

文献解读

Financial Dependence and Growth

AER, 1998

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RZ 1998：研究背景和问题

❖ 金融与经济增长的关系

- Schumpeter (1911)/Goldsmith (1969): 金融发展促进经济增长
- Robinson (1952): 金融发展只是经济增长的副产品

❖ King & Levine (1993): 利用跨国数据, 说明初始金融发展水平能够预测未来10-30年的经济增长

- 90年代初跨国经济增长实证分析潮流
- 因果性问题: 遗漏变量或领先变量

❖ 问题: 金融发展是否能成为促进经济增长的原因?

RZ 1998的贡献

- ❖ RZ从公司金融理论出发，通过
金融发展⇒
降低企业外部融资成本、减轻融资约束⇒
促进企业更有效投资
这一特定机制，检验金融发展对经济增长的促进作用
- ❖ 上述机制预测：对外部融资依赖更高的行业在金融发展程度更高的国家应该增长的更快
- ❖ RZ利用跨国行业数据，控制国家、行业固定效应，成功验证了上述理论预测，从而第一次提供了因果性证据说明金融发展可以促进经济增长

RZ 1998结论的说明

- ❖ RZ特别强调他们的发现不是证明金融发展本身可以“带来”经济增长，而是“促进”：
finance as a lubricant, essential no doubt, but not a substitute for the machine
 - Re-paraphrasing words in Rondo Cameron (1967)
- ❖ 经济增长本身，落实到企业能否“遇到”能够带来更好实际回报的投资机会，并有效的利用这些投资机会

Rondo Cameron *Banking in the Early Stage of Industrialization*

A simple analogy may serve to emphasize the point. A machine cannot operate satisfactorily without lubricants. Different types of machines may require different amounts and types of lubricants, but for every type of machine there is an optimum amount and optimum quality or grade of lubricant. Too much or too little will cause the machine to malfunction, or at least reduce its efficiency. Similarly, if the wrong kind of lubricant is used the machine will not function properly. Metaphorically, finance is the lubricant of the process of economic growth, and the banking system is the chief dispenser of finance.

Rondo Cameron *Banking in the Early Stage of Industrialization*

Or take a more realistic analogy. Transport facilities are generally regarded as essential for economic growth. A relatively widespread transportation network may exist in advance of the inception of industrialization (some facilities, however rudimentary, must exist for it to begin). More frequently, the transportation network and manufacturing industry develop together in response to the complex interactions of supply and demand. From the standpoint of growth, the question of which is the leading or lagging sector is less important than the character and efficiency of the transportation system, given the technological possibilities. The same is true of the financial system: it may be simultaneously growth-induced and growth-inducing, but what really matter are the character of its services and the efficiency with which it provides them.

同期文献

- ❖ Demirgüç-Kunt & Maksimovic (1998): “Law, Finance, and Firm Growth,” JF
 - 跨国界面回归、解释变量内生性更强
- ❖ Jayaratne & Strahan (1996): “The Finance-Growth Nexus: Evidence from Bank Branch Deregulation,” QJE
 - 美国80年代放松银行分支机构设立管制的自然实验
- ❖ Levine & Zervos (1998): “Stock Markets, Banks, and Economic Growth,” AER
 - 跨国回归、更注重发现相关性而非因果性
- ❖ 同样以交叉项取胜：Kashyap and Stein (2000) AER

RZ 1998：理论基础

❖ 宏观经济学、经济增长模型

- Greenwood & Jovanovic (1990 JPE): 金融发展可以提高企业的投资效率

❖ 公司金融

- Jensen & Meckling (1976), Myers & Majluf (1984): 代理问题、不对称信息造成外部融资的成本高于内部融资
- 金融发展可以降低外部融资成本
- Greenwood & Jovanovic 的理论分析也可以视为等价于降低融资成本（提高企业投资净收益）

❖ 简单、直接的理论预测：金融发展通过降低外部融资成本让更依赖于外部融资的行业增长更快

RZ 1998: 实证设计

❖ 截面回归:

$$Growth_{j,k} = constant + \sum_j \beta_j D_j + \sum_k \alpha_k D_k + \gamma Share_{j,k} + \delta ED_j \times FD_k + \epsilon_{j,k}$$

❖ j, k 表示行业、国家, D_j, D_k 表示行业、国家虚拟变量

❖ $Growth$ 表示行业经济增加值增长率; $Share$ 表示行业经济增加值占该国的份额; ED 表示外部融资依赖 (external finance dependence); FD 表示金融发展

❖ 理论预测的实证检验: δ 是否显著大于0

RZ的关键创新：外部融资依赖的度量

- ❖ RZ使用美国制造业上市公司80年代财务数据，先计算各企业外部融资依赖指标

$$ED_{i,j} = \frac{\text{企业}i\text{资本支出} - \text{企业}i\text{现金流}}{\text{企业}i\text{资本支出}}$$

其中现金流等于经营性现金流减去净运营资本投资（存货改变量+应收账款改变量-应付账款改变量）

- ❖ 然后对制造业下各行业所有企业的 $ED_{i,j}$ 取中位数，得到衡量各行业外部融资依赖的指标 ED_j
 - RZ还计算了行业中成熟企业和新企业的 ED_j ，结果前者远低于后者

低融资依赖行业

TABLE 1—PATTERN OF EXTERNAL FINANCING AND INVESTMENT ACROSS INDUSTRIES
IN THE UNITED STATES DURING THE 1980'S

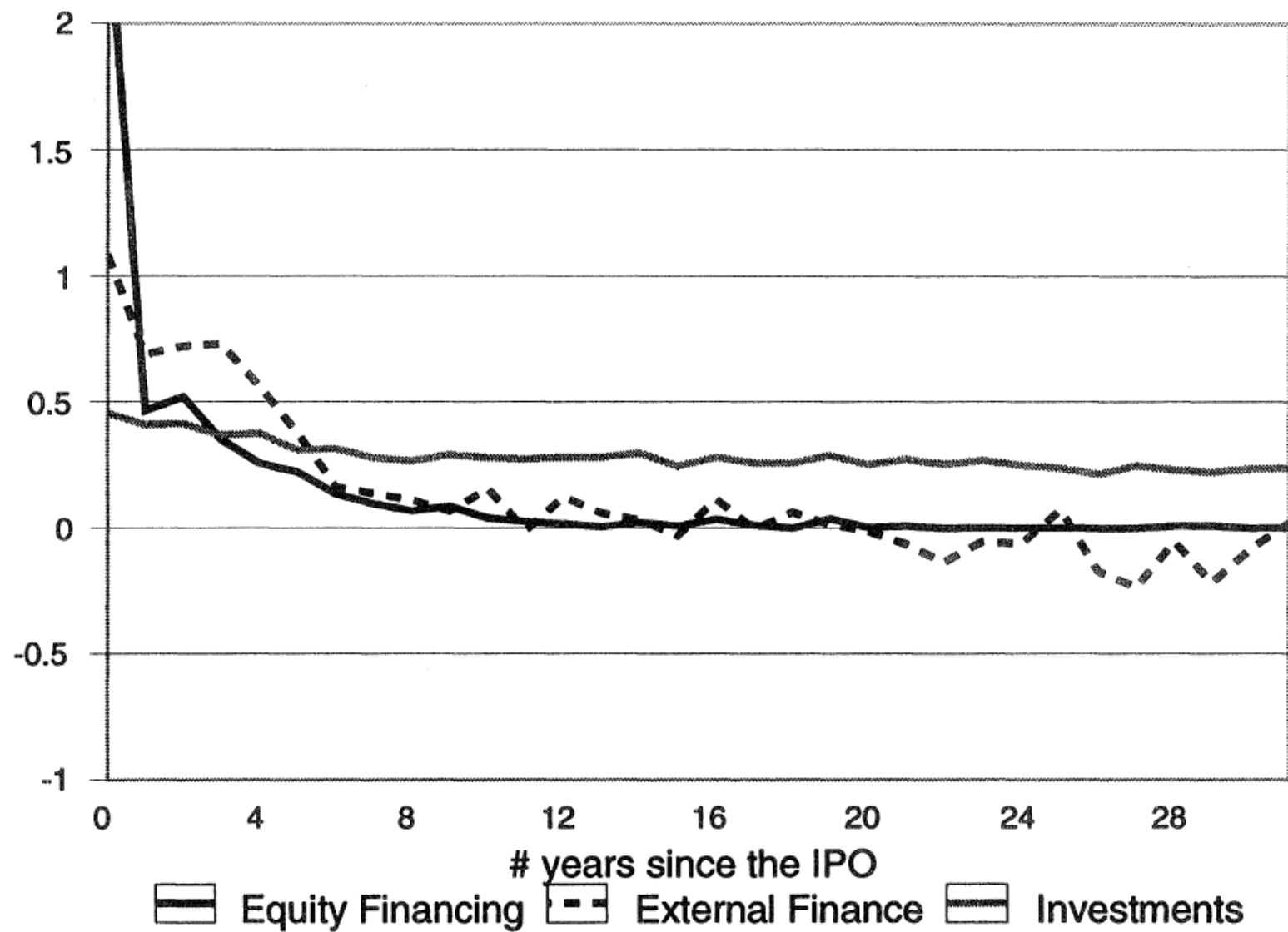
ISIC code	Industrial sectors	All companies		Mature companies		Young companies	
		External dependence	Capital expenditures	External dependence	Capital expenditures	External dependence	Capital expenditures
314	Tobacco	-0.45	0.23	-0.38	0.24	—	—
361	Pottery	-0.15	0.20	0.16	0.41	-0.41	0.13
323	Leather	-0.14	0.21	-1.33	0.27	-1.53	0.16
3211	Spinning	-0.09	0.16	-0.04	0.19	—	—
324	Footwear	-0.08	0.25	-0.57	0.23	0.65	0.26
372	Nonferrous metal	0.01	0.22	0.07	0.21	0.46	0.24
322	Apparel	0.03	0.31	-0.02	0.27	0.27	0.37
353	Petroleum refineries	0.04	0.22	-0.02	0.22	0.85	0.28

高融资依赖行业

TABLE 1—*Continued.*

ISIC code	Industrial sectors	All companies		Mature companies		Young companies	
		External dependence	Capital expenditures	External dependence	Capital expenditures	External dependence	Capital expenditures
390	Other industries	0.47	0.37	-0.05	0.28	0.80	0.49
362	Glass	0.53	0.28	0.03	0.28	1.52	0.33
383	Electric machinery	0.77	0.38	0.23	0.29	1.22	0.46
385	Professional goods	0.96	0.45	0.19	0.33	1.63	0.52
3832	Radio	1.04	0.42	0.39	0.30	1.35	0.48
3825	Office and computing	1.06	0.60	0.26	0.38	1.16	0.64
356	Plastic products	1.14	0.44	—	—	1.14	0.48
3522	Drugs	1.49	0.44	0.03	0.32	2.06	0.47

企业生命周期与成熟企业



外部融资依赖指标的理想性质

- ❖ RZ希望 ED_j 外生性越强越好：理想的 ED_j 只应当捕捉行业技术层面的原因，如制药业对外部融资的依赖高于烟草，源于不同的行业技术特征
- ❖ 然而，一般企业的 ED_j 反应了企业对外部融资的需求和市场对外部融资的供给两个因素，而后者正是RZ的研究对象

为何使用美国上市企业数据计算 ED_j

1. 当一国资本市场处于完美状态时，外部融资供给只取决于市场要求的回报率：在该回报率上，资金供给具有完全弹性。美国有世界上最发达的资本市场，而美国的上市公司应该具有最不受限制的融资能力
2. 外部融资的计算需要比较完善的财务数据披露
 - 现在数据可得性对更多的国家都不是问题

为何美国上市企业的 ED_j 可以用在其他国家

1. 大部分成熟企业不需要外部融资；而新企业对外部融资的需求很可能是由于世界范围内的技术进步冲击
2. 各行业现金流特征在不同国家具有较高一致性；RZ也用现金流/资本支出和加拿大上市企业数据计算的 ED 来检验了结果的一致性
3. 80年代美国处于产业前沿，而很多国家可能滞后美国10-20年；RZ也用美国70年代上市公司的 ED_j 验证了结果的一致性
4. RZ承认 ED_j 对外部融资依赖的衡量有噪音，但这种噪音倾向于降低实证检验的显著性

RZ 1998的数据样本

- ❖ RZ使用了41个国家的制造业行业和国家层面数据：行业经济增加值，国家金融发展指标 FD_k ，后者测度如下：
 - 等于一国国内信贷和股票市值总和与GDP的比值
 - ✓ King & Levine 1993的标准度量方法
 - 会计标准：Center for International Financial Analysis and Research (CIFAR)对各国会计标准的打分
 - ✓ 每个国家至少3家企业披露的报表中是否包含事前指定的90个指标
 - ✓ 进一步使用工具变量：LLSV法系指标，1阶段包含个体、时间固定效应
- ❖ 样本总量1100左右

RZ 1998主要结果

- ❖ 基准数据和回归设定：对所有 ED_j 和 FD_k 的变量定义，回归结果 δ 都显著为正
- ❖ 进一步，RZ讨论了为什么外部融资依赖越大的行业在金融发展程度越深的国家能增长的更快：更高的行业增长率主要来自新企业/新工厂的设立，而这些企业最受外部融资约束下降的影响

基准回归结果

Variable	Financial development measured as					
	Total capitalization	Bank debt	Accounting standards	Accounting standards in 1983	Accounting standards and capitalization	Instrumental variables
Industry's share of total value added in manufacturing in 1980	-0.912 (0.246)	-0.899 (0.245)	-0.643 (0.204)	-0.587 (0.223)	-0.443 (0.135)	-0.648 (0.203)
Interaction (external dependence × total capitalization)	0.069 (0.023)	—	—	—	0.012 (0.014)	—
Interaction (external dependence × domestic credit to private sector)	—	0.118 (0.037)	—	—	—	—
Interaction (external dependence × accounting standards)	—	—	0.155 (0.034)	—	0.133 (0.034)	0.165 (0.044)
Interaction (external dependence × accounting standards 1983)	—	—	—	0.099 (0.036)	—	—
R^2	0.290	0.290	0.346	0.239	0.419	0.346
Number of observations	1217	1217	1067	855	1042	1067

稳健性：使用年轻企业测算外部融资依赖

Variable	Financial development measured as					
	Total capitalization	Bank debt	Accounting standards	Accounting standards in 1983	Accounting standards and capitalization	Instrumental variables
Industry's share of total value added in manufacturing in 1980	-0.911 (0.287)	-0.904 (0.286)	-0.568 (0.234)	-0.616 (0.252)	-0.293 (0.149)	-0.571 (0.233)
Interaction (external dependence × total capitalization)	0.021 (0.012)	—	—	—	-0.004 (0.008)	—
Interaction (external dependence × domestic credit to private sector)	—	0.034 (0.019)	—	—	—	—
Interaction (external dependence × accounting standards)	—	—	0.046 (0.021)	—	0.045 (0.022)	0.058 (0.028)
Interaction (external dependence × accounting standards 1983)	—	—	—	0.038 (0.019)	—	—
R^2	0.283	0.283	0.341	0.236	0.415	0.340
Number of observations	1150	1150	1008	808	984	1008

进一步检验：企业规模与新增企业数量

Variable	External dependence measured using					
	All firms		Young firms		Mature firms	
	Growth average size	Growth number	Growth average size	Growth number	Growth average size	Growth number
Industry's share of total value added in manufacturing in 1980	-0.620 (0.217)	-0.312 (0.154)	-0.635 (0.256)	-0.252 (0.179)	-0.624 (0.220)	-0.282 (0.152)
Interaction (external dependence × accounting standards)	0.051 (0.043)	0.115 (0.037)	-0.021 (0.029)	0.078 (0.024)	0.125 (0.055)	0.131 (0.041)
R^2	0.498	0.314	0.500	0.302	0.492	0.310
Number of observations	951	975	899	922	923	947
Differential in real growth rate	0.3	0.7	-0.2	0.6	0.4	0.4

稳健性：FD测量误差，以及倒向因果

Variable	Human capital	Economic development	Above median	Below median
Industry's share of total value added in manufacturing in 1980	-0.386 (0.137)	-0.422 (0.134)	-0.437 (0.178)	-6.079 (1.932)
Interaction (external dependence × accounting standards)	0.191 (0.072)	0.149 (0.055)	0.161 (0.065)	0.161 (0.066)
Interaction 2 (external dependence × average years of schooling)	-0.002 (0.003)	—	—	—
Interaction 3 (external dependence × log of per capita income in 1980)	—	0.000 (0.005)	—	—
R^2	0.413	0.418	0.548	0.390
Number of observations	1006	1042	522	545
Differential in real growth rate	1.0	0.9	0.9	1.0

稳健性：投资机会与外部融资成本（内部现金流，优序融资）

Variable	Cash flow intensiveness	Investment intensiveness	Both	Both measured for 1980
Industry's share of total value added in manufacturing in 1980	-0.588 (0.201)	-0.653 (0.205)	-0.639 (0.205)	-0.639 (0.207)
Interaction (internal cash flow × financial development)	0.482 (0.153)	—	-0.261 (0.196)	-0.595 (0.295)
Interaction 2 (investment intensiveness × accounting standards)	—	0.623 (0.221)	0.443 (0.283)	0.800 (0.299)
R^2	0.343	0.345	0.345	0.344
Number of observations	1067	1067	1067	1035
Differential in real growth rate	-0.7	1.4	0.5	1.6