

A Cross-national Comparison of R&D Expenditure Decisions: Tax Incentives and Financial Constraints*

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Abstract

We provide evidence on the impact of tax incentives and financial constraints on corporate R&D expenditure decisions. We contribute to extant research by comparing R&D expenditures in the United States and Canada, thereby exploiting the differences in the two countries' R&D tax credit mechanisms and generally accepted accounting principles. The two tax incentive mechanism designs are consistent with differing views of the degree of financial constraints faced by firms in these economies. Our sample also allows us to explore the effects of capitalizing R&D on Canadian firms. Employing a matched design, we document relations between tax credit incentives and R&D spending consistent with both Canadian and U.S. public companies responding as though they are not financially constrained. We estimate that the Canadian credit system induces, on average, \$1.30 of additional R&D spending per dollar of taxes forgone while the U.S. system induces, on

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Baldwin, J. R. 1997. The importance of research and development for innovation in small and large Canadian manufacturing firms. Government of Canada Statistics Canada Analytical Studies Paper No. 107.

[Google Scholar](#)

Bartov, E., D. Givoly, and C. Hayn. 2002. The rewards to meeting or beating earnings expectations. *Journal of Accounting and Economics* 33 (2): 173-204.

[Web of Science®](#) | [Google Scholar](#)

Beatty, A., P. G. Berger, and J. Magliolo. 1995. Motives for forming research and development financing organizations. *Journal of Accounting and Economics* 19 (2): 411-42.

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Berger, P. G. 1993. Explicit and implicit tax effects of the R&D tax credit. *Journal of Accounting Research* 31 (2): 131-71.

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Bernstein, J. I. 1986. The effect of direct and indirect tax incentives on Canadian industrial R&D expenditures. *Canadian Public Policy* 12 (3): 438-48.

[Google Scholar](#)

Campbell, A. M. 2002. Inventive cash: Financing remains a crucial obstacle to innovation. *The National Post*, March 23, FP7.

[Google Scholar](#)

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Canada, Department of Finance. 1997b. *The federal system of income tax incentives for scientific research and experimental development: Evaluation report*. Ottawa: Department of Finance.

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Canadian Institute of Chartered Accountants (CICA). *CICA handbook*. Toronto: CICA.

[Google Scholar](#) 

Diamond, D. W. 1991. Monitoring and reputation: The choice between bank loans and directly placed debt. *Journal of Political Economy* 99 (4): 688–721.

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Fields, T. D., T. Z. Lys, and L. Vincent. 2001. Empirical research on accounting choice. *Journal of Accounting and Economics* 31 (1): 255–307.

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Gambino, A. J., and M. Gartenberg. 1979. *Industrial R&D management*. New York: National Association of Accountants.

[Google Scholar](#) 

Gilson, S. C. 1997. Transactions costs and capital structure choice: Evidence from financially distressed firms. *Journal of Finance* 52 (1): 161–96.

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Graham, J. R. 1996. Proxies for the corporate marginal tax rate. *Journal of Financial Economics* 42 (2): 187–221.

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Hall, B. H. 1993. R&D tax policy during the 1980s: Success or failure? In *Tax Policy and the Economy*, ed. J. M. Poterba, 7: 1–35. Cambridge, MA: MIT Press.

[Google Scholar](#) 

Hall, B. H., and J. Van Reenen. 1999. *How effective are fiscal incentives for R&D?* A review of the evidence. Working paper no. W7098. Cambridge, MA: National Bureau of Economic Research.

[Google Scholar](#) 

Hines, J. R. 1993. On the sensitivity of R&D to delicate tax changes: The behavior of U.S. multinationals in the 1980s. In *Studies in International Taxation*, eds. A. Giovannini, R. G. Hubbard, and J. Slemrod, 149–93. Chicago: University of Chicago Press.

[Google Scholar](#) 

Hoshi, T., A. Kashyap, and D. Scharfstein. 1991. Corporate structure, liquidity, and investment: Evidence from Japanese industrial groups. *Quarterly Journal of Economics* 106 (1): 33–60.

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Im, K. S., M. H. Pesaran, and Y. Shin. 2003. Testing for unit roots in heterogeneous panels. *Journal of Econometrics* 115 (1): 53–74.

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Income Tax Act. 1985. RSC 1985, c. 1 (5th Supp.), as amended.

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Internal Revenue Code. 1986. As amended.

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Kahle, K., and R. A. Walkling. 1996. The impact of industry classification on financial research. *Journal of Financial and Quantitative Analysis* 31 (3): 309–35.

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Klassen, K. J., and A. Mawani. 2000. The impact of financial and tax reporting incentives on option grants to Canadian CEOs. *Contemporary Accounting Research* 17 (2): 227–62.

[Google Scholar](#)

Krishnaswami, S., P. A. Spindt, and V. Subramaniam. 1999. Information asymmetry, monitoring, and the placement structure of corporate debt. *Journal of Financial Economics* 51 (3): 407–34.

[Web of Science®](#) | [Google Scholar](#)

Matsunaga, S., and C. W. Park. 2001. The effect of missing a quarterly earnings benchmark on the CEO's annual bonus. *The Accounting Review* 76 (3): 313–32.

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Mauer, D. C., and S. H. Ott. 1995. Investment under uncertainty: The case of replacement investment decisions. *Journal of Financial and Quantitative Analysis* 30 (4): 581–605.

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Maydew, E. L., K. Schipper, and L. Vincent. 1999. The impact of taxes on the choice of divestiture method. *Journal of Accounting and Economics* 28 (2): 117–50.

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Moore, J. S., and A. K. Reichert. 1983. An analysis of the financial management techniques currently employed by large U.S. corporations. *Journal of Business Finance and Accounting* 10 (4): 623–65.

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Pittman, J. A. 2002. The influence of firm maturation on tax-induced financing and investment decisions. *Journal of the American Taxation Association* 24 (2): 35–59.

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Rajan, R., and L. Zingales. 1998. Financial dependence and growth. *American Economic Review* 88 (3): 559–86.

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Scherer, F. M. 1991. Changing perspectives on the firm size problem. In *Innovation and Technological Change: An Internal Comparison*, eds. Z. Acs and D. Audretsch, 24–38. New York: Harvester, Wheatsheaf.

[Google Scholar](#)

Schmookler, J. 1959. Bigness, fewness and research. *Journal of Political Economy* 67 (3): 628–32.

[Google Scholar](#)

Shackelford, D. A., and T. J. Shevlin. 2001. Empirical tax research in accounting. *Journal of Accounting and Economics* 31 (1): 321–87.

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Shevlin, T. J. 1987. Taxes and off-balance-sheet financing: Research and development limited partnerships. *The Accounting Review* 62 (3): 480–509.

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Shevlin, T. J. 1990. Estimating corporate marginal tax rates with asymmetric tax treatment of gains and losses. *Journal of the American Taxation Association* 11 (2): 51–67.

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Tillinger, J. W. 1991. An analysis of the effectiveness of the research and experimentation tax credit in a q model of valuation. *Journal of the American Taxation Association* 12 (2): 1-29.

[Google Scholar](#)

Trahan, E. A., and L. J. Gitman. 1995. Bridging the theory-practice gap in corporate finance: A survey of chief financial officers. *Quarterly Review of Economics and Finance* 35 (1): 73-87.

[Web of Science®](#) | [Google Scholar](#)

U.S. Congress, General Accounting Office (GAO). 1989. *Tax policy and administration: The research tax credit has stimulated some additional research spending (GA1.13: 89-114)*. Washington, DC: GAO.

[Google Scholar](#)

U.S. Congress, General Accounting Office (GAO). 1996. *Tax policy and administration: Review of studies of the effectiveness of the research credit (GAO/GGD-96-43)*. Washington, DC: GAO.

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U.S. Congress, Office of Technology Assessment. 1995. *The effectiveness of research and experimentation tax credits (OTA-BP-ITC-174)*. Washington, DC: Government Printing Office.

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Whited, T. W. 1992. Debt, liquidity constraints, and corporate investment: Evidence from panel data. *Journal of Finance* 47 (4): 1425-60.

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