EVIDENCIA SOBRE EL CAPM

Identificación de Anomalias

FERNANDO ÜBEDA

CONTRASTACIÓN EN DOS ETAPAS

PRIMERA ETAPA

- N activos rentabilidad estimada durante T periodos. Con ello estimamos las betas

$$r_{it} = \alpha_i + \beta_i r_{mt} + \varepsilon_{it}$$

SEGUNDA ETAPA

- Analizamos si existe una relación entre las betas y las rentabilidades medias

$$\bar{\mu}_i = a_1 + a_2 \beta_i + e_{it}$$

Lintner (1965)

J. Lintner, "Security Prices and Risk: The Theory of Comparative Analysis of AT&Tand Leading Industrials," paper presented at the Conference on the Economics of Public Utilities, Chicago, 1965.

$$\bar{\mu}_i = a_1 + a_2\beta_i + a_3\sigma_{\varepsilon_i}^2 + e_i$$

$$\bar{\mu}_i = 0.108*** + 0.063***\beta_i + 0.237***\sigma_{\varepsilon_i}$$

Contrastar el CAPM significa:

$a_1 \approx r_f$

$a_2 \approx (r_m - r_f)$

$a_3 \approx 0$ ($\sigma_{\varepsilon_i}^2$ medida del riesgo específico)

Muestra: 301 acciones rentabilidad anuale
Periodo: 1954–1963.

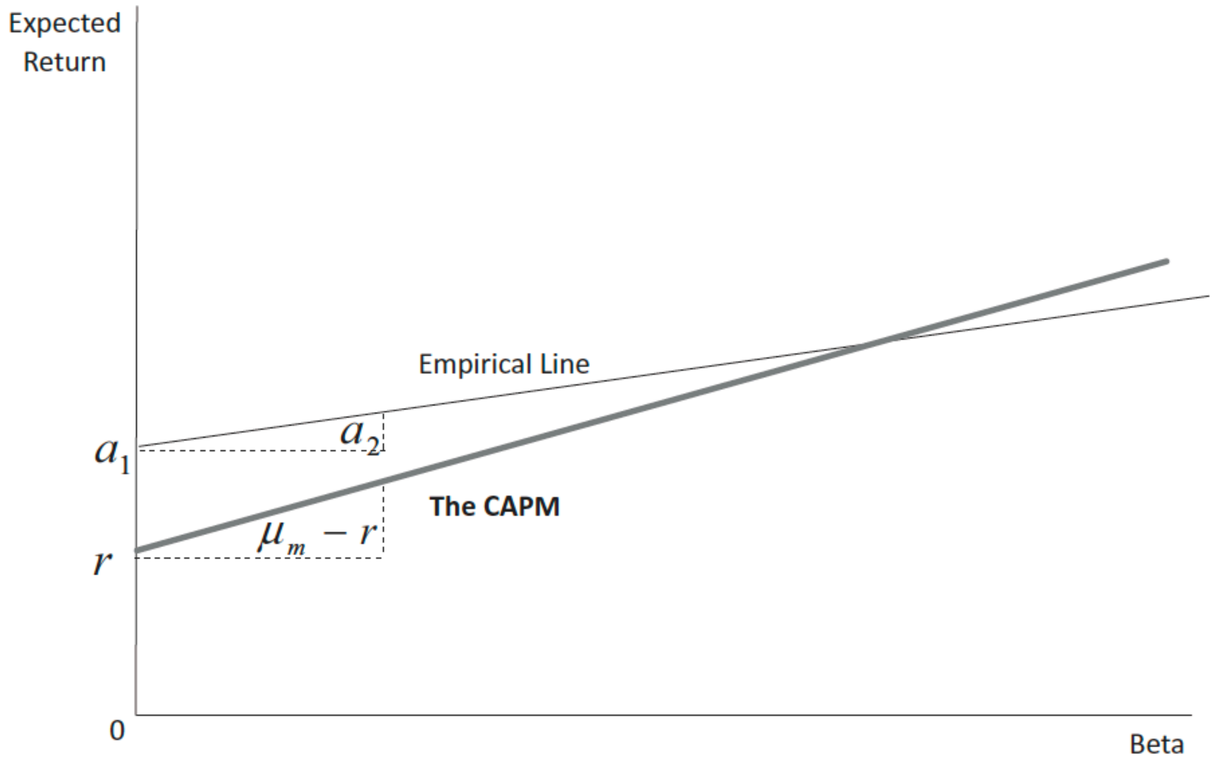

Figure 7.1. The Capital Asset Pricing Model and the Empirical Line.

Levy (1978)

H. Levy, "Equilibrium in an Imperfect Market: A Constraint on the Number of Securities in the Portfolio," American Economic Review, 1978.

$$\bar{\mu}_i = a_1 + a_2\beta_i + a_3\sigma_{\varepsilon_i} + a_4\sigma_i + e_i$$

- Estos resultados explicarían porque se pueden crear carteras con muy pocos activos

Muestra: 101 activos
Datos mensuales
Periodo: 1948–1968.

Table 7.3. *Second-Pass Regressions with Annual Data, 1948–1968: Levy's Study*

$\bar{R}_i =$	a_1	+	$a_2\hat{\beta}_i$	+	$a_3\hat{S}^2_{e_i}$	+	$a_4\hat{\sigma}^2_i$	ρ^2
	0.109		0.037					0.21
	(0.009)		(0.008)					
	$t = 12.0$		$t = 5.1$					
	0.122						0.219	0.38
	(0.005)						(0.029)	
	$t = 22.9$						$t = 7.7$	
	0.126				0.248			0.32
	(0.005)				(0.036)			
	$t = 23.4$				$t = 6.8$			
	0.117		0.008				0.197	0.38
	(0.008)		(0.009)				(0.038)	
	$t = 14.2$		$t = 0.9$				$t = 5.2$	
	0.106		0.024		0.201			0.39
	(0.008)		(0.007)		(0.038)			
	$t = 13.2$		$t = 3.3$		$t = 5.3$			

Source: H. Levy, "Equilibrium in an Imperfect Market: A Constraint on the Number of Securities in the Portfolio," *American Economic Review*, 1978.

Anomalías del CAPM

Banz (1981) (small-cap stocks)

R. W. Banz, "The Relationship Between Return and Market Value of Common Stocks," Journal of Financial Economics, 1981.

$$\bar{\mu}_i = a_1 + a_2\beta_i + a_3 Size + e_i$$

- Size: capitalización bursátil
- Si estimamos el modelo con datos anuales los efectos desaparecen

Muestra: Todas las acciones de la bolsa de New York Stock
Datos mensuales
Periodo: 1926–1975

Period	Market-Size Coefficient	*t*-value
1936–1975	–0.00052	–2.92
1936–1955	–0.00043	–2.12
1956–1975	–0.00062	–2.09
1936–1945	–0.00075	–2.32
1946–1955	–0.00015	–0.65
1956–1965	–0.00039	–1.27
1966–1975	–0.00080	–1.55

Source: Taken from Table 1 of the paper, see footnote 11.

Fama and French (1992)

E. F. Fama and K. R. French, "The Cross-Section of Expected Stock Returns," Journal of Finance, 1992.

- B: beta
- ME: Valor de mercado de las acciones
- BE/ME: valor en libro de los recursos propios por valor de mercado
- A/ME: valor en libros de los activos por valor de mercado de las acciones
- A/BE: activo por valor contable del equity
- E/P: beneficio por acción partido por precio

Table 7.4. *Average Slopes (t-Statistics) from Month-by-Month Regression of Stock Returns on β, Size, Book-to-Market Equity, Leverage, and E/P: July 1963–December 1990*

B	Ln(ME)	Ln(BE/ME)	Ln(A/ME)	Ln(A/BE)	E/P	Dummy E(+)/P
0.15						
(0.46)						
	–0.15					
	(–2.58)					
–0.37	–0.17					
(–1.21)	(–3.41)					
		0.50				
		(5.71)				
			0.50	–0.57		
			(5.69)	(–5.34)		
					0.57	4.72
					(2.28)	(4.57)
	–0.11	0.35				
	(–1.99)	(4.44)				
	–0.11		0.35	–0.50		
	(–2.06)		(4.32)	(–4.56)		
	–0.16				0.06	2.99
	(–3.06)				(0.38)	(3.04)
	–0.13	0.33			–0.14	0.87
	(–2.47)	(4.46)			(–0.90)	(1.23)
	–0.13		0.32	–0.46	–0.08	1.15
	(–2.47)		(4.28)	(–4.45)	(–0.56)	(1.57)

* ME, market equity; BE, book equity; A, book value of total assets; EP, earnings per share divided by stock price; E(+), positive earnings.

Source: E. F. Fama and K. R. French, "The Cross-Section of Expected Stock Returns," *Journal of Finance*, 1992.

Muestra: Todas las acciones de la bolsa de New
Datos mensuales
Periodo: 1963–1990