

Cross-Country Variations in Capital Structures: The Role of Bankruptcy Codes

Viral V. Acharya, London Business School and CEPR

Joint work with Rangarajan K. Sundaram & Kose John

1 Introduction

- ▶ Bankruptcy codes vary substantially across different countries in the rights they confer upon different claimants in the event of distress.
 - Some systems are “debt-friendly.” For example, the UK.
 - Others are more “equity friendly.” For example, the US.

- ▶ The code affects ex-post outcomes for creditors, so ex-ante borrowing costs for firms. As such, it “should” have a first-order effect on the financing mix of a firm.

- ▶ This positive question has not, so far, been a major focus of theoretical studies.

- ▶ Empirically too, the evidence is at best mixed and inconclusive (see especially, Rajan and Zingales, 1995).

Introduction & Motivation (Cont'd)

► Our objectives:

1. Theoretical: To develop a model which relates the bankruptcy code to capital structure choices, in particular, in which bankruptcy costs are *endogenous* to the bankruptcy code.
2. Empirical: To test the model's implications, and more generally, to explain observed cross-country variations in capital structures in a parsimonious way.

2 Contributions of our Paper

► Theoretical contributions:

- We provide a simple but rich model of capital-structure choice in which bankruptcy costs are endogenous to the bankruptcy code.
- We show that a critical element of the link between bankruptcy codes and capital structures is the anticipated *liquidation value* of the firm's assets.

- Specifically, we show that

Ceteris paribus, the difference between the optimal debt levels under a system that is relatively equity-friendly and one that is relatively debt-friendly decreases as liquidation value increases.

- Intuition for the result?

Contributions of our Paper (Cont'd)

► Empirical findings:

- We use firm-level data from the US and the UK over the period 1990–2002.
- We test our theory using multiple measures of leverage, different proxies for measuring liquidation values, and non-parametric and regression-based tests.
- Within each approach, we also look at the impact of treating cash as negative debt, and of controlling for other factors (size, etc).
- In all cases, we find the evidence strongly supports the theory. The support gets stronger (sometimes substantially so) when cash is treated as negative debt.
- In a separate paper (Acharya, Leng, and Sundaram), we have extended the tests to include all G-7 countries and find similar results.

3 The Model

- ▶ The time-line on the next page describes the model.
- ▶ Continuations in distress are regulated by the bankruptcy code in place. A bankruptcy code is relatively more debt-friendly than another code if the likelihood of continuation decisions being made by debtholders is higher.
- ▶ It is ex-post efficient to continue the firm if $q = \bar{q}$, and to liquidate the firm if $q = \underline{q}$.
 - The inefficiency from continuing a firm conditional on $q = \underline{q}$ is measured by $(\alpha - \underline{q}L)$.
 - The inefficiency in liquidating a firm when $q = \bar{q}L$ is measured by $(\bar{q}L - \alpha)$.
- ▶ Trades off of deadweight costs of inefficient continuations against the tax benefits of debt determines optimal F^* .

t=0

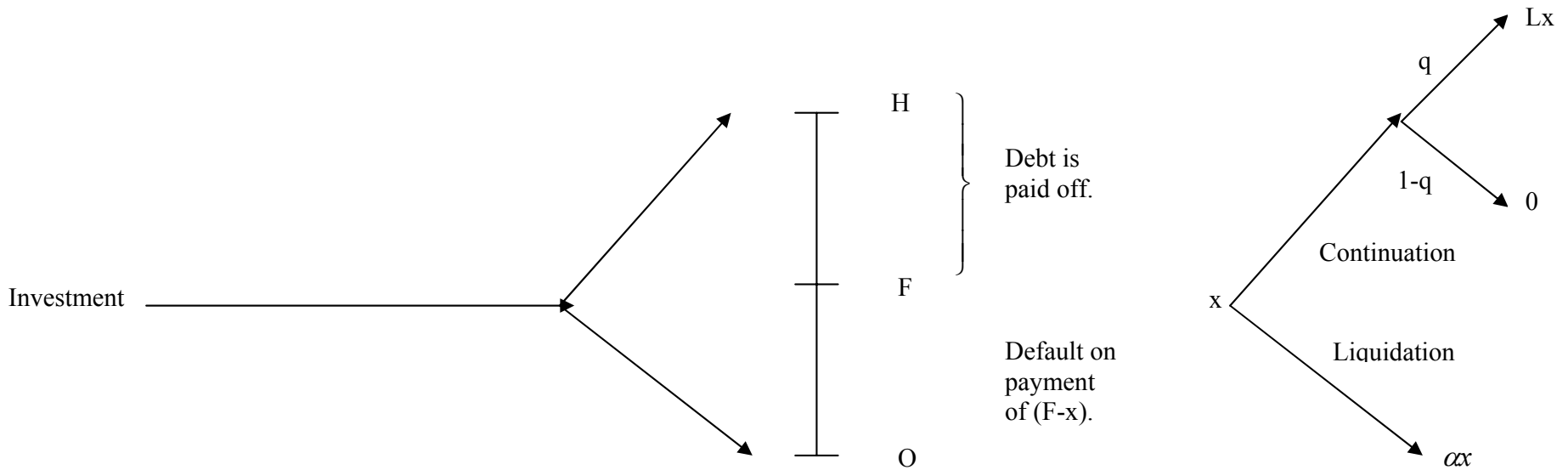
- Firm owners choose optimal level of debt F
- Investment is undertaken

t=1

- Debt payment F is due.
- Cash-flow x is realized.
- Debt is paid off ($x > F$) or firm defaults ($x < F$).
- Continuation prospect q is realized:
 $q = \bar{q}$ or $q = \underline{q}$, each with prob 0.5.
- Continuation or liquidation decision is made depending on the bankruptcy code.

t=2

- Continuation or liquidation payoffs are realized.



Firm Values and Optimal Debt Levels

► Firm value given a choice of debt F :

$$V(F) = \bar{V} - \frac{1}{H} \left\{ \int_F^H \tau(x - F) dx + \pi \frac{1}{2} \int_{x^*}^F (\bar{q}L - \alpha) x dx + (1 - \pi) \frac{1}{2} \int_{x_1^*}^{x_2^*} (\alpha - \underline{q}L) x dx \right\}.$$

► Optimal debt level F^* :

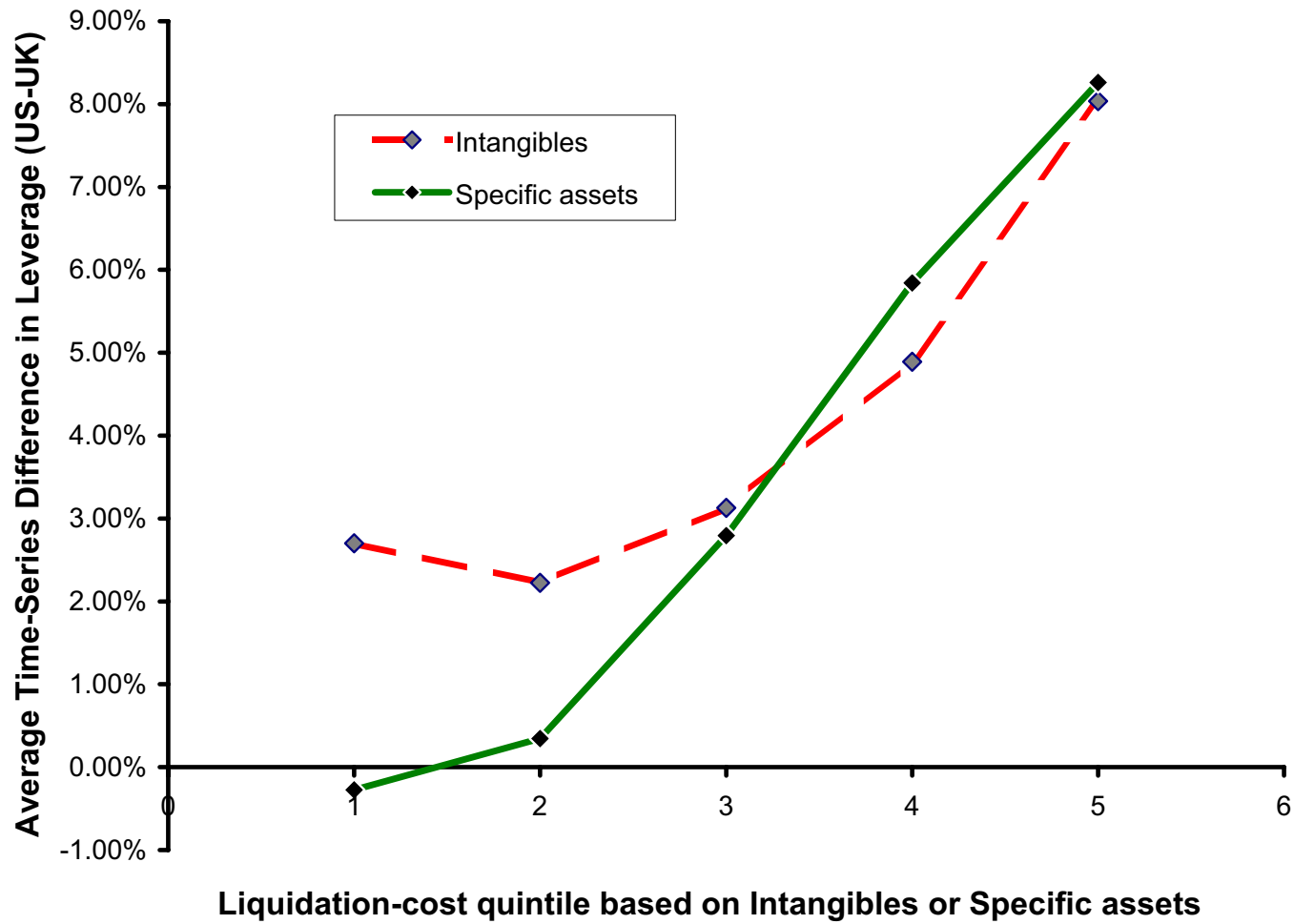
$$F_{\pi}^*(\alpha) = \frac{\tau H}{\tau + \frac{1}{2} \pi (\bar{q}L - \alpha) Z_D + \frac{1}{2} (1 - \pi) (\alpha - \underline{q}L) Z_E} \quad (1)$$

Main Result

► In words, the main result says that

- for low liquidation values α , a relatively equity-friendly code involves a greater use of debt than a relatively debt-friendly one, but at high liquidation values, the reverse is true; and
- the *difference* in debt levels between the relatively equity-friendly code and the relatively debt-friendly one decreases as liquidation value increases.

The second result forms the basis of our empirical work later in the paper.



Intuition for the Results

- ▶ When liquidation values are low, continuation is more likely to be efficient.
- ▶ This reduces the severity of deadweight losses from excessive continuations under an EFS, but increases the deadweight losses from excessive liquidations under a DFS.
- ▶ This leads to a higher use of debt under an EFS than under a DFS.
- ▶ The opposite line of reasoning suggests that at high liquidation values, one should expect a higher use of debt under a DFS than under EFS.

4 The Empirical Tests

- ▶ Data from Worldscope from 1990-2002 for the UK (debt-friendly) and US (equity-friendly).
- ▶ We use two (inverse) proxies for anticipated liquidation values: *asset-specificity* and *intangibles*.
 - Asset-specificity = (Machinery & Equipment)/Assets.
 - * Berger, Ofek and Swary (1996), Stromberg (2001), Acharya, Bharath and Srinivasan (2002).
 - Cash and Land are more fungible assets, rest are intermediate.
- ▶ In these terms, our main result is that the difference in leverage ratios between EFS and DFS is an *increasing* function of the proxy.
- ▶ Two sets of tests: Regressions and Non-Parametric

Regression-Based Tests

- ▶ Our first series of tests utilizes regression analysis, and attempts to explain the cross-sectional variation with an interaction effect between the bankruptcy code (country dummy) and the proxy for liquidity.
- ▶ We employ both measures of leverage, both (inverse) proxies of liquidation costs, and do panel estimation as well as Fama and MacBeth (1976) methodology.
- ▶ The theoretical prediction is that the interaction coefficient for the US should exceed that for the UK.
- ▶ This prediction is strongly supported: the difference is significant in a variety of specifications in which we include country-fixed effects, time-fixed effects, and interaction of control variables (profitability, size, book-to-market) with country dummies.
- ▶ We find that the results support the theory even more strongly when cash is treated as negative debt in calculating the leverage of the firm.

Panel A: Asset Specificity as Liquidation Value Proxy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Specificity * UK	6.71%	6.47%	6.84%	6.54%	16.59%	18.41%	16.98%	18.71%
	(4.97)	(4.84)	(5.07)	(4.9)	(8.48)	(9.32)	(8.67)	(9.47)
Specificity * US	9.79%	9.71%	9.71%	9.65%	27.40%	26.90%	27.37%	26.91%
	(12.98)	(12.89)	(12.89)	(12.82)	(23.78)	(23.62)	(23.76)	(23.62)
Profitability * UK	-15.19%	-14.18%	-14.66%	-13.43%	0.89%	-6.39%	2.57%	-4.53%
	(-6.77)	(-6.56)	(-6.55)	(-6.21)	(0.19)	(-1.42)	(0.56)	(-1.01)
Profitability * US	-13.71%	-13.09%	-13.74%	-13.24%	-2.40%	1.31%	-1.92%	1.56%
	(-13.71)	(-13.6)	(-13.75)	(-13.75)	(-1.28)	(0.71)	(-1.02)	(0.85)
Sales * UK	2.04%	1.86%	2.06%	1.84%	3.37%	4.69%	3.39%	4.67%
	(11.88)	(20.32)	(12)	(20.1)	(12.28)	(31.6)	(12.37)	(31.44)
Sales * US	2.23%	2.14%	2.20%	2.13%	5.01%	4.48%	4.98%	4.49%
	(25.36)	(28.66)	(25.07)	(28.5)	(34.84)	(37.66)	(34.62)	(37.59)
Q * UK	-2.18%	-2.29%	-2.10%	-2.24%	-7.13%	-6.27%	-6.96%	-6.14%
	(-9.16)	(-10.6)	(-8.87)	(-10.4)	(-16.09)	(-14.94)	(-15.73)	(-14.65)
Q * US	-3.50%	-3.55%	-3.43%	-3.47%	-7.91%	-8.21%	-7.74%	-8.03%
	(-32.66)	(-34.09)	(-32.21)	(-33.6)	(-40.44)	(-43.28)	(-39.81)	(-42.63)
R-squared	16.22%	15.80%	15.91%	15.49%	28.97%	28.44%	28.63%	28.12%
constant	yes	yes	yes	yes	yes	yes	yes	yes
country dummy	yes	no	yes	no	yes	no	yes	no
year dummy	yes	yes	no	no	yes	yes	no	no

H0: difference of coefficients between US and UK is zero

	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats
Specificity	1.99	2.12	1.86	2.03	4.76	3.75	4.57	3.62
Profitability	0.60	0.47	0.38	0.08	-0.67	1.60	-0.91	1.26
Sales	0.97	4.06	0.76	4.27	5.31	-1.91	5.13	-1.65
Q	-5.13	-5.42	-5.12	-5.29	-1.60	-4.28	-1.61	-4.17

Panel B: Intangibles as Liquidation Value Proxy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intangibles * UK	-2.45%	-2.36%	-4.10%	-4.11%	9.81%	13.30%	6.54%	9.81%
	(-0.98)	(-0.98)	(-1.64)	(-1.72)	(2.67)	(3.84)	(1.77)	(2.82)
Intangibles * US	14.55%	14.84%	14.67%	15.00%	36.84%	36.98%	36.19%	36.45%
	(8.82)	(9.07)	(8.98)	(9.26)	(16.66)	(17.02)	(16.58)	(16.95)
Profitability * UK	-3.24%	-3.24%	-2.36%	-2.33%	13.76%	8.80%	15.40%	10.46%
	(-1.07)	(-1.12)	(-0.78)	(-0.81)	(2.43)	(1.61)	(2.71)	(1.91)
Profitability * US	-18.03%	-18.84%	-18.06%	-19.11%	-5.46%	-5.74%	-4.58%	-5.41%
	(-9.77)	(-10.7)	(-9.81)	(-10.86)	(-1.87)	(-2.03)	(-1.57)	(-1.9)
Sales * UK	1.91%	1.89%	1.87%	1.86%	3.34%	4.28%	3.27%	4.22%
	(8)	(16.27)	(7.81)	(16)	(10.18)	(24.96)	(9.93)	(24.68)
Sales * US	2.16%	2.28%	2.13%	2.28%	4.31%	4.35%	4.26%	4.38%
	(17.42)	(24.71)	(17.19)	(24.78)	(23.9)	(32.83)	(23.68)	(33.05)
Q * UK	-3.12%	-3.15%	-2.89%	-2.89%	-7.61%	-6.98%	-7.25%	-6.57%
	(-9.6)	(-10.58)	(-8.9)	(-9.74)	(-13.52)	(-13.17)	(-12.88)	(-12.4)
Q * US	-5.14%	-5.07%	-5.07%	-4.97%	-9.72%	-9.72%	-9.57%	-9.49%
	(-29.1)	(-30)	(-28.83)	(-29.52)	(-34.31)	(-35.77)	(-33.89)	(-35.08)
R-squared	14.24%	14.18%	13.86%	13.75%	23.26%	23.11%	22.76%	22.52%
constant	yes	yes	yes	yes	yes	yes	yes	yes
country dummy	yes	no	yes	no	yes	no	yes	no
year dummy	yes	yes	no	no	yes	yes	no	no

H0: difference of coefficients between US and UK is zero

	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats
Specificity	4.19	4.76	4.52	5.22	4.05	4.51	4.32	4.98
Profitability	-2.26	-3.23	-2.30	-3.46	-1.74	-2.15	-1.70	-2.33
Sales	-2.37	-2.18	-2.70	-2.11	-2.21	-3.88	-2.67	-3.63
Q	-0.05	0.95	-0.15	1.07	0.88	1.42	0.86	1.68

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Specificity * UK	4.15%	3.43%			16.80%	17.19%		
	(0.55)	(0.41)			(2.96)	(3.00)		
Specificity * US	9.32%	9.26%			26.20%	25.82%		
	(3.50)	(3.52)			(4.71)	(4.65)		
Intangibles * UK			17.27%	17.12%			25.64%	27.29%
			(0.46)	(0.48)			(0.79)	(0.88)
Intangibles * US			21.10%	20.84%			48.12%	47.33%
			(3.91)	(3.79)			(9.24)	(9.96)
Profitability * UK	-19.68%	-17.46%	-9.80%	-11.96%	-16.58%	-19.06%	3.42%	-6.71%
	(-1.47)	(-1.46)	(-0.34)	(-0.66)	(-0.36)	(-0.52)	(0.06)	(-0.13)
Profitability * US	-16.33%	-15.85%	-17.66%	-16.84%	-7.77%	-4.83%	-9.09%	-6.61%
	(-2.02)	(-1.95)	(-1.56)	(-1.42)	(-0.45)	(-0.28)	(-0.43)	(-0.30)
Sales * UK	1.64%	1.83%	2.14%	1.59%	2.73%	4.80%	3.26%	4.29%
	(1.43)	(5.08)	(3.51)	(1.45)	(1.44)	(5.15)	(5.70)	(4.02)
Sales * US	2.15%	2.09%	2.20%	2.08%	5.00%	4.56%	4.71%	4.33%
	(8.67)	(10.13)	(8.22)	(9.70)	(8.73)	(7.84)	(12.68)	(12.99)
Q * UK	-2.41%	-1.97%	-0.52%	-0.79%	-7.73%	-5.71%	-5.18%	-4.57%
	(-2.02)	(-2.15)	(-0.07)	(-0.11)	(-3.00)	(-3.06)	(-0.67)	(-0.62)
Q * US	-3.75%	-3.78%	-4.36%	-4.43%	-8.22%	-8.49%	-8.82%	-9.06%
	(-5.20)	(-5.34)	(-6.16)	(-6.53)	(-5.99)	(-5.87)	(-8.47)	(-8.41)
R-squared	17.92%	17.50%	18.26%	17.97%	30.63%	30.04%	28.42%	27.92%
constant	yes	yes	yes	yes	yes	yes	yes	yes
country dummy	yes	no	yes	no	yes	no	yes	no

H0: difference of coefficients between US and UK is zero

	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats
Specificity	2.74	2.65			4.93	4.90		
Intangibles			0.36	0.37			2.19	2.07
Profitability	1.42	0.74	-0.92	-1.07	0.89	1.98	-0.80	0.01
Sales	1.46	4.23	0.27	1.53	3.42	-1.64	6.36	0.12
Q	-4.18	-6.06	-1.67	-1.64	-0.60	-4.84	-1.55	-2.05

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Specificity * UK	8.91%	8.55%	8.75%	8.29%	22.33%	24.09%	21.87%	23.45%
	(4.22)	(4.1)	(4.15)	(3.98)	(7.69)	(8.32)	(7.52)	(8.11)
Specificity * US	13.60%	13.43%	13.42%	13.29%	35.13%	34.54%	34.81%	34.31%
	(13.8)	(13.63)	(13.61)	(13.49)	(24.3)	(24.1)	(24.04)	(23.88)
Intangibles * UK	8.81%	8.21%	6.28%	5.53%	27.46%	30.21%	22.06%	24.65%
	(3.23)	(3.11)	(2.3)	(2.09)	(7.02)	(8.02)	(5.65)	(6.58)
Intangibles * US	26.77%	26.39%	26.11%	25.84%	65.50%	64.18%	63.55%	62.48%
	(19.22)	(18.97)	(18.77)	(18.6)	(33.39)	(33.03)	(32.4)	(32.14)
Profitability * UK	-6.31%	-4.70%	-5.07%	-2.95%	19.03%	10.92%	21.58%	14.28%
	(-2.02)	(-1.62)	(-1.62)	(-1.01)	(3.24)	(1.93)	(3.64)	(2.48)
Profitability * US	-14.36%	-13.25%	-13.76%	-12.96%	-5.77%	-1.95%	-4.01%	-0.83%
	(-11.16)	(-10.62)	(-10.63)	(-10.31)	(-2.6)	(-0.9)	(-1.78)	(-0.38)
Sales * UK	2.18%	1.96%	2.23%	1.93%	3.18%	4.33%	3.25%	4.28%
	(10.11)	(16.26)	(10.3)	(16.06)	(10.06)	(23.23)	(10.29)	(22.98)
Sales * US	2.05%	1.90%	2.02%	1.91%	4.16%	3.63%	4.11%	3.67%
	(19.68)	(21.22)	(19.36)	(21.32)	(26.16)	(27.18)	(25.8)	(27.35)
Q * UK	-2.30%	-2.43%	-2.00%	-2.18%	-7.03%	-6.34%	-6.45%	-5.85%
	(-7.28)	(-8.29)	(-6.31)	(-7.4)	(-12.45)	(-11.52)	(-11.3)	(-10.56)
Q * US	-3.58%	-3.68%	-3.43%	-3.50%	-7.45%	-7.78%	-7.15%	-7.44%
	(-27.25)	(-28.76)	(-26.2)	(-27.53)	(-33.89)	(-36.39)	(-32.49)	(-34.81)
R-squared	18.86%	18.30%	18.15%	17.59%	32.65%	31.97%	31.57%	30.93%
constant	yes	yes	yes	yes	yes	yes	yes	yes
country dummy	yes	no	yes	no	yes	no	yes	no
year dummy	yes	yes	no	no	yes	yes	no	no

H0: difference of coefficients between US and UK is zero

	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats	t-stats
Specificity	2.01	2.12	2.00	2.17	3.95	3.25	3.98	3.38
Intangibles	5.88	6.13	6.47	6.83	8.73	8.13	9.50	9.05
Profitability	-2.38	-2.77	-2.57	-3.21	-3.95	-2.15	-4.04	-2.49
Sales	-0.56	-0.60	-0.88	-0.23	2.77	-4.45	2.43	-3.84
Q	-3.76	-4.01	-4.18	-4.22	-0.69	-2.49	-1.14	-2.69

The Non-Parametric Test: Difference of Differences

- ▶ Pool all firms in a given year and sort into 5 quintiles based on the proxy.
- ▶ Separate each quintile into US and UK firms.
- ▶ For each quintile compute the difference in leverage levels between US and UK firms. Call these d_1, \dots, d_5 .
- ▶ Our theory predicts $d_k - d_n > 0$ whenever $k > n$.
- ▶ Test is passed strongly by the data.

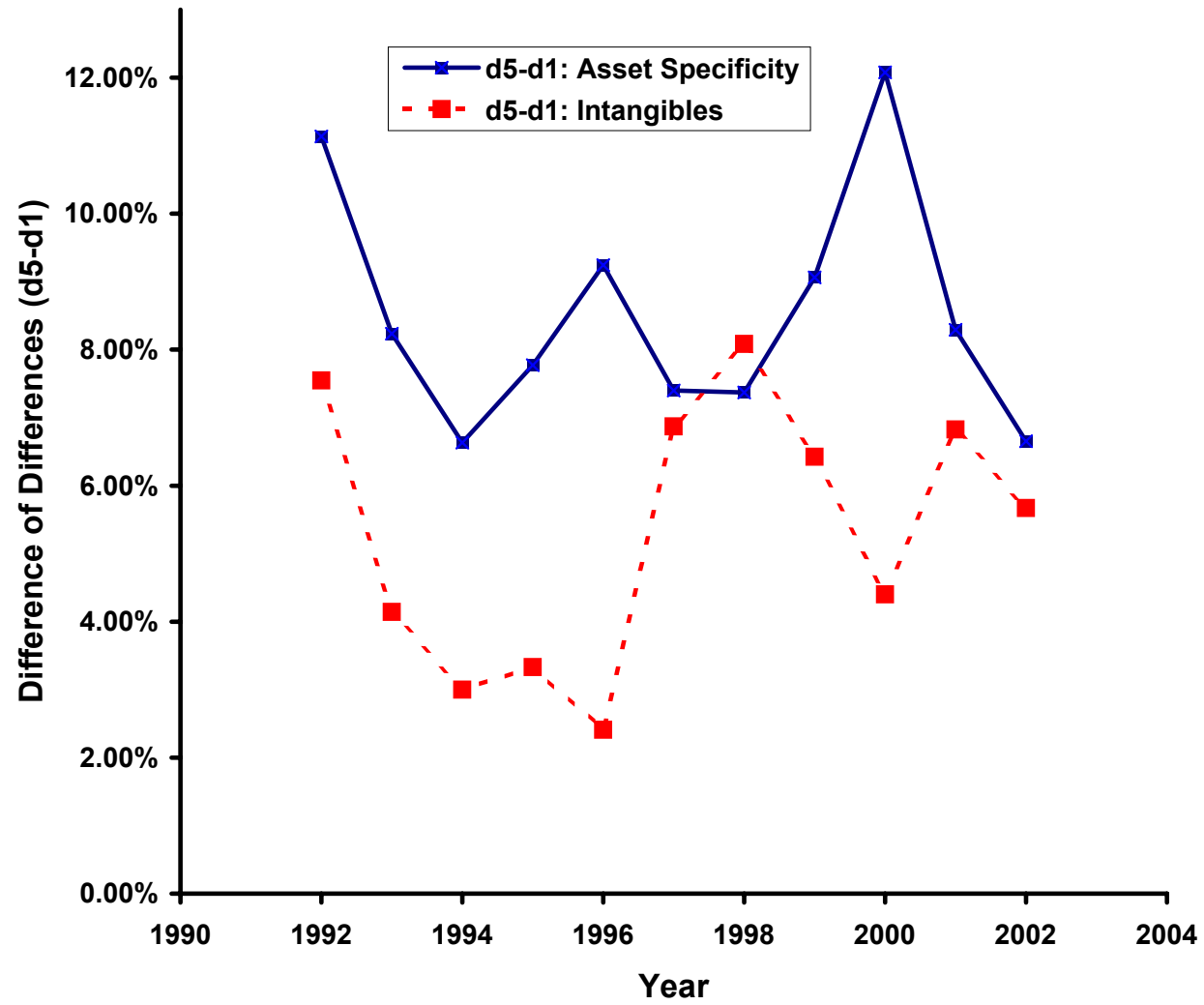
	Median Debt to Total Asset (Book)				US-UK, Q5 - Q1 Diff of Diff Debt to Total Asset	Median Debt to Total Asset (Market)				US-UK, Q5 - Q1 Diff of Diff Debt to Total Asset
	US		UK			US		UK		
	Q5	Q1	Q5	Q1	Q5	Q1	Q5	Q1		
Observations	205	206	81	81		205	206	81	81	
1992	26.09%	9.65%	20.84%	18.81%	14.41%	20.04%	3.50%	16.73%	19.13%	18.94%
	379	379	177	175		379	379	177	175	
1993	24.67%	9.57%	17.56%	13.68%	11.23%	16.88%	4.06%	12.02%	10.87%	11.67%
	628	625	188	186		628	625	188	186	
1994	22.66%	9.76%	16.09%	11.38%	8.19%	16.68%	5.89%	10.75%	7.67%	7.70%
	715	711	187	185		715	711	187	185	
1995	23.25%	7.93%	16.98%	14.41%	12.74%	15.62%	3.71%	11.72%	9.88%	10.07%
	829	824	188	188		829	824	188	188	
1996	22.81%	4.51%	18.12%	13.26%	13.43%	16.67%	1.98%	12.24%	8.21%	10.66%
	918	920	179	179		918	920	179	179	
1997	24.71%	7.49%	18.66%	8.43%	6.99%	16.02%	4.25%	13.25%	5.23%	3.76%
	1108	1115	166	167		1108	1115	166	167	
1998	26.79%	8.09%	21.22%	11.91%	9.39%	19.67%	8.81%	15.38%	8.24%	3.73%
	1102	1100	153	154		1102	1100	153	154	
1999	26.39%	3.46%	21.58%	10.33%	11.68%	17.44%	3.16%	16.53%	7.72%	5.48%
	1012	1009	177	175		1012	1009	177	175	
2000	26.99%	3.13%	23.64%	5.84%	6.05%	20.79%	1.86%	19.07%	2.97%	2.84%
	879	879	186	183		879	879	186	183	
2001	26.00%	4.95%	24.78%	5.96%	2.22%	19.25%	3.25%	21.34%	5.69%	0.35%
	784	778	163	160		784	778	163	160	
2002	25.03%	6.10%	20.92%	10.56%	8.57%	20.64%	4.51%	20.17%	7.16%	3.12%
			Mean		9.54%			Mean		7.12%

	Median Debt to Total Asset (Book)				US-UK, Q5 - Q1 Diff of Diff Debt to Total Asset	Median Debt to Total Asset (Market)				US-UK, Q5 - Q1 Diff of Diff Debt to Total Asset
	US		UK			US		UK		
	Q5	Q1	Q5	Q1		Q5	Q1	Q5	Q1	
Observations	134	135	37	38		134	135	37	38	
1990	29.06%	22.52%	25.91%	17.48%	-1.88%	23.00%	19.73%	19.16%	16.20%	0.31%
	187	187	34	35		187	187	34	35	
1991	32.20%	19.56%	26.86%	17.92%	3.71%	20.15%	13.89%	20.34%	13.26%	-0.82%
	240	239	34	34		240	239	34	34	
1992	29.50%	19.29%	26.16%	16.23%	0.28%	17.65%	13.36%	20.36%	13.28%	-2.79%
	277	276	32	33		277	276	32	33	
1993	28.84%	17.80%	21.04%	15.55%	5.55%	16.78%	11.89%	13.91%	14.66%	5.64%
	426	426	32	33		426	426	32	33	
1994	24.80%	20.03%	22.75%	13.95%	-4.03%	15.21%	15.30%	14.11%	10.86%	-3.34%
	486	491	33	34		486	491	33	34	
1995	26.93%	18.54%	26.93%	16.21%	-2.34%	15.65%	13.36%	15.02%	9.83%	-2.90%
	570	568	47	47		570	568	47	47	
1996	26.66%	19.44%	22.63%	17.52%	2.11%	16.29%	13.70%	14.87%	9.73%	-2.55%
	653	656	54	54		653	656	54	54	
1997	29.53%	17.15%	15.20%	17.35%	14.54%	18.36%	12.26%	7.70%	8.61%	7.01%
	812	806	97	97		812	806	97	97	
1998	31.14%	16.24%	18.54%	19.20%	15.56%	21.30%	11.46%	12.14%	13.14%	10.83%
	819	820	145	148		819	820	145	148	
1999	27.75%	17.77%	17.28%	23.31%	16.01%	18.27%	10.24%	8.55%	17.24%	16.72%
	800	803	173	177		800	803	173	177	
2000	22.74%	14.12%	12.20%	16.65%	13.08%	18.42%	10.61%	4.70%	12.87%	15.98%
	736	734	184	187		736	734	184	187	
2001	24.84%	15.86%	11.49%	17.60%	15.09%	16.26%	10.27%	7.61%	14.79%	13.16%
	659	658	167	171		659	658	167	171	
2002	23.77%	15.85%	12.22%	18.24%	13.94%	16.63%	12.72%	10.33%	15.69%	9.27%
	Mean				7.05%	Mean				5.12%

Non-Parametric Tests: Robustness Checks

- ▶ Cash as “negative debt.” Results actually become stronger.
- ▶ Controlling for other factors (such as profitability, book-to-market, size): Again, very strong support.
- ▶ Aggregated industry-level data (only for asset-specificity): Ditto.

	Liquidation costs proxied by Asset Specificity				Liquidation costs proxied by Intangibles			
	Median leverage		Mean leverage		Median leverage		Mean leverage	
	Cash as negative debt	Net debt truncated at zero	Cash as negative debt	Net debt truncated at zero	Cash as negative debt	Net debt truncated at zero	Cash as negative debt	Net debt truncated at zero
1990					23.50%	23.50%	20.93%	15.90%
1991	31.73%	-2.20%	26.22%	-0.36%	19.36%	19.36%	22.36%	12.40%
1992	31.14%	13.02%	33.80%	11.63%	6.00%	6.00%	12.20%	5.60%
1993	22.23%	12.18%	22.17%	7.81%	4.54%	4.54%	13.06%	3.57%
1994	11.64%	5.36%	15.64%	5.52%	2.06%	2.06%	12.53%	4.39%
1995	21.11%	13.06%	21.22%	7.70%	-0.15%	-0.15%	8.52%	1.59%
1996	29.23%	9.76%	26.82%	7.56%	2.34%	2.34%	9.68%	1.26%
1997	22.00%	8.89%	19.90%	5.11%	17.80%	17.80%	21.18%	10.68%
1998	21.97%	12.73%	22.60%	6.44%	22.72%	22.72%	25.18%	10.92%
1999	36.27%	8.07%	32.59%	8.75%	24.44%	24.44%	26.77%	10.12%
2000	19.78%	2.29%	11.05%	3.01%	29.37%	29.33%	21.83%	9.89%
2001	13.16%	-0.60%	6.11%	-0.25%	24.47%	24.47%	19.77%	11.55%
2002	18.26%	1.54%	14.16%	0.64%	22.45%	22.45%	21.23%	11.18%
Mean	23.21%	7.01%	21.02%	5.30%	15.30%	15.30%	18.09%	8.39%



Conclusions

- ▶ We have presented a theory linking bankruptcy codes to capital structures and provided evidence supporting the theory.

- ▶ Several futures directions of investigation are indicated by our results.
 - Wider series of tests on all G-7 countries.
 - Other aspects of capital structure such as the number and type of creditors.
 - Asymmetric information.
 - Renegotiation in bankruptcy?