

SME Credit Availability Around the World:

Evidence from the World Bank's Enterprise Survey

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Rebel A. Cole, Driehaus College of Business at DePaul University
Andreas Dietrich, Lucerne University of Applied Sciences and Arts

Agenda

1	Introduction
2	Literature Overview
3	Model, Methodology and Data
4	Results
5	Summary and Conclusions

Background and Motivation

- Lack of access to finance is a growth constraint for small and medium-sized firms; and has a negative impact on a country's economy
- Research has shown that SMEs are very important for any economy, esp. for employment and GDP.
- In the U.S., for example, small firms account for about half of GDP growth and 2/3rd of new jobs.

Background and Motivation

- The answers to the questions “who needs credit?” “who applies for credit?” and “who gets credit?” are of great importance not only to the firms themselves, but also to prospective lenders to these firms and to policymakers interested in the financial health of these firms
- In this paper, we analyze data from a series of World Bank sponsored surveys of SMEs located in 80 countries to provide new evidence on how to answer these three questions.

Research Question

What determines

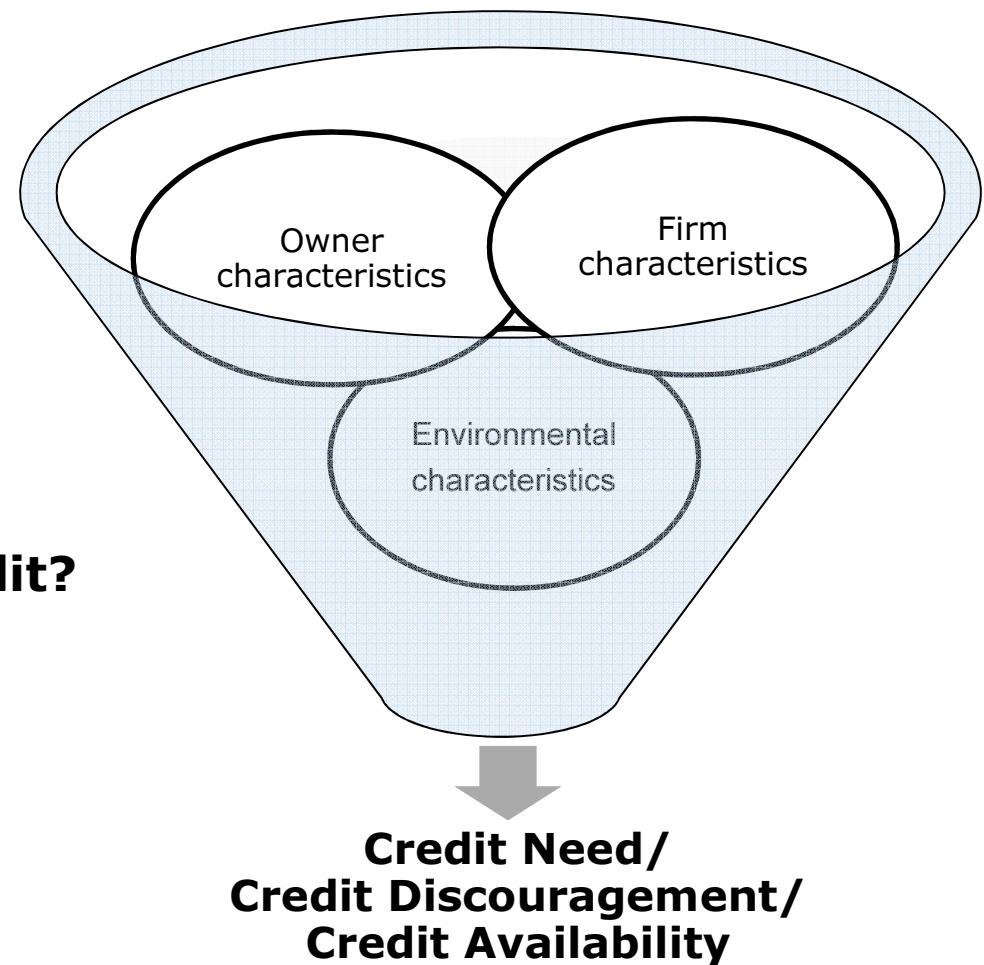
(i) the need for credit,

**(ii) discouragement from
applying for credit,**

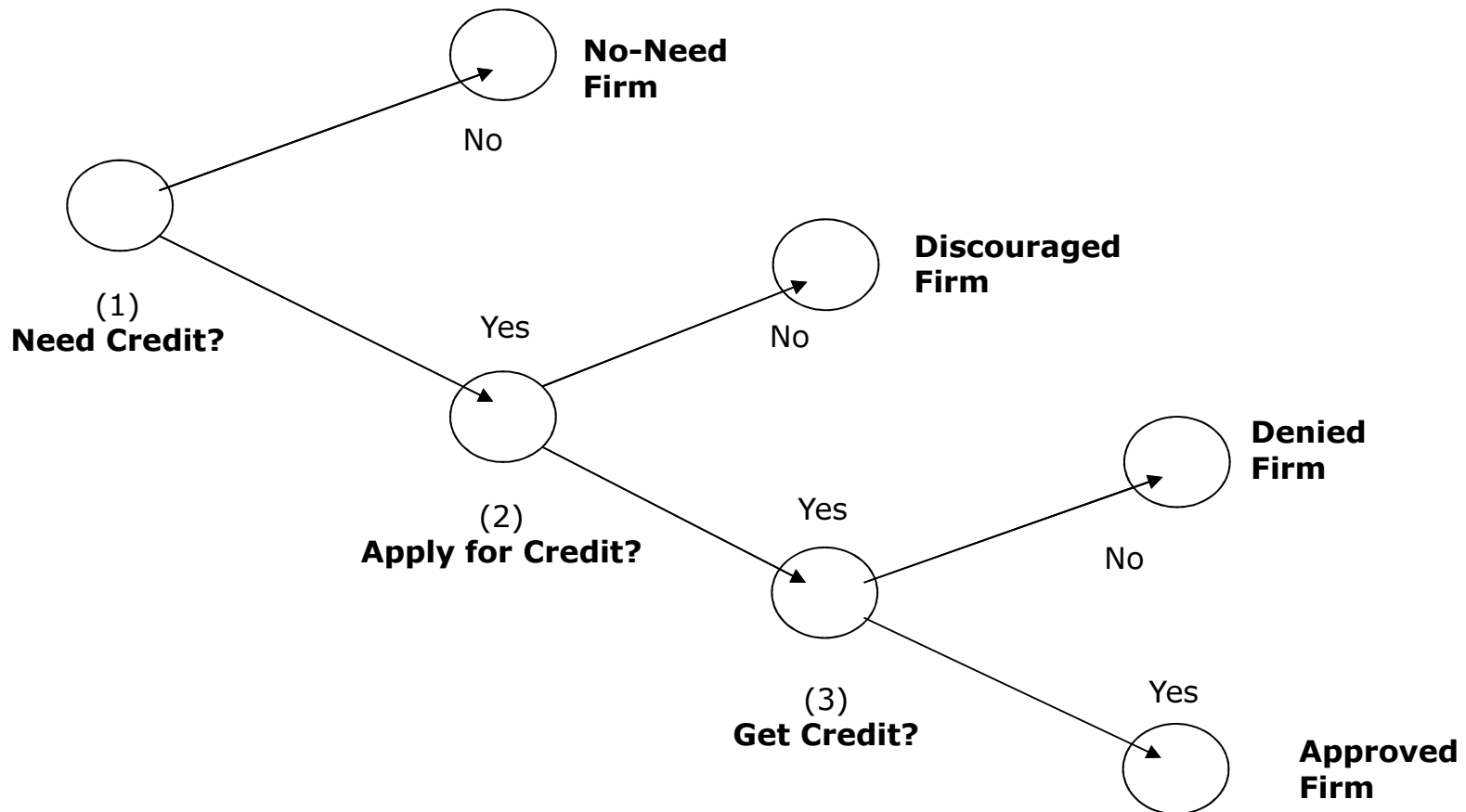
and, finally,

(iii) success in obtaining credit?

- **Firm** characteristics?
- **Market** characteristics?
- **Environmental** characteristics?



Methodology – Our Approach



Why is this study important?

- Almost no studies analyze "**No-Need**" firms
- A few studies analyze "**Discouraged**" firms that need credit but don't apply
 - "Discouraged" firms are numerous
 - To improve availability of credit, it is critically important to better understand these firms
- Many studies pool "discouraged" firms with "denied" firms to analyze credit allocation
 - This can lead to faulty conclusions if the two groups differ systematically.
- We provide new evidence, analyzing data from 2006-2011, including 80 countries.

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Existing Literature : Availability of Credit

- The availability of credit is one of the most fundamental issues facing a small businesses.
- It has received much attention in the academic literature
 - Petersen and Rajan, 1994;
 - Berger and Udell, 1995;
 - Cole, 1998
 - Many, many more (x 100)
- Cole (2009) first proposed this taxonomy of four types of firms.
 - Who needs credit: Need vs. No-Need
 - Who applies for credit: Discouraged vs. Applied
 - Who gets credit: Denied vs. Approved

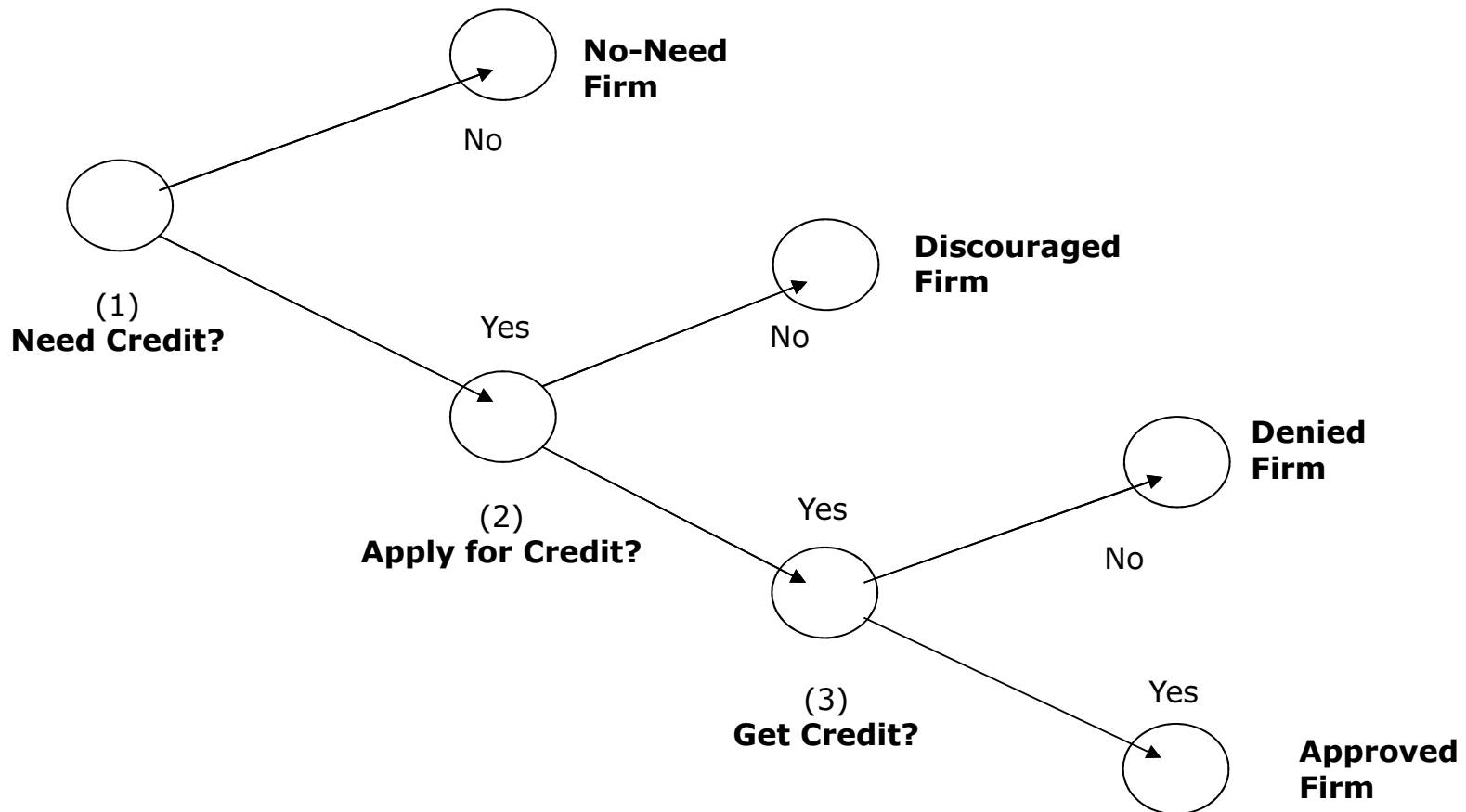
Existing Literature: Studies using World Bank SME Surveys

- *Beck et al.* (2008; 48 countries, 3,000 firms) find that, in countries with poor institutions, firms (and especially small firms) use less finance.
- *Brown et al.* (2011; 20 countries E./W. Europe, data from 2004/5; 2008)
Find that small and financially opaque firms are less likely to apply for credit. Most interestingly, they find that firms applying for credit rarely are denied credit.
- *Chakravarty and Xiang* (2013; 10 countries, 8,000 firms) find that discouraged firms differ across developed and developing countries; and that larger firms, more transparent firms, and firms with stronger banking relationships are less likely to be discouraged.

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Methodology: Classification of Firms



Methodology: Explanatory Variables

Owner Characteristics

- Experience Management
- Domestic vs. Foreign owned
- Gender

Firm Characteristics

- Age
- Size
- Growth
- Legal form
- Industry
- External auditor



Environmental Characteristics

- City Size (rural vs. City)
- GDP growth
- GDP per capita
- Inflation
- Year Dummies (2006-2011)

Market maturity

- Developed vs. Developing countries

Methodology: Univariate and Multivariate Test

- Once we have classified each firm, we calculate univariate statistics for each group and test for significant differences in means across groups
- We then run a sequence of three logistic regression models to explain each step of the credit approval process:
 - 1. Need credit? (Yes or No?)
 - 2. Apply for credit? (Yes or No?)
 - 3. Get credit? (Approved or Denied?)
- We further analyze whether the results differ between developing and developed countries

Data

- Our data are taken from the World Bank's Enterprise Surveys.
- WB conducted these surveys in 99 countries between 2006 and 2011.
- Since 2006: A "Global Methodology" makes the surveys comparable across countries and years)
- Our final sample includes 41,991 firm-year observations from 80 countries over the 2006 – 2011 period.

Data

- Limitation of the WBES:
 - Some data gathered are based on subjective perceptions of the owners and managers of the firms
 - Some key information about firms that typically are required by banks when a company applies for a loan (performance indicators, capital structure, margins, etc.) are not included in the survey data.

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Descriptive Statistics: Need vs. No-Need Firms

(1) Variable	(2) All	(3) Need	(4) No Need	(5) Difference	(6) <i>t</i> -Statistic
Observations	41,991	28,129	13,862		
Firm Characteristics					
Age	17.378	17.475	17.181	0.294	1.77**
lnSales	16.663	16.835	16.299	0.536	15.79***
Salesgrowth	0.369	0.385	0.336	0.049	4.67***
Corp	0.560	0.549	0.582	-0.033	-6.47***
NonCorp	0.440	0.451	0.418	0.033	6.47***
Externalauditor	0.456	0.446	0.475	-0.029	-5.50***
Construction	0.062	0.061	0.063	-0.002	-1.04
Restaurant_Hotel	0.032	0.026	0.044	-0.018	-8.89***
OtherServ	0.095	0.093	0.098	-0.005	-1.51*
Textiles	0.130	0.140	0.111	0.029	8.71***
Manufacturing	0.325	0.332	0.311	0.021	4.34***
Food	0.126	0.131	0.118	0.013	3.66***
Retail_Wholesale	0.230	0.217	0.255	-0.038	-8.50***

Descriptive Statistics: Need vs. No-Need Firms

Variable	All	Need	No-Need	Difference	t-statistic
Owner Characteristics					
Experiencemgmt	17.833	17.840	17.820	0.020	0.16
Domesticowned	0.914	0.930	0.882	0.048	15.40***
Foreignowned	0.086	0.070	0.118	-0.048	-15.40***
Femaleowner	0.364	0.371	0.349	0.022	4.40***
Maleowner	0.636	0.629	0.651	-0.022	-4.40***
Market Characteristics					
Smallcity	0.280	0.266	0.308	-0.042	-8.84***
Largecity	0.720	0.734	0.692	0.042	8.84***
GDPgrowth	5.720	5.806	5.546	0.261	4.19***
GDPpercapita (\$000)	4.831	4.630	5.239	-0.609	-13.21***
Inflation	7.638	7.666	7.579	0.087	1.40*
Year2006	0.320	0.320	0.318	0.002	0.32
Year2007	0.181	0.190	0.163	0.027	6.90***
Year2008	0.218	0.204	0.249	-0.045	-10.26***
Year2009	0.151	0.141	0.174	-0.033	-8.64***
Year2010	0.122	0.136	0.092	0.044	13.85***
Year2011	0.008	0.010	0.004	0.005	6.54***

Descriptive Statistics: Discouraged vs. Applied Firms

(1) Variable	(2) Need	(3) Applied	(4) Discouraged	(5) Difference	(6) <i>t</i> -Statistic
Observations	28,129	16,902	11,227		
Firm characteristics					
Age	17.475	19.319	14.699	4.620	24.12***
lnSales	16.835	17.384	16.020	1.364	35.80***
Salesgrowth	0.385	0.401	0.361	0.040	3.23***
Corp	0.549	0.657	0.386	0.271	46.13***
NonCorp	0.451	0.343	0.614	-0.271	-46.13***
Externalauditor	0.446	0.534	0.314	0.220	37.90***
Construction	0.061	0.064	0.056	0.008	2.89***
Restaurant_Hotel	0.026	0.017	0.040	-0.023	-10.93***
OtherServ	0.093	0.093	0.093	0.000	0.14
Textiles	0.140	0.134	0.148	-0.014	-3.23***
Manufacturing	0.332	0.344	0.313	0.031	5.47***
Food	0.131	0.134	0.126	0.008	1.92**
Retail_Wholesale	0.217	0.213	0.224	-0.011	-2.22**

Descriptive Statistics: Discouraged vs. Applied Firms

Variable	Need	Applied	Discouraged	Difference	t-Stat
Owner characteristics					
Experiencemgmt	17.840	19.321	15.609	3.712	26.71***
Domesticowned	0.930	0.927	0.935	-0.008	-2.70***
Foreignowned	0.070	0.073	0.065	0.008	2.70***
Femaleowner	0.371	0.396	0.334	0.062	10.61***
Maleowner	0.629	0.604	0.666	-0.062	-10.61***
Market characteristics					
Smallcity	0.266	0.237	0.310	-0.073	-13.28***
Largecity	0.734	0.763	0.690	0.073	13.28***
GDPgrowth	5.806	5.476	6.304	-0.828	-11.99***
GDPpercapita (\$000)	4.630	5.473	3.362	2.111	43.92***
Inflation	7.666	7.032	8.622	-1.590	-19.97***
Year2006	0.320	0.314	0.328	-0.014	-2.47***
Year2007	0.190	0.124	0.289	-0.165	-33.41***
Year2008	0.203	0.223	0.175	0.048	10.04***
Year2009	0.141	0.154	0.120	0.034	8.13***
Year2010	0.136	0.173	0.082	0.091	23.48***
Year2011	0.010	0.012	0.006	0.006	6.31***

Descriptive Statistics: Denied vs. Approved Firms

(1) Variable	(2) Applied	(3) Approved	(4) Denied	(5) Difference	(6) <i>t</i> -Statistic
Observations	16,902	8,462	8,440		
Firm characteristics					
Age	19.319	21.233	17.400	3.833	14.51***
lnSales	17.384	17.911	16.827	1.084	20.63***
Salesgrowth	0.401	0.356	0.447	-0.091	-5.44***
Corp	0.657	0.642	0.672	-0.030	-4.09***
NonCorp	0.343	0.358	0.328	0.030	4.09***
Externalauditor	0.534	0.554	0.514	0.040	5.27***
Construction	0.064	0.054	0.074	-0.020	-5.17***
Restaurant_Hotel	0.018	0.011	0.023	-0.012	-5.71***
OtherServ	0.093	0.091	0.096	-0.005	-1.27
Textiles	0.134	0.153	0.116	0.037	7.05***
Manufacturing	0.344	0.369	0.319	0.050	6.78***
Food	0.134	0.146	0.122	0.024	4.61***
Retail_Wholesale	0.213	0.176	0.250	-0.074	-11.81***

Descriptive Statistics: Denied vs. Approved Firms

Variable	Applied	Approved	Denied	Diff	t-diff
Owner characteristics					
Experiencemgmt	19.321	20.532	18.108	2.424	13.69***
Domesticowned	0.927	0.924	0.930	-0.006	-1.46*
Foreignowned	0.073	0.076	0.070	0.006	1.46*
Femaleowner	0.396	0.386	0.406	-0.020	-2.73***
Maleowner	0.604	0.614	0.594	0.020	2.73***
Market characteristics					
Smallcity	0.237	0.150	0.325	-0.175	-27.31***
Largecity	0.763	0.850	0.675	0.175	27.31***
GDPgrowth	5.476	6.475	4.473	2.002	23.63***
GDPpercapita (\$000)	5.473	4.616	6.332	-1.716	-25.80***
Inflation	7.032	4.997	9.071	-4.074	-51.04***
Year2006	0.314	0.437	0.192	0.245	35.56***
Year2007	0.123	0.150	0.096	0.054	10.71***
Year2008	0.223	0.001	0.445	-0.444	-81.89***
Year2009	0.154	0.124	0.184	-0.060	-10.70***
Year2010	0.173	0.271	0.074	0.197	34.99***
Year2011	0.013	0.017	0.008	0.009	4.77***

Multivariate Results

(1) Variables	(2) Needcredit	(3) Applycredit	(4) Getcredit
Firm Characteristics			
Age	-0.000 (0.000)	0.001 *** (0.000)	0.000 (0.001)
lnSales	0.010 *** (0.001)	0.016 *** (0.006)	0.007 ** (0.003)
Salesgrowth	0.009 ** (0.004)	0.015 ** (0.007)	0.007 (0.009)
Corp	-0.029 *** (0.008)	0.117 *** (0.020)	-0.009 (0.022)
Externalauditor	-0.023 *** (0.007)	0.144 *** (0.023)	-0.013 (0.023)
Construction	0.049 *** (0.015)	0.038 (0.025)	-0.034 (0.036)
Restaurant_Hotel	-0.088 *** (0.022)	-0.030 (0.040)	-0.067 (0.053)
OtherServ	0.032 ** (0.013)	-0.019 (0.018)	-0.129 *** (0.031)
Textiles	0.080 *** (0.011)	-0.039 * (0.019)	-0.054 * (0.028)
Manufacturing	0.055 *** (0.009)	-0.030 ** (0.014)	-0.047 ** (0.025)
Food	0.054 *** (0.011)	0.018 (0.022)	-0.022 (0.029)

Multivariate Results

	(2) NeedCredit	(3) ApplyCredit	(4) GetCredit
Owner Characteristics			
Experiencemgmt	-0.001** (0.000)	0.002*** (0.001)	0.003*** (0.001)
Domesticowned	0.139*** (0.013)	0.035 (0.040)	0.039 (0.028)
Femaleowner	0.030*** (0.007)	0.008 (0.012)	-0.001 (0.017)

Multivariate Results

	(2) NeedCredit	(3) ApplyCredit	(4) GetCredit
Market Characteristics			
Smallcity	0.010 (0.008)	-0.046*** (0.012)	-0.051*** (0.018)
GDPgrowth	-0.003*** (0.001)		0.007*** (0.002)
GDPpercapita	-0.004*** (0.001)	0.016*** (0.003)	-0.013*** (0.002)
Inflation	0.006*** (0.001)	-0.008*** (0.001)	-0.011*** (0.002)
Year2006	0.071*** (0.011)	-0.085*** (0.015)	0.685*** (0.032)
Year2007	0.086*** (0.011)	-0.182*** (0.017)	0.628*** (0.037)
Year2009	-0.003 (0.014)	-0.043** (0.019)	0.608*** (0.036)
Year2010	0.119*** (0.013)	-0.014 (0.027)	0.593*** (0.045)
Year2011	0.204*** (0.022)	-0.063 (0.050)	0.555*** (0.045)

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Summary and Conclusions

In this study, we use data on more than 41,000 SMEs in 80 countries surveyed by the World Bank to analyze the availability of credit around the world.

Following Cole (2009), we classify firms into one of four mutually exclusive groups:

- no-need,
- discouraged,
- denied, and
- approved.

We analyze differences in these groups using both univariate and multivariate tests.

Summary and Conclusions

Overall, we find that a “no-need” firm:

- is older and smaller than a firm that needs credit;
- is more likely to be organized as a corporation and to have an outside auditor;
- is more likely to be owned by a male and by a foreigner; and
- is more likely to be located in a small city and in a country with higher GDP per capita and GDP growth.

Summary and Conclusions

Among firms that need credit, we find that a “discouraged” firm:

- is younger, smaller and growing slower than a firm that applied for credit;
- is much less likely to be organized as a corporation or to have an external auditor;
- is less likely to run by an experienced management team or to be owned by a foreigner or female; and
- is more likely to be located in a small city and in a country with higher inflation and lower GDP per capita but with higher GDP growth.

Summary and Conclusions

Among firms that apply for credit, we find that an approved firm:

- is older, larger, and growing faster;
- is less likely to be organized as corporations but more likely to have an external auditor;
- is more likely to be run by more experienced management team and to be owned by foreigner and a male; and
- is more likely to be located in a large city and in a country with lower inflation and GDP per capita but higher GDP growth.

Summary and Conclusions

- As compared with results from Cole (2009) for U.S. SMEs, we find that firms around the world:
 - Are much more likely to need credit (67% vs. 55%)
 - Are much more likely to be discouraged from applying for credit (39% vs. 28%),
 - Are much more likely to be denied credit (50% vs. 20%) when they need and apply for credit.
- In summary, credit is much less “available” around the world than in the U.S., so that policies to improve the availability of credit are even more important outside of the U.S.

Summary and Conclusions

- Credit constraints might limit product development and innovation by some firms, possibly harming long-term economic growth.
- Policies to increase information sharing and transparency (for example, by encouraging use of external auditors) may be an effective ways to improve credit availability.

Summary and Conclusions: Limitations

- The reason why a firm is discouraged from applying for a loan is not clear, e.g., are borrowers discouraged because of high interest rates, large collateral requirements, etc.:
 - Non-economic reasons (such as discrimination) and thus true impediments of promising firms/projects?
 - Or financial difficulties of the firm?
- Not clear whether the large fraction of discouraged and denied borrowers reflects missed growth opportunities or whether it is the result of a useful screening of weak applicants
- Interesting data, such as profitability, capital structure, etc. are not available from the World Bank Enterprise Surveys.