

Finance with a Focus on Dollar Debt: Evidence from a Survey of Lebanese Firms

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Abstract

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1 Introduction

The purpose of this paper is to investigate the determinants of dollar debt and bank borrowing using data from a unique Lebanese firm-level survey that we designed and administered¹. We also gain novel insight into the financial constraints that hinder the development of companies in Lebanon, and whether and how the political shock in 2005 affected firms' business conditions. We also compare the robustness of the findings from our data set to those obtained when using the World Bank Enterprise Survey data on Lebanon that was also carried out in a similar time period.

Emerging market crises over the past decade have focused attention on the extensive and possibly excessive use of dollar debt. The resulting currency mismatches have been singled out as an important factor amplifying crises. For example, Aguiar (2005) finds that the investment of exporting firms in Mexico was adversely affected by the peso devaluation in 1994. Firms with high levels of foreign currency debt subsequently decreased their investment compared with other firms. Nonetheless, it is not unambiguous because firms that are seemingly most exposed to a depreciation may also be best placed to deal with this risk. Bleakley and Cowan (2008) find instead that the competitiveness effect of a depreciation overall outweighs the negative balance sheet effect. These papers also have important implications for whether monetary policy in dollarized economies should target a peg or allow the exchange rate to float in the presence of liability dollarization (see for example Elekdag and Tchakarov, 2007 who show that a peg is welfare superior to a float).

Financial dollarization has continued to increase all over the world despite declining worldwide inflation (see De Nicolo et al, 2005). For example, the share of dollar deposits in South America increased from 46% to 56% and in Lebanon from 53% to 69% over the period 1996 to 2001. Over the past few years, significant progress has been made in the literature on different theories rationalizing the use of dollar debt. Concurrently, some papers have empirically investigated the factors affecting a firm's dollar debt. The limitations of the empirical literature, however, are that it derives almost entirely from Latin America and East Asia. Moreover, the existing studies are typically based on the largest and listed companies and they obtain dollar credit from foreign banks and other lenders, a limitation also emphasized by Tornell and Westermann (2002).

The case of Lebanon contributes significantly to this literature in that the major part of credit is intermediated through domestic banks and it is mostly in dollars. Dollar loans are roughly 84% of commercial bank lending in recent years based on statistics from the Central Bank (Banque

¹Note that throughout this paper we use the terms dollar and foreign currency debt interchangeably. That said, most foreign currency borrowing in Lebanon is intermediated in dollars.

du Liban) as can be seen in Figure 1. Lebanon has also not experienced the dramatic financial deregulation and ensuing financial crises that possibly contaminate empirical work done in other world regions. The exchange rate has been pegged to the dollar at 1507.5 lira/\$ since 1998. The choice of debt denomination in Lebanon has long been freely determined between the the creditor and the debtor. Additional evidence on the importance of bank intermediation in Lebanon is provided by a comparative study of the Middle East and North Africa (MENA) region by Grais and Kantur (2003) that shows that Lebanon has the highest share of banking assets to GDP (272%) and the lowest stock market capitalization (10%) in the region. Moreover, domestic banks dominate the banking system, accounting for 80% of system assets over the sample and their share of banking system assets has only gone up over time (see Mora, 2009). The findings from this study can serve to derive policy implications and to be able to better answer the important question of whether funds are being channeled efficiently. If banks are channeling (mostly dollar) funds to firms based on their collateral and net worth and not on the investment project's return, then aggregate growth will be constrained as well.

The large part of borrowing in emerging markets is intermediated in dollars (see for example Eichengreen and Hausmann, 2005). What are the reasons that firms in emerging markets choose dollar debt? One reason is that much of this is borrowing from foreign lenders and foreigners lend in foreign currency because if they were to lend in domestic currency, they would demand a premium due to transaction costs (see Aghion, Bachetta, and Banerjee, 2000, for a model with this assumption. The reason firms resort to foreign lenders in their model is because domestic consumers are willing to lend only up to a maximum amount – in domestic currency – and therefore the residual comes from foreigners). Eichengreen and Hausmann (2005) claim that foreigners' preference for lending in dollars derives from 'original sin'. International lenders cannot 'forgive' emerging market borrowers for past monetary sins even after considerable time. There are also theories why domestic banks may want to lend in dollars too, which are more relevant for this study. Calvo (2002) reasons that banks with highly dollarized deposits lend to domestic firms in dollars to match the currency composition of their assets to their liabilities. Regulatory constraints on banks to match their portfolios combined with information asymmetry means that banks will be more likely to lend dollars domestically where they are less informationally disadvantaged². In the dual liquidity model of Caballero and Krishnamurthy (2002, 2003), international lenders also lend dollars only against internationally tradeable assets such as foreign currency revenues. As this limited dollar liquidity will not necessarily be in the hands of those agents that need it to for real investment, it will then be intermediated between domestic agents and the distortions that arise are

²Mora (2009) finds evidence in support of banks' preferring to lend in dollars because of balance sheet matching considerations. Also see Luca and Petrova (2008) for evidence from transition economies.

discussed in more detail below).

It is incomplete, however, to focus only on the supply decision by lenders. Firms in emerging markets are also jointly choosing their dollar debt. Following from ‘original sin’ or more generally from the incompleteness of financial markets that lead to a failure of uncovered interest parity, lower interest rates on dollar loans than on domestic currency loans provide firms with an incentive to borrow in dollars. However, there is a trade-off because this dollar debt comes at the cost of a balance sheet currency mismatch. This may increase the risk of firms defaulting in the event of a depreciation. Is the dollar debt that is chosen therefore consistent with an optimal level?

Theories on borrowers’ choice of dollar debt can be divided into four main categories. First, some papers (e.g. Burnside et al, 2001) have emphasized various government policies that guarantee (implicitly or explicitly) dollar debt. Some governments may provide systemic bailout guarantees to avoid defaults on dollar debt. Alternatively, the insurance against exchange rate risk provided by a fixed exchange rate policy encourages firms and banks to incur dollar debt, exacerbating asset-liability currency mismatch, and reducing incentives to hedge the associated exchange rate risk³. These government guarantees underpin boom-bust cycles in middle-income countries when combined with asymmetric financing opportunities between the tradeable and non-tradeable sectors, as in Tornell and Westermann (2002).

A second strand of literature (see Caballero and Krishnamurthy, 2002, 2003) focuses instead on the private sector and not on misguided government policy as the reason behind dollar debt. A country’s limited international liquidity is not necessarily in the hands of the entrepreneurs that need it for real investment. Instead it is with other domestic agents such as banks that lend it to entrepreneurs against the value of their domestic liquidity or net worth. Domestic liquidity can take the form of marketable domestic assets such as real estate. But importantly these domestic assets are only marketable domestically and cannot be pledged to international lenders. Caballero and Krishnamurthy emphasize the interaction between this underdeveloped domestic financial market and an international financing constraint that leads firms to borrow too much in dollars compared to the social planner’s decision. The idea is that agents undervalue insuring against an exchange rate depreciation and therefore initially borrow too much in dollars. The reason is that in those states of nature when more financing is needed, firms will have a depressed demand for credit because of the limited collateral that they can post. Therefore the available dollars will be undervalued because constrained firms cannot pledge all their investments’ future returns to borrow these dollars.

A third strand (see Jeanne 2000) emphasizes that firms may incur dollar debt as a commitment

³Martinez and Werner (2002) find support for this in the case of Mexico. The fixed exchange rate regime prior to 1994 provided an implicit exchange rate guarantee by the government. They find that balance sheet mismatches fell after the adoption of the floating exchange rate regime.

device – to signal to their creditors that they are “good” types. Jeanne also stresses an alternative model whereby firms choose to borrow in dollars because the incentives to commit a high effort level to the project are stronger when debt is in dollars because if the firm fails to achieve high returns, it is then more likely to be terminated. In either case, dollar debt can, therefore, be obtained at a lower interest rate *ex ante*.

Fourth, firms may have hedging motives to incur dollar debt. This risk management view is that greater foreign earnings, such as those arising from exports, offer a natural hedge for risk-averse firms with dollar liabilities. Risk averse managers may want to keep profits (after debt payments) stable so this means that firms with exports and foreign currency revenue will also be more likely to incur foreign currency debt. In fact, in some countries like Chile, lending in foreign currency is prohibited to the non-tradable sector (see Gulde et al, 2004). Bleakley and Cowan (2008) find support for this view; they find that firms match the currency denomination of their liabilities with the exchange rate sensitivity of their revenues. As a result, depreciations do not lead to an adverse effect on firms with more dollar debt. Finally, leveraged firms that are more susceptible to financial distress may also want to reduce the likelihood of falling into bankruptcy by taking on less dollar debt.

The rest of this paper is organized as follows. In Section 2, we relate the theories discussed to the empirical findings in the literature. We also touch on existing survey evidence from Lebanon. Section 3 sets out the survey method used in this study and describes the data. Section 4 goes over the results in detail. These are divided into the determinants of dollar debt, the extent of financing obstacles and bank borrowing, robustness checks against an alternative data set, and finally the effect of the February 14, 2005 shock on firms’ business expectations. Lastly, section 5 concludes.

2 Evidence from the Literature

Testing the implications of these various theories is not so clear-cut. However, Gelos (2003) examined some of the theories using data on over 500 of the largest Mexican companies. If the signaling theory of Jeanne were the dominant one, then one would expect firms with higher dollar debt to have higher ex-post profits. He does not find this to be the case; in fact his results suggest that ex-post profits are lower among firms with higher dollar debt. The underdeveloped domestic financial market theory of Caballero and Krishnamurthy is less straightforward to test. However, to the extent that larger firms and firms with foreign currency revenue are better able to post collateral, then these should be the ones with access to dollar debt. There is support for this: fixed assets (a proxy for firm size) and exports to total sales (proxy for foreign currency earnings) are found to be positively statistically

significant determinants of dollar debt⁴. The latter finding on exports is also consistent with the risk management view. Aguiar (2005) found similar results for a sample of 300 listed firms⁵. He also found that distress costs as proxied by volatility of sales reduce firms' foreign currency debt and a greater debt to capital ratio was associated with lower share of dollar debt (though the latter entered the selection equation positively).

A third paper by Allayannis et al (2003) investigates the determinants of currency denomination for a set of over 300 of the largest East Asian companies. As well as finding that firm size (and other market depth measures), tangible assets and foreign currency cash reserves and earnings are all correlated with the share of dollar debt, they find support for the difference between domestic and foreign interest rates being positively related to dollar debt. They also find that profits have no significant effect.

It is important, however, to research this topic for a wide range of firms and not just the largest and listed firms as has been done in the existing literature. Focusing on the largest firms can lead to a bias in our knowledge of the important determinants of dollar debt. To the extent that small firms are more credit-constrained, the economic significance of some factors (such as size, collateral, net worth) may be biased downwards in the literature. At the same time, most of the existing studies have looked at firms whose debt is owed to foreign banks and lenders and not to domestic ones. To the extent that foreigners have less information on domestic firms and therefore higher monitoring costs, they will rely more heavily on collateral and other hard information measures in their lending. This would lead to an upward bias in the coefficients. Therefore it is important to study the choices made by a wide range of firms and in an economy where dollars are intermediated domestically.

We are aware of one recent working paper by Brown et al (2009) that looks at a broader sample of firms from transition economies. The authors use survey data from the World Bank and European Bank for Reconstruction and Development's 2005 Business Environment and Enterprise Performance Survey. About 60% of their sample are small firms (that is, with under 50 employees as typically defined in World Bank studies). A second contribution of their study is the cross-country comparison, and they find that lower interest rates on foreign currency loans help to explain differences in loan dollarization across countries (but not within countries over time). In line with the outlined theories and other studies, they find that exporters and foreign-owned firms are more likely to have a foreign currency loan. However, there are a number of limitations to their study. A large part of banking system assets in transition economies are held by foreign banks. Both the

⁴Interestingly, he also finds that foreign currency debt is positively associated with the value of imported goods as a share of sales. Gelos reasons that incurring foreign currency debt may be motivated by the need to finance the purchase of inputs on international markets.

⁵Refer to his working paper version as the results on the determinants of foreign currency debt were omitted in the journal publication.

mean and median for their sample of 26 countries is 51% of system assets over the period 2002-05 and reaches over 90% for countries like Croatia, Estonia, and Slovakia. Second, the data set has some limitations on the scope of variables. They have data only on the currency denomination of the firm's last loan, and lack information about accounting variables such as profits, and more broad measures of total debt shares in foreign currency. It is also difficult to interpret their measure of firm distress costs, which they proxy by expenses for security services as a share of sales – it could also be capturing fixed costs, foreign lender requirements and so on. Their finding that older firms are less likely to borrow in foreign currency is also difficult to interpret, as this could be contaminated by the fact that there has been significant financial deregulation over time in these transition countries.

In short, there is much scope for further investigation of the determinants of dollar debt. It is to this end that our paper contributes.

2.1 Other surveys from Lebanon

One of the earliest firm surveys⁶ carried out in Lebanon was the Ministry of Industry survey in 1994 and in 1999, financed by the German government and in collaboration with GTZ. The sample was about 3000 manufacturing firms, predominantly small firms and over 95% of the sample employed less than ten workers. The Ministry of Industry's focus was not on credit per se, but on general economic indicators such as production, workforce, assets, and investment. However, it did confirm that banks are a dominant source of finance. Of short-term loans, 73% came from banks. But only 280 of the roughly 3000 firms reported these loans. Our study allows us to distinguish whether this is because a large fraction of firms in fact do not access credit or whether it is due to data recording and missing information. The Ministry of Industry also collected qualitative data on the main difficulties enterprises face in their business environment. The majority of firms said that they would not invest or recruit over the following months. Among the ten most important obstacles cited, four related to financing. The most important difficulty was the level of interest rates, and the third most important difficulty was access to long-term loans. Also cited further in the ranking was access to short-term loans and lack of collateral or guarantees. The remaining non-finance obstacles relate to local and regional competition, the cost of electricity, and customs duties.

The Economic Research Forum sponsored several surveys on micro and small enterprises (MSEs) in four Middle Eastern countries such as Egypt. See Hamdan (2004) for the results on 2948 Lebanese enterprises. Despite the somewhat misleading label of MSEs, this is probably the most

⁶ Aside from the quarterly balance of opinion survey that the Banque du Liban collects from roughly 900 companies in the industry, commerce, and construction sectors since 2000. Interestingly, the balance of opinion across all three sectors was consistently negative from 2000 to 2007, and has only turned positive in 2008. That is, the proportion of managers estimating an improvement in say, sales, relative to those reporting a decline has typically gone down in year-on-year comparisons.

representative sample of Lebanese firms. This is because the sampling was carefully based on the Central Administration for Statistics' establishments survey (see for example, CAS, 2006) that found that over 97% of business establishments in Lebanon employed less than 50 employees⁷. Over 90% employed less than five employees and this number is higher than when the CAS conducted a similar survey in 1996. This MSEs sample can be seen as an upper bound of financially constrained firms in Lebanon compared with our sample that is described in the next section. We will also see that the World Bank Enterprise Survey (2006) that is discussed at the end of Section 4 serves as a lower bound for financially constrained firms. We describe some of Hamdan's results that pertain to financing conditions. The largest proportion of firms ranked "securing initial capital for business start-up" as a major obstacle (and much of this capital is then financed by own savings and inheritance/family), followed by high tax rates as a major obstacle. Only 8.3% of the surveyed MSEs have a formal (bank) loan (and mainly the larger firms). Even less had access to formal loans in their start-up phase: only 4.2% of the sample.

These results of the Ministry of Industry survey and the Economic Research Forum survey confirm the importance of financing obstacles found in cross-country firm-level surveys (e.g. see Beck et al 2006). In fact, even the firms surveyed by the World Bank Enterprise Survey Lebanon 2006 that appear a priori to be less constrained, cited financing difficulties as a major problem (see the end of Section 4). Hamdan (2004) makes the point that because MSEs account for the bulk of the working population, this sector also has the potential to underpin economic development in Lebanon. We take some issue with this interpretation and believe that what is holding back development is in fact the small scale of business activities that are constrained in their growth by finance. Smaller MSEs are found to be in the more disadvantaged areas of the country. In fact, the biggest obstacle that these MSEs cited was securing capital for business start-up. Hamdan also found that 42% of MSEs were constrained by lack of access to credit facilities. In addition, he finds evidence that most MSEs depend on the immediate local market for selling their output and rely on households as final consumers rather than other businesses in the national market.

3 Survey Method and Data Description

We carried out an original survey on a wide sample of representative firms during 2005-06, and we obtained a response of 201 returned surveys. Companies were randomly sampled from the 2005

⁷Of the 176291 establishments documented by CAS, over 97% are independent companies and only 28% were registered with the Ministry of Justice). Also, the regional distribution is less concentrated in Beirut and Mount Lebanon than for our (Kompass) sample and the WBES sample. For example, the regional distribution in the MSE survey was as follows and based on CAS: 12% in Beirut, 36% in Mount Lebanon, 23% in North Lebanon, 10% in South Lebanon, 14% in Bekaa, and 5% in Nabatiyeh. The sample of firms in Hamdan and CAS is also younger than our (Kompass) sample: one-third were established after 2000 compared to 15% of our sample.

edition of the Kompas Lebanon business directory of 8000 companies. Specifically, these non-financial companies were randomly sampled from urban regions because of project constraints – both time and funds – that limited the extent of research assistance⁸. Therefore the results can be interpreted as a lower bound of financing difficulties that firms face in rural areas. The survey was composed of both qualitative and quantitative questions and focused on drawing out firms’ view of the financial system and their financing conditions. Firms were also asked to comment specifically about their foreign currency debt, their currency preferences, and their perceptions about the ease of borrowing in foreign currency⁹. Student research assistants administered and collected the survey in person from a senior manager at each of the companies visited.

Of the 588 total companies visited, 201 responded with a completed survey. The regional distribution of cooperative and non-cooperative firms is very similar which suggests that there was no particular selection bias. The distribution of surveys were from the four regions (or mouhafaza): Beirut (30%), Mount Lebanon (61%), North Lebanon (3.5%) and South Lebanon (5.5%)¹⁰. See Table 1 for these and other summary statistics described below. The accompanying appendix has variable definitions in detail (Appendix B).

We confirm that the other characteristics of the returned surveys closely matches those of Kompas firms from which they were sampled (for more on the latter, see Mora, 2009): 23.5% are in manufacturing, 30% in services, 42% in wholesale and retail trade, and 4.5% in construction. The age distribution is also similar and the median year of establishment was in 1993 after the end of the civil war (implying a median age of 13 years as of 2006). The median size of our sample of firms is 9 employees, like that in the general Kompas sample. Most companies in Lebanon are relatively small by international standards with a quarter of the Kompas sample of firms consisting of those with less than 5 employees¹¹. This is also seen in our sample: 21% of the firms have less than 5

⁸We were limited by a budget of \$4000 and therefore could only rely a number of student research assistants. In contrast, the MSEs survey carried out by Hamdan (2004) involved 55 trained surveyors.

⁹A copy of this 15 page survey is available upon request. We devised and distributed the survey in joint English and Arabic translations and 32% of companies chose to complete the survey in Arabic. The results discussed in the next section are not sensitive to the choice of language. The general questions were motivated by the *World Bank Enterprise Survey* (WBES), 2000, The World Bank Group, and the *Asian Corporate Crisis and Recovery Firm-Level Survey*, 1999, The World Bank Group.

¹⁰Within the Mount Lebanon region: Baabda (15%), Metn (38%), Kesrouane and Jbeil (7%). Also North Lebanon was represented by the city of Tripoli and South Lebanon was represented by the city of Saida due to the urban constraint discussed above. While the cooperative and non-cooperative firms were similarly distributed, there are some differences between these distributions and the Kompas business directory from which they were sampled on account of our limitation to urban areas and other research assistant constraints. Nonetheless, our sample agrees with the highly concentrated regional distribution of companies in Beirut and Metn. In the overall Kompas directory: 43% were from Beirut, 52% from Mount Lebanon, 2% from North Lebanon, 1% from South Lebanon, and 1.5% from the Bekaa.

¹¹Indeed, this indicates that a cross-country metric of a small firm is difficult to state in absolute terms. For example, many studies using World Bank Enterprise Survey and other data, define small firms as those under 50 employees and run cross-country comparisons (see for example, Beck et al, 2006). The World Bank’s Doing Business reports try to make data comparable across countries by outlining a representative type of business operating in the largest city that employs between 10 and 50 employees. This, however, can be anything from a very small company in developed countries to a very large company in countries like Lebanon!

employees, 27% have between 5 and 9 employees, 30% have 10 to 19 employees, 11% have 20 to 49 employees, and the final 11% employ over 50. The majority of firms identified their legal status as limited partnerships (such as société à responsabilité limitée, SARL) and a substantial share were sole proprietorships (over 20%). Most firms are controlled by either individual owners or a family (over 75% of the sample), where control means responsibility for taking major company decisions.

Almost all firms are fully domestically owned; the average share of capital held by Lebanese shareholders is over 99%. Very few companies have foreign holdings or operations in other countries (FDI). Most import (59% of the sample) but only 27% of firms export¹². While the average export share of sales is 9.2% and the average import share of inputs is 43.3%, 82% of the firms reporting borrowing, borrow in a foreign currency, predominantly in dollars. And the average share of their debt in dollars is 73.4%. Therefore, we confirm the extensive use of dollar debt, even for a sample of small privately-held Lebanese companies that do not export for the most part. We will explore factors explaining this in the next section.

The last third of the survey was dedicated to a quantitative section asking firms to enter information in detail for the previous two years about the decomposition of their asset and liabilities on their balance sheets, their income statements, and their collateral values. Besides the usefulness of this data to control for firm characteristics in this study, this information would have shed light on the general characteristics of companies operating in Lebanon, on which very little is known as only a handful of companies are publicly traded¹³. However, firms were very reluctant to share information in this section despite the signed confidentiality statements, the emphasis made by our students that the anonymity of the data would be honored and that the survey was being carried out by a respected academic institution not affiliated to the government and tax agencies¹⁴. This was also a problem faced by Hamdan (2004) and he notes that there is an "intrinsic mistrust of labor related government agencies". Only fifteen companies provided (some) information in this quantitative section. Nonetheless, we also asked about accounting variables of interest like total

¹²Outside of Lebanon, sales are concentrated in the Middle East and North Africa region (7% of mean sales), followed by Western Europe in a distant second (0.5%). Inputs, however, are primarily from Western Europe (23% of mean inputs), followed by South East Asia (8%).

¹³There are eleven companies traded on the Beirut Stock Exchange, most of which are banks. See www.bse.com.lb for more information. When firms were asked in the survey why they were not listed on the stock exchange, they mostly gave reasons such as size limitations and/or a preference for private family ownership.

¹⁴Research assistants reported that managers with a background in business or economics were more cooperative. Moreover, many managers cooperated because they said it was conducted by the American University of Beirut, which is generally viewed as a 'domestic' institution that stays out of politics and not as an external American institution. For example, a few wrote comments on the survey that "We trust in the Department of Economics in this university (AUB) and we apologize for not including quantitative numbers." Although at the other extreme and in an amusing anecdote, one non-cooperative manager informed the assistant that "[while] I know you're innocent, but I don't believe these people. They always disguise themselves." However, the two more common reasons for not cooperating were on account of survey length and the view by some managers that their business is not relevant to the study because they do not access external finance. Therefore many rationed firms are excluded, and combined with the fact that the sampling was from urban areas, suggests that the results in this paper are a lower bound on true financing constraints faced by the population of firms.

sales, profits, and fixed assets in a background section in an earlier part of the survey. More than half of the companies completed that section and summary statistics are also shown in Table 1. Reflecting the small size of companies, the median total sales was 325000 USD and median fixed assets was 50000 USD. The profit margin, profit to sale ratio was 26%, net worth to fixed asset ratio 1.6, and the median firm was not indebted¹⁵. Firms also provided estimates of the growth of their employment, sales, investment, debt, and exports over the previous two years, and also gave their expectations about the direction of these variables over the following two years.

4 Hypotheses and Results

4.1 Relating the hypotheses to the available data

Our primary interest is in understanding what factors explain firms' use of dollar debt and the share of dollar debt in their total debt. First, we revisit the theories discussed in the introduction and literature review that lend themselves to testing in a cross-section of firms. Other theories such as the static tradeoff theory that means that firms will prefer to borrow in dollars because of lower rates on dollar debt, and theories of government guarantees for dollar debt (e.g. ensuring a fixed exchange rate) are more difficult to test with a cross-section sample of firms. The risk management view is that firms with foreign earnings, such as exporters and those with operations abroad (FDI), are more likely to incur dollar debt because their foreign earnings provide them with a natural hedge against exchange rate risk.

The market depth view articulated by Allayannis et al (2003) is that larger firms borrow externally because they exhausted domestic bank and debt markets. This feature is also assumed in the model by Aghion et al (2000) This is less relevant in the context of this study on mostly small firms borrowing domestically from banks. However, to the extent that there are no developed domestic bond markets, a very limited equity market, and firms are financed primarily with retained earnings (internal funds account for over 75% of financing as seen in Table 1), external finance as captured by domestic bank finance will be associated with an external finance premium. With imperfect information about the quality or riskiness of the borrower's project and costly monitoring, larger,

¹⁵Support for the view that the accounting information reported does not suffer from bias comes from two pieces of information. First, for those 15 companies reporting accounting information both in the quantitative section and the qualitative section, the median deviation between a company's two responses was equal to zero and the average deviation between its two responses was generally low (e.g. 4% deviation for the value of sales, exports and imports). Second, some variables were inquired about in two different questions in the same first part of the survey that most firms answered. For example, the mean debt share in foreign currency was 73% in one question and 72% in the summary question, both with a standard deviation of 39%. Similarly, firms were asked to directly provide the number of current employees and the number from two years previously. The computed growth in the number of employees closely matched the figure they gave later in the summary section for the growth in the number of their employees over the previous two years, which equaled 4.5%.

less opaque firms with more pledgeable collateral will benefit from greater access and lower cost of these external bank funds. Combined with the fact that the large part of bank lending is in dollars (e.g. on account of banks matching the currency composition of their loans to their deposits as in Calvo, 2002), this means that larger firms' access to bank finance will also be reflected in a greater likelihood of dollar borrowing. This view is closely related to the dual liquidity model developed by Caballero and Krishnamurthy (2003). The international financing constraint means that limited international liquidity will not be in the hands of the firms that invest. Instead, banks in Lebanon have access to the international liquidity in the form of resident and non-resident (mostly expatriates) depositing dollars in the commercial banking system. Other domestic agents then borrow these dollars to finance their projects and working capital needs. Those firms with greater domestic liquidity, such as tangible marketable assets and higher net worth, will therefore be able to borrow more dollars.

The signaling hypothesis articulated by Jeanne (2000) is that firms may incur dollar debt to signal to creditors that they are 'good' types. Similarly, dollar debt may be used to ensure that firms commit a sufficiently high effort to their projects so as to repay the debt. In both cases, this means that firms more likely to incur dollar debt are those with higher profits *ex post*. Finally, theories of costs of financial distress imply that firms with a greater risk of falling into financial distress (e.g. as reflected in a higher leverage ratio) will be less likely to borrow in dollars *ex ante*.

4.2 Dollar debt: The baseline results

The correlations in Table 3 are a useful first metric and regression results follow in Tables 4 to 6. Consistent with the hedging hypothesis, exporters, export share and FDI operations are positively associated with the likelihood and share of dollar debt. Larger, older and firms with other characteristics that are expected to make them less financially constrained (such as having more fixed assets or those with external audits) also appear to be more likely to borrow in dollars. Moreover, these type of firms and exporters are also found to be more likely to borrow from banks; these results provide preliminary support for the Caballero and Krishnamurthy view to the extent that these firms are better able to post collateral. The correlations do not favor the signaling hypothesis nor the financial distress hypothesis but these will be more rigorously tested in the regressions controlling for the other factors.

Table 4 shows the results of baseline regressions testing the theories outlined. The dependent variable in columns (1) to (4) is whether a firm takes on dollar debt conditional on it reporting that it borrows, and the coefficients reported are the estimated marginal effects from probit regressions calculated at the sample means of the regressors. A caveat is the small sample size. This derives

from the fact that only 77 firms indicated that they borrow (38% of the sample), and this includes the possibility of borrowing from sources other than banks, such as supplier credit, and other informal credit. Despite this caveat, we believe that considerable insight can be gained from these results and serve to complement the existing studies that have looked at large publicly traded companies borrowing externally. We also run similar regressions using an alternative dataset from the World Bank Enterprise Survey, Lebanon 2006 to test for robustness and discuss the results in Section 4.7.

The results in column (1) confirm the prior that exporters are significantly more likely to borrow in dollars; the estimate indicates that they are 17.7 percentage points more likely to borrow in dollars. This is a nontrivial effect given the mean dollar debt rate is 82 percent¹⁶. Firm size, as proxied by dummies for the range of number of the employees is also found to be associated with dollar debt with smaller firms incurring less dollar debt and especially the smallest firms with less than five employees (the omitted category is firms with 20 or more employees). The effect is statistically significant in column (2) where log total sales are included instead¹⁷. Older firms are also more likely to have dollar debt and the effect is statistically significant in column (2); a one-standard deviation increase in a firm's age (14.85 years) raises its dollar debt probability by 7.4 percentage points. Importers are less likely to borrow in dollars, once one controls for other characteristics. This result is also in line with the risk management hypothesis as importers' cash flows are vulnerable to exchange rate risk. The regressions also control for industry effects. Firms in the manufacturing and services sectors are less likely to borrow in dollars compared with firms in the wholesale & retail trade and construction sectors (the latter two sectors are combined as an omitted category because of the low incidence of contractors and construction firms in the sample). That the trade and construction sectors are more likely to borrow in dollars is consistent with their greater pledgeable and marketable collateral and foreign earnings, in particular for the trade sector. Before turning to the results in columns (3) and (4) that allow for accounting characteristics, it is worth noting that firms with dollar debt are not isolated to any one region such as the capital Beirut region. A dummy for firms located in Beirut is insignificant. Also the legal structure and company control are not significant.

Column (3) repeats the regression in column (1) but includes the firm's profit to sales ratio, net worth to fixed assets, and debt to fixed assets¹⁸. In line with the Caballero and Krishnamurthy

¹⁶Also note that including a dummy for firms with FDI operations drops out of the probit regression because it is perfectly associated with firms that have dollar debt.

¹⁷Similar results are found when using other alternatives for size: the log of total fixed assets, a dummy for firms with a unique branch, the number of branches, and a dummy for firms that face more than three competitors in their main product line.

¹⁸Note that these probit regressions are also estimated with variables indicating missing accounting information. Recall that fewer firms reported accounting information such as the value of profits and sales. One option is to estimate the regressions on the sample of firms that report these figures. The results on this smaller sample are similar to column (3): the profit to sales ratio is significantly negative, net worth enters with a positive and significant sign, and debt is also positive. The alternative estimation option shown in column (3) is to include a variable that

hypothesis and the external finance premium, firms with higher net worth are more likely to borrow in dollars. Results are similar if we also include the ratio of fixed assets to sales, that is also found to be positively associated with the likelihood of dollar debt but the effect is not statistically significant. In contrast, more profitable firms are *less* likely to have dollar debt and the effect is statistically significant at the 1% level. This result is similar to the findings by Gelos (2003) for a sample of large Mexican firms. Therefore the results do not support the signaling and effort commitment hypotheses. Indeed, scarce dollar debt appears to be misallocated to the less profitable firms. This result is robust to various other proxies of profitability, such as growth of sales or employment over the previous two years. It is also not driven by information falsification as discussed in footnote 18. Finally, this result is also found when running the regression on the sample of smaller firms (less than 35 employees) where there is a monotonically positive association between size and reported profits. To the extent that the larger firms may have misreported profits, then by excluding them we can test whether profits continue to enter negatively. Column (4) also includes what firms expect about future sales (to the extent that ex post profits proxied by future sales may be positively associated with dollar debt even if current profits are not). No association is found between firms that expect greater sales and their dollar debt. Similar results are found if we substitute the firm's forecast of sales over the next two years with the dummy for higher sales expectations. Instead, dollar debt is associated with firms that plan to invest over the next year. Finally, firms with greater risk of financial distress because of a higher debt ratio are not found to be less likely to borrow in dollars. The coefficient estimate is positive but is not significant¹⁹.

Columns (5) to (7) show similar regressions where the dependent variable is the share of a firm's debt that is in dollars, conditional on it reporting that it borrows²⁰. The signs on the regressors are similar between column (5) and column (1), but interesting differences arise in magnitudes. While the smallest firms were less likely to borrow in dollars but the effect was not statistically significant. In contrast, the share of their debt in dollars is significantly and economically less than the large firms: roughly 40 percentage points lower. Older firms are not significantly associated with having a greater share of dollar debt. Exporters continue to have a greater share of dollar debt and importers less. Digging deeper, column (6) reveals that although importers have a lower dollar debt share but the more they import as a share of inputs, the *more* dollar debt they have. This is an interesting

indicates when the profit ratio is missing for example, and to replace the profit ratio to zero in these cases. This allows us to test whether missing profits are significantly associated with dollar debt in which case there is falsification by firms. Alternatively and what we find is that missing profits (and other accounting variables) do not predict dollar debt. This means that missing information is the result of random cases of data recording and provision. For more on this, see Jiang et al (2009) "Liar's Loan? – Effects of Origination Channel and Information Falsification on Mortgage Loan Delinquency".

¹⁹The cost of financial distress appears however to exert an effect on the smaller firms. When running the regression on the sample of small firms, the coefficient on leverage turns negative.

²⁰It is not possible to estimate more formal Heckman type two-step estimations because of the limited sample.

result and is similar to what Gelos (2003) found for Mexican firms. This suggests that offsetting the risk management incentive, is the need to borrow more dollars when purchasing inputs from abroad as these payments are settled in foreign currency. Finally, the signs on profits and net worth are similar to the probit regressions. One difference is that firms with a higher leverage, moderate the cost of financial distress by decreasing their share of dollar debt. This is similar to Aguiar (2005) where the debt to capital ratio entered the selection equation of foreign currency debt positively but then was negatively associated with the share of dollar debt.

4.3 Dollar debt: Exploring the effect of creditor relationships, hard information measures and credit chains

A key interest of this research is to understand the the relevance of bank relationships on firms' access to dollar debt in an economy where dollar credit is intermediated domestically. Or are firms similarly constrained by their collateral and other hard information when borrowing domestically as they would be when borrowing externally? Preliminary evidence consistent with the latter view was revealed in Table 4: larger, older, and higher net worth firms were more likely to access dollar debt. Table 5 explores these questions in depth. Column (1) includes two indicators measuring the extent of bank relationships: the number of financial institutions that the firm does business with and the number of years that the firm has been doing business with its primary bank. The median number of institutions is two and the median number of years of a relationship with the main bank is ten years (see Table 1). These are both highly correlated with dollar debt, the share of dollar debt and bank borrowing as shown in Table 3, supporting informational theories that bank acquire soft information about the firms they do business with. But care must be exercised in interpreting these correlations because they are also correlated with firm size, age and other indicators. The first column of Table 5 shows that while the sign on these indicators is positive but they are not statistically significant once other borrower characteristics are controlled for.

Column (2) confirms the arm's length nature that dollar debt finance takes. The share of external finance is defined as the share of the firm's financing from the sum of local commercial banks, foreign banks operating outside Lebanon, supplier credit, investment and other special development finance, equity, and leasing finance. The bulk of this is local commercial bank credit as shown in Table 1. Over 75% of firm's financing comes from internal funds from retained earnings, followed by over 9% from local banks. The remaining part of external finance is mostly from supplier credit of 2%. The correlations in Table 3 show that a greater share of external finance is also associated with a greater likelihood and share of dollar debt. In contrast, a greater share of financing from family, friends,

and informal sources (such as moneylenders) is associated with lower dollar debt²¹. This result is also seen in column (2) of Table 5 controlling for other characteristics and is almost statistically significant at the 10% level. More anecdotal evidence on the arm's length (and short-term) nature of bank debt is provided in Appendix A, which lists some of the comments that managers wrote in the survey.

More direct measures of hard information proxies are whether firms' financial statements are reviewed by an external auditor, if the firm needs audited statements to access bank lending, and firm ties to majority foreign owned banks. The latter variable is proxied by a dummy equal to one if the firm perceives a greater ease of obtaining finance from foreign owned commercial banks compared with Lebanese owned banks. These variables are found to be significantly associated with dollar debt, and in particular whether audited statements are required for bank borrowing (column (4) of Table 5).

Turning to collateral requirements, most loans are collateralized (including over 60% of those loans for less than 6 months), and sources of collateral are cash & financial values (about 40%), property and other real guarantees (48%), personal guarantees (about 10% - mostly guaranteed by family and friends). These figures are in line with the aggregate data published by the Banque du Liban. Advances against real estate and other real guarantees were the dominant type of collateral, accounting for 43% of non-overdraft credit in 2008 (see BDL, 2008). About one quarter of firms say that the collateral they provide depends on the currency denomination of the bank loan. One difference observed in collateral composition is that dollar loans are backed by more guarantees while lira loans are backed by more cash and financial values (43% of lira loans versus 39% of dollar loans). Interestingly, a large part of credit is backed by personal guarantees, and more so for dollar loans. The collateral difference between dollar and lira loans may be more pronounced because Mora (2009) finds that even for lira loans, banks ask that the cash & financial value collateral be mostly in dollars. That is, some sectors of the economy are generally unable to obtain credit because of their limited dollar collateral. Column (5) of Table 5 shows that firms reporting that their loans are collateralized for short maturities are less likely to be borrowing in dollars. Therefore firms with more lira debt appear to be subject to more stringent collateral requirements. That is, banks require audited statements and more information to extend dollar loans. In the absence of that and also in the presence of currency risk, they demand more collateral on lira loans.

One aspect of dollar borrowing by mostly small and non-export firms is the extent to which firms offload their currency risk on to other firms. These credit 'chains' are formed when firms

²¹These findings are consistent with the results by Hamdan (2004) on MSEs described in Section 2.1. Of formal (bank) loans, roughly 70% said the loan was in denominated in dollars. In contrast, only 54% of informal loans (from money lenders, friends, family and relatives) were in dollars.

lend to their suppliers and their customers. Just as banks intermediate dollar deposits to borrowers in the form of dollar loans to currency match their balance sheet, a similar process can occur in the non-financial system. Banks and firms lending to their customers and suppliers transfer the currency risk to their unhedged borrowers. But it is worth emphasizing that they still retain the resulting credit risk, a point made by Gulde et al (2004). This means that banks and firms may be under-estimating their exposure to currency risk. We see aspects of these dollar credit chains extending to firms' trade credits. Table 1 shows that 44% of firms lend to their customers, and 22% lend to their suppliers. This lending is likewise mostly in dollars; the share of customer lending that is in dollars is 67.5%, and the share of supplier lending that is in dollars is close to 80%. This lending is also short-term with a median maturity of 60 days. These are also highly correlated and both are correlated with borrowing from banks, and dollar debt. The last column of Table 5 includes these two indicators and they are both positively associated with dollar debt. Because they are multi-collinear, when included separately they are each statistically significant at the 1% level and have a greater economic magnitude. For example, firms that lend to their customers are more likely to borrow in dollars by 5 percentage points. One final point worth noting is that firms are also somewhat insulated from currency risk in their labor expenses. Only 15% of firms stated that their labor contracts commit them to pay expenses in a foreign currency.

4.4 Dollar debt: the perception of exchange rate risk

As previously mentioned, testing other theories such as whether government guarantees for dollar debt (e.g. by ensuring a fixed exchange rate) encourage firms to borrow in dollars are more difficult to test with a cross-section sample of firms and no time series dimension. Nonetheless, some insight can be gleaned from firms' exchange rate perceptions, foreign currency hedging and the reasons they gave for why they prefer to borrow in one currency over another. A large share of companies reported preferring dollar debt over lira debt (44%), while 32% said they were indifferent and 24% said they preferred to borrow in liras. Among those preferring to borrow in dollars, the primary reason they gave was because of foreign trade transactions. The interest rate differential between dollar and lira loans was also a major reason (similar to Allayannis et al, 2003, for East Asian firms).

Interestingly, the second most cited reason they checked was "their company's exchange rate risk perception", which is surprising at first glance. This, however, makes sense if government policies guarantee (explicitly or implicitly) dollar debt. The insurance against exchange rate risk provided by the fixed exchange rate policy for the past 10 years in Lebanon encourages firms to take on dollar debt (supporting Burnside et al, 2001). Although firms did register a statistically significant increase in the expected volatility of the exchange rate after the political events of February 2005,

the vast part expect it to remain stable (the mean response is less than two on a scale from one to six, where one is stable). This is also in line with the fact that almost none of the companies hedge their foreign exchange exposure (less than 5% claim to, and of these many are hedging their euro exposures only). Therefore, even though most firms believe that the real exchange rate is somewhat misaligned (a mean response of four on the one to six range, where six is a misaligned real exchange rate), most continue to believe it will remain fixed. And in fact, the exchange rate remains fixed to the dollar at 1507.5 lira/\$ despite a period of political uncertainty and the summer 2006 war that followed. The results are somewhat mixed when regressing dollar debt on firms' exchange rate stability perceptions: firms that believe the real exchange rate is more misaligned are less likely to borrow in dollars and their dollar debt share is lower. But opposite and counterintuitive results are found for firms' believing that the exchange rate is less likely to remain stable (though this is not statistically significant for the share of dollar debt). One direct measure of government subsidies are kafalat loans. These are subsidized interest loans aimed mainly at the industry and agriculture sectors. They are associated with dollar borrowing (although also with larger firms). It is beyond the scope of this paper, but this merits attention if certain government subsidies entrench dollar debt.

4.5 Bank borrowing and finance obstacles

The results discussed so far have centered on what factors drive a firm's dollar debt. Nonetheless, it is important to bear in mind that a significant number of firms are not accessing bank credit; only 36% have accessed bank credit in the past two years (and even among those that do, less than 20% is for investment purposes with the bulk going towards short-term financing such as working capital; see Panel C in Table 2)²². A prominent reason firms gave for not using bank credit was high interest rates, followed by economic uncertainty²³. A large share of firms also cited other reasons, which mostly took the form of variations on the answer that they have no need for bank loans. It is doubtful, however, that these are all unconstrained firms that have sufficient funds to expand as optimal. This is because when firms were asked to compare how problematic financing is relative to other factors, the majority of firms listed finance as a major obstacle. And more than 75% of the firms that indicated that they have no need for bank loans still ranked financing as a major or a moderate obstacle. Overall and as shown in Panel A of Table 2, financing difficulties were the third

²²Evidence of lack of access to formal (bank) loans was also documented in the survey by Hamdan (2004) on MSEs discussed in Section 2.1.

²³Note that nominal lending interest rates in recent years have averaged 8.5% for dollar loans and 12% for lira loans (see Banque du Liban aggregate commercial bank rate statistics, for 2002-2008). These match the reported numbers by banks in a separate survey (see Mora, 2009): the mean dollar loan rate was 9% and lira loan rate was 13%. At the same time, annual inflation has averaged only 2.5% over this period (see IMF Public Information Notices, various issues).

most important obstacle for the operation and growth of firms' businesses, preceded by only taxes & regulations, and operating expenses (or policy instability, depending on the tabulation method). This suggests that the results of the Ministry of Industry Survey carried out in 1999 are still valid today, and for a wider sample of firms than only in the manufacturing sector.

Panel B disaggregates the financing difficulties in more detail by type and by currency. Firms ranked high interest rates as the main financing obstacle, followed by collateral requirements of banks and financial institutions. These seemed to be equally problematic for both dollar and lira loans. Firms unanimously concurred that banks did not lack money to lend, which matches what banks also had to say in a separate survey (see Mora, 2009). Banks were also found to concur with firms in citing lending interest rates as being too high for potential borrowers, followed by the view that many potential borrowers present projects which banks assess as, on average, profitable but too risky to finance). Firms also indicated that long-term bank loans were difficult to obtain.

The regression results shown in Table 6 explore the factors explaining the likelihood of borrowing from banks and the extent of financing problems. The dependent variable in columns (1) to (4) is whether a firm has borrowed from banks in the previous two years; the dependent variable in column (5) is whether a firm will ask for credit in the following year (not necessarily from banks only); and the dependent variable in columns (6) to (8) is an ordered response to the problem of financing which ranges from a response of one (no obstacle) to a response of four being a major obstacle. The estimation method for the latter is an ordered probit model similar to the method in Tornell and Westermann (2002) and Beck et al (2006).

Size is an important determinant of borrowing from banks and also for experiencing financing problems. The smallest firms are the most constrained: for example they are 25 percentage points less likely to access bank credit. But the effect is not limited to the smallest firms. In a regression with a dummy for a broader measure of small firms (less than 50 employees as used by Beck et al, 2006), small firms are found to 47 percentage points less likely to borrow from banks compared to the largest firms. This is also consistent with Hamdan (2004) who finds a monotonically increasing relation between the share of bank loans and size. Support for this finding is also mirrored in the banking system credit distributions published by the Banque du Liban (see BDL, 2008). For example, 59% of Lebanese bank credit was in a credit amount of over 3.3 US \$ million (over 5000 mn LBP), and 75% was in a credit amount of over 660,000 US \$ million (over 1000 mn LBP)²⁴. The flip side is that most loan beneficiaries have small loans: over 57% of loan beneficiaries have

²⁴It is helpful to get a sense of how skewed these magnitudes are relative to the size of Lebanon's economy: Lebanon's GDP in 2008 was close to 30 \$bn according to the IMF, compared with a US GDP of 14.4 \$trn. Therefore a simple mapping of a 3.3 \$mn loan relative to the scale of the Lebanese economy loan translates to a 1.6 \$bn loan in the US. However, the average loan size of C&I loans in the US is only \$687,000 (see the August 2009 release of the Survey of Terms of Business Lending available at <http://www.federalreserve.gov/releases/e2/current/default.htm>).

loans in an amount less than \$17000 (25 mn LBP). Therefore, informational problems appear to be severe even when credit is intermediated domestically.

In contrast, older firms are not found to be more likely to borrow from banks nor cite lower financing difficulties. Exporters are more likely to access bank finance and experience less finance problems. This is in line with the results of Tornell and Westermann (2002) who also find evidence of asymmetric financing opportunities in a sample of middle-income countries. Similar to the dollar debt results, profitable firms are less likely to borrow from banks and do not rank financing problems as being less important compared with other firms. Indeed, those firms that expect an increase in future sales are more likely to also experience financing difficulties. On the other hand, firms with a greater share of fixed assets, or higher net worth are more likely to borrow from banks and experience less financing difficulties. Finally, the more ties a firm has to financial institutions helps to increase its likelihood of borrowing (column (4)). In results not shown, a greater share of bank financing is also associated with a firm having more banks. The result is not significant but it suggests that firms do not benefit from greater finance when in a concentrated relationship with one bank.

4.6 The effect of the February 14, 2005 shock on firms' business expectations

The survey was designed prior to the assassination of the former Prime Minister Hariri on February 14, 2005 which was followed by a period of political uncertainty. So as not to introduce a bias into firms' responses about their business expectations, we revised the questions slightly before distributing the survey. We made it clear that questions about their expectations for their firm's sales and other variables should be answered as they would have done *prior* to February 14, 2005. Nonetheless, we also asked about whether and to what extent their expectations were revised in light of the shock.

Table 7 displays a number of these expectations, along with the results of differences in means t-tests comparing the before to the after period. While firms continued to expect a stable exchange rate, there was a statistically significant increase in mean expected volatility. Firms were subdued about their business outlook, with a significant deterioration in perceptions after February 2005 compared with before²⁵. Similar results were found for sales growth expectations (falling from an expected mean of 13% over the next two years to an expected 3%). However, even though significantly less firms planned to invest in the future, the growth in investment was not significantly

²⁵It is worth noting that there were regional sensitivities in the extent that businesses were affected. For example, a number of firms in Bauchi (an industrial sector that experienced several bombings after February 14, 2005) cited the unexpected, adverse and high costs that they faced as a result. Another firm from North Lebanon made the comment that the bad security situation in the capital improved its business.

different. Similarly, no differences were found for employment growth. And exports were if anything expected to increase by more after the event²⁶. These results therefore suggest that firms' viewed the shock as a temporary demand shock affecting domestic sales, but did not materially affect their employment or investment decisions. In fact, they significantly changed their borrowing to smooth their business. Before the shock, they planned to reduce their debt by a mean 7%, while after the event they only planned to reduce their debt by 4%.

Firms also tended to agree with the view that banks became more conservative after February 2005 and financing became more difficult to obtain. Evidence in support of this was also reflected in the response to the question of whether the most important financing obstacle changed since February 14, 2005. 11% of the firms indicated that they had and the most important cited reason was a worsening in banks' willingness to lend. A larger share of firms, close to 20%, cited that the most important general obstacle had changed, and the major reason was that policy instability and uncertainty had gone up, followed by lower demand.

To summarize, these findings are consistent with a temporary negative effect that is also revealed in other aggregate statistics. For example, Figure 1 shows that the share of dollar deposits in aggregate bank deposits jumped from 65% in January, 2005 to 77% by March 2005 but then gradually fell back. Schimmelpfennig and Gardner (2008) also note that while eurobond spreads increased by 90 basis points to over 400 after the assassination of Hariri, only 3.5% of deposits left the country and deposits returned to positive inflows by year-end. Schimmelpfennig and Gardner (2008) conclude that Lebanon's ability to "weather these perfect storms" follows from a combination of an implicit guarantee from donors (or at least a perceived one), never having defaulted on its external debt, and importantly, a market for Lebanese debt dominated by local banks and other "dedicated" investors such as expatriate depositors.

4.7 Robustness check: The World Bank Enterprise Survey, Lebanon 2006

This section returns to the general findings on bank borrowing and dollar debt, and compares the results to those found using an alternative dataset collected at around the same period of time. The World Bank conducted an enterprise survey in Lebanon in 2006 on 354 firms. The World Bank also kindly provides researchers with access to individual-level enterprise data for the purpose of academic research upon registration²⁷. We begin by briefly describing the characteristics of interest of this

²⁶This was substantiated by comments made at the end of the survey by several firms that they will export more after the February 14 event to offset falling sales in Lebanon.

²⁷See <http://www.enterprisesurveys.org/portal>. Company confidentiality is honored and no company identifiers are provided in this data set.

sample²⁸ and then discuss the regression results in Table 8. The majority of firms are from the Beirut region (53%), followed by Mount Lebanon (44%). The industrial composition is as follows: 41% in manufacturing²⁹, 25% services, 22% trade and 11% construction. Average firm size is over 60 full-time employees and the median is 25. Sampled firms are also relatively old: the median year of establishment is 1985. More than half of the firms export (54.5%), and an even greater share import (75%). Over 22% of the sample has foreign holdings and close to 7% are partly foreign owned. Close to 42% of the sample borrow from banks and 69% have a credit line or an overdraft. Roughly 87% of the sample has dollar debt, and the mean dollar debt share is 75.4%. Less than half of financing for working capital needs is sourced from internal retained funds. In contrast, over 46% of financing is sourced externally of which over 30% is from local commercial banks. As with our sample, property is an important source of collateral, followed by personal assets.

Overall, this sample is more urban than our sample and the Kompas sample. Firms are also relatively larger, older, more likely to be in the tradeable sector and hold foreign operations. In fact, firms in the Lebanon WBES survey are more likely to be in the tradeable sector even when compared with all countries WBES average of 22.7% and the region average of 37.6%). A similar pattern occurs for importers where the average for all countries is 60% and a region average of 67%. It is also concentrated in manufacturing compared with the general population in Kompas or the Central Administration of Statistics tabulation used by Hamdan (2004), where the industrial sector is between 16% to 20% of establishments. Therefore this sample can be seen as sampling from an a priori less financially constrained population of firms operating in Lebanon. In contrast, the sample of Hamdan (2004) described in Section 2.1 is a sampling from a population of more financially constrained firms compared to our Kompas sample.

Even so, financing problems were still rated relatively highly by this sample of firms. The median firm ranked financing costs as a major obstacle and financing access as a moderate obstacle. Relative to other obstacles, financing costs were on average rated 2.7 (on a scale from 0 to 4) and came third after corruption and tax rates (out of 18 possible obstacles). If we combine access to financing together with cost of financing, 16.5% of firms cited one of these two as the *biggest* obstacle they face which puts financing difficulties ahead of the others. This is especially interesting in light of the fact that this sample of firms is not as financially constrained as the population of firms in the country.

The first three columns of Table 8 show the marginal effects from probit regressions for the

²⁸The survey was close to 40 pages and the range of questions was broad; for example firms were asked to provide information about technology, workforce, gender, corruption and infrastructure in addition to finance. Since the former are not the focus of this paper, we do not touch upon these questions in this section but the interested reader can refer to the report produced by the World Bank.

²⁹We have grouped the sectors: food and verage, textile and clothing and furniture together as manufacturing. It is unclear why this survey targeted these enterprises.

likelihood of borrowing from a bank, similar to Table 6. We have tried to maintain specification comparability to the extent possible across the two different data sets. As firms are generally larger in the WBES sample than in ours, we combine the categories of 1-4 and 5-9 employees and also include a dummy for those with 20 to 49 employees. Therefore the omitted size category in Table 8 is those with over 50 employees. As with our results, size is an important determinant of bank borrowing: firms with less than 9 employees are 26.6 percentage points less likely to borrow. Other comparable results are that older firms are not found to be any more likely to borrow from banks, and exporters are significantly more likely to borrow. One interesting difference is that importers are also found to be more likely to borrow in the WBES sample; and the effect is even greater than for exporters. Another difference is that manufacturing firms are also more likely to borrow from banks, but we suspect this is on account of the WBES targeting certain manufacturing firms, as the distribution is skewed towards manufacturing. The accounting characteristics are more subject to measurement error and the estimates are tighter when we get rid of simple to identify outliers (such as fixed assets and net worth ratios to total assets above one). Nonetheless, the signs are similar to what we found earlier. Profitable firms are no more likely to borrow from banks³⁰ nor are proxies for future profits such as firms that plan to hire more employees. In contrast, firms with higher net worth and fixed assets are more likely to do so, as are firms that plan to expand capacity. Finally, firms with higher debt ratios are likewise more likely to borrow from banks.

Turning to the dollar debt determinants, we also observe a lot of results common to our sample. Smaller, older, firms with a higher net worth or fixed assets, and leveraged firms are more likely to borrow in dollars and these factors are also positively associated with the share of dollar debt. As with our findings, profitable firms, firms that had greater employment growth, and those planning to hire more workers are less likely to borrow in dollars. We also find evidence that various proxies for hard information are also associated with a greater probability of incurring dollar debt. The main difference from our findings is that importers in the WBES sample are more likely to borrow in dollars, while exporters are not borrowing in dollars, controlling for the other characteristics (although the export share is positively associated with the share of debt in dollars as seen in column (7)). In short, these results suggest that the risk management view of currency risk is not as tightly adhered to by this sample of less financially constrained firms.

We end this section on a note of caution. Care should be exercised when citing the general tabulations of the WBES survey as evidence that financing is not an important constraint to the growth of firms in Lebanon. For example, Berthelemy et al (2007) reason that financing cannot be a problem because most of those firms that did not apply for a loan in the WBES survey said that they

³⁰Nor are firms that experienced greater employment growth or sales growth in the previous year. The signs are negative on these and statistically significant for employment growth.

did not need one. This decision, however, is not an exogenous choice by firms, and firms may not apply because they anticipate being rationed. We test this view by revisiting the obstacle rankings that this set of seemingly unconstrained firms made. We find that financing obstacles remain the biggest obstacle for firms that said they did not need to apply for a loan because they have sufficient internal liquidity; 18% of these firms cited either access to financing or cost of financing as their biggest problem. In addition, while 42% of the WBES sample have a bank loan, this is not representative of the population when comparing to the results of Hamdan (2004), the Ministry of Industry (1999) and ours. The statistics on the distribution of credit by loan size reported by the Banque du Liban are also indicative of concentrated large loans (see Section 4.5).

5 Concluding remarks

We set out on this research to understand what induces mostly small firms in a country with domestic banks to borrow in dollars. The results of this research complement the existing findings on large and listed firms from Latin America and East Asia. Dollar funds are more likely to be channeled to exporters who are best placed to deal with currency risk. Firms also tend to partly hedge themselves by passing on currency risk to other firms. These ‘credit chains’ appear in the form of borrowers with dollar loans in turn more likely to lend to their customers and suppliers and mostly in dollars too. Other determinants center on firm attributes that banks can easily verify without resorting to costly monitoring to collect soft information. Therefore, informational problems appear to be severe even when dollar credit, and credit more generally, is intermediated domestically; having stronger creditor relationships does not matter for a firm’s chances of accessing dollar loans. Profitable firms are no more likely to get dollar loans, while larger older audited borrowers with greater net worth and fixed assets are more likely to be found with dollar debt. Banks ask for even more stringent collateral requirements on domestic currency loans. That is, they seem to make up for their greater currency risk exposure and the less hard information they have on borrowers with lira loans.

These findings can best be understood within the dual liquidity context developed by Caballero and Krishnamurthy (2002, 2003). Underdeveloped domestic financial markets mean that firms cannot pledge all their investments’ future returns to borrow limited (dollar) loans. To the extent that there are no developed domestic bond markets, a very limited equity market, and firms are financed primarily with retained earnings, external finance in Lebanon primarily takes the form of borrowing against domestically marketable assets such as their real estate holdings. The agents with the scarce international liquidity are the banks. This dollar liquidity takes the form of claims by depositors on the banking system in the amount of over \$80 billion end-2008 (many of whom are

expatriates and other regional investors). The ratio of banking system deposits to GDP has reached over 300%. Banks in turn channel these deposits to government debt financing and other private lending. If we carry through the Caballero and Krishnamurthy argument one step further, then it is most likely the case that Lebanese borrowers are excessively dollarized. Crisis states associated with shortages of international liquidity will depress domestic asset prices. This, in turn, will push down firms' demand for credit because of the decrease in the value of the collateral that they can borrow against domestically. Therefore available dollars in crisis states will be undervalued relative to the social optimum.

Crisis states associated with a fall in the amount of available international liquidity are not impossible even for Lebanon for which has long puzzled observers by its economic stability. "For years now, Lebanon has been able to sustain government debt-to-GDP ratios which are well beyond levels generally deemed sustainable." (Di Giovanni and Gardner, 2008). The debt to GDP ratio reached a peak of 180% of GDP in 2006 and stood at 162% end-2008, triple the world average (see *The Economist*, April 25, 2009 "Lebanon: Bucking the Trend"). This enviable position has been made possible by a situation of self-sustaining lending by the banking system to the government that closely parallels the zombie lending that occurred in Japan earlier this decade, and yet earlier the first Italian banking houses in the 13th century that were financiers of the state (see Alessandri and Haldane, 2009). Nassib Ghobril of Byblos Bank articulates this view as cited in the New York Times (Oct 28, 2008) "in this crisis, governments in the U.S., Europe and elsewhere have been stepping in to rescue their banking sectors, whereas in Lebanon the sector is so large it has been supporting the state for years." It has long been obvious that the Lebanese banks have no incentive to mount a speculative attack as they are fully exposed to the state. This contrasts with cases of dispersed foreign lenders to countries like Argentina in its 2001 crisis. But this mechanism relies on the continued cooperation of depositors. Should they run, there will be a Caballero and Krishnamurthy type crisis.

What can policymakers therefore do to insure themselves in these states? Caballero and Krishnamurthy note that the Central Bank can accumulate foreign exchange reserves to increase international liquidity, which the Banque du Liban has done; doubling its foreign exchange reserves by end-2008 to 22 \$bn). In contrast, expansionary fiscal policy can worsen the effect of international liquidity shortages on firms. This is because fiscal policy competes with the private sector for a fixed quantity of international liquidity. This, in turn, fully crowds out private investment by further raising the domestic dollar interest rate relative to the international market level. Luca and Petrova (2008) make the case for the development of forward and futures foreign exchange markets to allow domestic agents to hedge exchange rate risk. This can also make it easier to move mone-

tary policy from targeting a fixed exchange rate to more flexibility. Exchange rate flexibility would nudge agents closer to internalizing the currency risk they take (see Martinez and Werner, 2002, for evidence of this from Mexico). Other domestic financial markets can also be developed such as the equity market. It is interesting that successful Lebanese companies like the Patchi family-owned chocolate chain is planning to list up to 49% of its company stock in an IPO in equity markets in London and Dubai and not in the Beirut Stock Exchange (see Financial Times, August 10, 2009, "Lebanese chocolate maker set for listing). The company has 135 stores globally and plans to use the equity listing to further expand its global presence into the café business.

While the Lebanese banking system may have weathered the 2007-2009 international financial crisis well, this has come at the expense of the growth of the real sector. Lebanese banks (partly on account of prudential oversight and regulation by the Banque du Liban barring investments in foreign derivatives and mortgage-linked securities) have avoided the fate of foreign banks that blithely acquired many structured credit products whose market values have since been wiped out³¹. But the continued complacent focus of the Lebanese financial system on government financing at high interest rates means that their role of channeling savings to the investment needs of the private sector is wanting. It is, therefore, imperative that the government continue to reduce its debt burden, lowering economy interest rates and allowing more real projects to pass the financing threshold. As it is, the system falls short of the standards laid out by Schumpeter (1911), that "the banker... authorizes people, in the name of society as it were, to ... [innovate]".

³¹See New York Times, October 28, 2008, "Armored against turmoil, Lebanon lures investors" who cite that Lebanese banks posted record profits in 2008. The combined profits of the 3 largest banks (BLOM, Audi and Byblos) grew by an average 22%.

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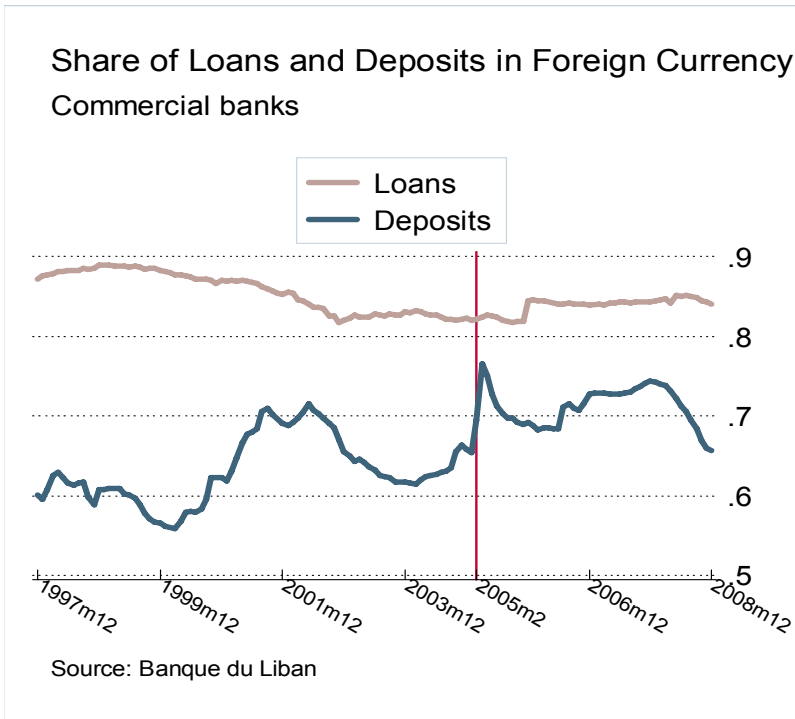
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Appendix A: Selected survey comments by company managers

- “The big problem in our banks is that they don’t make a financial study on the company, they only need collateral requirements, they disregard the feasibility of your project and they act in a very passive way towards your project, they only need a collateral that covers at least 10 times their risk, because their provision are not at all accurate.”
- “Mostly financial institutions and banks in Lebanon are not flexible enough and tend not to grant funds if any risks are involved.”
- “In the retail business, banks restrict their lending to short term financing. They expect and allow their customers to use the funds for working capital only; they forget that long term financing is needed in our business to cover for decoration for instance which is an essential for trading businesses as a piece of equipment or machinery is essential for manufacturing.”
- “[Arabic trans.] Financial institutions in Lebanon do not take into account the ‘reality on the ground’ [in reality] of companies. That is, what is only 2 months on the papers [probably referring to projects] but in reality could reach 5 months.”
- “[Arabic trans.] Credit for companies require studies and extensive control, while personal loans (such as for car purchase) needs 2 days.”
- “As a contractor for government projects, banks require beside real estate collateral, the assignment of proceeds which wraps our financial resources in the bank’s hands and leave us as hostages and beggars at the bank’s gates.”
- “Bankers should provide loans based on prior sales statement, audited report and statistical data...”
- “[Arabic trans.] The important thing for us is ease of obtaining bank guarantees so that we can participate in public bids.”
- “The rate against bank guarantee is very high, the financial institutions must revise it.”
- “The major borrower is the gov [government]”
- “[Arabic trans.] There is no trust in Lebanon and trade by the companies because of corrupt judicial system that does not guarantee the right of the companies and wholesalers/retailers until few years [later] when the debtor would have run away or passed away.”

Figure 1



Appendix B: Variable Definitions

Variables	Definition
<i>Variables of interest: Dollar debt, borrowing and financing obstacle</i>	
debt_usd	Dummy = 1 if a firm takes on dollar debt conditional on it reporting that it borrows (including from sources other than banks)
debtshare_usd	Share of a firm's debt that is in dollars, conditional on it reporting it borrows (including from sources other than banks)
if_bankborrow	Dummy = 1 if a firm has borrowed from banks in the previous two years
if_askforcredit	Dummy = 1 if a firm will ask for credit in the following 12 months
problem_finance	Ordered responses from 1 to 4, where a response of 1 means that the firm ranks financing as no obstacle and a response of 4 means it ranks financing as a major obstacle
<i>General firm characteristics</i>	
D_ind1	Dummy = 1 if industry is manufacturing
D_ind2	Dummy = 1 if industry is services
D_ind3	Dummy = 1 if industry is commerce/trade
D_ind7	Dummy = 1 if industry is construction
D_Beirut	Dummy = 1 if firm is located in Beirut mouhafaza (region)
D_ML	Dummy = 1 if firm is located in Mount Lebanon mouhafaza
D_NL	Dummy = 1 if firm is located in North Lebanon
D_SL	Dummy = 1 if firm is located in South Lebanon
age	Years since year of establishment, as of 2006
size	Number of employees (including the owners and members of the family working for free)
D_size_code1	Dummy = 1 if number of employees is 1-4
D_size_code2	Dummy = 1 if number of employees is 5-9
D_size_code3	Dummy = 1 if number of employees is 10-19
D_size_code45	Dummy = 1 if number of employees is 20-49
D_size_code678	Dummy = 1 if number of employees is over 50
D_size_codewsmall	Dummy = 1 if number of employees is under 50
D_uniquebranch	Dummy = 1 if number of employees is less than 50 (World Bank enterprise definition of a small firm)
D_compete	Dummy = 1 if firm faces more than 3 competitors in its major product line
D_solelegal	Dummy = 1 if the firm's legal status is a sole proprietorship
D_solecontrol	Dummy = 1 if the firm's effective control (major decisions regarding company directions) is by an individual owner(s)
D_solefamilycontrol	Dummy = 1 if the firm's effective control is by an individual owner(s) or a family
capital_shareleb	Share of company's capital held by Lebanese shareholders
<i>Trade characteristics</i>	
if_exporta	Dummy = 1 if the company exports or produces intermediate inputs that are sold to companies that export
if_import	Dummy = 1 if the company imports inputs
export_sharea	Share of sales that are sold outside Lebanon (includes intermediate inputs sold to export firms)
import_share	Share of inputs that are imported
if_fdi	Dummy = 1 if the company has holdings or operations (FDI) in other countries
<i>Accounting variables</i>	
lnsale	Log of value of total sales in the previous year (where sales are reported in USD units)
lnfixasset	Log of value of fixed assets (land, building, equipment) in the previous year (where fixed assets are reported in USD units)
proftos	The ratio of the after-tax profit to total sales in the previous year
fixatos	The ratio of fixed assets to total sales in the previous year
nwttofixa	The ratio of net worth (total assets - total liabilities) to fixed assets in the previous year
debttofixa	The ratio of debt to fixed assets in the previous year
if_expectsalesup	Dummy = 1 if firm expects an increase in sales over the following year
if_toinvest	Dummy = 1 if firm intends to invest in new projects in the following year
growth_sale_lag2	Firm's estimate of the growth of total sales over the previous two years
growth_employment_lag2	Firm's estimate of the growth of fulltime employment (number of workers) over the previous two years
growth_invest_lag2	Firm's estimate of the growth of investment over the previous two years
growth_sale_f2	Firm's forecast of the growth of total sales over the following two years
growth_employment_f2	Firm's forecast of the growth of fulltime employment over the following two years
growth_invest_f2	Firm's forecast of the growth of investment over the following two years

Appendix B: Variable Definitions, cont'd

Sources of finance

finshare_internal	Share of firm's financing over previous year from internal funds/retained earnings (note fin_internal is dummy = 1 if use internal funds and similarly for other variables below)
finshare_affiliate	Share of firm's financing over previous year from parent company or other firms in corporation
finshare_family	Share of firm's financing over previous year from family and friends
finshare_informal	Share of firm's financing over previous year from money lenders, traditional or informal sources
finshare_supplier	Share of firm's financing over previous year from supplier credit
finshare_localbank	Share of firm's financing over previous year from local commercial banks
finshare_external	Share of firm's financing over previous year from sum of: supplier credit, local commercial banks, foreign banks operating outside Lebanon, investment funds/special development finance (incl Kafalat loans), equity/sale of stock, leasing arrangement (collectively referred to as external finance)
if_fin_kafalat	Dummy = 1 if firm has obtained financing from specialized banks or received subsidized loans in the previous 2 years (e.g. Kafalat loans)

Creditor relationships

n_banks	The number of financial institutions that the firm currently does business with
years_mainbank	The number of years that the firm has been doing business with its primary bank

Hard information proxies

D_mostlaxbank_for	Dummy = 1 if the firm perceives a greater ease of obtaining finance from majority-owned foreign commercial banks compared with majority owned Lebanese banks
if_audit	Dummy = 1 if firm provides its shareholders with annual financial statements that have been reviewed by an external auditor
if_auditforloan	Dummy = 1 if firm needs audited statements to receive a bank loan

Collateral characteristics

if_collat_less6mo	Dummy = 1 if firm has to provide collateral to receive bank loans with maturities less than 6 months
if_collat_more12mo	Dummy = 1 if firm has to provide collateral to receive bank loans with maturities more than 12 months
if_collat_diffbycurr	Dummy = 1 if the collateral the firm provides is different depending on whether the bank loan is in dollars or liras
collatshare_cash_usd (_lbp)	Share of collateral consisting of cash and financial values for dollar loans (lira loans, respectively)
collatshare_property_usd (_lbp)	Share of collateral consisting of real estate (land and buildings) for dollar loans (lira loans)
collatshare_otherreal_usd (_lbp)	Share of collateral consisting of other real guarantees (non-real estate) for dollar loans (lira loans)
collatshare_guaranteep_usd (_lbp)	Share of collateral consisting of personal guarantees for dollar loans (lira loans)
collatshare_other_usd (_lbp)	Share of collateral consisting of other collateral for dollar loans (lira loans)

Credit chains

if_lendtocustomer	Dummy = 1 if firm provides credit to its customers or other affiliated companies
lendtocustomer_sharelbp	Average share of credit to customers in liras
if_lendtosupplier	Dummy = 1 if firm provides credit to its suppliers
lendtosupplier_sharelbp	Average share of credit to suppliers in liras

Preferences about dollar debt and exchange rate risk perception

D_preffirmusd	Dummy = 1 if firm prefers to borrow in dollars over liras
D_prefbankusd	Dummy = 1 if firm perceives that banks and financial institutions prefer to lend in dollars over liras
D_preffirmusdtrade	Dummy = 1 if reason provided for firm preferring to borrow in dollars is because it is involved in foreign trade
D_preffirmusderate	Dummy = 1 if reason provided for firm preferring to borrow in dollars is because of its exchange rate risk perception
D_preffirmusdirate	Dummy = 1 if reason provided for firm preferring to borrow in dollars is because of interest rate differential
D_prefbankusderate	Dummy = 1 if reason provided for banks preferring to lend in dollars is because of exchange rate risk perceptions
D_prefbankusdirate	Dummy = 1 if reason provided for banks preferring to lend in dollars is because of interest rate differential
D_prefbankusdcollat	Dummy = 1 if reason provided for banks preferring to lend in dollars is because of collateral considerations
rer	The firm's opinion about whether the real exchange rate is misaligned. Ordered responses from 1 to 6, where a response of 1 means that the firm thinks that it is in line with economic fundamentals whereas a 6 means it is misaligned.
eratable	The firm's opinion about the stability of the exchange rate peg: ranging from a view that the exchange rate will remain stable (a value of 1) to it will be volatile (a value of 6).
D_if_hedge	Dummy = 1 if the firm typically buys hedging/insurance contracts on its foreign currency exposure. Reflected in the Dummy = 0 are firms that responded 'not applicable' in addition to those saying they do not hedge.

Appendix B: Variable Definitions, cont'd

Variables	Definition
<i>General obstacles for the operation and growth of firm's business</i>	
	These are ordered responses and range from 1 to 4, where a response of 1 means that the firm ranks the problem as no obstacle and a response of 4 means it ranks the problem as a major obstacle.
problem_instability	Policy instability / uncertainty
problem_taxregulation	Taxes and regulations
problem_finance	Financing (access to financing for working capital; high interest rates, and so on)
problem_inflation	Inflation
problem_other	Other problem
problem_opexpense	Operating expenses, of which:
problem_opexpense_energy	Cost of energy
problem_opexpense_rent	Rents
problem_opexpense_labor	Labor expenses
problem_erate	Exchange rate
problem_corruption	Bureaucracy and corruption
problem_infrastructure	Infrastructure (e.g. telephone, electricity, water, roads, land)
problem_competition	Foreign competition on domestic and international markets
problem_contracts	Functioning of the judiciary and enforceability of contracts and property
problem_demand	Insufficient demand
problem_crime	Crime/theft/disorder
problem_labor	Inadequate workforce, of which:
problem_labor_ethic	Work ethic
problem_labor_highskill	Supply of technicians and high-skilled workers
problem_labor_lowskill	Quality and supply of production workers
problem_location	Geographic location
<i>Financing obstacles in more detail</i>	
finproblem_irate	High interest rates, and specifically on:
finproblem_irate_usd	foreign currency (USD) loans
finproblem_irate_lbp	Lebanese lira (LBP) loans
finproblem_collat	Collateral requirements of banks/financial institutions, and specifically on:
finproblem_collat_usd	foreign currency (USD) loans
finproblem_collat_lbp	Lebanese lira (LBP) loans
finproblem_paperwork	Bank paperwork/bureaucracy
finproblem_connection	Need special connections with banks/financial institutions
finproblem_accessforeignbank	Lack of access to foreign banks
finproblem_access_nonbank	Lack of access to non banks: equity/investors/partners
finproblem_bankwontlend	Banks are unwilling to lend, and specifically on:
finproblem_bankwontlend_it	long-term loans (over one year)
finproblem_bankwontlend_st	short-term loans
finproblem_bankwontlend_lbp	Lebanese lira (LBP) loans
finproblem_bankwontlend_usd	foreign currency (USD) loans
finproblem_access_exportfin	Lack of access to specialized export finance
finproblem_leasefin	Lack of access to lease finance for equipment
finproblem_bankcantlend	Banks lack money to lend, and specifically on:
finproblem_bankcantlend_lbp	Lebanese lira (LBP) loans
finproblem_bankcantlend_usd	foreign currency (USD) loans
finproblem_credithist	Insufficient credit history and relationship with a bank

Table 1. Summary statistics

	Mean	Median	Standard Deviation	Minimum	Maximum	Observations
Variables of interest: Dollar debt, borrowing and financing obstacle						
debt_usd	0.82	1.00	0.39	0.0	1.0	77
debtshare_usd	73.43	100.00	39.74	0.0	100.0	77
if_bankborrow	0.36	0.00	0.48	0.0	1.0	192
if_askforcredit	0.19	0.00	0.39	0.0	1.0	189
problem_finance	3.31	4.00	0.86	1.0	4.0	190
General firm characteristics						
D_ind1	0.24	0.00	0.43	0.0	1.0	200
D_ind2	0.30	0.00	0.46	0.0	1.0	200
D_ind3	0.42	0.00	0.49	0.0	1.0	200
D_ind7	0.05	0.00	0.21	0.0	1.0	200
D_Beirut	0.30	0.00	0.46	0.0	1.0	201
D_ML	0.61	1.00	0.49	0.0	1.0	201
D_NL	0.03	0.00	0.18	0.0	1.0	201
D_SL	0.05	0.00	0.23	0.0	1.0	201
age	18.22	13.00	14.85	0.0	102.0	195
size	37.44	9.00	160.36	1.0	1450.0	168
D_size_code1	0.21	0.00	0.41	0.0	1.0	199
D_size_code2	0.27	0.00	0.44	0.0	1.0	199
D_size_code3	0.30	0.00	0.46	0.0	1.0	199
D_size_code45	0.11	0.00	0.31	0.0	1.0	199
D_size_code678	0.11	0.00	0.31	0.0	1.0	199
D_size_codewbsmall	0.89	1.00	0.31	0.0	1.0	199
D_uniquebranch	0.76	1.00	0.43	0.0	1.0	180
D_compete	0.89	1.00	0.31	0.0	1.0	190
D_solelegal	0.21	0.00	0.41	0.0	1.0	198
D_solecontrol	0.53	1.00	0.50	0.0	1.0	201
D_solefamilycontrol	0.76	1.00	0.43	0.0	1.0	201
capital_shareleb	99.31	100.00	7.67	0.0	100.0	178
Trade characteristics						
if_exporta	0.27	0.00	0.44	0.0	1.0	194
if_import	0.59	1.00	0.49	0.0	1.0	190
export_sharea	9.23	0.00	20.35	0.0	100.0	193
import_share	43.31	30.00	43.95	0.0	100.0	187
if_fdi	0.05	0.00	0.22	0.0	1.0	184
Accounting variables						
lnsale	12.90	12.69	1.36	10.8	17.9	122
lnfixasset	10.99	10.82	2.16	0.0	17.7	119
proftos	0.27	0.26	0.18	-0.1	0.6	112
fixatos	0.30	0.15	0.53	0.0	4.0	116
nwtfixa	2.55	1.55	6.25	-10.0	60.0	106
debttofixa	1.27	0.00	3.76	0.0	26.7	107
if_expectsalesup	0.56	1.00	0.50	0.0	1.0	193
if_toinvest	0.30	0.00	0.46	0.0	1.0	191
growth_sale_lag2	12.41	10.00	20.21	-30.0	100.0	140
growth_employment_lag2	4.46	0.00	18.97	-80.0	75.0	136
growth_invest_lag2	2.88	0.00	11.25	-10.0	70.0	134
growth_sale_f2	13.67	10.00	25.30	-75.0	140.0	151
growth_employment_f2	2.39	0.00	14.55	-80.0	100.0	144
growth_invest_f2	2.67	0.00	15.29	-70.0	140.0	146

Table 1. Summary statistics, cont'd

	Mean	Median	Standard Deviation	Minimum	Maximum	Observations
Sources of finance						
fin_internal	0.88	1.00	0.33	0.0	1.0	183
fin_affiliate	0.05	0.00	0.23	0.0	1.0	183
fin_family	0.16	0.00	0.37	0.0	1.0	183
fin_informal	0.10	0.00	0.30	0.0	1.0	183
fin_supplier	0.09	0.00	0.28	0.0	1.0	183
fin_localbank	0.20	0.00	0.40	0.0	1.0	183
fin_external	0.25	0.00	0.43	0.0	1.0	183
finshare_internal	76.94	100.00	35.65	0.0	100.0	174
finshare_affiliate	2.43	0.00	12.06	0.0	90.0	175
finshare_family	4.61	0.00	14.84	0.0	100.0	174
finshare_informal	3.68	0.00	13.23	0.0	80.0	174
finshare_supplier	2.21	0.00	8.42	0.0	60.0	174
finshare_localbank	9.18	0.00	23.38	0.0	100.0	174
finshare_external	12.33	0.00	28.03	0.0	100.0	174
if_fin_kafalat	0.08	0.00	0.28	0.0	1.0	190
Creditor relationships						
n_banks	1.93	2.00	1.51	0.0	15.0	184
years_mainbank	11.73	10.00	8.60	1.0	45.0	179
Hard information proxies						
D_mostlaxbank_for	0.09	0.00	0.29	0.0	1.0	187
if_audit	0.31	0.00	0.46	0.0	1.0	177
if_auditforloan	0.79	1.00	0.41	0.0	1.0	189
Collateral characteristics						
if_collat_less6mo	0.63	1.00	0.48	0.0	1.0	163
if_collat_more12mo	0.89	1.00	0.31	0.0	1.0	167
if_collat_diffbycurr	0.23	0.00	0.42	0.0	1.0	171
collatshare_cash_usd	38.86	30.00	35.36	0.0	100.0	149
collatshare_property_usd	34.90	30.00	33.53	0.0	100.0	149
collatshare_otherreal_usd	13.66	0.00	20.66	0.0	100.0	149
collatshare_guaranteep_usd	12.01	0.00	28.35	0.0	100.0	149
collatshare_other_usd	0.84	0.00	8.46	0.0	100.0	148
collatshare_cash_lbp	42.84	40.00	35.15	0.0	110.0	125
collatshare_property_lbp	31.48	30.00	28.92	0.0	100.0	125
collatshare_otherreal_lbp	16.08	10.00	21.02	0.0	100.0	125
collatshare_guaranteep_lbp	8.92	0.00	23.35	0.0	100.0	125
collatshare_other_lbp	1.01	0.00	9.24	0.0	100.0	124
Credit chains						
if_lendtocustomer	0.44	0.00	0.50	0.0	1.0	196
lendtocustomer_sharelbp	32.50	35.00	31.90	0.0	100.0	60
if_lendtosupplier	0.22	0.00	0.41	0.0	1.0	189
lendtosupplier_sharelbp	21.15	0.00	33.98	0.0	100.0	26
Preferences about dollar debt and exchange rate risk perception						
D_preffirmusd	0.44	0.00	0.50	0.0	1.0	195
D_preffirmusd	0.33	0.00	0.47	0.0	1.0	191
D_preffirmusdtrade	0.18	0.00	0.38	0.0	1.0	195
D_preffirmusderate	0.12	0.00	0.32	0.0	1.0	195
D_preffirmusdirate	0.09	0.00	0.28	0.0	1.0	195
D_preffirmusderate	0.20	0.00	0.40	0.0	1.0	191
D_preffirmusdirate	0.08	0.00	0.27	0.0	1.0	191
D_preffirmusdcollat	0.04	0.00	0.19	0.0	1.0	191
rer	4.04	4.00	1.53	1.0	6.0	175
eratestable	1.58	1.00	1.20	1.0	6.0	175
D_if_hedge	0.04	0.00	0.20	0.0	1.0	170

Table 2. Summary statistics of general obstacles, financing obstacles, and reasons for and for not using bank credit

	Mean	Median	Standard Deviation	Minimum	Maximum	Observations	Percent of firms ranking it as a major obstacle	Percent of firms denoting it most important obstacle
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These are ordered responses and range from 1 to 4, where a response of 1 means that the firm ranks the problem as no obstacle and a response of 4 means it ranks the problem as a major obstacle.

Panel A

								of 179 responses
General obstacles for the operation and growth of firm's business								
problem_instability	3.43	4	0.75	1	4	189	56.1	10.1
problem_taxregulation	3.43	4	0.73	1	4	190	55.3	17.3
problem_finance	3.31	4	0.86	1	4	190	52.1	15.1
problem_inflation	3.19	3	0.88	1	4	180	43.3	10.6
problem_other	3.17	3.5	1.17	1	4	6	-	1.1
problem_opexpense	3.13	3	0.84	1	4	188	38.3	20.7
problem_opexpense_energy	3.13	3	0.91	1	4	184	42.4	
problem_opexpense_rent	3.02	3	0.98	1	4	184	39.1	
problem_opexpense_labor	2.99	3	0.96	1	4	184	37.0	
problem_erate	2.61	3	1.00	1	4	183	20.8	2.8
problem_corruption	2.47	2	1.10	1	4	187	22.5	5.6
problem_infrastructure	2.42	2.5	1.05	1	4	184	17.4	1.1
problem_competition	2.36	2	1.10	1	4	185	17.8	6.7
problem_contracts	2.15	2	1.05	1	4	185	14.1	3.4
problem_demand	2.13	2	1.01	1	4	184	10.3	3.4
problem_crime	1.94	2	1.02	1	4	181	11.6	1.1
problem_labor	1.66	1	0.82	1	4	181	3.9	1.1
problem_labor_ethic	1.71	2	0.83	1	4	169	3.6	
problem_labor_highskill	1.61	1	0.79	1	4	176	0.6	
problem_labor_lowskill	1.56	1	0.72	1	4	169	1.2	
problem_location	1.51	1	0.79	1	4	174	2.3	

Panel B

								of 167 responses
Financing obstacles in more detail								
finproblem_irate	3.44	4	0.75	1	4	187	56.7	53.9
finproblem_irate_usd	3.41	4	0.78	1	4	174	55.8	
finproblem_irate_lbp	3.34	4	0.81	1	4	164	52.4	
finproblem_collat	3.04	3	0.94	1	4	188	38.3	23.4
finproblem_collat_usd	2.97	3	0.91	1	4	172	32.0	
finproblem_collat_lbp	2.96	3	0.93	1	4	167	32.3	
finproblem_paperwork	2.56	3	1.10	1	4	179	26.3	3.0
finproblem_connection	2.42	2	1.09	1	4	173	20.2	7.8
finproblem_accessforeignbank	2.20	2	1.10	1	4	161	16.8	2.4
finprobleaccess_nonbank	2.15	2	1.16	1	4	144	18.8	2.4
finproblem_bankwontlend	1.93	2	0.93	1	4	173	6.9	5.4
finproblem_bankwontlend_lt	2.03	2	1.00	1	4	158	10.8	
finproblem_bankwontlend_st	1.76	2	0.89	1	4	156	5.1	
finproblem_bankwontlend_lbp	1.95	2	0.99	1	4	150	10.0	
finproblem_bankwontlend_usd	1.94	2	0.98	1	4	152	9.2	
finproblem_access_exportfin	1.99	2	1.08	1	4	142	12.7	
finproblem_leasefin	1.96	2	1.06	1	4	143	11.9	1.2
finproblem_bankcantlend	1.59	1	0.74	1	4	174	2.3	0.6
finproblem_bankcantlend_lbp	1.63	1	0.75	1	4	158	2.5	
finproblem_bankcantlend_usd	1.61	1	0.75	1	4	160	2.5	
finproblem_credithist	1.56	1	0.90	1	4	156	5.8	

Panel C

For those firms using bank credit in the previous 2 years, the primary purpose was for (% responding, of 70 responses)

Working capital (short-term financ	52.9
Investment purposes	18.6
Foreign trade transactions	17.1
Liability restructuring	4.3
Other	7.1

For those firms not using bank credit in the previous 2 years, the primary reason was because of (% responding, of 144 responses)

High interest rates	29.2
Economic uncertainty	11.1
Bank's unwillingness to lend	6.3
Application rejected	3.5
Past-due loan portfolio	1.4
Financial restructuring difficulties	0.0
Demand problems for your produc	0.7
Market competition difficulties	0.0
Other ⁽¹⁾	47.9

(1) Note that many of the firms providing other as their response cited that they have no need for bank loans.

Table 3. Correlations among selected variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 debt_usd	1															
2 debtshare_usd	0.877*	1														
3 if_bankborrow	0.234*	0.237*	1													
4 if_askforcredit	0.189	0.210*	0.487*	1												
5 problem_finance	-0.113	-0.166	-0.067	-0.004	1											
6 age	0.210*	0.317*	0.101	0.008	-0.032	1										
7 D_size_code1	-0.191*	-0.317*	-0.151*	-0.072	0.064	-0.160*	1									
8 D_size_code2	0.105	0.096	-0.031	0.026	0.073	-0.060	-0.312*	1								
9 D_size_code3	-0.101	-0.065	-0.025	-0.025	0.014	-0.046	-0.340*	-0.396*	1							
10 D_size_code4andmore	0.165	0.249*	0.211*	0.070	-0.152*	0.274*	-0.276*	-0.321*	-0.350*	1						
11 D_size_codewbsmall	-0.174	-0.233*	-0.332*	-0.090	0.168*	-0.179*	0.182*	0.212*	0.232*	-0.662*	1					
12 D_Beirut	0.076	0.083	0.122*	0.051	-0.177*	-0.009	-0.023	-0.031	0.062	-0.013	-0.078	1				
13 if_exporta	0.234*	0.213*	0.144*	0.129*	-0.135*	0.197*	-0.016	-0.169*	0.070	0.114	-0.112	0.037	1			
14 if_import	0.022	0.064	0.044	0.002	0.087	0.150*	-0.107	0.070	-0.011	0.042	0.048	0.021	0.271*	1		
15 export_sharea	0.164	0.222*	0.154*	0.205*	-0.118	0.231*	-0.043	-0.162*	0.054	0.151*	-0.122*	0.050	0.759*	0.266*	1	
16 import_share	0.044	0.110	0.031	-0.012	0.076	0.107	-0.078	0.060	0.000	0.011	0.077	0.053	0.200*	0.841*	0.258*	1
17 if_fdi	0.158	0.225*	0.244*	0.232*	-0.228*	0.165*	-0.057	-0.078	-0.092	0.236*	-0.304*	0.063	0.288*	0.126*	0.444*	0.126*
18 Insale	0.305*	0.397*	0.413*	0.142	-0.038	0.264*	-0.291*	-0.198*	-0.007	0.512*	-0.571*	0.085	0.244*	0.173*	0.252*	0.183*
19 profitos	-0.257	-0.291*	-0.518*	-0.342*	0.068	0.057	-0.053	-0.015	0.148	-0.094	0.280*	-0.206*	-0.049	-0.093	-0.037	-0.127
20 fixatos	0.067	0.032	0.319*	0.239*	-0.025	0.071	-0.044	-0.178*	-0.131	-0.008	-0.047	0.110	-0.027	0.008	-0.004	0.031
21 nwtotofixa	0.124	0.155	0.044	0.211*	-0.022	0.199*	-0.039	0.183*	-0.068	-0.086	0.063	0.031	-0.045	-0.009	-0.029	-0.014
22 debttotofixa	0.123	0.136	0.466*	0.358*	0.025	0.051	-0.128	0.094	-0.119	0.145	-0.150	0.097	-0.054	0.144	-0.069	0.096
23 if_expectsalesup	0.078	0.078	0.150*	0.074	0.054	-0.092	-0.057	0.030	-0.073	0.104	-0.113	0.000	0.121*	-0.079	0.004	-0.056
24 if_toinvest	0.243*	0.294*	0.411*	0.384*	-0.150*	0.016	0.013	0.013	-0.130*	0.118	-0.250*	-0.047	0.175*	-0.045	0.101	-0.100
25 finshare_internal	-0.137	-0.117	-0.579*	-0.417*	-0.054	0.014	0.052	0.006	0.041	-0.102	0.257*	-0.257*	-0.004	-0.030	-0.068	0.013
26 finshare_affiliate	0.133	0.142	0.027	-0.078	-0.119	-0.019	0.008	-0.037	-0.046	0.083	-0.127*	0.121	0.067	-0.031	0.024	0.018
27 finshare_family	-0.197	-0.219*	-0.022	0.129*	0.082	-0.146*	0.186*	0.019	-0.095	-0.091	0.081	0.131*	-0.107	-0.043	-0.065	-0.101
28 finshare_informal	-0.308*	-0.355*	0.129*	0.173*	0.164*	-0.140*	0.048	0.075	-0.008	-0.117	0.052	0.172*	-0.144*	0.019	-0.113	-0.032
29 finshare_external	0.355*	0.375*	0.638*	0.426*	-0.002	0.129*	-0.147*	-0.036	0.019	0.156*	-0.285*	0.121	0.143*	0.064	0.174*	0.038
30 if_fin_kafalat	0.214*	0.191	0.382*	0.055	-0.013	0.099	-0.015	-0.094	-0.124*	0.254*	-0.328*	0.157*	0.124*	0.051	0.114	-0.007
31 n_banks	0.204*	0.252*	0.302*	0.082	-0.029	0.159*	-0.195*	-0.165*	0.053	0.300*	-0.278*	0.100	0.260*	0.048	0.154*	0.011
32 years_mainbank	0.205*	0.323*	0.083	0.011	-0.061	0.711*	-0.127*	-0.179*	0.001	0.301*	-0.269*	0.018	0.238*	0.220*	0.231*	0.158*
33 D_mostlaxbank_for	0.132	0.050	0.192*	0.155*	-0.004	0.017	-0.069	0.077	-0.061	0.056	-0.070	-0.058	-0.021	-0.074	0.040	-0.101
34 if_audit	0.515*	0.542*	0.544*	0.401*	-0.224*	0.067	-0.093	-0.092	-0.103	0.292*	-0.456*	0.085	0.136*	-0.139*	0.104	-0.128*
35 if_auditforloan	0.415*	0.347*	0.148*	-0.054	0.007	-0.140*	-0.175*	-0.017	0.077	0.099	-0.106	0.090	-0.042	0.054	-0.074	0.043
36 if_collat_less6mo	-0.267*	-0.192	-0.122	-0.011	0.312*	-0.025	0.081	0.040	0.107	-0.247*	0.196*	0.058	-0.097	0.155*	-0.047	0.169*
37 collatshare_cash_usd	-0.167	-0.125	-0.492*	-0.257*	-0.090	0.044	-0.019	0.018	0.040	-0.047	0.217*	-0.112	-0.029	0.046	-0.041	0.064
38 collatshare_property_usd	0.118	0.005	0.246*	0.134	0.325*	-0.096	0.088	-0.052	0.006	-0.038	0.056	-0.102	-0.007	0.058	-0.086	0.057
39 collatshare_otherreal_usd	-0.071	-0.025	-0.167*	-0.136	-0.094	-0.020	0.070	0.008	-0.046	-0.027	-0.049	-0.054	-0.045	-0.119	-0.022	-0.149*
40 collatshare_guaranteep_usd	0.020	0.070	0.406*	0.254*	-0.161*	0.023	-0.116	0.035	0.002	0.075	-0.229*	0.284*	0.030	-0.048	0.066	-0.047
41 if_lendtocustomer	0.365*	0.436*	0.280*	0.250*	-0.125*	0.033	-0.144*	-0.078	0.055	0.163*	-0.173*	0.183*	0.309*	0.120	0.190*	0.023
42 if_lendtosupplier	0.244*	0.136	0.217*	0.137*	-0.075	-0.058	0.023	-0.062	-0.040	0.088	-0.099	0.103	0.106	0.009	-0.072	-0.050
43 D_preffirmusd	0.555*	0.557*	0.414*	0.276*	-0.061	0.051	-0.135*	0.036	-0.022	0.115	-0.240*	-0.010	0.183*	0.103	0.204*	0.123*
44 D_preffbankusd	0.182	0.200*	0.055	0.021	-0.100	0.005	0.029	-0.119	0.032	0.062	-0.093	0.166*	0.104	0.032	0.056	0.012

Note: * indicates significance at the 10% level.

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
17 if_fdi	1															
18 lnsale	0.335*	1														
19 profitos	-0.189*	-0.349*	1													
20 fixatos	0.080	-0.101	-0.170*	1												
21 nwttofixa	-0.042	-0.018	-0.016	-0.128	1											
22 debtttofixa	0.114	0.267*	-0.433*	-0.096	0.501*	1										
23 if_expectsalesup	-0.030	0.158*	-0.057	0.006	0.090	0.142	1									
24 if_toinvest	0.199*	0.234*	-0.337*	0.133	0.160	0.263*	0.448*	1								
25 finshare_internal	-0.142*	-0.122	0.508*	-0.362*	-0.098	-0.493*	-0.081	-0.285*	1							
26 finshare_affiliate	0.162*	0.042	-0.172*	0.071	-0.048	0.063	-0.085	-0.111	-0.296*	1						
27 finshare_family	-0.059	-0.183*	-0.042	-0.004	0.105	0.097	-0.024	0.080	-0.393*	-0.029	1					
28 finshare_informal	-0.053	-0.195*	-0.179*	0.460*	-0.187*	0.197*	0.030	-0.012	-0.360*	-0.036	0.072	1				
29 finshare_external	0.165*	0.293*	-0.455*	0.240*	0.201*	0.501*	0.118	0.344*	-0.761*	0.052	-0.049	-0.038	1			
30 if_fin_kafalat	0.138*	0.400*	-0.206*	0.255*	-0.081	0.255*	0.080	0.222*	-0.274*	0.018	-0.052	0.078	0.332*	1		
31 n_banks	0.128*	0.375*	-0.220*	-0.028	-0.080	0.110	0.171*	0.125*	-0.100	0.089	-0.119	-0.044	0.166*	0.166*	1	
32 years_mainbank	0.288*	0.358*	-0.032	-0.060	-0.086	-0.057	-0.121	0.001	0.010	0.106	-0.069	-0.213*	0.082	0.117	0.236*	1
33 D_mostlaxbank_for	0.019	0.257*	-0.167*	0.076	-0.036	-0.012	0.040	0.117	-0.110	-0.033	0.045	-0.083	0.111	0.032	0.120	-0.037
34 if_audit	0.343*	0.388*	-0.554*	0.251*	0.086	0.400*	0.237*	0.501*	-0.430*	0.185*	0.004	0.009	0.436*	0.244*	0.180*	0.094
35 if_auditforloan	0.048	0.215*	-0.104	0.064	-0.218*	0.016	0.193*	0.087	-0.008	-0.005	-0.143*	-0.036	0.132*	0.113	0.139*	0.006
36 if_collat_less6mo	-0.168*	-0.194*	0.025	0.068	-0.015	-0.103	-0.080	-0.137*	-0.026	-0.075	0.068	0.186*	-0.049	-0.060	-0.187*	-0.132
37 collatshare_cash_usd	-0.161*	-0.063	0.192*	-0.242*	-0.107	-0.269*	-0.125	-0.406*	0.399*	-0.041	-0.153*	-0.010	-0.383*	-0.241*	-0.132	-0.028
38 collatshare_property_usd	-0.117	-0.076	-0.044	0.258*	-0.104	-0.086	0.102	0.264*	-0.204*	-0.040	-0.014	0.044	0.283*	0.176*	0.072	0.011
39 collatshare_otherreal_usd	-0.116	-0.123	0.073	-0.054	-0.041	-0.081	-0.026	-0.051	0.186*	-0.060	-0.074	-0.057	-0.135	0.022	0.008	0.007
40 collatshare_guaranteep_usd	0.277*	0.129	-0.253*	0.054	0.314*	0.481*	0.054	0.226*	-0.409*	0.140	0.263*	0.022	0.254*	-0.002	0.065	-0.093
41 if_lendtocustomer	0.150*	0.322*	-0.245*	0.025	0.112	0.239*	0.084	0.301*	-0.141*	0.096	-0.076	-0.088	0.245*	0.113	0.116	0.191*
42 if_lendtosupplier	0.008	0.086	-0.121	0.075	-0.071	0.009	0.220*	0.289*	0.009	0.018	-0.014	-0.025	0.004	0.167*	0.130*	0.056
43 D_preffirmusd	0.235*	0.385*	-0.435*	-0.060	0.060	0.293*	0.069	0.349*	-0.230*	0.153*	-0.054	-0.085	0.295*	0.228*	0.267*	0.105
44 D_preffbankusd	0.012	0.003	-0.038	0.006	-0.059	0.031	-0.010	0.055	-0.092	0.191*	0.042	-0.047	0.074	0.073	0.127*	0.062
	33	34	35	36	37	38	39	40	41	42	43	44				
33 D_mostlaxbank_for	1															
34 if_audit	0.252*	1														
35 if_auditforloan	-0.031	0.070	1													
36 if_collat_less6mo	-0.150*	-0.242*	0.019	1												
37 collatshare_cash_usd	-0.138	-0.419*	0.009	0.039	1											
38 collatshare_property_usd	-0.082	0.196*	0.062	0.158*	-0.571*	1										
39 collatshare_otherreal_usd	0.163*	-0.150*	-0.055	-0.003	-0.231*	-0.185*	1									
40 collatshare_guaranteep_usd	0.135	0.400*	-0.038	-0.171*	-0.395*	-0.278*	-0.211*	1								
41 if_lendtocustomer	0.029	0.351*	0.180*	-0.084	-0.241*	0.121	-0.097	0.217*	1							
42 if_lendtosupplier	0.167*	0.259*	0.177*	-0.077	-0.171*	0.018	0.036	0.186*	0.362*	1						
43 D_preffirmusd	0.171*	0.376*	0.099	0.013	-0.187*	0.112	-0.181*	0.214*	0.235*	0.139*	1					
44 D_preffbankusd	0.027	0.194*	-0.036	0.006	-0.052	0.080	0.065	-0.041	0.159*	0.240*	0.030	1				

Note: * indicates significance at the 10% level.

Table 4. Determinants of the likelihood of incurring dollar debt and the share of dollar debt: Baseline results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Pr (dollar debt):				Share of dollar debt:		
	The dependent variable in columns (1) - (4) is whether a firm takes on dollar debt conditional on it reporting that it borrows, and the table reports the estimated marginal effects from probit regressions calculated at the sample means of the regressors.				The dependent variable in columns (5) - (7) is the share of a firm's debt that is in dollars, conditional on it reporting it borrows. The coefficient estimates are from ordinary least squares.		
D_size_code1	-0.247 (1.43)		-0.033 (1.01)	-0.010 (0.58)	-40.46 (2.42)**	-45.91 (2.73)***	-48.12 (2.42)**
D_size_code2	0.057 (0.55)		0.021 (1.79)*	0.019 (2.33)**	0.41 (0.04)	-4.78 (0.43)	-3.38 (0.24)
D_size_code3	-0.154 (1.09)		-0.013 (0.57)	-0.003 (0.21)	-12.13 (0.87)	-21.09 (1.35)	-17.74 (0.97)
Insale1		0.050 (1.78)*					
age	0.005 (1.47)	0.005 (1.73)*	0.001 (2.10)**	0.001 (2.03)**	0.35 (1.22)	0.37 (1.19)	0.22 (0.63)
D_ind1	-0.189 (1.36)	-0.164 (1.17)	-0.265 (2.78)***	-0.213 (2.71)***	-7.44 (0.58)	-5.35 (0.38)	-5.85 (0.38)
D_ind2	-0.285 (1.90)*	-0.226 (1.68)*	-0.187 (2.93)***	-0.187 (3.07)***	-23.74 (1.65)	-15.49 (0.97)	-20.94 (1.27)
if_exporta	0.177 (2.58)***	0.162 (1.94)*	0.036 (2.95)***	0.023 (2.58)***	14.18 (1.45)	18.44 (1.36)	17.05 (1.15)
export_sharea						-0.06 (0.27)	-0.04 (0.16)
if_import	-0.142 (1.52)	-0.109 (1.14)	-0.059 (2.74)***	-0.040 (2.61)***	-16.06 (1.25)	-35.27 (1.67)*	-31.11 (1.41)
import_share						0.33 (1.78)*	0.28 (1.33)
proftos1			-0.139 (3.79)***	-0.110 (3.86)***			-69.28 (1.48)
nwtotfixa1			0.011 (3.30)***	0.008 (3.09)***			0.97 (1.05)
debttofixa1			0.003 (1.42)	0.002 (0.15)			-1.69 (0.92)
if_expectsalesup				0.002 (0.20)			
if_toinvest				0.012 (1.20)			
Observations	68	68	68	65	68	64	64
R ²	0.266	0.213	0.451	0.464	0.265	0.300	0.344

Notes:

Standard errors are robust to heteroskedasticity; t-statistics are reported in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%.

The R² is the pseudo-R² in the case of the probit regressions in columns (1) to (4).

Table 5. Determinants of the likelihood of incurring dollar debt: Exploring the effect of creditor relationships, hard information proxies, and credit chains.

	(1)	(2)	(3)	(4)	(5)	(6)
The dependent variable is whether a firm takes on dollar debt conditional on it reporting that it borrows, and the table reports the estimated marginal effects from probit regressions calculated at the sample means of the regressors.						
D_size_code1	-0.012 (0.82)	-0.008 (0.44)	-0.0001 (0.08)	-0.001 (1.09)	0.001 (1.37)	-0.004 (0.72)
D_size_code2	0.008 (1.8)*	0.017 (1.84)*	0.003 (2.05)**	0.001 (1.66)*	0.015 (2.41)**	0.006 (2.32)**
D_size_code3	-0.003 (0.31)	0.001 (0.10)	-0.0001 (0.04)	0.004 (1.58)	0.001 (1.49)	0.000 (0.15)
age	0.0003 (1.59)	0.001 (2.31)**	0.0001 (2.10)**	0.000 (2.03)*	0.000 (1.96)**	0.0001 (1.27)
D_ind1	-0.205 (2.86)***	-0.469 (2.82)***	-0.291 (2.86)***	-0.092 (1.73)*	-0.155 (2.41)**	-0.197 (2.89)***
D_ind2	-0.148 (3.13)***	-0.102 (2.71)***	-0.041 (3.08)***	-0.707 (1.83)*	-0.139 (3.15)***	-0.208 (3.41)***
if_exporta	0.014 (2.39)**	0.022 (3.07)***	0.008 (3.07)***	0.001 (1.79)*	0.003 (2.08)**	0.008 (2.32)**
if_import	-0.030 (2.68)***	-0.040 (2.43)**	-0.014 (2.80)***	-0.011 (2.21)**	-0.008 (2.58)***	-0.021 (4.27)***
proftos1	-0.058 (3.81)***	-0.080 (3.16)***	-0.010 (3.44)***	-0.002 (2.07)**	-0.007 (3.04)***	-0.023 (3.01)***
nwtfixa1	0.004 (3.13)***	0.007 (2.78)***	0.001 (2.87)***	0.0001 (1.92)*	0.0005 (2.70)***	0.002 (3.81)***
debttofixa1	0.001 (1.03)	0.002 (1.41)	0.0003 (1.79)*	0.000 (0.29)	0.0001 (1.04)	0.0003 (1.44)
n_banks	0.004 (1.32)					
years_mainbank	0.0001 (0.12)					
finshare_external		0.0003 (1.63)				
D_mostlaxbank_for			0.001 (1.74)*			
if_auditforloan				0.999 (2.06)**		
if_collat_less6mo1					-0.022 (2.50)**	
if_lendtocustomer						0.010 (1.48)
if_lendtosupplier						0.004 (1.87)*
Observations	65	53	65	67	68	67
Pseudo R ²	0.471	0.494	0.497	0.708	0.555	0.621

Notes:

Standard errors are robust to heteroskedasticity; t-statistics are reported in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 6. Determinants of the likelihood of borrowing from banks, asking for credit in the future, and financing obstacles

Columns (1) - (5) of this table report the estimated marginal effects from probit regressions calculated at the sample means of the regressors. While columns (6) - (8) report the coefficients of an ordered probit model for financing obstacles.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pr (bank credit): The dependent variable is whether a firm has borrowed from banks in the previous two years.				Pr (ask for credit) The dependent variable is whether a firm will ask for credit in the following 12 months.		Ordered response to finance obstacles The dependent variable takes on ordered responses from 1 to 4, where a response of 1 means that the firm ranks financing as no obstacle and a response of 4 means it ranks financing as a major obstacle.	
D_size_code1	-0.251 (2.30)**	-0.262 (1.84)*	-0.228 (1.59)	-0.162 (0.99)	-0.042 (0.91)	0.544 (2.23)**	0.587 (2.33)**	0.676 (2.65)***
D_size_code2	-0.145 (1.40)	-0.138 (0.98)	-0.176 (1.19)	-0.084 (0.53)	0.067 (1.10)	0.490 (1.91)*	0.542 (1.97)**	0.502 (1.75)*
D_size_code3	-0.178 (1.77)*	-0.076 (0.58)	-0.038 (0.29)	-0.062 (1.58)	0.043 (0.81)	0.289 (1.15)	0.296 (1.11)	0.364 (1.34)
age	0.001 (0.22)	0.003 (0.81)	0.002 (0.64)	0.008 (1.58)	-0.001 (0.97)	-0.001 (0.09)	0.0003 (0.05)	0.002 (0.30)
D_ind1	-0.121 (1.20)	-0.125 (0.98)	-0.129 (0.94)	-0.178 (1.23)	0.094 (1.59)	-0.064 (0.26)	-0.092 (0.37)	0.012 (0.05)
D_ind2	-0.006 (0.05)	-0.050 (0.38)	-0.103 (0.68)	-0.077 (0.51)	0.017 (0.32)	-0.726 (2.83)***	-0.699 (2.55)**	-0.722 (2.60)***
if_exporta	0.200 (2.14)**	0.198 (1.79)*	0.110 (0.87)	0.180 (1.50)	0.059 (1.07)	-0.391 (1.83)*	-0.386 (1.79)*	-0.443 (1.78)*
if_import	-0.027 (0.27)	-0.084 (0.70)	-0.075 (0.56)	-0.072 (0.52)	0.013 (0.29)	0.037 (0.16)	0.040 (0.17)	0.132 (0.55)
proftos1		-1.149 (2.20)**	-1.139 (2.12)**	-0.912 (1.66)*	-0.379 (1.51)		0.527 (0.65)	0.111 (0.13)
nwtofixa1		0.006 (0.30)	-0.004 (0.13)	-0.0001 (0.00)	0.008 (0.74)		-0.028 (1.40)	-0.026 (1.28)
fixatos1		0.613 (2.90)***	0.512 (2.28)**	0.601 (2.73)***	0.075 (2.03)**		0.003 (0.02)	0.032 (0.19)
debttofixa1		0.404 (2.41)**	0.366 (2.51)**	0.393 (2.35)**	0.007 (0.84)		0.041 (1.03)	0.038 (0.89)
if_expectsalesup			-0.034 (0.29)		-0.255 (3.45)***			0.551 (2.51)**
if_toinvest			0.376 (3.10)***		0.475 (5.13)***			-0.519 (1.97)**
n_banks				0.112 (2.20)**				
years_mainbank				-0.011 (1.25)				
Observations	171	171	163	154	165	170	170	167
Pseudo R ²	0.053	0.357	0.420	0.400	0.368	0.055	0.060	0.082

Notes:

Standard errors are robust to heteroskedasticity; t-statistics are reported in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 7. Evaluating the effect of the Feb 14, 2005 assassination of former Prime Minister Hariri on firms' expectations

	Before			After			Observations	T-statistic (difference in means t-test)
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation		
erate_stable	1.577	1	1.196	1.771	1	1.248	175	2.83***
outlook	3.000	3	1.155	3.709	4	1.232	175	9.90***
if_expectsalesup	0.557	1	0.498	0.393	0	0.490	183	5.05***
growth_sale_f2	13.291	10	23.526	3.121	0	21.438	141	7.89***
if_toinvest	0.280	0	0.450	0.187	0	0.391	182	3.85***
growth_invest_f2	1.642	0	9.570	1.277	0	6.418	137	0.578
growth_employment_f2	1.735	0	13.672	1.838	0	11.431	136	0.166
growth_export_f2	1.992	0	8.505	2.167	0	9.166	132	0.588
growth_debt_f2	-7.112	0	27.231	-4.119	0	20.324	134	2.08**
if_problem_change142				0.199	0	0.400	146	
if_finproblem_change142				0.112	0	0.316	152	
bankattitude_post142				3.106	3	1.527	179	

Note:

Please see variable definitions in the Appendix. For those variables not defined in the Appendix:

"outlook" is an ordered response ranging from 1 to 6 which expresses the firm's agreement with the following statement: "My company's overall business outlook is very positive over the next 12 months". A response of 1 indicates that the firm fully agrees with this statement, 2 agrees, 3 tends to agree, 4 tends to disagree, 5 disagrees, and 6 fully disagrees.

"if_problem_change142" and "if_finproblem_change142" are dummy variables = 1 if the firm indicated that its assessment of the most important obstacle (financing obstacle, respectively) has changed since Feb 14, 2005 (see Table 2 for obstacles).

"bankattitude_post142" is an ordered response ranging from 1 to 6 which expresses the firm's agreement with the following statement: "banks have become more conservative since February 14, 2005 and financing is more difficult to obtain today compared to before".

Table 8. Robustness checks with data from the World Bank Enterprise Survey (Lebanon 2006)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Pr (bank credit):			Pr (dollar debt):			Share of dollar debt:
D_size_code12	-0.266 (2.68)***	-0.298 (2.79)***	-0.267 (2.47)**	-0.189 (2.16)**	-0.030 (1.65)*	-0.002 (0.45)	-12.63 (1.51)
D_size_code3	-0.190 (2.72)***	-0.152 (2.60)***	-0.142 (2.38)**	-0.069 (1.21)	-0.009 (0.87)	-0.0001 (0.05)	-2.35 (0.50)
D_size_code45	-0.127 (1.88)*	-0.102 (1.89)*	-0.090 (1.63)	-0.142 (2.50)**	-0.025 (2.15)**	-0.004 (1.40)	-14.06 (2.87)***
age	0.0003 (0.21)	0.0002 (0.17)	0.0001 (0.09)	0.001 (1.37)	0.0003 (1.87)*	0.0001 (1.58)	0.15 (1.98)**
D_ind1	0.153 (2.32)**	0.119 (2.42)**	0.136 (2.71)***	-0.010 (0.22)	0.001 (0.14)	0.001 (0.29)	-7.17 (1.43)
D_ind2	0.058 (0.71)	0.063 (1.07)	0.057 (0.94)	-0.078 (1.47)	-0.010 (1.00)	-0.001 (0.44)	-5.27 (0.85)
if_export	0.099 (1.7)*	0.076 (1.73)*	0.074 (1.67)*	-0.005 (0.15)	-0.002 (0.31)	-0.0004 (0.26)	
if_import	0.149 (2.16)**	0.126 (2.18)**	0.126 (2.15)**	0.070 (1.61)	0.016 (1.86)*	0.003 (1.32)	
export_share							0.15 (1.99)**
import_share							0.10 (1.80)*
proftos_reported		0.101 (0.30)	0.025 (0.07)		-0.032 (0.91)	-0.017 (1.81)*	-42.28 (1.68)*
nwtoa		0.064 (1.38)	0.067 (1.46)		0.014 (0.80)	0.007 (1.37)	-0.03 (0.96)
fixatoa		0.0001 (0.64)	0.0001 (0.60)		0.001 (0.47)	0.0001 (0.60)	0.02 (4.73)***
debttoa		0.057 (1.87)*	0.056 (1.58)		0.0001 (1.10)	0.000 (1.12)	0.03 (0.88)
if_tohire			-0.007 (0.14)		-0.019 (2.36)**	-0.005 (2.11)**	
if_toexpandcapacity			0.111 (2.37)**		0.013 (1.89)*	0.003 (1.35)	
if_audit						0.007 (1.40)	
finshare_external_wc						0.00003 (1.27)	
if_creditline						0.006 (2.50)**	
if_ownproperty						0.002 (1.08)	
if_bankaccount						0.0002 (0.06)	
inputshare_oncredit						0.0001 (2.08)**	
Observations	341	341	341	327	327	319	327
R ²	0.067	0.108	0.120	0.073	0.151	0.231	0.103

Notes:

Standard errors are robust to heteroskedasticity; t-statistics are reported in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%.

The R² is the pseudo-R² in the case of the probit regressions in columns (1) to (6).