)	-0.118 (0.0797)	-0.0981 (0.0829)	-0.0902 (0.0855)	0.212 (0.246)	0.461 (0.314)	0.510* (0.294)
Retail Growth (% , excess over country mean)	0.123 (0.0793)	0.0101 (0.0861)	0.1000 (0.0795)	0.124 (0.346)	-0.703* (0.407)	-0.0746 (0.340)
Retail Debt to Asset Ratio (%)		0.0593*** (0.0193)	0.0650*** (0.0208)		0.394*** (0.0897)	0.407*** (0.0922)
Total Assets (US\$ bn)	0.000103*** (0.0000236)	0.0000946*** (0.0000236)	0.0000969*** (0.0000226)	0.000558*** (0.0000920)	0.000507*** (0.0000903)	0.000521*** (0.0000842)
GDP per capita (constant 2000 US\$)	-0.00000483*** (0.00000125)	-0.00000500*** (0.000000789)	-0.00000478*** (0.00000125)	-0.0000244*** (0.00000587)	-0.0000203*** (0.00000328)	-0.0000241*** (0.00000580)
sigma	0.151*** (0.0114)	0.151*** (0.0112)	0.150*** (0.0114)	0.633*** (0.0375)	0.640*** (0.0376)	0.623*** (0.0370)
Observations	1657	1667	1657	1612	1617	1612
Pseudo R-squared	0.227	0.209	0.242	0.133	0.125	0.150
Log-likelihood	-242.2	-249.1	-237.3	-439.9	-444.2	-430.8

Heteroskedasticity robust standard errors in parenthesis.

Significant at 1% (***), 5% (**) and 10% (*) levels.